

**ADAPTIVE OR MALADAPTIVE:
EXPLORING ADOLESCENTS' RESPONSES TO
ON-LINE PERSUASION ATTEMPTS**

By

SYDNEY LOUW BUTLER

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I declare that **ADAPTIVE OR MALADAPTIVE: EXPLORING ADOLESCENTS' RESPONSES TO ON-LINE PERSUASION ATTEMPTS** is my own work and all sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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SIGNATURE
(Mr S L Butler)

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DATE

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Summary

ADAPTIVE OR MALADAPTIVE: EXPLORING ADOLESCENTS' RESPONSES TO ON-LINE PERSUASION ATTEMPTS

Technology is changing the structure and dynamics of how humans communicate. Channels of communication are also used for attempts at persuasion, but until now persuasion that (if accepted) would promote the adoption of misinformation could not spread as readily through historical information channels. With the advent of the Internet and World Wide Web this has changed dramatically. In this dissertation it is argued that modern digital communication media such as YouTube, in confluence with what theories of persuasion have to say about how humans deal with persuasion, may create a situation in which misinformation may spread and be accepted on a large scale. The research in this dissertation explores this notion by presenting a group of 120 adolescents who are familiar with the Web with such a misinforming persuasive message. The purpose of which is to determine whether they accept the misinformation presented in the Web-context or are sceptical of it. Different manipulations were done to the persuasive message, known to increase the likelihood of persuasion. The research found that, for this group of participants, no attempt to increase uncritical acceptance of a persuasive message made a statistical difference between different groupings of participants. When intended behaviour was measured in addition to attitude towards the misinformation, participants were even less persuaded. The results are interesting as a starting point for further study, but its generalizability and certain design features must be called into question.

Keywords: cyber-psychology, persuasion, ELM, HSM, YouTube, Social Media, Internet, World Wide Web, Web 2.0

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LIST OF TECHNICAL TERMS

Adaptive: A way of dealing or reacting to a phenomenon that is safe, healthy and logical relative to its nature. An adaptive response when seeing a bear is to play dead, for example.

Maladaptive: A way of dealing or reacting to a phenomenon that is likely to lead to negative consequences. A maladaptive response when seeing a bear is to poke it with a stick.

Sender: The person who “sends” a message, the spokesperson in an advertisement for example.

Sender Attributes: The sender of a message's attributes, such as education, hairstyle, gender, etc.

Receiver: The person who hears and processed a message.

Heuristic: A short-cut in decision making that allows for faster, less mentally intense, decisions at the cost of less accurate decisions. Can refer to a specific heuristic or to a style of cognition.

Heuristic cue: Some aspect of a sender that tends to trigger a heuristic decision making response in a receiver of a message.

CHAPTER 1: ADAPTIVE OR MALADAPTIVE?

1.1 The Context Of Persuasion On The Internet

Beliefs and ideas are powerful forces in human society. Dictators, benevolent or otherwise, have always counted ideas and beliefs as the strongest weapons in their arsenal. For, what use is an army or a population if you cannot move them? Rather than coerce one must convince, because it is much more efficient when people police themselves through their own convictions. Ideas and beliefs are not intrinsically positive or negative - we judge them subjectively, often only in light of their actual or presumed consequences.

What is of more interest is the way in which ideas and beliefs propagate: that is, how do they take root or why do they sometimes die off rather than spread? In his book, *The Selfish Gene* (1976), Richard Dawkins famously likened ideas to genes and how they spread by natural selection. He called these units *memes* which gave rise to the field of *memetics*. As with genes, successful memes get passed on, spreading from one mind to the next.

The invention of the written word gave these memes a new vector of transport. A meme could lay dormant for years on the pages of a book, only to leap into the mind of a reader and, depending on the favour of its memetic environment, be passed on to others through whatever medium is available. The paradigm of memetics is a compelling one, and it has powerful explanatory power that accounts for a wide range of phenomena such as superstitions, cults and their more mature form, organized religion.

Like most (if not all) social science hypotheses, it is doubtful whether memetics will ever have the status of a Popperian scientific theory, owing to its principles being so difficult to test or falsify, but there is no doubt that ideas *do* spread and, for the purposes of the arguments in this chapter, it is better to frame it as a useful metaphor, rather than a scientific framework. In the research reported in this dissertation, the focus was not on the specific mechanisms underlying

belief or the acceptance and adoption of ideas, but rather one of the newest 'vectors' or channels for the dissemination of them: The World Wide Web.

As a species, we use symbolic means, language, in various forms to transfer our thoughts and perceptions to others. Books, recordings, cave paintings, film and every conceivable medium exist solely to amplify, modify and enhance this process. It has been during the last two decades - and especially the last few years - that we have brought to maturation our greatest system for communication yet. This study is focussed exclusively on exploring persuasion that occurs through the channel of Web 2.0 communication, specifically *YouTube* the video sharing service, which is detailed later in this chapter.

Air travel brought with it the possibility that a disease could travel half way across the globe within 24 hours, the *World Wide Web*, as a vector for the spread and transmission of ideas, makes that time period appear positively glacial by comparison. The World Wide Web, as we know it today, has only existed for a relatively brief time, yet it has already brought about a sea of change in the way many human activities are performed.

It should be noted that the World Wide Web (henceforth 'the Web') is a distinct concept from that of the *Internet*. The Internet is the supporting infrastructure linking various computer networks on a global scale, while the Web is a service that runs parallel to many other services that make use of the Internet as foundation.

The Internet's origins can be traced as far back as the 1960s, with the advent of ARPANET, a United States of America military project to create a robust, decentralised, redundant communications system that could withstand severe damage from enemy attack.

What the Internet would eventually become was beyond the scope of its initial conception, since this was several decades before the advent of the personal computer and its widespread presence in the homes of the general public. As with many technologies, the intended purpose and the actual uses found for the new technology are quite different.

While it had existed as a technical concept for nearly fifty years, the first Web page only went online in 1990. Therefore, in terms of public access, the Web and Internet are relatively new factors in human society. Even in such a brief time-span, the adoption of the Web has been phenomenal, outpacing other forms of media. As a case in point: in 1991, South Africans had access to seven television stations and no Web pages. In 2008, there were eighty-five television channels available in South Africa and more than twelve billion individual Web pages (Koenderman, 2010, p.16).

Due to its recency, commenting on the social impact of the Internet is not something which can be done with any authority. It is, however, clear that the potential influence on human society and communication is profound (Giddens, 2005, p.471). A brief, but more detailed history of the origin and development of the Web and Internet is presented in Chapter 2.

1.2 The Dynamics of Human Communication on the Web

The central contention of this chapter, and by extension this dissertation, is that there could be possible negative consequences that are part and parcel of the nature of the Web. The specific negative consequence at issue here is the matter of deciding what information on the Web is credible, trustworthy, or true. Especially since the Web is a fairground for persuaders of various intentions. It is a rare individual who can navigate the Web and never encounter persuasion attempts such as the ones shown in Fig 1.1

Fig 1.1 Examples of online persuasion

**WANT TO START EARNING 600 EUROS PER DAY FULLY AUTOMATICALLY?
GUARANTEED RISK FREE AND FREE OF ANY COSTS**

My name is **Dr. Peter James Hardy**, bsc, PhD.
I was the Head Software engineer for the London Stock Exchange (LSE) from 1993 to 2004.
I want to introduce you to an amazing System i have developed, from which you will earn up to **\$600 per day** and more!
There are no costs involved and it is completely legal!
Simply download the RBP Application and see how easy it is to generate a large income from your own Computer.

“ I made an extra \$10,000 per month! ”

A colleague told me about anyoption and I decided to give it a try. I started trading wisely and began to see high returns. Experience is not required - anyone can succeed!

Evan, Surgeon, 49

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To understand why our new methods of communicating with one another in the modern age can potentially have negative consequences when it comes to making decisions about whether to believe something a Web-based persuader is trying to convince us of, we need to briefly look at the structure, development and dynamics of human communication. The difference in the core structure of how Web and Web 2.0 communication occurs in comparison to how we have communicated in the past is a key pillar of the central argument in this study. This will be dealt with in section 1.2.1.

In section 1.2.2 a common explanation of decision making strategies will be touched upon that is also relevant to the reasoning behind the argument that the new context of the Web is a special case in human communication when it comes to persuasion and false information.

There are many ways of conceptualising and framing the development of human communication over time, but, for the purposes of this argument, the focus will be on a conceptualisation of communication as a progressive decentralisation of information sources.

1.2.1 The Decentralization of the Sources of Knowledge

One of the key attributes of the Internet (and by extension the Web) is its decentralised nature, which distinguishes it from other human communication media. With pre-literate cultures that relied on oral transmission, the keepers of knowledge were figures such as the shaman or tribal leadership,

with the collective knowledge of the group passed from generation to generation orally. For any given member of a social group, there were only a few other people from whom they could draw second-hand knowledge – that is to say, knowledge which was not acquired through direct experience. With the advent of the recording of knowledge, first as images (cave paintings as an example), and eventually as symbols, sources of information became marginally more decentralised. It was no longer always necessary to be within spatial - or temporal - proximity to the communicator. However, very few people were literate, and so the number of possible sources remained relatively limited.

Around the middle of the fifteenth century in Germany, the printing press was invented by Johann Gutenberg, and copies of written information could be mass produced. The general public now did not only receive 'approved' knowledge and information from a literate, elite authority that possessed scarce books, but from a variety of sources. The invention of the press made access to information more affordable. It was now an order of magnitude less expensive to create books due to economies of scale, but the necessary investment was still very high. It remained the domain of those wealthy enough to publish, so this channel of communication was still structured in a way that allowed a central authority to control it.

In terms of authority in the minds of the public, the written word carries more weight than the spoken word since it is presumed the writer has verified and cogitated extensively over the content (Fourie, 2008, p. 92). Newer forms of media such as radio, television and now the Web are slowly becoming to the written word what it had been to oral traditions. According to Fourie:

Today it is no longer a matter of something being true or official because it was written in a newspaper. Rather it is true or official or important because it was on television and/or on the Internet (2007, p. 94).

This, of course, raises a central issue: Why would the medium have any relevance to the perceived truth or importance of a message? Why do receivers of a message consider anything but the factual content of that message when deciding its truth value? Every person is required to make countless

decisions during their lifetime, often based on incomplete information. There is a limit to both the cognitive capacity of every human being and the time available to make a decision. This means that, by necessity, a balance must be struck between the odds of making the best decision weighed up against the resources available to do so. As Mondak puts it:

“Correct decisions are preferable, but precision brings inefficiency; the citizen must balance the competing demands of accuracy and expedience” (Mondak, 1993, p.168).

One way in which we resolve the competition between accuracy and expedience is by means of heuristics.

1.2.2 Heuristics and decision-making

Heuristics are central to understanding persuasion from a cognitive science perspective, a decision sciences perspective as well as the theoretical perspective employed in this dissertation and study. The theoretical perspectives set out in Chapter 2, sections 2.4 and 2.5 do derive from a cognitive science perspective, but the term is not used in exactly the same sense Cognitive Psychologists use it. Heuristics are important because they describe the mechanisms through which many types of decisions are made.

Heuristics, are cognitive short cuts: that is, rules people use to quickly make a decision regarding various problems they encounter in life. Heuristics rely on predictable patterns in the perceived world that have proven effective to a sufficient degree, because they work more often than not they continue to be used. Heuristic processing may play an important role in persuasion specifically because it speeds up the act of information processing (Mondak, 1993).

The term “heuristic” needs some initial clarification here. The term can be found in various disciplines such as economics, decision sciences, programming and cognitive psychology to name a few. In most cases, the term is used in a sense where it refers to specific mechanisms, or rules, which are used to make a decision with minimal information. So, we then speak of the

“availability” heuristic or the “representative” heuristic, which are used to judge the probability of an event intuitively.

It is in this sense, for example, that the term is used in the seminal paper on the availability heuristic by Amos Tversky and Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability* (1973). In this dissertation, the term is not used in exactly the same sense as Kahneman and Tversky did. It is used in the sense suggested by the theoretical frameworks briefly described in Sections 1.2.3.1 and 1.2.3.2 further down in this chapter, and explained in much more detail in Chapter 2. In this sense, the term “heuristic” refers to a *style* of cognition, that is, the use of mental short cuts, rather than specific mental short cuts. We are not interested in specific heuristics, but in whether someone is reasoning *heuristically*.

Earlier, it was mentioned that the written word is seen as more trustworthy, official and important than the spoken word under the assumption that the writer has put more thought into the work. Other aspects can be added to the list that serves to motivate higher trust in the written word. For instance, the action and process of publishing requires a significant investment from various parties, and a time investment from the author. The publisher invests money and reputation on the promise of a profitable return on the sale of the volume. There is also the onus on everyone involved in the publishing of a book to do fact-checking for both reasons of reputation and litigation.

There are many factors surrounding the production of a book that provide good motivation to accept that the content is true and important. Of course, the average reader does not have the ability or motivation to confirm all or even some of these assumptions. It may therefore be *generally* true that a written work is trustworthy for some of the reasons mentioned, but it is not *necessarily* true.

Nonetheless, the heuristic in question could then be: *'If something is written down in a book, then I*

can assume the contents are truthful.' This heuristic allows a person to avoid wasting cognitive capacity on any of the multiple factors that actually have bearing on the veracity of the book. The reader accepts that the contents of the book are factual and focuses on matters they consider more pertinent.

This example is deliberately simplistic. In practice, acceptance would likely be contingent on more elaborate cognition, but, in principle, heuristics are often an effective method of decision-making and problem-solving. Let us suppose the example heuristic that books are true is accurate 95% of the time. Thus, by applying it in everyday life, you would save yourself a substantial amount of unnecessary cognition, but, for 5% of the time (on average), you would be accepting inaccurate information. This is perhaps a minor risk. It may even be that only a small proportion of that 5% consists of serious errors that represent a true detriment or risk to those that accept the information. In this hypothetical situation, the heuristic seems like the best choice for efficient decision-making. It frees up valuable cognitive capacity to be applied to other problems that are perhaps more immediate in nature.

Let us consider, however, that the reality upon which the heuristic is based can change. In the case of the hypothetical example, cultural or economic shifts may remove or diminish some of the factors that make books generally reliable. Alternatively, the heuristic may be mistakenly applied to similar objects (e.g. tabloid newspapers) which do not share those aspects. In either case, the risk of errors in decision-making due to reliance on heuristics could begin to outweigh the benefits in terms of easier decision-making. As Carlson put it, making a sound choices depend on “starting with valid information and reasoning with that information logically” (1995, p.39). This supposition will be revisited shortly.

There are more ways of solving a problem or making a decision than the use of heuristics. In the example above, one may have considered all of the factors that influence the trustworthiness of the text. One may elaborately examine the claims made by an author and analyse the logic of the

arguments; or seek out authors who have made opposite claims and weigh their arguments and evidence against each other. After such a process of elaborate cognition, a decision may be made where the reader accepts - or rejects - the premise or claims.

It should be evident that, if done competently, this method has the best chance of yielding a correct decision. Clearly, there needs to be some motivation present to opt for the more involved method of decision-making. This “central” or “systematic” way of thinking is detailed in sections 2.4 and 2.5 as part of the theoretical overview.

How then are heuristics as discussed above relevant to the decentralisation (the dispersion of control) of communication? To understand the connection between these concepts there are a number of points that have to be made:

- Firstly, heuristics are not conscious phenomena. People do not “choose” to use a heuristic. It is a method of cognition that occurs when certain conditions are met. The theoretical frameworks that are discussed in the next section set out those conditions within the context that is at issue here.
- Secondly, it is the researcher’s intention to argue that this style of cognition is *maladaptive* or ill-suited in a decentralised communication context. The researcher will argue that a person reasoning heuristically rather than critically with a persuasive message runs a much higher risk of consequential harm to themselves and collectively at a societal level.

Before we can come to that part of the discussion we must first briefly touch upon the theories of persuasion that describe the conditions under which heuristic reasoning is likely to occur, in order to demonstrate the central dichotomy that conflicts with decentralised communication methods such as the Web.

1.2.3 A Brief Overview of Theoretical Frameworks

In service of supporting the central argument the two main explanatory theories will be briefly touched upon here. There are two, because they are so similar that it is impossible to mention the one without the other. At their crux, they describe under which conditions a person is likely to engage critically and fully with a persuasive message or alternatively engage heuristically. Each framework of course has its own terminology for these styles of dealing with persuasion, but essentially boil down to the same core concepts.

To pose the question then: Under what circumstances is one likely to choose either the heuristic or critical cognition paths of decision-making? There are two basic theoretical frameworks that approach persuasive message processing along these lines and have substantial support in the literature. (Gass & Seiter, 2004, p.59)

1.2.3.1 The Elaboration Likelihood Model

The first, proposed by Petty and Cacioppo (1986) is known as the Elaboration Likelihood Model (ELM) of persuasion, which posits two paths to interpreting a message: a central and peripheral path. The peripheral path is characterised by a reliance on heuristic processing of messages. Factors such as the similarity of the message-sender, the salience of the message and many other attributes influence how persuaded the receiver of the message is. As the name implies, these factors are peripheral to the actual content of the message. The central route is characterised by increasingly elaborate cognition focused on the content of the message. In other words, the receiver of the message will address the actual claims and information contained in the content critically.

The ELM also describes under which circumstances a receiver of a message is likely to process it centrally or peripherally and also postulates that there is a simple dichotomy between the two types of processing. This dichotomous view is one of the main criticisms levelled against the

ELM, with the suggestion that the central and peripheral routes should rather be seen as lying on a continuum. A receiver of a message is more likely to take the peripheral route if he or she either does not have the ability to process the message centrally or the motivation. The information presented by the sender of the message may be outside of the knowledge base of the receiver; that person may not be intelligent enough; or the subject of the message may be perceived as boring. These factors will cause the receiver to prefer a peripheral approach to message processing.

Receivers may check for simple signs to answer questions such as: “Does this person appear to be an expert? Is this person attractive? Is this person similar to me? Affirmations to questions such as these will increase the chances that the message will be persuasive to the receiver.

In contrast to this, if the message falls within the domain of the receiver's knowledge, or is very salient to the receiver's life, then processing of the message will tend towards the central route. The receiver will scrutinise the message and tend to ignore peripheral sender attributes.

1.2.3.2 The Heuristic-Systematic Model of Persuasion

The second, quite similar, theoretical framework is known as the Heuristic-Systematic Model of persuasion (HSM), first proposed by Shelly Chaiken and Alice Eagly in 1993 (Chen & Chaiken, 1999). Like the ELM, the HSM is a *dual process* theory of persuasion. It proposes two modes of cognition, somewhat analogous to the ELM's two paths. The first mode is known as heuristic processing, and is based on the application of *decision rules* or *heuristic cues*. This mode is analogous to the peripheral route to persuasion of the ELM. The second mode is known as *systematic processing*, which is somewhat like the ELM's central route. One of the central propositions of the HSM is that a balance is struck between insufficient and unnecessary cognition. In other words, the two modes are employed to approach a point where just enough cognition is employed according to a principle of economy. (Ibid.)

The primary difference between the ELM and HSM is that the two processes in the HSM are

not seen as mutually exclusive (or rather in the ELM this is not explicitly stated). The heuristic and systematic modes can counteract one another, together or independently. The propositions of both the ELM and HSM are more fully explored in Chapter 2.

1.2.4 Theoretical Frameworks Applied To Decentralised Communication

What then can these theories tell us about persuasion when it occurs in decentralised communication systems? More specifically, what can it tell us about persuasion in the context of the Web?

It may appear upon casual inspection that the Web is similar to media such as books, newspapers, radio, television and film. There is, however, a very important difference that needs to be taken into account. Even if we assume (for the sake of argument) that most people will heuristically process what they read, see and hear via the old media (books, radio and television) because they do not have the ability or motivation to engage critically with them, the possible harm is tempered by how these media are structured. Mass media such as books, magazines, radio and television are structured in such a way that a single identical message is conveyed to a mass audience. One of the advantages of this is that it is more likely for receivers capable and motivated to process the message centrally to be exposed to the message when it is disseminated. This assertion is made on logical grounds, given that a frequentist statistical view suggests a higher probability of expert receivers being exposed to a mass media message by virtue of the structure of a mass media broadcast. This implies that the majority of receivers will benefit from the significant cognitive investment of the few.

Does this actually happen in practice? Do people in some sense abdicate their cognition to others? Anthony Downs (1957), states that in order to reduce the time and energy invested in informed decision-making, people delegate the filtering of information to others. Mondak was using this as a core argument when exploring heuristic processing in a political context to explain the

phenomenon of American citizen's willingness to comment or hold an opinion on even the most obscure political subjects, despite the unlikelihood that they possessed enough knowledge to do so (Mondak, 1993, p.172).

In addition to this shared cognition, it is relatively easy to bring litigation against mass media sources, since the authors of the message are publicly identifiable. The chain of responsibility is open to scrutiny. This means that such authors need to carefully ensure that the content of their message has been rigorously composed. There are also independent media watchdogs that monitor the content of mass media messages, holding them to account. This is, of course, a prudent course of action, since it is in the public's interest to be safeguarded from misinformation. This does not suggest, however, that the mass media are without fault. There have been many examples of professional media institutions falling victim to scamming or poor rigour. Groups such as the *Yes Men* (Koppelman, 2006) and individuals such as *Joey Skaggs* have managed to fool major news outlets by posing as spokespeople for large corporation or posing as experts in fake subjects. (Joey Skaggs: Messin' with the media. n.d)

The Web is, however, qualitatively different than mass media such as radio and television. First of all, it is more fractured in how it groups communicators. Mass media has a few one-way communications occurring on a massive scale. Communication on the Web has many small scale two-way communications on a global scale. These messages are not exposed to a mass audience, and are much less likely to be seen, heard or read by those capable or inclined to centrally process them. Thus, communication on the Web does not allow those who peripherally process them to benefit from that protection to the same degree as with the mass media.

Nicholas Burbules (2001, p.1) echoes this line of argumentation, stating that determining credibility of sources found on the Internet is problematic, a fact which he does not find surprising given the nature of new networked information and communication systems. There are a number of factors which he lists regarding the nature of the Internet in order to support this view:

- He refers to the ordinary conventions of judging credibility as being overwhelmed by the sheer size and complexity of the Web. Nicholas describes the Web as not being a “normal” reference system. He acknowledges that the differentiation of credible from fraudulent information is not a problem unique or new to the Web, however in the context of the rapidly changing network information system it takes on an entirely new character.
- According to him it is the decentralised nature of the Web that introduces this new dynamic.(Burbules, 2001, p.442). He notes that the referencing and organising systems that institutions such as libraries employ do not exist in the same form on the Internet. In his opinion, the nature of the Web increases the chance of reinforcing prejudice and the risk of confirmation bias.
- He also notes that the self-contained nature of the Internet removes the method of judging credibility by using an independent source. He notes that one of the ways being used to indicate the quality of information found on the Internet is by ranking its popularity. However, it is a logical fallacy to assume that just because something is popular information, it must be correct.

Burbules finally mentions the past speed and growth of information dispersal and circulation.

Almost any user of the Internet has encountered memetic phenomena such as hoaxes, chain letters, viral videos and health scares.

While the nature of Burbules' article focuses on specific central route strategies to determining the credibility of information found on the Web as well as a more philosophical treatment of the issue, his basic premise for problematising the judgement of credibility is equally applicable within the context of this dissertation and study. According to Burbules, it is often hard

enough to get clear answers for queries regarding simple scientific facts (such as the boiling point of radium), for social or political information it is considerably more complex. (2001,p.453)

A paper by Gurri, Denny and Harms (2010) entitled *Our Visual Persuasion Gap* further bolsters this line of argumentation. They argue that that many more images are available now than ever before thanks to the Internet and that people are paying more and more attention to them. They state that the exponential increase in both consumers and producers of visual material on the Internet creates a unique situation. This situation is categorised by fragmentation of the audience, and the destruction of the “top-down” model of communication in the mass media.

Their arguments focus on the use of encoded meanings in the images themselves rather than the words spoken in a video, which is a different paradigm from the one employed in the study that will be reported in this dissertation. Their observation of changing trends with regards to the way society communicates however, closely echoes the one espoused here, from the theoretical viewpoint used in this study.

They predict the prolific rise of the “visual persuader”, one who is the versed in the grammar of images rather than merely the grammar of words. Gurri *et al.* paint a picture of the end of mass communication as we know it, an entirely new paradigms for which there is little precedent. They also hypothesise that the effect of a culture born from Gutenberg's printing press is ill equipped to effectively deal with visual language on this scale.

Although the study put forth in this dissertation does not focus specifically on the narrative analysis of images as was the subject of the paper espousing the idea of the visual persuasion gap, the *motivations for the production of both are nearly identical*. Therefore it is included here to demonstrate converging lines of thought around persuasion and the Web from multiple angles.

To summarise, the assertion in this section is that the ELM and HSM suggest persuasion takes place via heuristic reasoning when the ability and motivation to engage critically with the subject are removed from the equation. In mass media this is not a significant problem because

some people will engage critically with a misinforming message and help to filter out “junk” information.

The very structure of the Web makes this process all but impossible, ergo we should expect misinformation to spread unless people who use the Web adapt their 'heuristics' to compensate for the lower reliability of information or engage critically with the information a persuader is providing more often and more easily than they do in a mass media context.

1.2.5 The Wild West of the Web

In the previous section the structural nature of the Web was characterised as problematic, but surely there must be some way to exert control over the Web? While governments are certainly trying, the Web has proven virtually immune to control. On 22 November 2010, a website named *Wikileaks* published one thousand classified United States diplomatic cables which make up only a small proportion of the total amount of classified cables in possession of the site (Shane & Lehern, 2010). At the same time, Wikileaks sent the full database to a multitude of mass media outlets. They then matched these media outlets release for release as classified information was made public. Efforts by the American government to suppress the releases and litigate against those responsible had proven ineffective. Wikileaks threatened to release all of the information publicly should they be pursued.

In desperation, one American politician even called for Wikileaks to be declared a terrorist organisation in order for special legal dispensation to ruthlessly eliminate the perceived threat (McCullagh, 2010). The leaks have caused diplomatic relations to suffer damage and have caused severe embarrassment to the American government. This incident serves as an example of the difficulty involved when attempting to control the flow of messages on the Web. If the United States government, which is one of the most powerful in the world, is unable to prevent or suppress the transmission of messages, then there is little hope for 'policing' on the Web in any practical manner.

1.2.6 How the Web empowers the user

While we have discussed the major converging points of the central argument presented here, it is necessary to highlight the true scope of communication on the Web to underscore the seriousness of the issue.

Increases in broadband penetration, devices that can connect to the Internet, bandwidth, computing power and the ever falling costs of digital infrastructure are also rapidly transforming the role of the Web in a qualitative way. In recent years, there have been many Web-related developments. Services such as *Wikipedia*, *Facebook*, *Flickr* and *YouTube* have been adopted by the mainstream virtually overnight.

There are two aspects of these services that stand out; each individual is both a producer and consumer of content, and the potential exists to reach a global population of receivers. In theory, any person with Internet access can disseminate a message to any other person who also has the same access. Services, such as those mentioned, make it possible for ideas to spread globally like wildfire.

Let us consider *YouTube* as a case in point. The website went online in 2005 and as of 2010 it is consistently ranked as one of the ten most accessed sites on the Web by the *Alexa* ranking system. YouTube is a site where users can upload video content accessible to any other users of the Web. YouTube is different from older video sharing technologies because of the ease with which video material can be shared and the way that metadata (secondary data that describe the main data) are used to group related material (Cheng, Dale & Liu, 2007).

YouTube exhibits the characteristics of a small-world network, which means that once you have viewed a video on a particular topic, you are automatically presented with related videos, based on the user-provided meta-data (Cheng, Dale & Liu, 2007, p. 6). It is this small-world phenomenon that most strongly underscores the argument that on-line communities such as YouTube cluster messages into small groups and it is therefore different from mass-media such as

television, in a fundamental way.

The sheer scope and size of YouTube after only half a decade of existence are staggering. User generated content production rates for video outstrip traditionally produced media by orders of magnitude, with YouTube producing the same number of individual videos as there are in the entire Internet movie database every fifteen days (Cha, Kwak, Rodriguez, Ahn & Moon, 2007, p.2).

Video content comes in many varieties, including those that are produced by users. One phenomenon on YouTube is that of users who make recordings of themselves discussing various topics. In effect, it is the equivalent of a global soapbox where one can stumble on virtually anything.

1.2.7 The crux of the argument

Given what the psychology of persuasion as it currently stands tells us about how people deal with attempts at persuasion and the apparent trends in New Media development, how ready and able are people to adaptively function in this emerging context? Here 'adaptively' means adopting an appropriately critical perspective regarding the content of messages that originated from the New Media. Although this question concerns all possible participants in this communications context young people are of especial interest. The critical thinking skills required in order to satisfy the "ability" criteria for central processing of messages are typically not formally taught until tertiary education takes place. Indeed, even students at a tertiary level have shown poor judgement when using Web sources. A descriptive study on trends in Web based information use by undergraduate psychology students found that 41% of sources used were non-authorative and just over half were no longer active (Naufel, Briley, Harackiewicz, Johnson, Marzec & Nielsen, 2010,p.1).

It is therefore a primary concern to determine how adaptively such people will reason in the emerging media context described above. In contrast a maladaptive way of reasoning would lead to harmful consequences, following from the adoption of misinformation, as an example. A more robust discussion of why the young adult group is of interest can be found in the second chapter.

1.3 Rationale Of The Study

The topic of the study was selected mainly as a result of the researcher's interests and readings over a period of years. The literature on persuasion coupled with readings on the analysis of media structure, then in turn coupled with a close monitoring of developments in Web and Web 2.0 technology led to the realisation that these areas in combination spell potential trouble.

Typically the rationale section of a research publication would justify the importance or reason for a study in terms of existing problems. In many ways these studies are “after the fact”, the problem already exists and the research is attempting to better understand the phenomena.

In this case the problem does not yet exist, or at the very least it is not yet well documented. At least in the case of Web 2.0 technologies, the problem has been covered in part under the 'old' Web 1.0. As mentioned above, Web 2.0 services, which are the technologies most pertinent to this researcher's arguments here, have been around for half a decade or less. It is rather a case of pre-empting a problem area, framing the question in a timely fashion and helping to lay the groundwork for a new generation of research into the persuasive effects of a communication medium.

Which leads to another important part of the rationale of the study. Studies of the connection between various media and persuasion have been done before, Chapter 2 deals with a few examples of these, but it is clearly time to resurrect old questions for a new context.

In any event, the premise of this study can hardly be characterised as entirely novel: Concerns about the Web as a propagation channel have been published nearly since its inception. Almost prophetically, Earl Carlson published an article in 1995 on the lack of source evaluation in the teaching of critical thinking, just as the Web's public adoption had been set into motion. He underscores the fact that for most of what we know we must depend on others to provide, which makes the ability to judge the credibility of a source imperative. Carlson wrote this piece at a time where he only had to contend with old media as a source of persuasion. Yet, as is argued above, the

degree of potential harm from making an error in credibility judgement between old and new media is profoundly different. Carlson lamented the fact that evaluation of sources was not explicitly taught in critical thinking curricula:

People generally accept sources only if they believe that the sources know the reality of which they speak (expertise) and that they are honest in telling us what they know (trustworthiness). Also, each of us evolves a personal attribution theory, or model, in terms of which we evaluate honesty, and we discount the trustworthiness of sources seen as having conflicts of interest. The pragmatic problem is to evaluate effectively which people can give us the most reliable and valid information about those aspects of the world that we cannot experience directly ourselves” (1995, p.40).

It is at this juncture, building on research in the past performed for another paradigm and looking ahead at dynamics that could emerge, where this dissertation and this research finds its rationale.

1.4 Problem Statement And Aims

The general problem area should be clear from the discussions that have preceded this section, however this section will precisely state the problem and detail what the aims of this dissertation and study are in addressing it.

1.4.1 Problem Statement

The world in which we live is now one in which there is an absolute abundance of information thanks to the development and spread of powerful digital communication technologies such as the Web and especially Web 2.0 technologies.

Some of this information is truthful, helpful and credible. Conversely, some information is misleading, false and if it were accepted as a premise upon which to base further decisions would lead to incorrect conclusions and possible harm. Additionally much of this information is designed specifically to persuade those who encounter it.

In an ideal world, people who are exposed to information from the abundant source of the Web would remain skeptical of information they encounter there, because unlike the Mass Media *anyone* can put information in their path. People would only accept or reject such information after critically engaging with it, and not simply by virtue of irrelevant facts such as the perceived authority of the creator of that information.

However, in the real world, because the knowledge, motivation and ability to engage critically with information is limited in people, uncritical acceptance of information does occur. This is a problem because being persuaded by information from the Web uncritically is a riskier proposition than doing the same with a Mass Media information source.

Therefore it is important to determine whether those who encounter persuasive information on the Web engage with it in an uncritical manner or tend to be skeptical of it. This is especially important for the generation of people for whom the Web is their main and most familiar source of information.

At the moment we do not have much if any information on how those who use the Web as a source of information engage with that information. Therefore, first and foremost we need to explore that engagement in a robust way, that lays a solid foundation for future research on the issue.

1.4.2 Aims of the study

The study that addresses the above problem statement aims to achieve the following:

- Experimentally simulate a situation where subjects of the generation that use Web 2.0 technologies as a source of information are exposed to a persuasive message.
- Manipulate various factors that are known to influence the effectiveness of persuasion attempts for people who are not critically engaging with a persuasion attempt.
- Use the results from that manipulation to infer how those people engaged with the persuasion attempt.

- Confirm or dis-confirm whether, for the population group examined, people engaged in a critical way with the persuasion attempt.

1.5 Significance Of The Study

Why is this study significant? In this section the importance and meaningfulness of the study will be briefly outlined

This study revisits a line of research that has been relatively quiet since the boom in Mass Media during the middle of the 20th Century. This is not to say that research on persuasion in the context of Mass Media has ceased, but the level of interest is no longer at its peak. This study transfers the theory and knowledge of persuasion research in the context of the Mass Media to the context of Web and Web 2.0 technologies.

For the participants who took part in the study, it was significant because they realised that they need to be careful where they place their trust on the Web. For others who read the results and central arguments of this study it should have a similar significance.

It is significant to researchers in the field of persuasion because it highlights the New Media as not being “business as usual”.

The study is also significant from the perspective of Cyber-Psychology, given that the sample of participants are chosen in part due to their familiarity with the Web, giving some insight into persuasion attempts directed on the Web towards those that grew up with the Web in their homes and lives. Those who Prensky has termed “Digital Natives” (2001,p.1)

Finally, the research is significant because it is a study performed in a context that is new, qualitatively different to what we have seen before and will make up a part of the early persuasion research on Web 2.0 technology. As such it may be erroneous or prone to unwarranted assumptions, but could in some small way form part of the foundational body of texts examining this emerging digital communication world.

1.6 Conclusion

After reading the above contents of Chapter One, it is hopefully the case that the reader acknowledges the multifarious nature of the argument set out for this dissertation.

The main premise of the study is that the way human beings have communicated throughout history has changed in fundamental and exponential ways. Web 2.0 technologies are but the latest development in the ongoing communications revolution.

Most knowledge is not obtained through first-hand experience, but from secondary sources such as other people and the media.

Human beings apply two broad strategies when deciding how credible or trustworthy information is. One strategy is to engage critically with the information. The other strategy is to use cues such as the expertise or status of the person conveying the message as an efficient way to determine trustworthiness or credibility.

A central argument in this dissertation is that employing the use of such cues in a mass media context is not a form of risky behaviour, but in a Web-based context it would be.

The question is then set: Would people socialised in the digital domain employ what this study defines as risky behaviour in an online context, or would they use the appropriate critical approach to persuasive messages originating in a Web-based context?

In Chapter 2 literature that will help to contextualise the Internet is reviewed, as well as The Web and Web 2.0 technologies. Research on persuasion, especially from the perspective of the ELM and HSM is also reviewed. The theoretical frameworks touched upon in Chapter One will be discussed in much more detail.

In Chapter Three the design of the research is discussed. The planned analysis of the data, procedures, instrument development and other issues relevant to research design are discussed in detail.

Chapter Four begins with a justification for some of the design and analysis decisions made as a result of the exploratory nature of the study.

Finally, in Chapter Five the discussion and conclusion of the results of the exploration set out. The limitations and flaws of the study are detailed and recommendations are made for future enquiries relative to the problems detailed in Chapter One.

Chapter 2. REVIEW OF THEORY AND LITERATURE

In this chapter the supporting material from literature is cited and the theoretical framework that underscores this study is described in detail.

2.1 Method

The method used to find and review literature has been relatively clear and systematic. Textbooks and articles have been sourced from a number of outlets, specifically the University of South Africa library, EBSCOhost and Jstor. Searches were done using a number of keyword combinations. Examples of these combinations are (the AND Boolean operator is implied): on-line persuasion, Internet persuasion, YouTube, YouTube and persuasion and so on.

All articles with titles that suggested relevance to the research question were saved. The total number of articles was approximately one hundred and fifty. These articles were then kept or discarded on the basis of their abstracts which were perused for relevance. The final step in the literature review process was then to read the remaining articles and integrate their content (and further referrals) into this chapter.

In addition, core theoretical literature was sourced from books and online sources dealing with the Cyber-Psychology domain of this dissertation. Due to the nature of the topic and the lack of formal academic journal articles on the specific topic, much of the literature reviewed here comes from online sources and online journals. However, this is to be expected within a research domain where the topical information appears and is updated on a daily basis.

2.2 A Brief History Of The Internet And The Web

“In 1973, the U.S. Defense Advanced Research Projects Agency (DARPA) initiated a research program to investigate techniques and technologies for interlinking packet networks of various kinds. The objective was to develop communication protocols which would allow networked computers to communicate transparently across multiple, linked packet networks. This was called the Internetting project and the system of networks which emerged from the research was known as the ‘Internet.’”

(Leiner et al., 2009, para. 1)

In this section a brief overview of the development of the Internet and the Web is given as an orientation to the context of the study by way of an historical account. The historical facts of this development are not a disputed subject and as such this section is based almost entirely on the historical articles published by the Internet Society (ISOC) -- “a non-profit organisation founded in 1992 to provide leadership in Internet related standards, education and policy.”. The organisation is “dedicated to ensuring the open development, evolution and use of the Internet for the benefit of people throughout the world.”(Who We are, n.d., para 1) A number of the articles that ISOC hosts as a historical record of Internet development have been authored by the very pioneers responsible for those developments and innovations. Therefore, this researcher had judged this type of resource from ISOC as a primary source of information.

The history of the Internet is quite detailed and complex. The source articles in question had already been intended for consumption by a non-technical audience. This brief overview further attempts to condense the historical account and remove jargon superfluous to the purpose of the study.

The Advanced Research Projects Agency (ARPA) -- today known the Defense Advanced Research Projects Agency (DARPA) -- was the initial point of genesis for what would become the Internet as we know it today. The first head of DARPA’s computer research program, J.C.R. Licklider, introduced the idea of a “Galactic Network” in 1962. This is a concept that was similar to the modern Internet in that it described a worldwide network of inter-connected computers (Leiner et al., 2009).

It was during his time at DARPA that Licklider laid the foundation for ARPANET, gaining support for his network concept from his successors. This initial concept of the Galactic network would not however function well and it wasn't until the information transmission method called "packet-switching" was formulated that the Internet could begin to be successful.

The actual plan for ARPANET has been laid down by Lawrence G. Roberts from MIT in 1966, and his results were published the following year (Ibid.). After a period of refinement, development and infrastructure creation the first node on ARPANET was installed at the Network Measurement Centre at the University of California.

While presenting his work at a conference, Roberts discovered that three other projects that overlapped with his own work had been in development simultaneously. These projects had been running at the Massachusetts Institute of Technology, the US Airforce Research and Development Corporation (RAND) and the National Physical Laboratory (NPL) in the United Kingdom. These projects all contributed to ARPANET, the packet-switching technology developed at the NPL, for example, increased the theoretical speed that data could travel on the network by a factor of almost 25. As mentioned above, without the contributing technological development from these parallel projects the success of ARPANET would have been much less certain.

Subsequently, additional nodes were added at other universities, including Stanford, UC Santa Barbara and the University of Utah. Thus by 1969, there were four host computers linked in the ARPANET. In 1972 an important public demonstration of ARPANET at the International Computer Communication Conference was conducted by Bob Kahn. At the same time, a system of electronic mail (e-mail) was also developed in 1972 which was "a harbinger of the kind of activity we see on the World Wide Web today, namely, the enormous growth of all kinds of 'people-to-people'" traffic."(Leiner et al.2009,p.3)

Because it was the first system of networked computers across different universities, and also includes a basic system of electronic mail, ARPANET I lays all of the basic principles upon which the modern day Internet is founded.

Of course this was many years before personal computers would become widespread and affordable enough to enable worldwide consumer interest and access, but all the necessary components were now ready for when that time would come. Leiner et al. put it most succinctly:

“The Internet has changed much in the...[Text Omitted]...decades since it came into existence. It was conceived in the era of time-sharing, but has survived into the era of personal computers, client-server and peer-to-peer computing, and the network computer. It was designed before LANs existed, but has accommodated that new network technology, as well as the more recent ATM and frame switched services. It was envisioned as supporting a range of functions from file sharing and remote login to resource sharing and collaboration, and has spawned electronic mail and more recently the World Wide Web. But most important, it started as the creation of a small band of dedicated researchers, and has grown to be a commercial success with billions of dollars of annual investment.” (2009, p.14)

The source material consulted here does not yet account for the most recent developments on the World Wide Web such as the social networking, video sharing, blogging, and so forth. Indeed it is difficult to find any academic writing that examines recent Web developments and it is not difficult to understand why. The pace of some modern information technological phenomena is too fast for the research and academic publishing cycle. In the case of the video sharing website YouTube, it was only opened in 2005 (Zimmerman, 2009, p.3). At the time of writing their research in 2009, Leiner et al. could only know that YouTube had existed for a few years so they could only refer to the ‘history’ of the online environment within that time period. If we add to this the fact that the nature of this object labelled “YouTube” does not remain stable, but grows and changes in both a quantitative (that is to say number of users and amount of content) and qualitative (types of content, uses and influences) manner, the difficulties around pinning down this ‘history’ become evident.

YouTube is an example of something called *Web 2.0* technology. This technology is distinct from Web 1.0 in a number of ways, but the features that make it relevant to this study are that it en-

ables and relies on user-generated content. In this, YouTube is joined by other Web 2.0 technologies such as Facebook, MySpace, Flickr, Twitter, etc.

In 2006, merely a year after its inception, YouTube delivered approximately 100 million videos daily (YouTube serves up 100 million videos a day online, 2006). YouTube videos are dominated by entertainment content such as music and movies, but more serious categories such as news, politics and people make up a combined 11.9% of the total number of videos (Cheng, Dale & Liu, 2008, p.231). According to a recent survey in North America, 89% of Internet users in the 18-29 demographics, self-reported that they consume content on video sharing sites, with 36% doing so daily (Jones & Fox, 2009, p.2). As was underscored in Chapter 1, the nature of Web 2.0 technologies such as YouTube represents a dramatic qualitative shift from older types of media. Thus, this also implies that there may also be a qualitatively different degree of threat in terms of spreading misinformation.

2.2.1 The influence of Web 2.0 technologies

The first decade of the 21st century has seen a number of events that are notable on a worldwide stage. In this it is no different than any other era that has preceded it. We are, however, made aware of conflicts and remote events to a much greater degree in modern times thanks to the mass media.

Web 2.0 technology, with its user-generated content, introduces a new dynamic to this exchange. The public does not only enjoy the ability to view remote events in real time across the globe, but also has the power and ability to personally influence such events.

The interface between political activity of a more extreme nature and Web 2.0 technology appears to support this statement. The 2011 civil uprising in Egypt that led to the overthrow of President Hosni Mubarak (Gaudin, 2011.) was preceded by an unheard of event: In an effort to clamp down on social media such as YouTube and Facebook, the existing government of Egypt had disabled Internet access almost entirely. This has been referred to as the “Arab Spring” (“Egypt Shuts Down Internet, Cellphone Services”, 2011). These measures were unsuccessful, as the public made use

of various technologies to circumvent these drastic attempts. This disabling (or limiting severely) of Web 2.0 networks has been echoed since then in Iran, China, Syria and other countries at various times. These governments want to control the flow of information to remain in control – but with limited success. In today’s world, an open and free network is the antithesis of that control.

The phenomenon of the so called “Arab Spring” saw Web 2.0 technologies take a central role in the events. These technologies have played a dual role, allowing rapid organisation of protest action and then making use of citizen journalism that bypassed the state media bodies and institutions (Huang, 2011).

On a smaller scale, social media technology has been used to organise various activities, such as the so-called ‘flash mob’. Flash mobs are usually groups of strangers who come together (often for the first time) and spontaneously perform a dance, prank or other artistic or entertaining action. However, these “flash mobs” are also being subverted for less benign purposes. In a disturbing recent trend, groups of people will descend on a convenience store or other establishment and each grab a handful of merchandise, tripping a shop in seconds. Because these crimes are almost emergent and organic in how they originate, it is very difficult to predict or prevent them. Finding and arresting the perpetrators is similarly problematic.

Social media have forever changed the way that governments conduct their business. Wars are now very personal to the public, when every soldier and civilian carries a phone with a camera and there are no structures to prevent them from putting the material onto international networks, such as Facebook or Flickr, it is very difficult to hide.

Politicians must also be hyper-aware of social media. By many accounts it was Barack Obama's (the President of the United States at the time of writing) intelligent use of social media that was pivotal to his election in 2008. (Carr, 2008)

Zimmerman contends that YouTube plays an important component of political agenda setting, and states that a third of American respondents indicate YouTube as the medium they use to view campaign-related material (2009, p.3).

Interestingly, in the 2012 American elections, presidential candidate Mitt Romney's popularity took a serious blow when he was filmed with a cellular phone insulting a large section of the US population at a party. Social media technologies ensured that the material was seen by everyone who wished to view it. It is not hard to imagine that the election may have turned out very differently were it not for social media. (Watson, 2012)

It is clear that we can say that Web 2.0 communication networks -- such as Twitter, Facebook and YouTube and their more advanced successors -- are poised to transform the way we and future generations communicate with one another and form our frameworks of reality. Media revolutions such as these have happened in the past and we are at the crux of yet another. In fact perhaps this is the most dramatic yet.

2.3 An Overview Of Persuasion Theory And Research

In this section there will be a discussion of the persuasion theory that serves as the theoretical framework supporting this study. There will also be a discussion of published research relevant to the domain within which the study falls, and the specific research question will be set out.

2.3.1 Motivations for the research of persuasion

It is relatively easy to think of motivations for the study of persuasion. Most human endeavour requires co-operation. From founding a nation to finding a life partner, human activity that involves more than one individual inevitably involves persuasion. Understandably, in capitalist Western societies, persuasion is of particular interest to those who wish to sell something. Indeed, many of the papers found during the literature review for this study originated within Consumer Psychology journals.

When you have a product to sell and competitors with the same goal, then any advantage in persuading consumers that they should spend their money on your product is invaluable. A product needn't be some physical thing, either. Political figures in democratic societies must “sell” themselves and their ideas and are “paid” with votes and power, for example. The basic premise remains the same. At all levels of society such examples of persuasion are evident.

The knowledge gained from researching persuasive influence can also be effectively applied, but like knowledge of atomic energy and genetic engineering, those applications can be both negative and positive, relative to a particular context.

Another motivation for persuasion research is that knowledge of effective persuasion techniques can influence people to do certain things, often without the realisation that they have been manipulated. At the same time, people can be inoculated against unwanted persuasion by being made aware of these methods.

Research on persuasion is inextricably linked to the field of attitude research. A large field of study which has enjoyed sustained interest. Attitudes are, in turn, thought to influence behaviour, although the relationship is not as straightforward as one may assume, but subject to a multitude of moderating variables. The premise therefore is that by using the art of persuasion to change attitudes, behaviour can be changed. Once the goal of behavioural modification, influence and control is made clear, it is not difficult to justify the interest in researching persuasion.

2.3.2 An overview of dual-process persuasion theories

On the topic of the theoretical landscape of persuasion, Seiter and Gass (2004, p.45) probably summarise it best: “Persuasion theories are a lot like noses; everybody has one, some big, some small, and no two exactly alike”. As it stands there is no overarching theory of persuasion that even attempts to explain the entire process of persuasion.

There are a multitude of empirical theories of persuasion. Rogers (2007) lists thirty eight minor theories regarding aspects of persuasion and six major theories of how persuasion operates, and this list does not even include his own composite theory.

The complexity and sheer number of variables involved in human communication and persuasion, in particular, go a long way towards explaining why the theoretical state of affairs in the field is so volatile. Indeed, some studies in the area of influence and compliance gaining do not frame themselves within any guiding theory (Gass & Seiter, 2004, p.46).

Certainly for applied research, this is understandable. Especially in the realm of consumer psychology, those who commission the research simply want to know which possible approach to persuasion is more effective and are less concerned with the underlying explanation behind the results of a given study. From the perspective of basic research this is a less tenable situation. The purpose of any science after all is to explain rather than merely describe phenomena.

Given the premise that there is a distinct underlying process that it is feasible to describe in some as yet unformulated theory of persuasion, one might consider current theories of persuasion which have proven reliability within certain contexts to be complementary in nature. Two such theories are discussed in the following sub-sections: the Elaboration Likelihood Model (ELM) and the Heuristic-Systematic Model (HSM) .

Before continuing, the following note must be made, for the sake of clarification:

The term *heuristic* is used quite often within the context of the ELM and HSM. The usage here is, however, distinct from that of cognitive science in general. When the term heuristic is used within the ELM and HSM context, its meaning is best expressed a “rule of thumb” (van Enschot- van Dijk, Hustinx & Hoeken, 2003, p.1)

Arie Kruglanski elucidates the meaning of 'heuristic' well in the context of dual-process models.

Kruglanski explains heuristics as follows:

"In the HSM, source characteristics are regarded as 'heuristic' information, related to simple and general rules of thumb or "heuristics," such as "expertise implies correctness," "friends can be trusted," or "majority opinions are valid." Knowing that a source is a friend, an expert, or member of a majority may then prompt an acceptance of her or his recommendations through an application of the corresponding heuristic." (Kruglanski, Raviv & Bartal, 2005, p.8)

It is in this sense that the term is used throughout this dissertation. Although the definition here refers to the heuristic-systematic model discussed in section 2.5, it also applies to the ELM context.

2.4 The Elaboration Likelihood Model

The first theory of persuasion that will be discussed is the Elaboration Likelihood Model. This theory provides an ideal frame within which to approach the phenomenon of cognition's role in persuasion.

2.4.1 Basic postulates of the Elaboration Likelihood Model

Like much of the research in the field of influence and persuasion, the Elaboration Likelihood Model (ELM) was born within the domain of consumer psychology. As a point of theoretical departure, the ELM has been in a state of active refinement for nearly thirty years and is one of the major theoretical frameworks employed in research on influence. It was first published as a fairly complete concept in 1986 by Petty and Cacioppo. The ELM is based on seven assumptions or postulates (Petty, Rucker, Bizer & Cacioppo, 2003, p.68) and each of these is briefly discussed.

2.4.1.1 The First Postulate of the ELM

The first postulate is the assumption that people want to hold attitudes that are "correct". Of course this does not imply attitudes that are objectively correct, but subjectively relative to each individual. To clarify, it is a foundational assumption of ELM that implies a drive or desire general to all

people to have beliefs or attitudes that are true or generally accepted as being the right ones. In a way this seems trivially true, as it is hard to imagine a person who thinks their attitude is “wrong” but are content to leave it that way. However, this is a necessary basic premise for the theoretical framework. By the admission of the theorists who are responsible for the ELM, this postulate is the one which has not been examined to any great degree (Petty et al.2003,p.83).

2.4.1.2 The Second Postulate of the ELM

The second postulate is that the amount of elaboration that is engaged in, occurs along a continuum. Petty et al. (2003) refer to this as a quantitative dimension of the ELM. So although two people may be placed on a similar place in terms of the amount of elaboration they employ, the specific strategies may still differ in a qualitative fashion. In its original formulation by Petty and Cacioppo in 1986, the ELM seems to imply that the two routes were mutually exclusive. This is a notion that has since been thoroughly dispelled by ELM theorists (Petty et al.2003, p.77). The same sender attribute, such as attractiveness, may influence persuasion through both paths simultaneously with differing effects.

While examining the ELM in an online advertising context SanJose-Cabezudo, Gutierrez-Arranz and Gutierrez-Cillan (2009, p. 306) support this notion and conclude that the peripheral and central paths may act together and even enhance one another.

It is this very complexity and potential for interaction in countless combinations that has meant that an overarching theory of persuasion will only remain an ideal, as well as a strong justification for continued collection of empirical data on the process of persuasion in varying contexts.

2.4.1.3 The Third Postulate of the ELM

The third postulate of the ELM ties in with the second noted above. Each variable can have more than one role in the process of persuasion. A source factor such as ‘expertise’ may serve as a simple cue in low elaboration situations that increase persuasion. In contrast, under high elaboration situations, ‘source expertise’ may actually hinder the process of persuasion. For example if an astro-

nomer is promoting a medical procedure, the variable of source expertise may lead the receiver of the message to recognise a false appeal to authority. To further the complexity, the effect of a variable under both high- and low- elaboration might be the same. The authority of the sender may, for instance, be congruent with the persuasion attempt and add to the persuasiveness under high elaboration. The important point here is that, although the effect of the variable appears the same, the underlying mechanism responsible is different.

2.4.1.4 The Fourth Postulate of the ELM

The fourth postulate of the ELM is aimed at explaining persuasion when the receiver of a message wants to understand the message in an unbiased way, to get to the “truth” in the message without an ulterior motive. Bear in mind that a central concept in the Elaboration Likelihood Model is that ability and motivation influence which path receivers use when processing persuasive messages. The fourth postulate states that when a receiver seeks unbiased scrutiny, variables that affect persuasion directly affect motivation, ability or both to scrutinise the message. If there is no desired outcome, and if the receiver accepts whatever the evidence suggests, then this can be considered objective processing (Petty et al.2003, p.73).

2.4.1.5 The Fifth Postulate of the ELM

The fifth postulate of the ELM addresses the other end of the scale outlined in the fourth. In other words, if a person desires to hold a favourable attitude towards something -- a product they purchased for example -- they are more likely to process a message espousing the opposite view in a biased fashion.

2.4.1.6 The Sixth Postulate of the ELM

The sixth postulate is known as the “trade off postulate” (Petty et al.2003,p.75). This postulate states that the affect a particular processing route (that is central or peripheral) has on attitudes

is offset by the level of issue relevant to elaboration. In low elaboration situations, central route processing will have a weaker effect than peripheral route processing and vice versa.

2.4.1.7 The Seventh Postulate of the ELM

The last of the postulates deals with the strength of attitudes formed as an end product of either of the central or peripheral route. This simply means that attitudes formed by central route processing will be stronger and more resistant to change than those formed via peripheral processing of a message.

A review by Lien (2001) of the ELM in consumer research found that among competing “models of information processing and persuasion” (Lien,2001, p.301), the ELM proved most popular with frequent citation in the fields of cognitive and social psychology.

2.5 The Heuristic-Systematic Model of Persuasion

Like the ELM, the Heuristic-Systematic model (HSM) is an example of a dual process model of persuasion. In the case of ELM, the two processes are central and peripheral processing of persuasive messages. In contrast, in the case of HSM, the two processes are referred to as heuristic-processing and systematic-processing.

In the following section the HSM postulates will be discussed. The purpose of including this discussion here is to demonstrate that, in essence, ELM and HSM are virtually identical in terms of their basic assumptions and constructs. The fact that HSM was independently formulated and yet is so similar to ELM further strengthens the case for using ELM as an interpretive and guiding framework in this study.

2.5.1 The basic postulates of the Heuristic-Systematic Model of persuasion

Heuristic-processing in HSM is analogous to the ELM peripheral route; similarly, systematic-processing in HSM is similar to the central route of ELM. The ELM and HSM models are remarkably similar, but not identical, given that they were conceived of independently. Alice Eagly

and Shelly Chaiken are credited with initially formulating HSM during the 1980s (Seiter & Gass, 2004, p.58). This was also the same time period when Petty and Cacioppo performed their initial work in ELM (Petty & Cacioppo, 1986).

There are some concepts in HSM that complement ELM, especially from a cognitive perspective. Apart from specifically mentioning the simultaneous operation of both processes as a possibility in varying combinations (as mentioned in chapter one), HSM stipulates a sufficiency principle (Chen & Chaiken, 1999). The sufficiency principle in essence assumes that the amount of cognition that can be performed is limited and that cognition is applied economically-- sufficient for the purpose, but no more than that. Apart from these minor complementary features, the ELM and HSM are broadly the same.

2.6 The Unimodel of Persuasion: A Recent Alternative to Dual Process Models

Recently, Hans-Peter Erb and his colleagues have postulated another theoretical model of cognitive processing of persuasive messages and their relationship. They refer to this model as the unimodel of persuasion (Erb, Pierro, Mannetti, Spiegel & Kruglanski, 2007, p.1058). Unlike the ELM and HSM, the unimodel of persuasion does not divorce peripheral cues from the message content, but rather holds that the processing of any information causes bias in any other information. Hans-Peter Erb et al. provided evidence that a preceding message could bias subsequent processing in a way that had been ascribed in previous research to peripheral or heuristic processing. They also indicate a general state of disagreement between the established dual-process theorists and proponents of the unimodel perspective over how studies which seem to support a unimodel perspective of persuasion processing are to be interpreted.

For this study it was decided to remain with the more established dual-process frameworks for two reasons. Firstly, there are a great number of studies similar to this study but in different contexts (mass media specifically) that use the dual-process framework; therefore, it makes contextualisation of this study more robust. Secondly, the unimodel perspective is a relatively recent alternat-

ive to dual process theories; as such, the parameters of the model are still in flux when compared to models such as ELM and HSM. Current work in the unimodel sphere is therefore more likely to be aimed at establishing the model empirically, rather than applying it as a foundational framework.

2.7 The Role of Sender Attributes in the Process of Persuasion

Sender attributes have always been of key interest in the field of persuasion research. That certain attributes of the message sender affect how persuaded the receiver is by a message is not in dispute. There is, however, a great deal of difficulty in separating the effects of sender attribute variables in order to conclusively say that a particular sender attribute has a specific effect on the receiver of a message. One of the underlying causes of this difficulty is that “sender attributes” is a misnomer.

Sender attributes do not reside with the sender (Rogers, 2007, p.229) but are, in fact, related to processes within the receiver of the message. It is, after all, the perception of the sender’s credibility that affects the way that the message receiver processes a persuasive message. For example the receiver may have particular beliefs about his or her own susceptibility to persuasion which affects how they process the message (Tormala, Brinol & Petty, 2004, p.85). This is an example of meta-cognitive factors that influence persuasion. In other words, receivers think about their own thinking with regards to their own persuasion.

Familiarity, even unconsciously, may increase how credible a person appears to be. A study by Brown, Brown and Zoccoli(2002, p. 205) suggests that even when faces are not explicitly remembered, previous exposure to a person's face enhances their perceived credibility. News anchors are selected, in part, for how credible audiences are likely to perceive them (Weibel, Wissmath & Groner, 2008, p. 467). David Weibel and his colleagues investigate the effect of two peripheral factors, namely age and gender, on audiences' perceptions of source credibility. They find that peripheral attributes of the message sender such as being male and being older (although not female and older) have a significantly positive effect on how credible a newscaster is perceived. This, in turn, has lead to a perception of higher credibility for the message itself.

It should be clear, based on the examples cited from literature above, that almost any aspect of a message sender can be a peripheral factor in the perception of credibility, although it is methodologically difficult to isolate and exactly describe the effects of individual attributes. Please refer to the argument in Chapter 1 on the problem of high level models for persuasion for one perspective on why this issue exists.

2.8 The Role Of Receiver Attributes In The Process Of Persuasion

As can be expected, the intra-personal aspects of the person receiving a persuasive message also play a prime role in determining how much credibility or conviction is perceived. The perceptual filters, the ideas and attitudes that already exist within the mind of the person receiving the message, must influence how the message is interpreted. For the sake of clarity (and as mentioned above in the previous section), both sender and receiver attributes reside with the receiver: the former being perceived attributes of the sender *by* the receiver and the latter being aspects such as disposition and personality.

There are a number of relevant examples from literature that can give us some perspective on how receiver attributes factor into the process of persuasion. Although it was not an object of study in the case of this dissertation, disposition as a factor in determining a preferential route to persuasion, is an important issue. Cacioppo, Petty, Kao and Rodriguez (1986) examine this factor, and found that subjects with a high need for cognition had attitudes that were more predictive of their subsequent behaviour.

A 1981 study by Richard Petty, John Cacioppo and Rachel Goldman examined the role of personal involvement on persuasion within the ELM framework. This study suggests that the personal relevance of the argument to the receiver of the persuasive message was one determinant of which cognitive path was used to evaluate the message (Petty, Cacioppo & Goldman: 1981, p. 854).

Tormala, Briñol, & Petty found that when receivers of a persuasive message learnt that a source was of high or low credibility after already receiving the persuasive message, it affected the

confidence the receivers of the message had in their own thoughts formed in response to the message (2007, p.538) This adds yet another dynamic to ELM with source information preceding the message biasing processing and same information revealed after the message undermining confidence in the receiver's own thoughts.

Murphy and Alexander (2004, p.357) conducted a study focusing on intra-individual differences and the persuasion process. Their conclusion indicates that individual traits such as levels of knowledge, beliefs and interests factor heavily into how students interact with a persuasive text.

A good example of differences between receivers influencing what is perceived as credible can be found in the work of Wineburg (1991). He compared the source evaluation techniques of expert historians and high school students, and found that there is a profound difference between the way historians rate a source such as a high school history textbook and the way that high school students rate the same text. Students express confidence in the trustworthiness of the textbook while the historians rate it poorly in comparison to primary sources.

Another interesting issue is that both the historians and students use a heuristic to evaluate sources, but the heuristic used by historians is adapted specifically to determine source trustworthiness robustly within their field (compared to the much more simplistic one employed by the students). This indicates that the scenario exists where subjects make the correct decision with regard to source credibility, but not as a product of central processing.

Echebarria-Echabe (2010) has put forward the proposition that dispositional suspicion -- that is, suspicion as a stable personality attribute --, is positively correlated with a tendency towards central processing. However, when suspicion is something induced by a source then it inhibits central systematic processing.

Sher and Lee (2009) examined consumer skepticism in an online context using the ELM as referent theory. They examined the responses of consumers to on-line product reviews, and found evidence that highly sceptical consumers ignore message quality and source credibility entirely, re-

lying instead on intrinsic factors. They also found that low scepticism subjects rely heavily on peripheral factors, and specifically on the number of reviews rather than their quality. This suggests that 'personality' is a variable that may have important implications for the theory as a whole.

Bohner and colleagues (Bohner, Crow, Erb & Schwarz:1992) considered the effect of affective state upon subjects' proclivity for systematic or heuristic modes of information processing. Results from their experiments suggest that the specific effect that mood has upon attitude change is mediated by processing style (Bohner et al.,1992, p.526).

These intra-personal differences are obviously a source of noise when trying to interpret data, but are unavoidable. It is unlikely that a robust (and practical) way could be found to control for all intra-personal differences in this domain and therefore we can expect experimental comparisons that use multiple subjects to have their effect sizes moderated by this factor.

2.9 The Construct Of Source Credibility

If a valid argument is made, does it matter who makes it? From an objective perspective it would seem that it should make no difference. Contrary to this notion, a common logical fallacy in critical thinking and argumentation is that of *argumentum ad hominem* (Weber & Brizee, 2011): in other words, disparaging the claims of someone based on some personal attribute (for example race or sexual orientation) which has no rational bearing on the argument itself.

There is also the fallacy of a false appeal to authority, such as a physicist promoting a controversial medical treatment. While the physicist is a credible authority within the field of physics, that has no bearing on the field of medicine, in which he should be considered a layman, barring evidence to the contrary.

Throughout history it has been an accepted truth that credible sources are more persuasive than less credible or non-credible ones (Benoit & Stratham, 2004, p.95). Yet despite the long standing acknowledgement of the role sender credibility plays in persuasion, it is not clear exactly how the factors of credibility influence persuasion (Rogers, 2007, p. 229). Source credibility is a collect-

ive way of referring to those factors that influence the esteem in which the source of a message is held by the audience. A common view is that source credibility rests upon perceived expertise and trust as stable factors. (Benoit and Stratham, 2004, p. 95).

An interesting phenomenon regarding source credibility is that it only affects persuasiveness if the audience is exposed to it before processing the message. This supports the dual process view of persuasion since processing can only be biased by factors which are available to the receiver of the message before the message is received. For example, discovering that the person advocating a radical medical treatment is in fact a renowned researcher in the field will not cause those who may have labelled this person as the proverbial ‘crackpot’ to change their evaluation. The processing of the message has already been made in light of the perceived source credibility.

It does, however, seem that at least *some* degree of re-evaluation must occur when new information is presented. This particular issue is not the subject of this study, but the research literature is interesting nonetheless.

Benoit and Strathman (2004, p.103) highlight a major methodological pitfall in research on source credibility. Specifically with regard to the construct validity of source credibility in many studies they note that “Research manipulates and measures credibility in troubling ways”. They note that researchers are often inconsistent in the way that source credibility is framed. For example, the study might specify two message senders in the experimental environment. One designated as “high credibility” and the other as “low credibility”. What is not always clear is why one should be considered to fall into either category. This is one of the reasons this study was designed with ‘two axes’ of variables, as explained under Section 3.1 in Chapter 3.

Source attributes sometimes have counter-intuitive effects with regards to effective persuasion. Quiamzade and his colleagues (Quiamzade, Mugny & Darnon, 2009, p. 160) highlight that in some studies where source influence is measured as a function of differing levels of perceived competence, a negative socially upward comparison may be triggered, where the highly competent

source is perceived as a threat to the message receiver's competence. This may lead to reliance on a source with a level of competence closer to that of the message receiver. As Quiamzade et al.

(2009, p. 161) explain:

“The paradox of competence is then that a highly competent source often exerts influence only at a superficial or manifest level but does not produce influence at a deep level (by deep level we mean real processing and transfer of the information provided by the source to the own system of beliefs or to the way to solve the task).”

A number of experiments performed by Marc-André Reinhard, Matthias Messner and Siegfried Ludwig Sporer (2006) present empirical evidence that a peripheral factor in persuasion such as openly stating your motive to persuade may have a different effect upon the receiver of a persuasive message when interacting with another factor. In the case of their study, the other factor was the attractiveness of the persuader or salesperson. Reinhard and his team found that stating your intention to persuade-- usually something that lessens persuasion -- while also being attractive could *increase* how persuasive a person's message is. Furthermore, this relationship is mediated by the impression the audience has of the speaker's level of self-interest regarding the success of the persuasion. Bear in mind that even a factor such a conflict of interest is still a peripheral factor when deciding if a message is credible, as the content of the message may yet be credible despite such a factor.

Operationalizing constructs such as expertise and competence in this way is not uncommon or novel. For example, in a study by Quiamzade et al. (2009, p.159), the construct of competence is operationalized in the following manner:

“Imagine that three students, Jack, James, and John are working together, as can be the case in an educational setting such as collaborative learning....Jack and James are both bachelor degree students whereas John is a master degree student. When discussing an issue, who, between James and John might influence Jack the most?”

The intuitive answer to this question is of course that John should exert the most influence, but Jack may recognise James as being part of an in-group, someone similar to him and discount John's arguments on this basis. This is but one way in which our expectations for the outcomes of persuasion attempts may be confounded. In this case, the person who is the target of persuasion had the opportunity to compare the two sources. Of course, had it been John and a person who was a layman on the subject at hand, Jack may have given more weight to John's arguments. If all three types of persuaders were present, John may have been counter-intuitively ranked in the middle.

The presence of multiple sources with the same set of persuasion targets introduces a complex interplay of processes. It should be noted that in this study, for the sake of simplicity and clarity, such a complex scenario was not replicated. There are, however, studies that give insight into this particular dynamic. For instance, when investigating the issue of source trustworthiness (related to but not identical to source credibility) Bråten, Strømsø and Britt (2010, p.7) look at how students evaluate sources when processing multiple texts by multiple authors on the same topic. They found that when confronted with multiple sources, "it allows readers to achieve overall coherence in their mental representations when diverse and even contradictory perspectives are described in the different texts"(Ibid.)

In the above-mentioned study, the focus is specifically on the internal construction of meaning from multiple texts and students are presumably reading the text critically. Yet the characteristics of the authors influence the interpretation of the material. In line with the theoretical models discussed above, the central and peripheral ways of processing information are not polar.

This further muddies the waters when one tries to clearly determine which manner of cognition is employed when a subject processes a persuasive message. These conceptual problems reflect the general issues faced by studies of persuasion in a methodological sense, as well. This methodological and conceptual "fuzziness" has had a strong influence on the research design of the study, which is thoroughly discussed in the third chapter.

2.10 Source Credibility Studies

Since the rise of mass media, researchers have examined the influence of media on behaviour and attitudes. These studies have taken various forms: Do violent films induce violent behaviour? Can the expression of discrimination or portrayals of ethnic groups in a poor light instil similar attitudes in people who view them?

Military and political movements have certainly not neglected the power of mass media to influence populations. The various propaganda machines involved in modern conflicts use all modalities to spread their messages, such as radio, television, social media and “viral” campaigns.

Fisher, Ilgren and Hoyer demonstrate in their 1979 study that certain specific factors -- in this case trustworthiness -- could affect how persuaded subjects were to accept a job offer. If the information source was manipulated to be one outside of the organisation, then that source is afforded more trust (presumably because there is no overt motivation to be persuasive) and therefore more credibility.

2.10.1 The contextual nature of peripheral factors

A testament to the contextual nature of factors such as source credibility can be found in the 1990 Mondak report on three studies that examine the public perception of the US Supreme Court from a cognitive persuasion perspective. Mondak argues that, as an institution, the Supreme Court functions best when its decisions and acts are perceived as legitimate. Mondak conducted three experiments manipulating various variables that are recognised as having some effect on persuasion from the perspective of dual process models. The first measures whether perceived legitimacy is affected by source credibility under low elaboration likelihood conditions. Hypothetical situations are presented to participants about policy decisions where the decision maker was varied -- in this case, either to the Supreme Court or other decision maker. Participants are then measured on their perceptions of the legitimacy of the decisions. The results from Mondak's study seem to provide support

for the theory underlying heuristic/peripheral processing of information and its effect on opinion holding and direction.

A declaration that someone is competent by a highly authoritative figure can significantly change the perception of that person's message. A study by Connolly, Gagnon and Lavoie (2008) found that if a judge declares that a child is a competent witness, then this would combat the pre-existing negative bias juries demonstrate towards child witnesses. Connolly et al. go on to explain this result within the framework of dual process models of persuasion as follows, "*Despite the fact that jury members are otherwise highly motivated to systematically process witness testimony, the task of determining a child's credibility as a witness (in light of the aforementioned negative bias) may be so high that jurors abdicate that task to the judge's authority*" (2008, p. 272). In other words, they perceive the credibility of the child's testimony as the judge dictates to them, effectively "transferring" the judge's credibility to that of the child's testimony.

Source credibility has even been found to have an effect on how susceptible someone is to a phenomenon called post-identification feedback. This occurs when witnesses are biased or influenced after they have identified a suspect. This bias may cause them to alter their testimony or be unwilling to testify. Skagerberg and Wright conducted a study to address their hypothesis that source credibility may play a major role in postidentification feedback (2008). This study found that only highly credible sources affect the postidentification feedback phenomenon, suggesting that source credibility plays a major role in this phenomenon.

Being aware of a message source can also have a positive effect. A study by Giles, Gopnik and Heyman sought to examine the link between source monitoring ability and suggestibility amongst pre-school children. The results of this study showed a strong correlation between the ability to monitor sources with the ability to resist suggestion from leading questions, even when age was factored and accounted for (2002, p. 290).

There is some evidence that source credibility even has an influence on memory recall. In a study performed by Olsen (1984, p. 207) subjects were exposed to a message arguing against frequent brushing of their teeth, with some subjects believing the message to be from a highly credible source and others believing that it was from a low credibility source. Subjects exposed to the high credibility source not only expressed more negative attitudes towards brushing frequently, but also reported brushing their teeth less often than the low credibility group. Although the object of this study was to demonstrate the effect of attitude on memory recall, source credibility is used to alter attitude with clearly measurable effects.

Psychotherapy analogue settings indicate that high credibility sources with high quality pro-attitudinal message have a greater impact upon behavioural and attitudinal change than moderately credible ones under high involvement conditions. In contrast, moderate credibility performs better under low involvement conditions. Message quality also enjoyed higher impact under high involvement than under low involvement (McNeill & Stoltenberg, 1988, p.3).

Chaiken and Maheswaran found (cited in Hans-Peter Erb et al, 2007, p.1058) that responses towards telephone messages tend to be more positive when the perception of the communicator is that of a highly credible source, as opposed to a low credibility source.

Another example of a study that uses source cue manipulation is one performed by Natalie Wyer (2010, p.463). Wyer exposed her subjects to persuasion attempts by two different sources: One in-group and one out-group. Her study suggests that a peripheral source attribute (such as in-group membership) could increase how persuasive a source is, but that the effect is only apparent when the attributes that define the in-group are relevant to the desired attitude change in question, a practise that she refers to as “selective self-categorisation”. This finding is consistent with the “John, Jack and & James” example discussed at the end of the previous section.

2.11 The role of the medium in source credibility perception

The influence of media upon various variables has been a subject of research since the early days of mass media. For example, a study conducted in 1960 by Middleton measures expression of racial prejudice after exposure to the film “Gentleman's Agreement”.

An example of the general concern about old media and persuasive effects are reflected in studies such as that by De Fleur and Petranoff (1959), who examined so-called “subliminal” persuasion through the medium of television. Television was thought to be a paradigm-changing technology in the world of 1959. The idea may seem laughable now, but the contemporary society of the time was genuinely concerned about the effect on behaviour this new medium would have, a concern which now resurfaces the context of the New Media.

Some studies indicate that medium does have an apparent effect on the perceived credibility of the communicator. As an example, Cheryl Bracken (2006) suggests that, apart from message content and news anchor attributes, an audience's perception of the source credibility of local news might be influenced by a presentation factor, in this case whether the broadcast was in high definition or not.

Although Bracken (2006, p.736) was studying the effect on source credibility from a different theoretical perspective (a communication studies theory called the transportation imagery model), her findings are still relevant to this study. She establishes the principle that the medium through which persuasion occurs does have an effect on perceptions as they relate to persuasion. Participants in Bracken's study who are subjected to a high definition news broadcast experience a greater sense of presence. This, in turn, has a favourable effect on perceived credibility. Bracken suggests the implication that as high definition news broadcasts become ubiquitous, a drop in general scepticism regarding the news may become apparent.

In the first chapter's introductory segment, it was suggested that mistaking one medium for another (in that example, newspapers and tabloids) could erroneously transfer a reasonable heuristic

to an undeserving target message. However, if the receiver of the message is explicitly aware of the medium, very different interpretations of the message may occur, even though the topic or content is similar in the case of either media (Bråten, Strømsø & Britt, 2009, p.8).

2.12 Expertise as a source credibility cue

Expertise is an important factor of perceived source credibility, but the effect it has is not always in line with common sense expectations. Sometimes expertise interacts with other factors to produce novel effects. For example, information provided by peers can sometimes take precedence, in terms of credibility, over a source that conventional wisdom would hold as credible. In a study conducted by Van der Borgh and Jaswal (2008, p. 68-69) in which young children could direct questions on topics related to toys and food to either an adult or another child, the researchers found that children favour other children as a source of information on toys. This seems to indicate that even from a very early stage (these children were between three and five years old), human beings are capable of judging the credentials of a source against the type of information provided.

2.13 Studies of source credibility on the Web

Since anyone can now put information on-line, the very factors that make the Internet so powerful, also open the possibility for false or misleading information to be distributed to the public (Bates, Romina, Ahmed & Hopson, 2006, p46). Even when the participants in source judgment studies on the Web are scholars themselves, they are still subject to credibility judgements based on cues such as whether the material appears scholarly (Rieh, 2001, p.156).

In reaction to the increased practice of using the Internet as a source of health-related information, a study was conducted to determine what effect source credibility plays when participants evaluate a lung cancer prevention message attributed to an online source (Bates, Romina, Ahmed & Hopson, 2005). The same information was either attributed to a highly credible website or a generic website which was assumed to have low credibility. The results of the study seem to in-

dicate that consumers of these messages either do not factor credibility into their evaluation of the messages or do not recognise that one website may be more or less credible than another.

The traditional perception of how the different processing paths in dual-process models function to influence persuasion may also not hold true for the Web context. Although ELM and HSM are widely popular, some authors acknowledge that within the context of the Internet and the Web, their basic tenets may not hold true or may require extensive modification. For example, Rebeca SanJose'-Cabezudo and her colleagues state the following (San Jose-Cabezudo, Gutierrez-Ar-ranz, & Gutierrez-Cillan, 2009, p.299):

“...not all ELM researchers have restricted themselves to simply replicating the model in their studies but have opted rather to query its premises and call into question some of its principles. Some authors have posited the need for a reexamination or modification of the model, in both the traditional and the Internet contexts (e.g., MELM and e-ELM).”

Dinet and colleagues (Dinet, Marquet & Nissen, 2003) decided upon a paper-based research design when assessing adolescents' perceptions of the Web. Their study focuses on individual factors such as gender, age and the like. The factors they specifically focused upon were Web experience and academic focus. The results from the study suggest that adolescents with a high level of Web experience are more critical of information sources found on the Web, as opposed to those who are still relatively unexposed to this information channel. The study also found that some dimensions of perception of the Web are influenced by academic focus, a difference in this case found between literature- and science- focused students.

Eastin, Yang and Nathanson performed a study in 2006 to evaluate how children determine the legitimacy of information that they found on the Internet. They note (as this researcher did in Chapter 1) that one of the main concerns is that the Internet is unregulated, which places the onus on users to judge credibility. They further go on to state that the sheer amount of information presented to the user increases the likelihood of false information being accepted. It is interesting to note that the paper by Eastin et al was written in 2006, while YouTube was still in its infancy. It is

doubtful that the authors could have predicted the exponential growth of other such Web 2.0 services as communication channels, let alone that the Internet of today would contain information that is an order of magnitude greater than that of 2006.

The study by Eastin et al was, however, conducted with a focus on young children rather than young adults, citing the fact that young children do not have the store of experience and knowledge that adults have to draw on in order to make such decisions. Their research uses the limited capacity model as a framework rather than the ELM or HSM. The limited capacity theory uses a cognitive psychological explanation of information processing that proposes a shared pool of mental resources. Encoding, processing and retrieval all need to be allocated a proportion of this pool. If encoding is highly engaged it leaves little resources for other faculties. (Eastin et al, 2006. p. 212)

Eastin et al. also draw a comparison between the subjects' processing of old media (television) and new media (the Internet). Eastin et al. postulate that children have a hard enough time processing television and that the Internet would put even a greater strain on their faculties.

Eastin et al's paper echoes this researcher's sentiment that human beings may be cognitively ill equipped to process information in the online context, but (as Eastin et al. acknowledge) children are cognitively different from adults. Therefore, while that study and this one share some basic premises, the conclusions are not comparable, specifically because the subjects in this study are young adults and have qualitatively different reasoning abilities.

2.14 Conclusion of Literature Review

In the preceding sections of this chapter, the technological context of the study has been explored in order to underscore the dramatic qualitative difference in new communication media. The major theoretical frameworks employed to model and understand the cognitive process of persuasion have been detailed and discussed. The main constructs relevant to the current study also have each been noted and examples from research literature have been drawn, in order to frame results from previ-

ous studies in old media contexts. These discussions also have underscored the interactional complexity and sometimes counter-intuitive behaviour of these variables under laboratory conditions.

Finally, some examples of other studies conducted within a Web context have been cited; however, none have been found that match the current study in terms of its research objective or problem statement.

Chapter 3: RESEARCH DESIGN

The main aim of this study is to explore the dynamics of persuasion within the new context of Web-based media. Specifically, the study determines whether persuasive messages that are presented as originating in a Web 2.0 context engender scepticism in young adult subjects. If not, do these subjects employ less critical heuristic cognitive strategies that are not associated with critical reasoning when their degree of acceptance for the truth value of the message is measured? In order to achieve this goal the study was designed so that each group of subjects was exposed to identical treatment conditions, save for the manipulation of peripheral cues. These cues are usually associated with varying degrees of perceived source credibility in subjects that employ peripheral processing of persuasive messages. If subjects exhibit higher levels of message acceptance when exposed to a peripheral cue that traditionally is expected to induce a perception of higher source credibility then it is a reasonable assumption that peripheral route reasoning is at work. This is not necessarily true, of course, as was made clear in the literature review (Chapter 2), it is possible for subjects to reach the same conclusion through either cognitive pathway. However, it is unlikely for this to happen to subjects as a group unless there is a systematic bias present in the research design itself.

3.1 General Research Design

In this section the general design features of the research will be detailed, including aspects of the variables, sampling and ethical considerations.

3.1.1 Independent variables, dependent variables

The independent variables in this study are “years of experience” and “education and occupation”.

The operationalisation of these variables is detailed further on in this chapter.

The dependent variable is the level of self reported agreement with statements derived from a persuasive message to be presented to participants under different conditions. The exact operationalisation of this construct is also detailed later in this chapter.

3.1.2 Authenticity of the research design

Using actual Web-based data collection introduces problems with experimental control. It would be possible to have subjects engage with a persuasive online message on a computer, but this was logistically beyond the means of the current study. Therefore the Web-based context needs to be simulated to such a degree that a genuine response would be recorded from participating subjects. At the same time, this still needs to remain practical, given the resource limitations of the researcher. Since the significance of the study relies upon the context, it is also important that subjects perceive the context as genuine. Of course it is not easy (or perhaps possible) to provide evidence that this condition has been met, but every reasonable effort should be made to increase the probability that this criterion has been attended to.

Another requirement is that there be as little conceptual abstraction between the construct to be measured and the instrument used. In other words, the line of reasoning that leads from desired construct to measurement instrument should be as direct as possible with as little theoretical obfuscation as possible. To these ends, the research design is focussed on a high level of control regarding the research environment. Ecological validity has been given a lesser consideration compared to the desired level of control. Attempts have been made to match participants in terms of age, educational level, language and other factors that could reasonably be controlled for.

3.1.3 The Nature of the Experimental Persuasive Message

A university student was used to record a prepared video message taken with a standard digital camera in a home. Therefore, the film appears to be a typical amateur video such as one would find on YouTube or any other public video-sharing site.

As discussed in Chapter 2, factors such as age, gender, clothing, accent and other similar factors can act as heuristic cues when processing a persuasive message. Whatever effect these factors may have, however, are controlled for in this study since they remain stable for all experimental groups.

The content of the video represents an attempt at persuasion based on a hoax used in a number of scenarios in the past. It refers to a substance called Dihydrogen Monoxide (DHMO), which is simply a chemically correct but uncommon name for water. One example of the hoax was that of an informal experiment by the performing magicians Penn and Teller in an episode of their show *Bullshit!* Entitled “*Environmental Hysteria*”.

In the original experiment, what Penn and Teller did was to send confederates posing as ecological activists to a festival for the environmental movement called *Worldfest*. These confederates roamed the festival grounds and asked random festival attendees to sign a petition to ban Dihydrogen Monoxide. The confederates did not lie, they simply adopted the tone associated with environmentalist discourse. Penn and Teller claimed that they received hundreds of signatures, which included the signature of the head festival organiser. They performed this impromptu experiment in order to demonstrate that people make decisions in spite of possessing little or no information.

For this research study, the actor in the video presents a number of facts about DHMO that are true in a strict sense, but framed in such a way that they appear to support protest, boycott and banning of DHMO. The full text of the statement used in this video is reproduced in Appendix A.

The reason for using the DHMO hoax as the basis for the video in this study was not the same as Penn and Teller's motivation, but that there was very little likelihood that participants would have a pre-existing attitude to the "DHMO issue".

3.1.4 Avoiding a Pre-Test, Post-Test Design

To measure whether a variable such as attitude has indeed changed, it is logical to use a pre- and post- test design. However, given the nature of the issue being addressed in the study, such a design would hopelessly invalidate the data, since participants would be primed or "tipped off" to the aspects that the study aims to measure. Adopting a fictitious issue goes some way to resolving this problem, since participants cannot report on existing attitudes for an issue they know nothing about. Therefore the reported attitude measurement should (in theory) be newly formed. In addition, any contrasts that we see between different treatment groups will hopefully be attributable to the manipulated variables.

In this study, the participants should not even be aware that persuasion was the construct being measured until they receive debriefing material.

In the same way that pre-and post-tests would not work in this situation, exposing one group of subjects to a different message sender with different peripheral cue attributes would also "tip off" some if not all subjects. Additionally, these factors mentioned above could no longer be controlled for. With the design that was employed for this study, the chances of this are reduced since participants do not know what is being measured and, therefore, would not know what response to produce.

3.1.5 Structure of the Quasi-Experimental Design

A quasi-experimental design is employed in this study in order to control for as many variables as reasonably possible. The study can be classified as such since it lacks a truly random sample, the reasons for which are further explained later in this chapter. Also, the study did not

make use of a control group. The nature of the research question made the use of such a group conceptually impossible. The justifications for this assertion are also discussed later in this chapter. It should be noted that the use of quasi-experimental studies to examine heuristic processing has been applied in the past (Mondak,1993 , p.172).

3.1.5.1 Layout of Treatment Conditions

Twelve treatment conditions are formulated on a four by three matrix (see Table 3.1). The conditions are varied along two axes. On one axis occupation and educational history are combined as a single variable, since these two concepts are related. The scale is ordinal, with the distances between the levels being difficult to quantify. The other axis displays the variable “years of relevant experience”. This variable is on a ratio scale, since it does have a zero point. These factors are known to play a role as heuristic cues as components of source expertise, which is, in turn, a component of source credibility, along with trustworthiness (Rogers,2007) (See Chapter Two for a review of the supporting research).

Education and occupation are grouped together in three categories: low, medium and high. This has been operationalised as follows: “*web designer and chemistry hobbyist*” to represent the low level, “*research assistant in biochemistry at the University of Cape Town*” for the medium level and finally a person with a doctorate and lectureship in biochemistry at the same university to represent the high level. All three levels here were created in such a way that they had a connection to the subject matter: the chemical *Dihydrogen Monoxide*.

As stated before, an immediately problematic aspect of this operationalisation of levels of education and occupation is that the perception of subjects may not place these varying levels in the same relation to one another. That is to say, conceptually, the distance between these various levels cannot be said to be equal for all subjects in the study. This is especially true since it is unclear whether “research assistant” would be perceived as a midpoint between “web designer” and “Doc-

tor of biochemistry”. This also means techniques such as factorial ANOVA cannot be used for analysis, because the measurement level of the variable is not ordinal. Which is why, although the matrix of treatment groups might suggest otherwise, *the study does not have a factorial design*.

It is, however, reasonable to expect that the difference in perceived credibility for the high and low conceptualisations in this study for occupation and education is sufficiently large as to be noticeable in an analysis of whether heuristic processing of a message has taken place.

This also underscores the rationale in separating these variables along two axes. The variable “years of experience” is a numeric variable with a between-subject conceptualisation that is more likely to be uniform and so was separated from the other heuristic cues. The premise here is that, for any given effect, the differences between different years of experience should be similar: five years of experience should be five times as persuasive as one year of experience, for example.

It should be apparent that there is one axis of the matrix that does not contain the variable for years of experience. This is a result of the need for a simple set of treatment groups that minimise the chance of confounding interaction. Logically, this could not be done with years of experience alone, since it does not make sense to inform subjects that the sender has a particular amount of experience without stating the general nature of that experience.

Table 3.1: Layout of experimental conditions

	Education/Occupation Low Credibility	Education/Occupation Medium Credibility	Education/Occupation High Credibility
Experience omitted	Condition 1	Condition 2	Condition 3
Low experience	Condition 4	Condition 5	Condition 6
Medium experience	Condition 7	Condition 8	Condition 9
High experience	Condition 10	Condition 11	Condition 12

3.1.6 Planned Analysis with Inferential Statistics

There are two sets of planned statistical analyses on the data. Firstly there will be nine logical groupings of treatment conditions that will each be compared for differences in mean scores on the measurement instrument independently.

A one-way, between-subject ANOVA will be used for each logical grouping. ANOVA is especially appropriate for analysing experimental research designs (Field, 2005, p.309) and will be used for each grouping's analysis. Although the ANOVA technique is a parametric statistical analysis method, it is robust for use with non-parametric data as long as sample sizes across conditions are equal and the assumption of the independence of measurements is not violated. (Field, 2005, p. 324) In this study measurements are independent and the sample size for each treatment is virtually equal.

Secondly, given the known issue of attitude not necessarily predicting behaviour (Potter, 2006, p.127) the instrument is split into two sub-scales, one measures only attitude towards some of the main points the persuasive message is seeking agreement with and the other explicitly requires a participant to report their own behavioural intentions regarding those same point.

Therefore the second part of the planned inferential statistics analysis is a comparison of the means of the two sub-scales. As a very basic indicator of actual intended behaviour versus mere attitude.

3.1.7 Why Multiple ANOVA?

This is a fair question and the researcher acknowledges that it is a contentious design choice.

The reasoning behind that choice links closely with the need to have so many treatment groups in the first place.

The nature of the study is exploratory, in other words there was no directional hypothesis, the researcher did not have a prediction of what the results would look like, and the central question of the study was in fact how the results would trend.

The comparison was not with a treatment group within the study itself, but with the general results from a different context examined in past studies. It was therefore logical to have a matrix of treatment conditions to cover many possible combinations of the variable. As an initial investigation into this context and within the practical constraints of the study it made sense to cast the net wide, to lessen the chance of missing a pattern should it exist.

3.1.7.1 Alternative Designs Considered

The alternative to having multiple ANOVA comparisons are statistical techniques such as pairwise comparisons or multiple regression that could include all groups and all variables and analyse them at the same time.

We usually do these types of analysis because they are designed to allow control for statistical nuisance factors such as the familywise error rate (FER). In the case of the FER this is often done by apportioning the total amount of acceptable error (usually 5% by convention) for each sub-comparison so that the total amount of error adds up to the desired amount.

It does not make theoretical sense to compare each of the treatment groups with every other treatment group. Since we do not want to compare the groups in groupings other than ones which the ELM and HSM suggest should be significantly different, it becomes counter-productive to use a method that does so.

The FER controls effectively waste acceptable error margin on frivolous comparisons that would be meaningless even if there was a statistically significant difference in the means.

Conversely, how can we justify apportioning the full 5% of error to each ANOVA? It is acceptable to do so because each comparison is statistically independent. Each group's measurement

had absolutely no influence on any other group in the study. Although the total sample was not a simple random one, the sample was homogenous for the variables that were deemed relevant and assignment to a particular treatment group was a process of simple random sampling.

Painstaking lengths were taken to ensure that no treatment group could possibly have an effect on any other. For all practical purposes each group is truly independent. Upon this basis any combination of treatment groups can be compared using ANOVA in any combination.

Some combinations would merely lack a theoretical justification and be frivolous. If one considers each ANOVA analysis in the study as a small sub-study then it is justifiable to apportion a full 5% of error to each, as they do not fall under the additive rule of probability and do not intersect or interact at all. It is the researcher's belief that this design is more redundant and robust than the alternative of having only three large groups in a single analysis.

This design has also allowed for a combination of groups that share a particular variable level but differ on others, so that comparisons could be made with larger sample sizes. Since each larger combined group contains equal proportions of what must now be considered a nuisance variable within the context of that particular comparison. By doing this, the intentionally included "nuisance" factors are effectively controlled for, mitigating the small treatment group sizes that result from splitting the total sample amongst 12 groups.

3.2 Population

The initial intention of the study was to explore the process of persuasion in the New Media, Web-based context with a population that was familiar with the technology and also used it as part of their normal lives. In light of the researcher's place of residence, the population in question was that of the Gauteng Province of South Africa.

Apart from familiarity with technology, another desired attribute was that it should be a population who would have familiarity with the Web-based context through their major developmental

stages. In other words, it should be a population who grew up with the Web as a fact of everyday life. It was therefore desirable that the population in question had undergone the commencement of their primary schooling after 1995, the year in which the Web entered the mainstream.

This is important under the assumption that such a population is more likely to be representative of future trends in dealing with Web-based persuasion attempts. In his book *Beyond the Hole in the Wall: Discover the Power of Self-Organized Learning*, educational specialist Sugata Mitra echoes this assumption, stating that an entire generation of children sixteen and under:

“have never known a world without many of the connecting technologies that we have come to take for granted and rely on heavily.” (“Introduction” section, 2012, para. 6)

While Mitra was approaching the subject of a qualitatively new generation of learners and how new Web technologies could improve their learning, the identification of the appropriate age category is what is relevant here.

Thus, because of their age range, grade ten pupils were judged to be a group in line with the needs of the study. However, as can be seen in Chapter 4 in Table 4.1, these grade ten students cannot be considered entirely typical, and as such they cannot be considered as representative of their South African cohort as a whole.

3.3 Sample

Per the aforementioned discussion, the sample of 120 subjects was drawn from Grade 10 students. The sample was a non-probability convenience sample. This was deemed acceptable for a number of reasons. First of all, the study was conducted with funding from a bursary and the personal funds of the researcher. The bursary fund does not cover transport, hiring of fieldworkers or assistants. There is therefore a logistical constraint on who could be sampled.

Secondly, the study is exploratory in nature and is an initial study along the line of reasoning set out in Chapter 1. It is therefore best to characterise the study as a pilot study. Given this fact, biasing factors from the sampling methods used are acknowledged but do not hamper the intention of the study. A probability sample can be left to a subsequent investigation into the topic of persuasive message processing in the on-line context.

During the time when sampling took place there was a general teacher's strike at public schools. This fact eliminated public schools from consideration as a source of participants and thus the Grade 10 students came from private schools, not affected by the strike. This was, however, not problematic in light of the desired sample attributes. In South Africa, children in private schools are for the most part from more affluent households. This increased the chance that the students in the sample would have easy access to the Web, either at home or at school.

The on-line Google Maps application was used to find all private secondary schools within range of the travel budget for this study and all of these schools were contacted via email. Schools that responded to the initial communication received an information pack containing a condensed version of a study proposal.

Of these schools only two indicated that they would be willing to accommodate the study. The first school is a private institution that caters for pre-primary, primary and secondary tuition. It also caters to the children of international diplomats stationed in South Africa. Therefore, a considerable proportion of the enrolled student population is not South African. This school also possesses high-class facilities and caters to the children of more affluent clients.

The second school that agreed to permit the study is a large boy's high school, where the majority of pupils are boarders. This school also had excellent audio-visual facilities, which were used to present the video.

Given that the sample needed to be selected from these two institutions, it was decided that the sample would only be drawn from the first school because the second school contains only male

students. Although this was not a demographic component which the study investigated, it was decided that the gender composition of the sample should be proportionate, if at all possible. This factor was, however, deemed not as important as sample size and proportionate gender sampling was sacrificed in order to have access to more participants. This is explained in detail under the heading of “Procedure” below.

3.4 RESEARCH INSTRUMENT

3.4.1 Video Material

The subject in the video was male, Caucasian, appeared to be in his late thirties and was clothed in a common button-up shirt. Only his face, shoulders and a small portion of his upper body are visible. (See Fig 3.1). The subject in the video speaks with a South African English accent.

Fig 3.1 A frame capture from the video used in the study



3.4.2 The Questionnaire

The study did not employ a pre-existing questionnaire. A new questionnaire was developed specifically for the study, and a copy is included in Appendix B.

The questionnaire contains items which collect basic demographic information. Specifically, questions about age, gender, population group, nationality, average exam performance and whether or not a subject has home Internet access were asked. The section of the questionnaire intended to measure persuasion is in the form of fourteen Likert type items on a seven point scale.

The questionnaire asks for the participants' personal agreement with each statement. The rationale behind this is that the more persuaded the subject is by the video clip, the more likely that subject is to indicate agreement with the statements.

Seven of the 14 statements are general in nature and do not require a strong commitment from a subject, which should mean that subjects would show agreement more easily. The other seven items require agreement with statements which require more commitment from the subjects and it is expected that these statements would only show consistently high agreement for those treatment conditions with the highest levels of sender credibility.

To elucidate on what is meant by "requiring more commitment" in the second set of items, we must briefly discuss the most common criticism of attitude research, briefly touched upon in the first chapter. It has long been evident that attitudes do not predict behaviour and since the real interest of Psychology lies in explaining and predicting human behaviour, this casts doubts on the usefulness of such data.

This would imply that the first set of items may not give an indication of expected behaviour in the field. The second set of items are phrased in such a way that participants must give conscious thought to their own behaviour with regard to the attitude they hold. Needless to say, the second set of items is not as useful as an actual observation and measurement of behaviour, but they should serve to indicate some sort of discrepancy between attitude and behaviour as a secondary indicator.

In summary the instrument has two sub-scales: one to measure a weak persuasive effect and one to measure a stronger persuasive effect.

It is fair to ask why, when the context is the Web, the study did not employ a Web-based measurement system? Dinet and colleagues (Dinet, Marquet & Nissen, 2003) argue that studies done within the field of Cyberpsychology can be problematic when the Web itself is used to gather data. Apart from the self-selecting nature of that approach, using Web-based research provides less experimental control than a pen and paper based approach in a face-to-face environment (Dinet et al, 2006, p. 539). It was for this reason that a simulated Web context has been created.

3.4.3 Reliability and Validity

The rationale behind the assumption of reliability and validity with regards to the instrument can be summarised as follows: each treatment condition is varied in a very specific way and they do not differ but for the manipulation of the independent variables. All subjects are exposed to the same situation in exactly the same way. The assumption is that the greatest influence on responses will be due to the intentional manipulation of the researcher.

Whether the items in the questionnaire are a valid measure of persuasion is a contentious question. The rationale behind this assumption is however quite simple. If a person is asked “*Do you believe the Moon is made of cheese?*” it can be reasonably expected that the answer would be “*No*”. If that person is then subjected to an act of persuasion meant to convince them that the Moon was indeed made of cheese, then they could be asked the same question again. If that person then replied, “*Yes, I do believe the Moon is made of cheese*”, the assumption could reasonably be made that the person was now more persuaded of the dairy content of Earth's satellite than before.

The study employs the same rationale with the exception of the pre-test. This is why the subject of the video is fictitious. The assumption is made that there is no persuasion to pre-test since the subject is, by necessity, ignorant of the topic. Of course the possibility exists that a subject may think that they have heard of the topic before, since the form of the fallacious appeal used in the DHMO hoax material is similar to the material that it parodies. A safeguard against this possibility

was built into the instrument, in the form of a single item that asks the subject whether they had encountered the topic before. Subjects who answer in the affirmative for this item would have their instrument discarded.

3.4.3.1 Reliability of the weaker persuasion effect sub-scale

The sub-scale intended to measure whether a weaker level of persuasion had occurred was subjected to a scale reliability test using SPSS version 17 (SPSS Inc., 2008). Cronbach's Alpha was the test statistic employed to gauge the reliability of this sub-scale. The weaker persuasion effect sub-scale achieved a Chronbach's Alpha of 0.803. (N=7) This satisfies the general consensus that a value of between 0.7 and 0.8 is sufficient in terms of instrument reliability (Field, 2005, p.668).

3.4.3.2 Reliability of the stronger persuasion effects scale

For the second sub-scale, intended to measure a stronger persuasion effect, Chronbach's Alpha was used as the measure of reliability. This sub-scale scored an Alpha of .851(N=7). This satisfies the general consensus that a value of between .7 and .8 is sufficient in terms of instrument reliability. (Field.2005, p.668). This is similar to the other sub-scale used in the study.

3.5 Procedure

In this section, the exact procedure of the study at each school will be detailed, in order to demonstrate the level of experimental control present, as well as to ease replication

3.5.1 Study procedure at School A

Details of how participants were obtained are set out under Section 3.3 above. As mentioned in that section, two secondary schools agreed to allow the study to take place on their grounds. The first

school indicated that there were about 120 grade ten students available to approach for volunteers. Combined consent and assent forms were produced and distributed to students to take home. After ethical clearance was obtained from the appropriate University-committee and the participants were in place, the study was set into motion.

At the first participating school, a venue with audio-visual equipment was kindly provided for the study (availability of such a facility played a role in the selection of the schools). In addition a student roster was provided.

In line with the ethical requirements (outlined in Section 3.7, a debriefing form was distributed to every participant post-participation. The original intention was to debrief participants in a face-to-face manner. This was possible because the school roster happened to be devised in such a way that on one day of the seven day cycle, all grade ten classes had life orientation periods and the school had agreed to let these periods be used for the purposes of the study. This meant that there was little risk to giving a debriefing which included full disclosure immediately following participation, because students were unlikely to have the time and opportunity to divulge the contents of the debriefing to participants who had not yet taken part.

This notion had to be discarded, however, when a third party at School A changed the normal roster without consulting the researcher's contacts first. The life orientation periods were now to occur over several days during the course of the week. This made the risk of information leakage too large to implement full disclosure immediately after participation, which could affect the collected data to the point of invalidation. A compromise was decided upon: the debriefing forms would be distributed once the study had been conducted with all participants at School A. Participants were informed of this change to the procedure and given an opportunity to opt out of the study should this change their willingness to participate. No participant at School A indicated such a desire to withdraw.

Similarly, there was also a minor problem with consent and assent forms at School A. Teachers acting as contacts at the school had misunderstood the correct procedure regarding the consent and assent forms. Instead of receiving both, each parent received one or the other randomly. When the study was conducted at School A, participants arrived to take part bearing only one form which had been signed by a parent or legal guardian. Since the content of both the form types is identical, participants were asked to confirm that they had read and understood the contents and then sign their own names should they agree to participate.

The school had donated its life orientation period for the use of the study. Participation took place as students arrived for the assigned class period. The entire grade 10 at School A consisted of 120 individuals. The expectation was that all students would be available for participation. As the twelve treatment conditions had been decided prior to the study, the total amount of students was divided by twelve, yielding a per-group size of 10. As groups of students appeared to take part in the study, they were divided into groups of ten, with any extra students assigned to a third experimental condition. With some groups only enough students arrived for one group assignment or even fewer than ten. By the end of the available time at School A only 59 of the 120 possible participants had presented themselves to participate.

Although the researcher did not have control over who presented themselves or the composition of the group as a whole, assignment to treatment conditions was random. Prior to being exposed to the stimulus, the participants were asked to choose a number between 1 and 12, although the number chosen (which was rapidly decided on through group consensus) may have been the product of a systematic process, the participants did not know the significance of the chosen number nor why they were choosing it. Therefore, this treatment assignment is functionally equivalent to drawing a number from a hat. It is interesting to note that debate over which number a group wanted could grow quite heated. As specified under section 3.1 and illustrated in Table 3.1, there were 12 experimental conditions, each assigned to one of 12 groups.

Once participants were in place and ready to see the video assigned to their group, they received instructions on completing the questionnaire. This included the explicit reminder that no items on the questionnaire were compulsory, that anyone could stop their involvement at any time and that participation was not required. One final confirmation was made that all participants present had read and understood the information on the consent and assent forms. It was also confirmed that participants did actually assent. The debriefing procedure was also confirmed one last time before commencing.

These precautions were taken for each group. In order to allow participants to terminate participation after being debriefed and full disclosure of the purpose of the study each questionnaire was issued a unique identification number. Participants were asked to memorise or record this number, as it was the only way to identify a questionnaire after it had been collected. Participants were given a two-week period following their participation to contact the researcher via telephone or electronic mail to request that a questionnaire be destroyed. It should be noted that no such request was received during the entire duration of the study.

Once all of the preliminary preparations were attended to, the video assigned to each group was played. Immediately following the conclusion of the video clip, participants were asked to complete their questionnaire. Participants were not allowed to discuss the video before completing the questionnaire. Participants were also seated far enough from one another so that they could not influence each other. These precautions were taken to ensure the independence of each measurement.

3.5.2 Study procedure at School B

Circumstances were somewhat different at the second school where data collection took place. While School A groups participated in a linear sequence over the course of several days, at School B, all 60 participants were available for only 40 minutes. Therefore, it was necessary to use assist-

ants in order to collect the data within the available time. Two assistants were used: one a teacher at School B and the other a university student. In a further bid to be as time-efficient as possible, the questionnaires at School B were pre-allocated to each of the remaining six experimental conditions. This was done by writing a unique code on each of the remaining 60 questionnaires. As with School A, these codes also served as a way to ensure that participants retained their right to have their questionnaire destroyed after full disclosure.

Three venues were used concurrently at School B. Each venue had two experimental conditions assigned to it randomly by using dice. Participants arrived at the three venues as they normally would. Those venues that had more than twenty students sent surplus students to one of the other two venues to even out the groups. Each venue's group was then divided in half. One half waited outside while the first half completed the questionnaire after watching their video. The groups then changed places and the process was repeated. Participants were then instructed to remember their unique codes if they wished to have their questionnaires destroyed after debriefing. Students at School B immediately received their debriefing forms following participation (unlike at School A). Other than these mentioned differences in procedure, the conditions of the study at School B were identical to those at School A.

3.6 ETHICAL CONSIDERATIONS

It can be argued that the study can improve our understanding of how and when a possibly vulnerable group is most likely to be swayed by a persuasive message. It can therefore be argued that the spirit of the research is that of beneficence, either directly to the participants (since they were directly taught about the dangers of information on the Web during debriefing) and as additional knowledge created by the research.

From the point of view of each participant, the study should be brief and innocuous. It does not require them to participate in an activity that is out of the ordinary. The general content of mainstream

media could be considered contentious, relative to the benign content of the video treatment. In other words, there is a greater chance one would see something disturbing on the evening news than in the video used in the study.

Deception is, however, an ethical issue for this study. Participants are told everything about the study except for those specific details which would invalidate the results. These omissions are rectified after participation. The existence of the omissions, as well as their justification, are disclosed before consent is asked.

To be more specific about the level of disclosure: Potential participants were told that the study wishes to “measure responses by teenagers to YouTube videos”, but not what responses were being recorded. They were informed that the video they would see did not contain any profanity, disturbing imagery or any material that was potentially controversial, such as material with religious themes. No other information was given regarding the content of the video.

Another source of potential harm comes from the hoax-based premise of the video. It is conceivable that some participants may feel that accepting the hoax-based premise of the study would cast them in a poor light, or that it may be a negative comment on their intelligence. To mitigate this possibility, specific reference is made in the debriefing material to the issue. Participants are reassured that this is not the case and that the expectation (and indeed requirement) of the study was that everyone who took part would accept the premise of the video. The reasons for this are discussed above in section 3.1. In order to compensate for these ethical issues, extra focus was placed on debriefing and opportunities to cease participation

3.7 CONCLUSION

In this chapter we identified the independent variables as “years of experience” and “education and occupation”. We also identified the dependent variable as the level of self-reported agreement with statements made by the persuader in a video.

We established that the conceptual nature of the variables in this study do not lend themselves to a factorial design. However, since the overall research reviewed in Chapter 2 indicates that manipulating peripheral cues does not always conform to expected results it is still necessary to have multiple combinations, to allow for a pattern in the data to emerge should it be present.

We dealt with issues regarding the population and sampling of the study, finally discussing ethical considerations briefly.

In the next chapter the analysis of the data collected in the study detailed above is presented and a few initial thoughts are shared regarding the meaning of the results as a preamble to the discussion and conclusion section in Chapter Five.

Chapter 4: Results and Analysis

In this chapter the analysis of the data, collected according to the design set out in Chapter 3, will be presented. This chapter begins with the presentation of the descriptive statistics for the subject sample and then proceeds to an inferential statistical analysis of the research questions addressed in the study.

4.1 The Exploratory Nature of the Study

The study in this dissertation is exploratory in nature, the researcher is fully aware that such an approach is problematic, especially in a quantitative paradigm. In this section we will therefore briefly discuss why it is justified within the context of this specific study.

As mentioned in the problem statement set out in Chapter One, section 1.4.1, this study is not addressing a problem area which exists in the current literature. One of the main purposes of the study is to determine whether the problem exists at all. The researcher feels that the outlined problem area is not unreasonable given the arguments in Chapter 1.

At the same time the researcher wishes to establish a controlled, repeatable method for investigating ELM and HSM framed persuasion research in the online context. The success or lack thereof is in itself a potentially valuable contribution to the body of research on the subject of persuasion.

The researcher understand the role of hypothesis testing in the scientific paradigm, but initial inquiry into an area makes this difficult due to the aforementioned lack of academic engagement with the subject.

However, the aim of this study is to yield at least some preliminary insight into this domain, that will hopefully inspire further and more systematic investigation of these research issues.

4.2 Sample Description

Data on the composition of the sample were collected during the study, in this section these data will be discussed, in order to contextualise the results in relation to the population from which it was derived.

4.2.1 Gender Composition

The gender distribution of the sample is disproportionately skewed towards male participants. This is a direct consequence of the gender composition of the second school because it was a boy's school. This school (School B) only consists of male students and therefore all of the experimental groups drawn from School B consist exclusively of male participants. This situation could have been avoided, in retrospect, by ensuring female participants from School A were present in every experimental group.

However, it did not become apparent that sampling from School B would be necessary until after the data collection at School A was finished and the study remained incomplete. It was never expected that the response from volunteers at School A would be so low. Indeed, all indications during interactions with School A prior to the study indicated that virtually the entire 120 students in Grade 10 intended to participate. Unfortunately this did not happen at the time the study was executed.

Therefore, although the effect of gender is not the object of the study, it must be acknowledged that the disproportionate gender distribution in the sample could be a nuisance factor. The situation was, however, an unintended and unavoidable consequence of the practical issues surrounding sampling for this study. In this sample, 66.9% of the participants were male with the remaining proportion (33.1%), of course, being female.

4.2.2 Age

Although it is expected that a Grade 10 student should either be 16 or turning 16 within the tenth year of secondary school, ages of the participants in this sample ranged from fourteen to seventeen years. Even so, only around seven percent of participants fell outside of the expected age range, and the mean age of participants was 15.47 (n=118). In Table 4.1, the distribution of ages within the sample can be seen.

Table 4.1 Age Distribution

Age	Frequency	Percent
14	6	5.1
15	53	44.9
16	57	48.3
17	2	1.7
Total	118	100.0

4.2.3 Population Group

Participants were asked to self-report which population group they identified with. They were not presented with a categorical choice, but were allowed to classify themselves with an open-ended item. Only two participants elected not to provide a population group affiliation. The population group most represented in the sample was the White or Caucasian population group, with 52.5% of participants classifying themselves as such. The second largest proportion of the sample consist of participants that classify themselves as African or Black, totalling 28.8% of the sample. The remainder of the sample were Indian (9.3 %), Coloured (3.4%), South Korean (3.4%) and Mixed (0.8%). A single case of “Mixed” could possibly belong in the “Coloured” category, but it is not possible to confirm this and so this remains a distinct category. It is clear from the descriptive statistics for this item that the population group proportions do not reflect national census patterns, since South Africa has a population of which the majority of people self identify as “Black”. The

large proportion of Caucasian participants in this study is not surprising, given that the most recent South African Census at the time of writing indicated that Caucasian South Africans were one of the most affluent population groups and the participating schools cater for more affluent families. Therefore, the pattern observed is expected.

4.2.4 Home Internet access

One of the requirements of the study is that the participants should be familiar with the online context reproduced in the experimental environment. Thus, an item was included in the instrument that asked participants whether or not they had home Internet access. The vast majority of the participants, 95.8% (n=118), indicated that they did have home Internet access. Although this is not a direct measure of the degree of familiarity participants have with the online context, it is a crude indication that, like television and radio, online media are present within the domestic environment of the participants in this study.

These data were collected because of the underlying assumption that if new media such as the Web (of which YouTube is a major destination) form a part of the media within the home without being a novelty, then measurements of these subjects may be predictive of how online message processing will factor in the future. For the generation of consumers under investigation in this study and onwards, Web-based media consumption is not a novelty, but a normal part of the media spectrum. This is a central issue that underlies the study, and it is discussed more fully elsewhere.

4.2.5 Academic performance

As discussed in Chapter 2, ability and motivation are the two most important factors that govern whether an individual will assume a heuristic strategy when processing a persuasive message. Academic performance is one purported measure of mental ability and is an easily reported metric within the context of a school. This construct was included in the research instrument when it be-

came clear that participants would be drawn from a school environment that was not typical of the rest of South Africa. The researcher then decided to confirm or disconfirm this notion by including an item that measured self-reported academic performance. The mean exam performance across all participants who disclosed their score was approximately 75% ($n=95, SD= 9.471$). The range of scores were from 50 to 94.

4.3 Exploration and analysis of results

The data were collected to explore how receivers of persuasive messages in the online context process the attempt at persuasion. In line with the dual process theories of persuasion discussed in Chapter 2, there are two main styles of cognition which may be used in order to process such messages: either a heuristic or an elaborative style. Participants were measured by an instrument (detailed in Chapter 3) with two sub-scales: one to measure a weak level of persuasion and the other to measure a stronger level of persuasion.

In this research study, participants were expected to indicate their agreement with the requirements of a persuasive message that they have been told originated on the video-sharing website YouTube, by way of rating statements derived from the persuasive message on a Likert scale. Each group of participants were subjected to an identical video, but were told different stories regarding the occupation, education and experience level of the persuading agent in the video.

Insufficient information is provided for persuasion to occur via a critical engagement with the message. The message names no sources and provides no evidence, but makes a large number of statements in support of an agenda and then requests action from the message receivers.

A seven-point Likert scale was used to measure agreement level with the persuasive message.

Two assumptions guided the data analysis: firstly, that a central, elaborative, non-heuristic appraisal of the message used in the study should yield non-commitment from a participant in other words, rating an item as four or close to four on a seven point scale. This is assumed given that

there is not enough information available to make a decision on agreement in either direction from the neutral midpoint.

Secondly, if the level of self-reported agreement rises with each successively higher level of peripheral cue, namely the two independent variables detailed in the treatment condition layout, then this is assumed to indicate that a heuristic style of cognition has taken place during the persuasion attempt.

4.3.1 Sub-scale exploration across all treatment conditions

The starting point for the exploration of the data begins with the descriptive statistics for the mean score across all treatment groups on both the weaker persuasion scale (WPES) and on the stronger persuasion scale (SPES).

For the WPES, the mean value across all treatment conditions is 5.4 as seen below in Table 4.2. This falls about halfway between the “somewhat agree” and “agree” points on the seven point Likert-type scale. This suggests that, in general, the persuasion attempt elicited a moderate amount of agreement from participants. The standard deviation of 0.86 suggests that there is little variation on average from the mean. This seems to be a tentative suggestion that not much variation exists between different treatment groups, since if there was a large amount of variation between groups, we would expect to see a relatively large standard deviation. This would also suggest that manipulation of the heuristic cues in this study did not influence participants' persuasion levels significantly.

In the case of the SPES, the mean value across all treatment conditions was 4.85. In line with expectations, the average score on this scale was lower than that of the WPES, falling just below the “somewhat agree” point on the Likert scale used in the study. As with the WPES, the standard deviation of the SPES ($SD = 1.15$) does not suggest much variability across treatment groups, which supports the same conclusion drawn in the previous paragraph.

Table 4.2 Sub-scale Descriptive Statistics Across All Treatment levels

	N	Minimum	Maximum	Mean	Std. Deviation
WPES	118	3.29	7.00	5.4056	.86111
SPES	118	1.71	6.86	4.8536	1.15066

4.4 Exploration and analysis of sub-scale scores by successive permutation of experimental group

As can be seen in Table 4.3, there are twelve treatment groups. Each group was measured independently. The exploration of the data has the main purpose of determining whether participants used a heuristic cognitive or systematic style in their processing of Web-based persuasive messages. In the following sections, various permutations of the experimental groups will have the mean scores for both sub-scales on the measurement instrument compared to answer that very question.

The term “permutation” in this case refers to the dictionary definition of the word: “Any of the ways in which a set of things can be ordered.” (Hornby, Wehmeier, McIntosh, & Turnbull, 2005, p.1082). Please refer to Chapter 3 for a discussion of how and why the treatment layouts exist as depicted below.

Table 4.3: Layout of experimental conditions

	Education/Occupation Low Credibility	Education/Occupation Medium Credibility	Education/Occupation High Credibility
Experience omitted	Group 1	Group 2	Group 3
Low experience	Group 4	Group 5	Group 6
Medium experience	Group 7	Group 8	Group 9
High experience	Group 10	Group 11	Group 12

The analysis of variance test statistic (ANOVA F-statistic) was used to compare the experimental group for each logical permutation of experimental group. In this case ‘logical permutation’ means a combination of treatment groups that the theoretical framework of the study suggests

should exhibit variations in agreement levels, when compared under these conditions. This is one of the reasons that not all treatment groups were compared together. Comparing Group 4 and Group 12, for example, may yield a significant difference. It would, however, be meaningless, since it does not fit into the explanatory framework in a meaningful way and is as likely to be arbitrary in nature as any other random comparison.

4.4.1 Permutation 1: ANOVA for occupation and education with the experience variable omitted for the WPES and SPES sub-scales

A one-way between-subject ANOVA was conducted to compare the effect of IV (Independent Variable) education and occupation sender attributes. There was no significant effect of the “occupation and education” sender attributes on the level of self reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions. [$F(2,27) = 1.706$, $p = 0.201$].

This suggests that for this group of participants simply telling them that someone was better educated or did a more impressive or relevant job relative to the subject of the persuasive message was not enough to make them agree more with that person's message within the context of a YouTube video. This did not have a statistically significant effect on agreement.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “education and occupation” sender attributes on the level of self reported agreement with items from the SPES sub-scale. There was no significant effect of the “occupation and education” sender attributes on the level of self reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(2,27) = 1.143$, $p = 0.334$].

This suggests the same interpretation as above with the WPES ANOVA, but note the higher p-value and smaller F-ratio, hinting that the SPES items exhibited a generally lower level of agreement with its items in comparison to the WPES.

4.4.2 Permutation 2: ANOVA for occupation and education with the experience variable at the low level

A one-way between-subject ANOVA was conducted to compare the effect of (IV) “education and occupation with one year of experience researching the subject” sender attributes. There was no significant effect of the IV on the level of self reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(2,26) = 1.662, p = 0.209$].

This suggests that for this group of participants simply telling them that someone was better educated or did a more impressive or relevant job relative to the subject of the persuasive message was not enough to make them agree more with that person's message within the context of a YouTube video. Even when they were informed that he claimed to have some experience on the issue

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “education and occupation with one year of experience researching the subject” sender attributes on the level of self reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(2,26) = 1.374, p = 0.350$].

4.4.3 Permutation 3: ANOVA for occupation and education with the experience variable at the medium level

A one-way between-subject ANOVA was conducted to compare the effect of (IV) “education and occupation with three years of experience researching the subject” sender attributes. There was no significant effect of the IV on the level of self reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(2,31) = 2.928, p = 0.68$].

This suggests that for this group of participants simply telling them that someone was better educated or did a more impressive or relevant job relative to the subject of the persuasive message

was not enough to make them agree more with that person's message within the context of a YouTube video. Even when they were informed that he claimed to have a moderate amount of experience on the issue. This did not affect agreement in a statistically significant way.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “education and occupation with three years of experience researching the subject” sender attributes on the level of self reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(2,31) = 1.258, p = 0.298$].

The interpretation is the same as for the WPES ANOVA for this permutation above.

4.4.4 Permutation 4: ANOVA for occupation and education with the experience variable at the high level

A one-way between-subject ANOVA was conducted to compare the effect of (IV) “education and occupation with five years of experience researching the subject” sender attributes There was no significant effect of the IV on the level of self reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(2,23) = 2.275, p = 0.125$].

This suggests that for this group of participants simply telling them that someone was better educated or did a more impressive or relevant job relative to the subject of the persuasive message was not enough to make them agree more with that person's message within the context of a YouTube video. Even when they were informed that he claimed to have a high amount of experience on the issue. This did not have a statistically significant effect on agreement.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “education and occupation with five years of experience researching the subject” sender attributes on the level of self reported agreement with items from the SPES sub-scale. There was no signific-

ant effect of the IV on the level of self reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions. [$F(2,23) = 2.668, p = 0.091$].

The interpretation is the same as for the WPES ANOVA for this permutation above.

4.4.5 Permutation 5: ANOVA for education and occupation at the low level while scaling years of experience

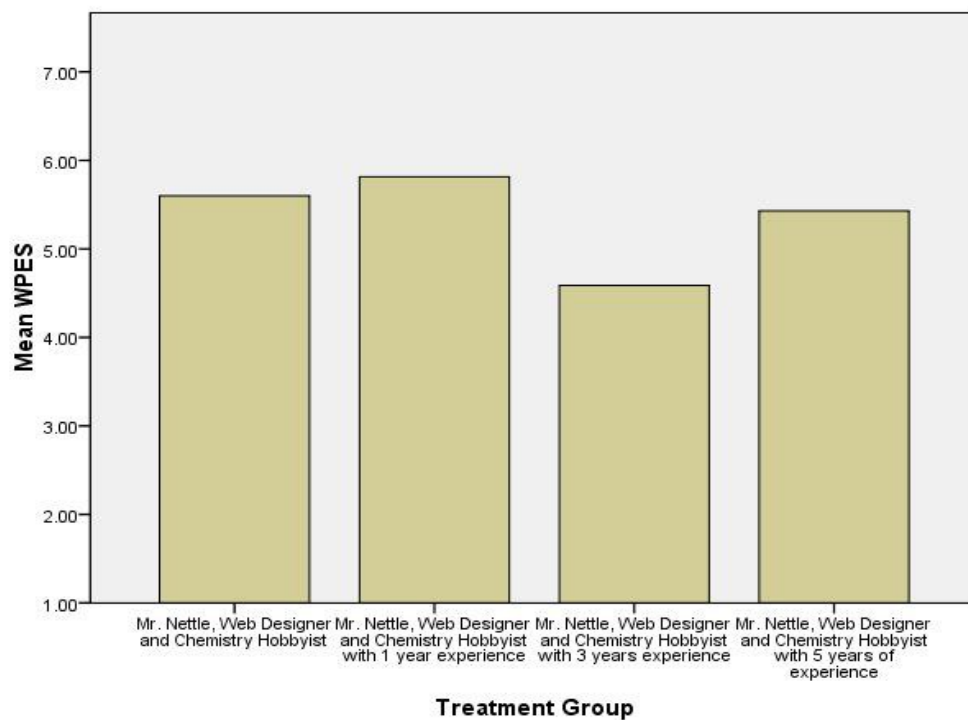
A one-way between-subject ANOVA was conducted to compare the effect of the (IV) “years of experience with low educational or occupational relevance” sender attributes. There was a significant effect of the IV on the level of self reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(2,35) = 5.146, p = 0.005$].

This suggests that for this group of participants, even though the speaker in the message claimed to have an occupation that had little to do with the issue, varying the amount of claimed years of experience affected self reported agreement with the speaker in a statistically significant way within the context of a YouTube video.

Post hoc comparisons using the Bonferroni test indicated that the Mean Difference for the condition which only claimed occupation and education with little relevance to the subject of the persuasive message as well as three years of experience, was significant at the $p < .05$ level compared to the conditions claiming no years of experience ($MD = -1.01333, SE = 0.33208, p = 0.026$) and one year of experience ($MD = -1.22833, SE = 0.33208, p = 0.004$). The condition claiming five years of experience did not differ significantly from any of the other conditions.

This means that the condition that claimed three years of experience had a mean score significantly lower than either the condition that did not mention years of experience and the condition that mentions one. One would expect that the level of agreement would neatly rise from the lowest level of the IV to the highest, clearly here it does not, as can be seen in Figure 4.1. It is unclear why this should be the case, but perhaps it forms a pattern with other results of the various experimental permutations. This will become clear in the discussion of the results in Chapter 5.

Figure 4.1 WPES Mean Scores for Permutation Five Compared



A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “years of experience with low educational or occupational relevance” sender attributes on the level of self-reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self-reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(3,35) = 2.331, p = 0.091$].

This indicates that for the sub-scale that did not only measure attitude, but also required self-reflection from participants, there was no statistically significant difference in levels of self-reported agreement in the YouTube video context for this permutation.

4.4.6 Permutation 6: ANOVA for education and occupation at the medium level while scaling years of experience

A one-way between-subject ANOVA was conducted to compare the effect of (IV) “years of experience with medium educational or occupational relevance” sender attributes. There was no significant effect of the IV on the level of self-reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(3,35) = 1.102, p = 0.361$].

This suggests that for this group of participants the persuader's claims of having a moderate amount of occupational and educational relevance to the persuasive message's topic, while varying the claimed years of experience, was not enough to change the amount of self-reported agreement with the questionnaire items.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “years of experience with medium educational or occupational relevance” sender attributes on the level of self-reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self-reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(3,35) = 1.747, p = 0.240$].

The interpretation is the same as for the WPES ANOVA for this permutation above.

4.4.7 Permutation 7: ANOVA for education and occupation at the high level while scaling years of experience

A one-way between-subject ANOVA was conducted to compare the effect of (IV) “years of experience with high educational or occupational relevance” sender attributes. There was no significant effect of the IV on the level of self-reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(3,36) = 1.509, p = 0.229$].

This suggests that for this group of participants the persuader's claims of having a moderate amount of occupational and educational relevance to the persuasive message's topic, while varying the claimed years of experience, was not enough to change the amount of self-reported agreement with the questionnaire items.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “years of experience with high educational or occupational relevance” sender attributes on the level of self-reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self-reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(3,36) = 0.262, p = 0.852$].

The interpretation is the same as for the WPES ANOVA for this permutation above.

4.4.8 Permutation 8: ANOVA for combined education and occupation groups

Each treatment group's condition was virtually identical in all ways other than the planned manipulation of variables and uncontrollable factors such as which participants were assigned to each condition. Therefore treatment groups that share a particular level can be combined, since each combined group will contain an equal proportion of the variable from the other axis. Each combined group is then identical excepting the level of the variable that we wish to compare.

This is useful because it allows us to use the same data to do an analysis with a larger sample size, affording us more statistical power. In this case all treatment groups that shared the same level of the IV “occupation and education” were combined, yielding three larger groups.

A one-way between-subject ANOVA was conducted to compare the effect of (IV) education and occupation with equal proportions of “years of experience” sender attributes. There was no significant effect of the IV on the level of self reported agreement with items from the WPES sub-scale at the $p < 0.5$ level for the three conditions [$F(2,115) = 1.347, p = 0.264$].

This suggests that for this group of participants varying the relevance of “occupation and education” to the topic of the persuasive message did not lead to significant differences in the level of self-reported agreement with the WPES sub-scale.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) education and occupation with equal proportions of “years of experience” sender attributes on the level of self reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(2,115) = 0.733, p = 0.483$].

The interpretation is the same as for the WPES ANOVA for this permutation above.

4.4.9 Permutation 9: ANOVA for combined experience level groups

Please refer to section 4.3.1.9 for an explanation regarding the combined treatment group analysis.

In this case all treatment groups that shared the same level of the IV “years of experience” were combined, yielding three larger groups.

A one-way between-subject ANOVA was conducted to compare the effect of (IV) “years of experience” with equal proportions of “occupation and education” sender attributes. There was no

significant effect of the IV on the level of self reported agreement with items from the WPES sub-scale at the $p < .05$ level for the three conditions [$F(3,114) = 1.457, p = 0.230$].

This suggests that for this group of participants the persuader's claims of having a moderate amount of occupational and educational relevance to the persuasive message's topic, while varying the claimed years of experience, was not enough to change the amount of self-reported agreement with the questionnaire items.

A one-way between-subject ANOVA was also conducted to compare the effect of (IV) “years of experience with equal proportions of “occupation and education” sender attributes on the level of self reported agreement with items from the SPES sub-scale. There was no significant effect of the IV on the level of self reported agreement with items from the SPES sub-scale at the $p < .05$ level for the three conditions [$F(3,114) = 0.809, p = 0.491$].

The interpretation is the same as for the WPES ANOVA for this permutation above.

4.5 Comparison of the difference between the WPES and SPES

A dependent samples t-test was conducted to compare the average level of self-reported agreement for the WPES (only a measurement of attitude) sub-scale and SPES (attitude with a requirement for reflecting on one's own behaviour) sub-scale respectively.

There was a significant difference in the scores for the WPES ($M = 5.4056, SD = 0.86111$) and the SPES ($M = 4.8536, SD = 1.15066$) $t = 7.649$, 2-tailed significance of $p = 0.001, DF = 117$.

Cohen's d was calculated (by dividing the mean difference of the paired samples test with the Standard Deviation) which yielded a value of 0.7. According to Cohen's guidelines for interpretation this effect size it is at the high end of the range between a medium effect size ($d = 0.5$) and a large effect size ($d = 0.8$) (Cohen, 1988)

This suggests that there was really a very large difference between self-reported agreement where only a measurement of attitude was taken and when participants were also asked to consider their own behaviour in addition to the measure of attitude.

This is interpreted as an indication that the actual behaviour that could result from the persuasive message employed in the experiment is considerably less than general level of self-reported agreement on the WPES alone would suggest.

4.6 Conclusion

In this chapter descriptive and inferential statistics were detailed as used in the study, with some discussion as to their interpretation. In the next chapter these results will be discussed broadly and will be followed by specific recommendations.

CHAPTER 5:DISCUSSION OF RESULTS AND CONCLUSION

5.1 GENERAL DISCUSSION OF RESULTS

In this study, the researcher set out to seek evidence of a proposed problem area. The changing nature of communication was discussed as well as the role of persuasion.

It is the researcher's hope that the arguments presented in Chapter 1 as well the supporting material in Chapter 2 have been effective in framing the problem area and staging initial arguments for further research.

As discussed in Chapter 4, the analysis indicated that, for the participants in the study, no permutation of treatment conditions yielded any statistically significant difference when comparing their mean scores, with the exception of Permutation 5. In other words, despite various combinations and levels of sender attributes that are known to increase agreement with a persuader when reasoning heuristically, participants generally exhibited the same level of agreement with the speaker in the experimental video.

This was a result which fell within the expected gamut of outcomes. The most parsimonious interpretation of this result is that the manipulation of heuristic cues in this study, within the context of web-based persuasion attempts, did not influence agreement with the message of the persuader in any significant way. Of course, because of the relatively small treatment group sizes, it is entirely possible that there was simply not enough statistical power to accurately measure the difference for the given population. However, neither of the large group combinations yielded statistically significant differences in mean values either. Hence, it is probably safe to conclude that there genuinely was no significant difference between the means of the different groups, in spite of the heuristic cue manipulation.

Yet, a question still remains: If the manipulation of the variables did not elicit a change in the level of agreement, why then was there an average level of measured agreement that is higher

than the neutral midpoint on the scale? For the sake of clarity, it should be reiterated that there were two independent variables manipulated in all but three of the treatment groups. These independent variables were “years of experience” as one and “education and occupation” as the other. The dependent variable was “degree of persuasion” which was operationalised as measured agreement with statements made by the persuader in the video message.

The analysis of these data only lends partial support to the notion put forward in this dissertation. Though there were no explicit hypotheses put forward (and therefore no directional testing), there were a number of expected outcomes laid out in the early chapters to aid interpretation of the results. It was expected that there would either be systematic variation that correlated with relatively higher or lower levels of each heuristic cue, or that there would be no systematic difference since participants were critically engaging with the message.

As was set out in Table 4.2 in Chapter Four, the average level of agreement for the WPES was 5.4. The range of average scores for the sub-scale was between 3.29 and 7.0. On average, participants, therefore, generally “agreed” on the Likert-type scale. With a Standard Deviation of 0.86 relative to the Mean, there is also little dispersion of data points. Considering that this is the Mean, Range and Standard Deviation for all participants under all conditions, it is unsurprising that there were no statistically significant differences

This situation is echoed for the SPES, As indicated in the same table (Table 4.2), with the mean score for the average of the items on the SPES. In the case of the SPES, the mean score was 4.58. The range of scores was between 1.71 and 6.86. Obviously, the wider range increased dispersion of the data and therefore, the standard deviation was slightly higher than the WPES at 1.

How problematic is this for the interpretation of the data? In light of the strictness of the design and the efforts employed to ensure isolation of the effect of heuristic cues in an online environment, the important observation here is that the manipulated factors did not seem to have any effect on the self-reported level of agreement the students exhibited.

This point is further bolstered by the stark difference between scores on the WPES and the SPES. The entire study was designed with the core guiding principle of eliminating as many uncontrolled factors as possible to reduce noise in the data, so that even if the sample was not of a nature that allowed a result which was generalizable, it would at least give a valid result within the sample itself. In other words, there was a large significant effect within the sample, but the sample size and sampling strategy do not justify drawing a generalizable conclusion.

The very reason for the existence of the two sub-scales was based on the known issue, summarised by Potter (2006), of attitude not being predictive of behaviour. Please refer back to section 3.4.2 to revisit the explanation for these separate sub-scales.

Ultimately the reason that we would want to know if online persuasion is processed uncritically by young adults and beyond is the potential effect on their behaviour. Would they incorporate the information into their belief framework? If so, would they then subsequently make decisions based upon that possibly erroneous information?

The WPES/SPES sub-scale set was introduced into the design in order to give some type of indication of an actual behavioural indicator. It would be difficult, based upon the data or analysis in this study, to make authoritative statements regarding the future behaviour of receivers of persuasive online messages. However, this study does clearly demonstrate that bringing the behaviour explicitly to the mind of the subject substantially reduces the amount of self-reported agreement. As detailed in section 3.4.2, the SPES items were re-statements of the items in the WPES, rewording them to ask participants to consider their own actions.

Whereas an item on the WPES would ask for agreement with the statement “I think people should sign this petition,” the SPES would state “I would sign this petition myself”. The underlying assumption is that items on the SPES are not just measuring attitude, but are also asking participants to consciously reflect on their own actions. Although this is not a direct measurement of behaviour,

it provides a different measurement from attitude alone, somewhat mitigating the aforementioned problems with attitude research.

To summarise, the main finding that can be taken from the analysis of the results is that, for these young adults, it made no difference from one treatment group to the next, how heuristic cues were manipulated. They still exhibited a mean level of agreement with a difference no greater than random chance. However, when presented with items that did not involve purely a measurement of attitude, but required consciously thinking about their own personal actions, the agreement dropped immediately and substantially.

On the surface then, it would appear that the main research question can be answered. For the sample of students tested, the response to the simulated online persuasion attempt was adaptive. This is interesting in light of the numerous studies in mass media during the 20th century which had no trouble in producing significant differences between groups by manipulating heuristic cues.

The main issue is that there are alternative explanations and interpretations for the results of this study. These alternative explanations stem from some design decisions that did not allow for a clean, dichotomous result.

In the next section of this chapter some of the most likely alternative explanations for the data will be discussed. This discussion will naturally allude to some of the limitations of the study, as well as recommendations on how future studies in this area can avoid some of the pitfalls and help to eliminate some of the alternative interpretations of the data.

5.2 ALTERNATIVE EXPLANATIONS FOR THE OBSERVED DATA

The results as they have been framed so far represent the *prima facie* interpretation of the data and analysis results. However, there will always be alternative accounts for the data, either through limitations in design, ambiguous results or feasible low probability explanations. Some limitations of the study feed into the alternative explanations and are, therefore, partially repeated below.

5.2.1 Research design as a causal factor for the data pattern

One possibility for the lack of significant differences between the various treatment groups is that the research design itself cancelled out the effect that the study intended to examine.

Many of the studies used as examples in the literature reviewed in Chapter 2 (specifically section 2.10) use a design where the same group of individuals are shown competing arguments by two different senders. It is unclear why this is the case, but almost every study reviewed, did not take great care to eliminate nuisance factors such as having different speakers for each treatment condition. In this study, such an approach was considered “fuzzy” or too imprecise. In other words, how could one be sure that the correct effect was isolated?

It is however a possibility that by eliminating possible sources of bias, such as priming or uncontrolled peripheral factors such as race and gender, this removes the opportunity for subjects to contrast messages, which potentially could affect whether or how they reason heuristically. This was not a planned or foreseen issue that was discussed before and it is included in this alternative explanation for the data as a post-facto suggestion. Nonetheless, this possibility would be prudent to keep in mind for further studies in this area.

5.3 LIMITATIONS

As with any study, design and conceptualisation are never perfect. A number of issues that may influence the validity of the study and that should be kept in mind when interpreting the results will now be discussed.

5.3.1 The lack of a control group as part of the experimental design

This issue has been addressed in previous sections, but it bears repeating here. While it is true that the study lacked a control group, as has been mentioned before, there is no clear way to provide a placebo for heuristic cues. Perhaps one could have played the message to a group of students without providing any information about the sender. Yet, as mentioned in the previous discussion on this issue, this would not serve to address the research question. The purpose of the study was to explore both the old media context (Radio, Television, etc) and the new media context (Facebook, YouTube, Twitter, etc.) and then judge if there was a systematic difference between the two. The optimum way to have done this is by having treatment groups under the same conditions, but also varying the media context as a variable. The variable of media context is, in many ways, the most important one in this study, so why wasn't the design done in such a manner?

First of all, there is a large body of research within the mass media context with which to compare the general results of the study, such as those detailed in section 2.10. These studies may not match this one in terms of design, but the weight of that research suggests that receivers do process messages heuristically under the right conditions. Another issue is that the total sum of participants used in this study were the only ones available to the researcher. This suggests that the existing sample would have been halved for each media context. Given that research on the topic of heuristic cues and persuasion in the context of Old Media has already been performed in abundance, it was the judgement of this researcher that did not serve the purpose of the study. The purpose here is to gain a broad and initial insight into how persuasive message processing unfolds in the New Media context.

Secondly, a mass media experimental condition would be expensive to replicate. It would not have been feasible to replicate a convincing mass media version of the message while keeping all other variables consistent across treatments. This would, however, be an optimal route to take and is a prime recommendation for future studies on this topic. In order to achieve this, one would need to take a standardised persuasive message and produce two different forms of media. One that appears to be a product of mass media (e.g. a news broadcast by the South African Broadcast Corporation, for example) and another that appears to be from “YouTube” or another form of Web 2.0 dissemination. The important aspect of designing such a study is to ensure that nuisance factors are controlled for, as far as is feasible. As an example, it would be confounding to have two different people feature in each message, since this change introduces new factors that could influence participants’ perception of that message.

5.3.2 Measurement validity and reliability of the instrument

Measurement validity refers to the question of whether the operationalisation of a theoretical construct and the construct itself actually conform to one another. (Durrheim & Painter, 2008, p.147) This is a troubling issue in this study, since there is no empirical evidence that the instrument in use possesses measurement validity. As discussed in section 3.3.1, there is a simple and direct line of reasoning between the construct that we wish to measure (level of persuasion) and the items on the questionnaire, as derived from the text of the persuasion attempt.

Establishing criterion validity for the instrument is somewhat of a problem in this study for a number of reasons. In terms of criterion reliability, the difficulty lies in the match between the video created for the study and the instrument created to measure agreement with the video and by extension persuasion. Attempting to establish criterion validity by using another (more general) persuasion measurement instrument is recommended. However, since this study is so context specific, it is doubtful whether such a measurement of validity is feasible.

Section 3.3.1 also addresses issues of instrument reliability, but there are additional issues to mention as limitations. The only type of reliability that could be estimated in this study was internal consistency using Chronbach's Alpha (which, as section 3.3.1 indicated was acceptable). As a pilot study, there cannot be data for test-retest reliability or any external validation of reliability. The instrument used in this study has no direct equivalent by which to measure it, but subsequent studies could be used for this purpose.

Indeed, the development of the instrument and its items are a source of concern. The time and manpower available to complete this research did not allow for a rigorous process in developing and testing items. Rather, the items were derived from the chosen message and tested for reliability as a post-hoc measure. It is a recommendation that future research which may follow the template of this study should pay special attention to more rigorous instrument development.

5.3.3 Independence of sampling

Independence of sampling is one of the most important assumptions underlying parametric statistical tests, especially ANOVA which is the main technique used (Field, 2008, p.324).

In consultation with peers on the methodology of this study, one of the concerns that was raised is that the measurement of subject responses were not independent. In other words, subjects who are subjected to a treatment and measured in the same venue would influence each other's responses in some way. This is a legitimate concern and precautions were taken in order to ensure that such threats to independence did not occur.

First of all, as mentioned in section 3.1, participants were seated too far from one another to allow them to see each other's responses. Furthermore, they were not allowed to communicate at all between viewing the video and the completion of the questionnaire. Therefore, if any influence occurred as a result of conducting the study in groups then that influence could only have derived from contextual cues such as body language. Weighed against the impracticality of conducting the

study one participant at a time, even for a small sample such as the one in this study, the cost-benefit ratio seems to be a fair one.

5.3.4 Sampling bias

Without a doubt, the sampling performed for this study is biased in multiple fashions. As discussed in the sample description under section 4.2, there are a number of skewed attributes for the sample used in this study. The academic performance of the students in question is not normally distributed in the sense that the greater proportion of exam scores cluster around the fifty percent mark. In the case of the students sampled for this study, the exam performance was higher than average with a mean exam performance of seventy five percent.

One of the most important suggestions for replicating this study is to ensure that a more typical set of teenagers are used, in terms of academic performance. It may well be that this factor plays a role in the “ability” component of whether a central processing route will be employed. Regardless, the sample cannot be generalised to all teenage learners in South Africa if their educational performance is not representative of population parameters.

5.3.5 Problems with causal inference

The above mentioned issues with the lack of a control group and convenience sampling limit the causal inferences that can be drawn from the results. Causality is problematic enough to establish at the best of times, but to mitigate this issue future research along this line could attempt to get a truly random sample from many different contexts. Despite the inherent problems with doing research by using participants on the Web (mainly a lack of control and problems with participant honesty), it might be a reasonable trade-off to run similar studies based on the Web itself, in order to reach a larger audience.

There is also the question of how to design a placebo or control group in the light of the conceptual issues already explained, remains elusive.

5.4 CONCLUSION AND RECOMMENDATIONS

The main question of this study was whether the current generation of online media consumers, socialized from the day of their births in a world that is digitally connected, would process persuasion attempts via this medium adaptively. In other words they would process these attempts in a healthy way that would not lead to negative consequences, such as being persuaded by misinformation.

For this sample group, the answer seems to be in the affirmative. This is especially so since provoking subjects to think of their own behaviour, rather than just providing their attitudes, significantly lowered measured agreement.

As mentioned in the preceding sections of this chapter, there are significant shortcomings to this study which future research should try to address.

This study, on its own, has not yielded what could be fairly called a representative or generalisable result. While it could be argued that for this cohort, economic stratum and academic bracket, the results could be generalised, this would not be generalisable to the wider population in South Africa or beyond.

The most glaring problem is that the group of subjects used in this study are academically strong. The schools that were involved cater to families from a higher socio-economic stratum than the average public school student. What would the results be for students from a public school? What about students from a school without the facilities to easily access the Web? These questions are specially relevant in a South African context where there is a general concern about the quality of public schooling ('E' is for education.2011). This might be an important issue to address.

This researcher would strongly recommend investigating the problem for this demographic of possible participants. It is regretful that circumstances did not allow for it during this study. It

seems reasonable to expect that such students might not demonstrate the resilience seen here for this sample of participants.

The next step to follow after this pilot study would be to repeat the experiment with varying groups of subjects, in order to build a more complete picture of persuasion in the Web-context for young people in South Africa.

There are a few final thoughts the researcher would like to share at this point with regard to the premise of the study and its results.

Although it was pleasantly surprising to find that deliberate attempts at manipulation failed to convince the participants in a way likely to alter their behaviour, this researcher cannot take particular comfort that the problems hypothesised in this dissertation are not going to be an area of concern in the future. Without a doubt our digital communication technologies can amplify some of our most positive aspects: curiosity, empathy, a sense of community and expanded learning to name but a few. Yet the coin has two sides, it also runs the risk of doing the same for negative aspects: xenophobia, anti-intellectualism, pseudo-science and an unfortunately long list of '-isms' humanity could rather do without.

The subjects in this study were bright, privileged young men and women. They were for the most part a positive example of what good schooling and adequate resources can do. Sadly they are not representative of the majority of South Africa, where this study was conducted, nor of the global context as a whole. It will always be important to treat people and groups of people as heterogeneous, although it makes our jobs as researchers more difficult, with an imperative to make our finding broadly relevant. Many third-world communities are leapfrogging directly into contact with the Web. Some places in the world, such as parts of India, have mobile Internet access, but no plumbing or mains electricity.

The greatest danger is treating the Web and its relatives as the tame animal we come to know in the form of the mass-media, but the Web is not a tame animal, it is wild and unpredictable and needs to be treated with the right amount of respect, lest it turns on us.

Do the users know this? The poor, the uneducated, the old, the young? Do our evolved social instincts that served us well on the Savannah and tribal groups work in the 'global village'?

Do not mistake the new for the old, do not think that the future will be like the past. Let us leave it at this with one final, rhetorical question: Can we expect our fellows to be prepared for an ever more rapidly changing world if we cannot tell them what to prepare for or how?

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APPENDIX A : VIDEO CLIP TEXT

Recently a hazardous chemical has been discovered that is colourless, odourless, tasteless and dissolves completely in water. The substance is dihydrogen monoxide also known as DHMO and has the following properties: It is used as an industrial solvent and coolant, and is used in the production of styrofoam. It is used in many forms of animal research. It is used in the distribution of pesticides. It accelerates corrosion and rusting. It contributes to the erosion of our natural landscape.

Inhalation of this substance has been shown to cause death. In certain forms, this chemical can cause severe burns, cloud the atmosphere, and may contribute to the “greenhouse effect.” It can also damage concrete and glass, as well as the surfaces of roadways. Quantities of this substance have been found in our rivers, lakes, streams, oceans, reservoirs, and now our local water system. It has also permeated the atmosphere, and has contaminated ground water. No current form of water purification can completely eliminate the deadly substance. Our government has spent billions of Rands to try to control and contain this dangerous chemical. I implore the public to take action against this threat. If you are aware of DHMO being used in your community then make your voices heard. Set up petitions, take action and protect yourselves and your families.

APPENDIX B QUESTIONNAIRE

Please answer the following questions honestly.

PAPER CODE

Remember that your information remains anonymous!

You do NOT have to answer any questions you do not want to.

3. Please indicate your gender : _____
4. Please indicate your age _____
5. Please indicate which population group you belong to (eg. Black, Chinese,etc.) _____
6. Are you a South African citizen? Yes/No _____
7. What was your average percentage in your last exam? _____
8. Have you heard about DHMO before? Yes/No _____
9. Do you have Internet access at home? Yes/No _____
10. Please mark with an **X** how much you agree or disagree with the following statements:

Question	Strongly Disagree	Disagree	Somewhat Disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
I am concerned about DHMO							
I would tell my friends about DHMO							
I believe that DHMO is a threat to human beings.							
I don't want DHMO in my neighbourhood							
I would support protesting against DHMO							
I think a petition against DHMO is a good idea.							
I think people should spread the word about DHMO							
I would sign a petition to ban DHMO							
I would protest against DHMO myself							
I feel some fear regarding DHMO.							
I'd donate money to anti-DHMO organisations							
I would warn my friends about DHMO							
I believe that DHMO is a threat to myself.							
I would help spread the word about DHMO.							

NOTE: The first seven items under 10 belong to the WPES and the rest belong to the SPES.

APPENDIX C : ASSENT AND CONSENT FORMS

ASSENT TO PARTICIPATE IN RESEARCH BY MINOR

University of South Africa

My name is Sydney Louw Butler and I am a post-graduate student in the Department of Psychology at the University of South Africa. I am conducting a study on how teenagers respond to YouTube videos. This will take approximately 30 minutes

The content of the video does not contain any bad language or inappropriate imagery. It is simply a video of a man who will convey a message to you. The content of the message is not controversial in any way. It does not mention religious, adult or any other themes which is likely to upset anyone with a sensitive nature.

If you agree to be in this study, you will be asked to complete a questionnaire. You do not have to answer any question you don't want to or you can stop participating at any time. In addition, no one will be able to know how you responded to the questions and your name will never be used.

There are specific things about the responses of teenagers to YouTube videos that I am interested in.

Unfortunately, if I tell you exactly what they are before you participate then your reactions will not be honest ones, because you will be thinking about those reactions.

After you have taken part in my study I will explain exactly what those specific things are and you can still choose to stop your participation at this point.

Please talk about this study with your parents before you decide whether or not to participate. I will also ask your parents to give their permission for you to participate. Even if your parents say "yes" you can still decide not to participate. You may also change your mind before or during your participation. No one will be upset with you if you don't want to participate or if you change your mind later and want to stop.

You may ask me any questions about this study. You can call me at any time **072 194 7814** or talk to me the next time you see me.

By signing below, you are agreeing to participate with the understanding that your parents have given permission for you to take part in this project. You are participating in this study because you want to. You and your parents will be given a copy of this form after you have signed it.

PRINT NAME

DATE

SIGNATURE

PARENTAL CONSENT FORM.

University of South Africa

My name is Sydney Louw Butler and I am a post-graduate student in the Department of Psychology at the University of South Africa. I am conducting a study on how teenagers respond to YouTube videos. This will take approximately 30 minutes

The content of the video does not contain any bad language or inappropriate imagery. It is simply a video of a man who will convey a message to the viewer. The content of the message is not controversial in any way. It does not mention religious, adult or any other themes which is likely to upset anyone with a sensitive nature.

If your child agrees to be in this study, he/she will be asked to complete a questionnaire. They do not have to answer any question they don't want to or can stop participating at any time. In addition, no one will be able to know how they responded to the questions. Names will never be used.

There are specific things about the responses of teenagers to YouTube videos that I am interested in.

Unfortunately, disclosure of exactly what they are before participation will invalidate the legitimacy of those reactions.

After participation in my study I will explain exactly what those specific things are to participants and your child can still choose to stop participation at this point.

Please talk about this study with your child before you decide whether or not to give consent.

Even if you do consent, your child can still decide not to participate. Your child may also change his/her mind before or during participation.

You may ask me any questions about this study. You can call me at any time 072 194 7814 or email me at wallmaniacal@gmail.com

By signing below, you are consenting to your child's participation in the study and confirming that you have discussed the study with your child.

PRINT NAME

DATE

SIGNATURE
