Kurskod: SKOK11/SKDK11
Termin: Vårterminen 2022
Handledare: Nils Gustafsson
Examinator: Emma Björner

# INFORMATION CREDIBILITY: HOW DOES ARGUMENT STRENGTH HAVE AN IMPACT

## A QUANTITATIVE STUDY REGARDING THE CORRELATION BETWEEN INFORMATION CREDIBILITY & ARGUMENT STRENGTH

MARCUS BERNETTE & HAMPUS SJÖBLOM

Lunds universitet
Institutionen för strategisk kommunikation
Examensarbete för kandidatexamen

# Abstract

Determining whether the information read online is credible or not has become a crucial part of the process of consuming new information. With technology and the internet becoming all more advanced and developing continuously, the question regarding the influence of an argument's strength on information credibility arose. The aim of this study was to contribute to the field of strategic communication by researching if argument strength has an impact on information credibility. This was done by using arguments from a previous study and applying those arguments in a Swedish context in the form of Facebook mock-up posts. In order to achieve the purpose of the study, a quantitative approach was chosen in an experimental design by carrying out an a/b-test collecting descriptive statistics, recipients' perceived credibility of information and their attitudes towards social media. By conducting a univariate analysis and a comparison of means, the study found that argument strength has a positive effect on how credible information is perceived. The results confirm several findings mentioned in previous research studies within the field of message credibility and persuasive communication. Furthermore, this study strengthens previous reflections and results with data collected from a predominantly millennial generation in Sweden. The study also offers insight on how users with similar attributes to this sampling group may evaluate information credibility online. This thesis paper may be of interest to communication practitioners and organizations creating and publishing information online.

*Number of characters: 64 243*

*Keywords:* Information credibility, message credibility, argument strength, persuasive communication, social media, digitalisation, perceivance

# Sammanfattning

Att avgöra om informationen som läses online är trovärdig eller inte har blivit en avgörande del av processen att konsumera ny information. I och med att teknik och internet blir allt mer avancerade och kontinuerligt utvecklas, uppstod frågan om hur ett arguments styrka skulle påverka informationens trovärdighet. Syftet med denna studie var att bidra till området strategisk kommunikation genom att undersöka om argumentstyrka har en inverkan på informationens trovärdighet. Detta gjordes genom att använda argument från en tidigare studie och applicera dessa argument i en svensk kontext i form av mock-up-inlägg på Facebook. För att uppnå syftet med studien valdes ett kvantitativt angreppssätt i en experimentell design genom att genomföra ett a/b-test som samlar in beskrivande statistik, mottagarnas upplevda trovärdighet av information och deras attityder till sociala medier. Genom att genomföra en univariat analys och en jämförelse av medel, fann studien att argumentstyrka har en positiv effekt på hur trovärdig information uppfattas. Resultaten bekräftar flera observationer som nämnts i tidigare forskningsstudier inom området meddelande-trovärdighet och övertygande kommunikation. Vidare stärker denna studie tidigare reflektioner och resultat med data insamlad från en övervägande millennium generation i Sverige. Studien ger också insikt om hur användare med liknande attribut som denna urvalsgrupp kan utvärdera informationens trovärdighet online. Denna uppsats kan vara av intresse för kommunikationsutövare och organisationer som skapar och publicerar information online.

*Antal tecken: 64 243*

*Nyckelord*: Informationstrovärdighet, budskapets trovärdighet, argumentstyrka, övertygande kommunikation, sociala medier, digitalisering, uppfattning

# Foreword

*First of all, we would like to give a special thanks to our supervisor Nils Gustafsson for the invaluable guidance and involvement throughout the whole process of this thesis. We would also like to thank Nils Holmberg for his counseling in survey experiments and overall methodology, and Ilkin Mehrabov who has been of support with SPSS related questions.*

*Thank you to the Department of Strategic Communication at Lund University for all the knowledge, inspiration and resources that you have provided us over these past three years.*

*We would like to put emphasis on the fact that our contribution to this thesis has been equal.*

Marcus Bernette & Hampus Sjöblom - May 23, 2022

# Table of Contents

# 1. Introduction

*In the following section, the background to this study will be presented in order to create context for the reader. The background is then followed by the research problem and then the purpose of the study. The introduction will conclude with the study's relevance and contribution to the research field strategic communication and present the research question.*

## 1.1 Background

### 1.1.1 Information Acquisition in Digital Media

With the continuous expandation of digital and social media (SM), traditional media is constantly being challenged as a main source for information gathering. Printed media such as newspapers or live news on television was for long the main source of information (Fellenor, Barnett, Potter, Urquhart, Mumford & Quine, 2018). SM platforms such as Facebook, Instagram, Twitter and Snapchat have grown in recent years to have earned a greater influential power in shaping the public's opinions and beliefs and today, almost half of the world's population are active users on the digital sphere and these types of SM platforms (Vijaykumar, Jin and Pagliari, 2019). As digital media makes it more convenient for all of its users to participate in the process of shaping, sharing and collecting information, it also complicates the filtration and validation of the information's accuracy (Vijaykumar et al., 2019). Chung (2011) believes that the internet has changed the conceptual framework of how people interpret, perceive and respond to information online.

According to a survey study shared on Statista (2021), 47% of 2,000 respondents in Sweden used SM as a source for collecting their news and other relevant information. SM platforms such as Facebook, Instagram, Twitter and Snapchat all began as platforms where users could share their personal lives and thoughts with their friends or followers. As the platforms have grown and become more popular, news and more personal content that SM platforms were known for

hosting, was shared and integrated onto the same platforms. Not only are established news networks and media companies such as CNN or BBC active on the platforms, but also newer organizations that might not be as credible or established in the media world. Due to this combination of integrating news onto SM platforms and permitting any user to voice their opinions and perspectives online, it can cause an overabundance of information that can be difficult to verify.

### 1.1.2 Post-Truth Era

According to Pasi and Viviani (2020) we are living in a so-called post-truth era where objective facts seem to have less influence on people when they are forming public opinions. Facts that appeal emotionally and on a personal level, are supposedly a more important aspect when influencing and forming opinions. Due to this information regarding influence, SM platforms have adjusted their way of functioning by creating what the authors refer to as echo chambers. Echo chambers are described as a feed of information dominated by perspectives and opinions that are branded for each individual user based on their behavior on the internet. Since tools for examining whether or not this information is legit or not are non-existent on the platforms, false information can easily be spread without validation. This forces users to become exposed by information solely fitting in with the perspective they have created for themselves. Users can become separated from information that disagrees with their opinions on the world and effectively detach themselves from the truth and other ways of thinking.

### 1.1.3 Fake News and the Importance of Information Credibility

There is a common saying that, "A lie gets halfway around the world before the truth has a chance to get its pants on". This implies that false information can spread quickly before the truth is even aware of what is happening. This is especially evident in an uncontrolled digital environment where any information can be shared and be converted to a viral post. Deliberately spreading false information in order to alter perspectives or entertain readers is nothing new, however packaging false information in formats and designs identical to credible news outlets is.

SM has allowed for factual and non-factual information to be presented in such a similar way that it can sometimes be difficult to tell them apart.

Baade (2019) defines fake news as an umbrella term for lies and deliberately false claims distributed via different news channels with the purpose of being perceived as real information. Even though false information is spread around the internet everyday, it is not necessarily done intentionally. Whether it is a deliberate act or not does not change the effects of what spreading false information can do. A recently famous example of what the internet has the power of doing when false information is being spread, is the aftermath of the American presidential election in 2020. During the American presidential election in 2020, Donald Trump claimed he was the legitimate winner of the election and used SM as a medium to voice his opinions. Although he had lost the election, he was able to convince his supporters into thinking he had won (Egan, 2021).

Allen Montgomery, the founder of the American Newspaper *The National Report* as claimed by themselves "America's Number 1 Independent News Source", has discussed the main tactics when fooling readers into trusting information shared online. Montgomery works in the fake news industry and according to him the headline and the domain name is a crucial part in increasing the information's credibility and likelihood of being perceived as trustworthy. The first few sentences in any information posted are the most important to the reader as people oftentimes do not read the text as a whole (BBC, 2016).

Wobbrock, Magee, Burger and Hsu (2019) mentions in their study how visual appearance has an effect on perceived credibility of online news. The researchers argue that credibility perceptions are based more on visual attributes of a web page, such as design features and apparent site complexity, rather than knowledge of the source of the information. Moreover, Tuch, Presslaber, Stöcklin, Opwis and Bargas-Avila (2012) found that visual complexity plays a role in forming opinions of websites and their credibility. Lastly, Tractinsky, Cokhavi, Kirschenbaum and Sharfi (2006) argue that first impressions of website attractiveness affect perceptions of trustworthiness. Therefore aesthetics and visuals seem to be of great importance when judging websites and their information.

According to previous research by Wobbrock et.al (2019), internet users tend to either forget to verify the information they read online or are simply uninterested in digging deeper into the truth and quality of the information being read. In addition to this research, Flanagin and Metzger (2000) have proven that when users do possess the skills to verify information on the internet, they often do not make use of it.

Argument strength has for long been a relevant factor when judging the credibility of any information. However, in an ever-growing digital world where new elements change the nature of how we perceive information, it begins to make one ask just how important arguments and their strength are in impacting the credibility of information online nowadays. In this study we aim to dig deeper into what the effect of argument strength has on information credibility and how strong it is perceived in a digital environment.

## 1.2 Problem Formulation

Historically the access to information has been more limited than what it is today. Since many people continue to use SM as their primary source of information, media companies and news networks fight harder everyday for a spot in their audiences' news feed. The more information that is being shared, the bigger the competition there is between different information sources. As a result of this, information sources have needed to become more innovative with attention-grabbing online. Due to these types of battles occurring over the internet, visual and apparent elements have been perceived as crucial components in evaluating information credibility nowadays, whilst argument strength has had less focus.

This study is an experimental study and designed in an innovative way by using already evaluated strong and weak arguments. The study re-tests the arguments' strengths by examining how they impact people's perceived sense of credibility on a certain post of information online.

Being skeptical of information online can depend on different reasons such as the arguments, the source, the medium, the visuals etc. Through this study we hope to enrich people’s understanding

of how valuable an argument's strength can be when evaluating the trustworthiness of certain information. Similar studies to this one have been done before, however this study separates itself from other previous studies as it strengthens already tested arguments within the fields of strategic communication and defines its correlation with credibility. The ambition is that this paper will contribute to previous research on information credibility by testing previous reflections and results. Furthermore, this paper will test the hypothesis put forward in the second chapter. The aim is to understand if there is a relationship between how strong arguments are and trustworthiness in the sense of how information is perceived.

## 1.3 Purpose & Research Question

Sweden is today appraised as a stable country that scores high in press freedom (RSF, 2020) and human rights (Wazir, 2021). However, in the last few years with global tensions, it has been showcased the importance of people receiving reliable information that is correct and can be trusted. This has been evident especially in a crisis event such as during the Covid-19 pandemic in which SM was the most used platform for information gathering (Tayal & Bharathi, 2021).

Due to the subject's relevance and the decreasing influence objective facts are becoming in forming public opinion on SM, it is of interest to study how specifically argument strength has an impact on information credibility on people nowadays. This experimental study hopes to contribute to the research within the field of Strategic Communication by defining the value of strong arguments in communication and persuasion.

Furthermore, there is a lack of experimental studies found within the Department of Strategic Communication and therefore we find it suitable to provide the institution with more quantitative studies with experimental design. By executing a study as such, we hope to additionally complement and strengthen any other studies that have similarly explored the field of persuasive communication, credibility and argument strength.

In order to answer the study's purpose the following research question has been formulated:

RQ: *What impact does an argument's strength have on information credibility?*

## 1.4 The Study's Relevancy

Hallahan, Holtzhausen, van Ruler, Vercic and Sriramesh (2007) mentions in their article, *Defining Strategic Communication*, how persuasion is the essence of strategic communication and that influence is central to the issue of strategic communication. The study on argument strength and its effect on information credibility touches on the subjects of influence and persuasion as arguments have the ability to persuade a reader into believing a certain type of information or not. Holtzhausen and Zerfass (2014) also mentions persuasive communication and how new communication technologies demand broader knowledge of strategic communication. SM and the internet allow for greater possibilities to overcome a controlled communication environment commonly found in traditional media. By living in the internet-era, communication can automatically be gravitated towards a more stakeholder-centered approach where information can be strategically communicated and the right arguments can for example be formulated in the most effective context. By doing further research within the field of argument strength and information credibility we hope to deepen our understanding of how for example organizations can use strategic and persuasive communication to their advantage and how people can understand what aspects are affecting their sense of trust towards a certain type of information.

As touched upon in section 1.3, The Department of Strategic Communication currently lacks a collection of experimental and quantitative studies and demands further studies testing hypotheses, previous theories and results through numerical data gathering and analysis. We believe this study is a relevant contribution to the Department of Strategic Communication and presents a new perspective and operationalisation of the area of study.

In order to produce a more solid foundation of the knowledge and results shared in this thesis, several additional experimental surveys must be performed to increase the validity and reliability of the information. This study examines and presents a dimension of the correlation between

argument strength and information credibility, however needs to be replicated in different conditions and with various demographics in order to solidify the conclusions.

# 2. Literature Review, Theory & Hypotheses

---

*This section presents the most relevant models and research that have historically been used in previous studies to explain different aspects on how information can be perceived as credible and more specifically how argument strength plays a role in enhancing information credibility. The section continues by presenting other important theories used in this area of study and finally, a hypothesis is formulated.*

## 2.1 Information Credibility

Buller and Burgoon (1996) define credibility as "a constellation of judgments that message recipients make about the believability of a communicator" (p. 207). This is within the theory of Interpersonal Deception Theory (IDT) which exhibits a combination of interpersonal communication and deception principles designed to better explain deception in interactive contexts. It can be seen used in theories related to credibility and interpersonal communication. Another relevant theory in the field of credibility, Prominence-Interpretation Theory (PIT), defines credibility as believability (Tseng & Fogg, 1999). PIT is a theory suggesting that users judge a site's credibility by the prominent attributes that captivate or influence them. The basic idea is that two things happen when people assess the credibility of a website. The first is that they notice an element or object (Prominence) and then make a judgment about what they notice (Interpretation) (Fogg, 2003).

Ruohan Li and Ayoung Suh (2015) examine in their study what specific factors influence information credibility on SM platforms and highlight that interactivity, argument strength and medium transparency all have positive relationships with information credibility. Viviani and Pasi (2017) mentions that many researchers agree that there are at least two key dimensions connected to credibility: expertise and trustworthiness. Expertise is the perceived knowledge, reputation, and experience of the source. It allows users to measure to which extent a

communicator or source is capable of voicing correct statements. Trustworthiness refers to which degree an audience perceives the statement made by a communicator to be valid. This aspect is strongly connected to argument strength, which targets to what extent users think information is truthful, unbiased, accurate, and reputable.

### 2.1.1 Previous Research on Information Credibility

Li and Suh (2015) has examined information credibility on SM based on the Elaboration Likelihood Model (ELM) and developed a theoretical research model that predicts information credibility of SM platforms. This model was tested and validated with empirical data from 135 users on Facebook and used a cross-sectional survey method for data collection.

ELM is a theory of persuasion that explains that one can motivate via one of two processing routes which are the central route and peripheral route. The central route of persuasion involves a type of persuasion and evaluation that requires deeper consideration and thought processing of the information presented whereas the peripheral route requires relatively little thought about the relevant information presented. Elements regarding the peripheral route typically change attitudes through simple association processes or heuristics. To which extent each individual uses information quality, argument strength, peripheral cues, or heuristics to evaluate information, depends on their elaboration likelihood, meaning each individuals' motivation and ability to assess information. In this study we will be focusing solely on argument strength and the value it can bring to an information's credibility (Petty, Barden & Wheeler, 2009).

Li and Suh (2015) identified two dimensions of information credibility: medium credibility and message credibility. These two dimensions draw similarities to Viviani and Pasi's two key dimensions, expertise and trustworthiness. Each dimension represents two different routes of persuasion with the first one being the central route, which acts for the factual evaluation of the information or content and the second one being the peripheral route, which puts more emphasis on heuristics and the characteristics of the information. The central route is in this model represented by message credibility and the peripheral route is represented by medium credibility. To further understand their theoretical model's different components, each dimension consists of

various different elements where medium credibility is defined as a compound of the following elements: medium dependency, interactivity and medium transparency. Message credibility consists of the variables, argument strength and information quality. In Ruohan Li and Ayoung Suh's study it is detected that the three variables, interactivity, medium transparency and argument strength are all strongly correlated with information credibility, whilst the other variables had no significant correlation to it.

Further studies have been done within this field where Wang, Cunningham and Eastin (2015) research how the credibility of information can be affected by the tone and valence of the message projected. Their study indicated that positive and neutral messages are more persuasive and seen as more credible than negative messages. Yilmaz and Quintero Johnson (2016) also found that the language of a message could affect credibility. Their study concluded that personalized language can at times have a positive effect on credibility, whilst at times even come across as inappropriate. Depersonalized language often communicates accuracy and objectivity, which is positively connected to expertise and competence.

#### 2.1.1.1 Message Framing

Oh & Ki (2019) describes the theories included when forming an effective message. According to Pelletier and Sharp (2008), message framing is a strategy used in communication to manipulate a receiver's perception of a message, sometimes even the outcomes of certain behaviors. Message framing has been used as a theoretical approach to develop effective messages in various fields, including public relations and advertising.

In 1979 Daniel Kahneman and Amos Tversky developed a theory called the Prospect Theory which is where the terms, gain-framed messages and loss-framed messages were born (Oh & Ki, 2019). The two types of message framing strategies were also mentioned and rooted in Jeyoung Oh and Eyun-Jung Ki's (2019) study. The prospect theory is originally part of behavioral economics, suggesting investors made decisions based on their perceived gains over their perceived losses, however this theory and perspective can be applied to the field of communication and message credibility as well.

Gain-framed messages highlight the positive benefits of taking actions, while loss-framed messages emphasize the negative consequences that result from failing to take actions (Rothman, Bartels, Wlaschin & Salovey, 2006). For example, a gain-framed message focuses on the benefits that individuals will have when they quit smoking, such as living a longer and healthier life, while a loss-framed message emphasizes the negative consequences of being an active smoker. (Davis, 1995). Both arguments attempt to make the same point, however the two messages embody a different tone and perspective which has consequences on the recipient's judgment of the information.

Although there have been several previous studies on message framing that have concluded a variance and inconsistency in results that prove the effectiveness of the two types of message frames (Oh & Ki, 2019), according to O'Keefe and Jensen (2008), a review of 6378 studies found that gain-framed messages triggered more message engagement from the recipients than loss-framed messages. In addition to this, the studies related to positive attitudes toward companies or products also indicate that gain-framed messages make a larger impact than loss-framed messages (Maheswaran & Meyers-Levy, 1990).

## 2.2 Argument Strength

Argument strength is a common measurement within the topic of persuasion and information credibility. As Zhao, Strasser, Cappella, Lerman and Fishbein (2011) mentions in their study regarding perceived argument strength, perceived argument strength refers to audience members' perceptions of the quality, strength, and persuasiveness of the arguments employed in a persuasive communication. This is also the definition that will be used for argument strength in the thesis.

### 2.2.1 Previous Research on Argument Strength

There are few existing measurement techniques for assessing argument strength, one of them being what is called thought-listing. Thought-listing is a method used for evaluating argument

strength where participants are asked to write down any thoughts they had when reflecting upon an argument (Petty, Cacioppo & Goldman, 1981). Typically, the thoughts written down when performing this method are grouped in terms of whether the thoughts are favorable, unfavorable, or neutral toward the information. If an argument evokes mainly positive thoughts, it is considered strong; if it evokes mainly negative thoughts, it is considered weak.

Whilst the thought-listing method has been a useful resource within the field of perceived argument strength, there are several researchers that see multiple limitations to the method. Some of the limitations are the following: 1) People may not want to report their thoughts accurately as they believe their thoughts are socially undesirable and go against the norm. 2) members of certain population segments, such as young children, may not have the ability to report their thoughts accurately. 3) Thought-listing is essentially a memory-based method, meaning there may occur a bias or a form of noise affecting the accuracy of the data. 4) The method is inefficient as thoughts are analyzed independently. 5) Various message features, such as visual elements, can be difficult to translate through thought-listing. 6) lack of literacy skills and motivation to complete the task, can negatively affect the quality of data generated.

Regarding the limitations, Zhao et al. (2011) developed and validated an alternative instrument to assess argument strength under conditions where thought-listing might be difficult, unreliable or inefficient to perform. The new and improved method now known as the Perceived Argument Strength (PAS) scale includes a short scale of questions tapping into the relevant areas of positive / negative thoughts, agreement, plausibility, importance, novelty, confidence, and overall quality. These components support in delivering a more reliable and accurate judgment of perceived argument strength.

As previously mentioned in 2.1.1, Li and Suh's (2015) study showed a positive correlation with information credibility and argument strength. In addition to their study, other researchers such as Yin and Zhang (2020) have also researched how the variable argument strength has had an effect on information credibility. Their research further defines argument strength as what they call a hygiene factor. A hygiene factor is a basic need that when present, it produces satisfaction logarithmically however when absent, leads to dissatisfaction. Previous studies have suggested

that argument strength can increase information credibility linearly (Cheung et al.,2009; Yin et al., 2018) however, Yin and Zhang's results confirm that the incremental effect of information credibility decreases as arguments strength is further implemented. This is in simpler terms suggesting that argument strength is the basic criterion for user evaluation of information credibility and that high argument strength is taken for granted, while poor argument strength is unacceptable. See figure 1 below which illustrates how hygiene factors when implemented, quickly increases satisfaction levels however decreases growth of satisfaction when further implemented. The two curves marked "Attractive factors (motivators)" and "One-dimensional factors" are irrelevant to the explanation of hygiene factors.

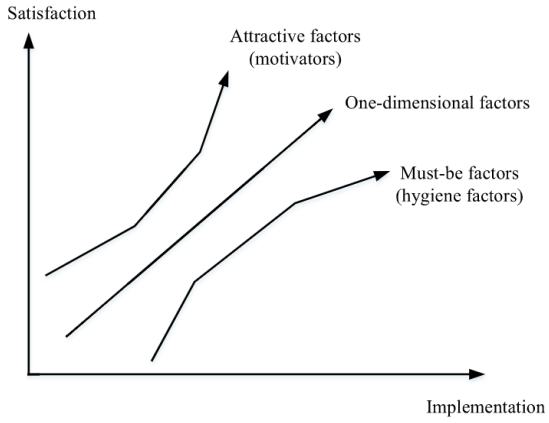



**Figure 1.** The nonlinear effects implied in hygiene-motivator theory.

## 2.3 Model

Based on previous research and theories presented in this study, a hypothesis has been formulated. The hypothesis has subsequently been illustrated in a model, see Figure 2 below. Hypothesis 1 states that there is a positive correlation between argument strength and information credibility. The model thus illustrates that the independent variable argument strength has a direct impact on information credibility.

H1: There is a positive correlation between argument strength and information credibility on social media.

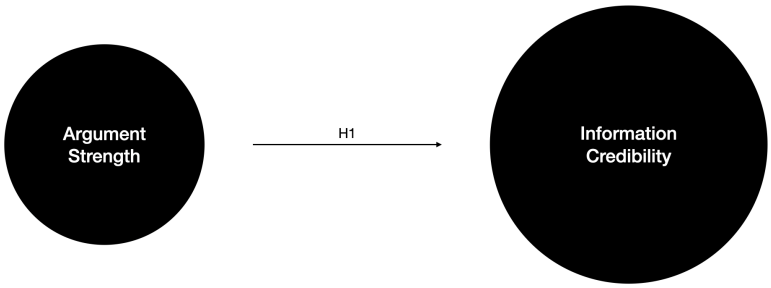



**Figure 2.** The model illustrates the correlation between the independent variable, argument strength, and information credibility.

# 3. Method

*In the following sections, we will discuss the study's measurements, overall scientific theoretical framework, data collection and then study's experimental design. Next we will discuss the study's selection method, how the data was processed, and a reflection on the choice of method. The section then concludes with ethical considerations around method choice.*

## 3.1 Measurements

### 3.1.1 Argument Strength

In this study we are examining the variable, argument strength, by comparing identical content pieces with an exception varying in the strength of the arguments included. One content piece will for instance include what we define as a "strong argument" and the other content piece will include what we define as a "weak argument". The selection of strong / weak arguments to be used for this study are based on Zhao et al. (2011) arguments used when testing their Perceived Argument Strength (PAS) scale. The study included a sample of 322 adolescents who were provided 10 randomly selected arguments against usage of marijuana.To evaluate the arguments of the arguments perceived strength a scale from 1 to 5 was assigned, with 5 representing the strongest argument and 1 the weakest. The large number of respondents involved in their study adds validity to the argument's valued strength which is the motivation to why our study will re-apply these arguments in our experimental study. The arguments chosen for the thesis is the argument that received the strongest score and the weakest score. The strongest argument had an average score of 4.01 and the weakest had an average score of 2.72 in Zhao et al. (2011) study. By maintaining all elements in each content piece identical with exception to the arguments and their strength, we are able to isolate the independent variable and determine its impact on the content pieces.

#### 3.1.1.1 Arguments

(1) Every cigarette you smoke causes damage to your lungs. All you need are damaged cells to develop lung cancer. Quitting today may save your life. (Score 4.01)

(2) Smoking can interfere with your social life and cause embarrassing moments. If this hasn't happened yet, it will. (Score 2.72)

### 3.1.2 Information Credibility

The dependent variable of this experiment is the information credibility of the content pieces. By using a 5-point rating scale we were able to collect the respondents' perception of the information with 1 being the least credible and 5 being the most credible.

When deciding on what response scale to use, there are different scales that are more suitable than others depending on the question and the data one is seeking. Finstad (2010) mentions how seven-point scales are more likely to reflect respondents' true subjective evaluation than a five-point scale, however, Bouranta, Chitiris, and Paravantis (2009) suggests that 5-point rating scales are less confusing and increase response rate. Furthermore, Preston and Colman (2000) have examined the respondent preferences, but within the category of "ease of use" and found that scales of five-points, seven-points and ten-points scored the highest in this category.

In regard to choosing an odd or even numbered scale, Krosnick (1991) explains how odd number scales with midpoints may discourage respondents from taking a side and lower the reliability of the data being collected. Moreover, Colman and Norris (1997) mention that odd number scales have generally been preferred over even number scales since they allow the middle category to be interpreted as a neutral point. This will provide an option to a person who truly has a neutral position and will prevent forcing to take a side.

Due to this information regarding increasing response rate, minimizing confusion and collecting reliable data, a 5-point rating was chosen for this measurement. The following question is in conjunction with the response scale: "How credible is the information according to you?".

## 3.2 Theoretical framework

This study is based on a positivist epistemology and uses a deductive approach where the purpose of the mentioned theories is to test hypotheses (Perri 6 & Bellamy, 2011). According to Bryman (2012) the positivist perspective is preferred to apply when hypotheses are to be tested. This is a variable-oriented survey which is considered appropriate to use when relationships between different variables are to be studied. Variable-oriented research increases the possibilities of being able to generalize and test hypotheses. On the other hand, in some aspects it can be problematic to use variable-oriented research and a positivist approach as it simplifies reality (Perri 6 & Bellamy, 2011).

According to Bryman (2012) the purpose of quantitative research often is to be generalizable beyond the confinements of the particular context of which the research was conducted. A survey is a research method where those who intend to investigate, administer a survey to a selected sample or an entire population to describe their attitudes, opinions, or behaviors. Researchers hope the results can be applied to individuals other than those who responded to the study (Bryman, 2012). Since the two arguments used for this study are based on previous research by Zhao et al. (2011) this could be considered a replication study conducted in a different context. Bryman (2012) explains replication studies as a method for researchers to replicate the findings of others by following each procedure in great detail, thus, determining if the different results match. The procedures and the methodology of Zhao et al. (2011) study and this study have similarities, although the process is different, therefore, this is not a replication study. In this study, the purpose is to generalize the results to a larger population, which in this case is the population of Sweden.

## 3.3 Data collection

In this study, a method from the descriptive study has been applied to be able to answer the study's question and hypotheses (Djurfeldt, Larsson & Stjärnhagen, 2018). Primary data was collected through a survey, designed to investigate how information credibility is affected by argument strength in a Swedish setting. A survey is a type of measuring instrument for

examining people's opinions, feelings and behaviors (Trost, 2012) and was therefore well suited for this study. The collection took place in such a way that the survey was distributed through the authors' Facebook pages in order to easily reach people in a Swedish setting. The choice of the SM platform for distributing the survey was to reach people with different demographic characteristics in order to have as broad of a selection as possible.

## 3.4 Experimental survey

In order to collect relevant data for the study, an experimental survey design was chosen in the form of an a/b-test i.e two different surveys. The experimental design was achieved by creating a script that makes the participants have a 50 % chance of which of two surveys they will receive. The two surveys consist of 9 questions that are identical except for one question that we call our "focus question". The script randomly assigned the participants without any external influences such as personal traits, gender, age etc.

Webster and Sell (2014) describes experimental research in social science as an effective approach when testing with different groups, often with some sort of manipulation for one of the groups. Although experimental approaches have received criticism for being artificial, Webster & Sell (2014) claim this artificiality is the strength of experiments as the researcher can determine what factors are interesting to study by controlling the circumstances of the experiment with a control group and an experimental group.

Abowitz and Toole (2010) state that experimental research designs are a preferred methodology in regard to achieving a strong causal inference. Due to the design's accessibility of experimental manipulation and convenience of controlling the studies variables, experimental surveys can reach great causal clarity. This clarity ends however once confounding influences arise that are unable to be eliminated by control and randomization.

Common criticisms of experimental research designs surround the topic of validity, such as external validity and ecological validity. Generalization based on experimental surveys are tricky as sampling has to be representable to the general public and hold a strong reliability. Probability

based sampling is a sampling method used for minimizing the chance of bias within the data. By using the principle of randomization the results can be highly generalizable. This method is however oftentimes more time-consuming and was therefore not applied in this study (Abowitz & Toole, 2010). Non-probability based sampling such as convenience sampling, which will be used in this study, can provide useful insights and is more appropriate for this sort of thesis paper. It is nonetheless limited with regard to the accuracy of results and its generalizability to larger populations (Fellows & Liu, 2008). Section 3.6 will mention more about the selection method and convenience sampling.

Even though experiments have received criticism for its artificiality, on the basis of our RQ, an experimental survey design was preferred. This since we could control the circumstances of the experiment and achieve a strong causal inference.

## 3.5 Survey design

The survey was divided into three different sections in which the respondents were asked a total of nine questions. The first three questions in the survey constituted the first section of the survey and concerned demographic characteristics. The demographic characteristics examined were gender, age, and level of education (completed or ongoing). The second section in the survey involved a focus question related to information credibility and the third section included five questions concerning the respondents' attitudes toward SM: (Q1) Where do you predominantly get your news from? (Q2) What technology device do you use the most? (Q3) What is your daily social media consumption? (Q4) I trust what is published on the internet… (Q5) I have a positive attitude towards social media…

The questions were formulated without difficult words to make it as easy as possible for the respondent to understand the survey's questions. All of the questions used for the survey, with exception to the question regarding age, were close-ended i.e the respondents were presented with fixed response options. Close-ended questions is the preferred method as a researcher while doing surveys in an effort not to diffuse the data and to make the survey as easy as possible for the participant (Trost & Hultåker, 2016).

The second section of the survey presenting the focus question, includes a Facebook post with a sender, a picture, and a text. The text in this case are the two arguments, either argument (1) or (2) depending on which of the two surveys the participant would receive. The SM posts are illustrated in Figure 3. The Facebook posts are indistinguishable except for the argument, mentioned more in depth in chapter 3.1.1. This way, it is possible to test a strong argument and a weaker argument and determine what impact it has on information credibility by allowing the participant to rate how trustworthy the content piece is, in this case a Facebook post. The two Facebook posts have been created digitally by the authors of this paper with the hope that they would be perceived as real screenshots with information sent by the organization *A non smoking generation*. The engagement (likes, comments etc.) was not included in the Facebook post for the reason of not distracting the respondents.

The aim of this type of analysis is to investigate whether the independent variable affects the dependent variable and in that case, to what extent (Bryman, 2012). In this paper, the independent variable is argument strength and the dependent variable information credibility.

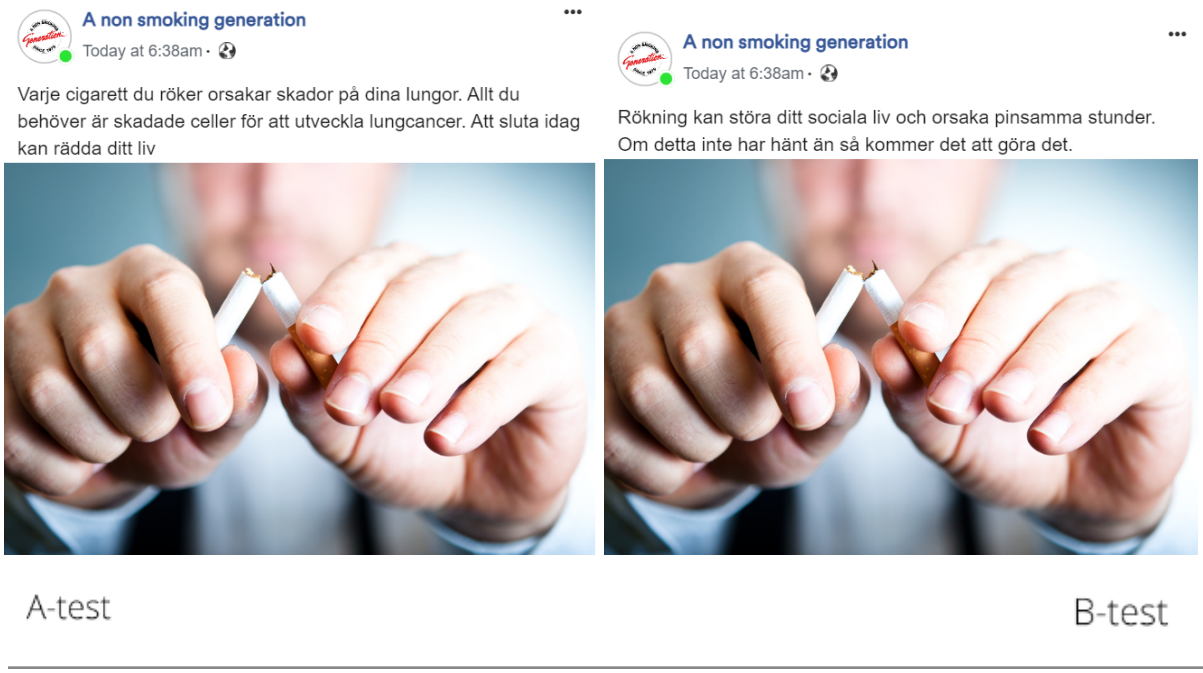



**Figure 3.** Figure 3 is an illustration of the two SM posts used for the a-test and the b-test. Both pictures are identical except for the text.

## 3.6 Selection method

The study applied a type of non-probability sampling called convenience sampling. According to Trost (2012), convenience sampling means sampling from the part of the population that is close to hand and that respondents participate when they are easily accessible. An advantage with using convenience sampling is that respondents can be chosen strategically to match the purpose of the study. However, convenience sampling is not typically preferred due to the lack of ability to generalize results and difficulty reaching a representative selection (Trost, 2012). In order to obtain a representative and generalizable sample it is favorable to have as many participants as possible (Wrench, 2013). As students, our opportunities to reach a representative sample are unfortunately limited since we do not have access to catalogs or databases of Sweden's population. Therefore, it will be critical to analyze the distribution of the data in the descriptive statistics in order to be able to identify any biases. This analysis will be dealt with in the section on descriptive statistics. Due to a lack of resources, convenience sampling was however considered to be the preferred alternative for this study. Furthermore, the intention of using convenience sampling also came due to the fact that we had an opportunity to allow respondents to share the survey in their own networks. This way we would hope to achieve the so-called snowball effect to reach additional respondents. Although the convenience sampling method can be considered less suitable for surveys (Trost, 2012), it is suitable in this study to succeed in reaching as wide a spread as possible. The study had a limited time frame where responses to the survey were collected from the 25th of April to the 3rd of May. The convenience method was therefore also well suited for the study's time frame as a large number of people can be reached in a short time (Djurfeldt et al., 2018). A total of 116 responses were obtained during the time period of which 1 response was deleted due to the participant only starting the survey but not responding to any of the questions.

## 3.7 Data processing

The IBM SPSS Statistics Version 25 software was used to compile and interpret the data collected. The collected data was transferred from Google Forms to Excel and then eventually brought into SPSS. Before beginning the process of analyzing the data, the data was scanned for

any missing information that could affect the results of our findings. Our a-test came out to have a total of 64 responses and our b-test received a total of 52 responses. The total number of responses for our b-test later decreased to 51 due to one of the respondents who started the survey but did not answer any questions. Hence, we excluded it from further analysis.

In addition to the invalid answer that was found in the data, there were also several questions that were left unanswered from a few respondents. Find the questions and their amount of unanswered responses below:

(1) Q2: What is your age?
    (a) 2 blank answers on a-test
    (b) 1 blank answer on b-test
(2) Q5: Where do you predominantly get your news from?
    (a) 3 blank answers on a-test
    (b) 1 blank answer on b-test
(3) Q6: What technology device do you use the most?
    (a) 1 blank answer on a-test
    (b) 1 blank answer on b-test
(4) Q8: I trust what is published on the internet…
    (a) 1 blank answer on b-test

Due to the size of our sample, we decided to leave the blank answers untouched on each question as we believe that a modification of the answers can affect the overall central tendency of our results when using such a small sample as seen in the study. For this reason, this specific data was kept blank. Our blank answers under the question of Age were however modified. Here we decided to replace the blank answers with the mean values for age for each a/b test. Since the mean age in the a-test was 24.39 and the mean age in the b-test was 24.14, we corrected the blank cells to the mean values (Djurfeldt et al, 2018).

## 3.8 Reflection of method

Although probability sampling would have been preferable in this study, as mentioned earlier, it would have been difficult to implement with the resources available. It should however be considered to use a different sampling method in future studies in this field. Furthermore, it is also important to mention that the arguments used in the survey have been used in previous research to ensure that they are reliable. Using arguments whose strength have been tested previously strengthens the validity of the study. It is important to mention that the arguments have been translated from English to Swedish for this study. This can in turn affect the validity (Ejlertsson, 2014).

The authors are aware that their demographic characteristics as two students in their 20s may mean that there is a risk in the study of over-representation of responses from individuals with similar demographic characteristics. With that being said, there are also advantages to the authors' demographic characteristics as both have an online network of Swedish people who live in different parts of the country and have other demographic differences.

### 3.8.1 Ethical position

An ethical rule in research is to keep the participants informed about the research and only involve them voluntarily (Mills, Durepos & Wiebe, 2010). In this study, all participants have participated anonymously and on their own free will. The participants were however not made aware that they were provided different surveys, namely an a/b test. The reason for this was to not affect how participants would respond to the question concerning information credibility. The participants were told the purpose of the study and that their responses would be used for a bachelor thesis. Since the sampling method was convenience sampling i.e the surveys were posted online on SM, and in a number of Facebook groups that the author’s of this paper has access to, the sampled material might not be fully applicable on the Swedish population as a whole.

Furthermore, since the script that is used for the study is solely compatible with computers, and a clear majority of the participants in the study use mostly mobile phones as their main device for SM, it could be assumed that some potential participants were lost due to the script's incompatibility with mobile phones. Additionally, in a study done by Internetstiftelsen (2021), it is stated that mobile phones are the most used device by the Swedish population. Due to this, one can argue that these factors might have an effect on the reliability of the study.

Despite some of these obstacles, we have looked at all the gathered data as objectively as possible in order to analyze it and to some extent be able to generalize it on the Swedish population.

The authors of this paper are well aware of our own limitations due to a lack of resources, and the fact that there is an overrepresentation of participants with a similar demographic background i.e students aged 20-30.

# 4. Result and analysis

*In this section we first present an overview of the collected data and the descriptive statistics generated by the study. What follows is an analysis in relation to the study's research question.*

## 4.1 Descriptive statistics

As previously stated, this study contains a total of 115 valid responses, of which 64 participants received the a-test and 51 received the b-test. None of the questions were mandatory to answer and as a consequence of this, some of the questions did not have a full response rate. Of these 64 participants who received the a-test 43 identify as female (67,2 %), and 21 identify as male (32,8 %). The data from the b-test that is made up of 51 responses has similar results with 37 identified as female (72,5 %) and 14 identified as male (27,5 %). Of the two surveys, 0,0 % responded that they identify as other/do not want to say. This data is illustrated more in depth in figure 4. The age span for the a-test goes from 18-50, and the age span for the b-test is 20-39. However the mean age in both a/b tests were 24 years of age. This data is illustrated in figure 5.

Regarding educational level, our a-test resulted in 90,8 percent either enrolled or finished a university degree, 4,6 percent either enrolled or finished high school, 3,1 percent either enrolled or finished a higher vocational education, and 1,5 percent finished elementary school. The b-test resulted in 88,2 percent either enrolled or finished a university degree, 9,8 percent either enrolled or finished high school, 2,0 percent either enrolled or finished a higher vocational education. This data is illustrated in figure 6.

Since the study is conducted in a Swedish context, it is of interest to compare the data collected from this study to that of the Swedish population. By December 2021 the Swedish population consisted of 49,7 % females and 50,3 % males (Statistiska centralbyrån, 2022). Needless to state, the data gathered for the study considering gender, illustrated in figure 4, is not a preferable

generalization of the Swedish population. However, considering that the sampling method used for this study was convenience sampling, a type of sampling method with low generalizability and difficulty being used as a representative selection, the distribution of gender in our study was better to be left alone instead of using a weight cases function in SPSS and manipulate the data (Trost, 2012).

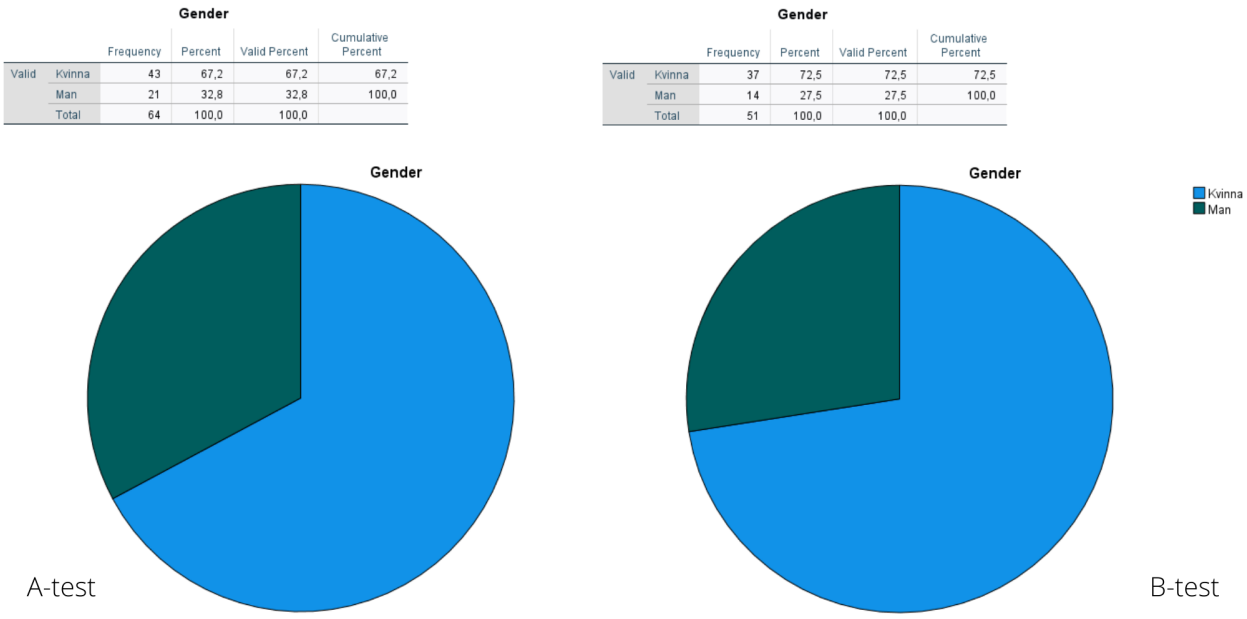



**Figure 4.** Figure 4 illustrates the distribution of gender for a/b test. The a-test represents 64 respondents and the b-test represents 51 respondents.

In the two tests a and b, it is revealed that both groups have a strong similarity in demographics as in age distribution, gender distribution and education level. Due to this information about our respondents, we can assume that the differences in answers are not due to two different respondent groups. Our respondents and their perceived credibility of the information presented further in the survey are highly likely to be driven solely by their judgment of the independent variable, argument strength.

The purpose of recording the demographics of our respondents is to examine if the two test groups are similar in age, gender and education level. By asking these questions, we are able to strengthen our conclusions by analyzing the results from an objective perspective.

**Statistics**

Age

| | | |
|---|---|---|
| N | Valid | 64 |
| | Missing | 0 |
| Mean | | 24,38 |
| Median | | 24,00 |
| Mode | | 24 |
| Minimum | | 18 |
| Maximum | | 50 |

A-test

**Statistics**

Age

| | | |
|---|---|---|
| N | Valid | 51 |
| | Missing | 0 |
| Mean | | 24,14 |
| Median | | 23,00 |
| Mode | | 23 |
| Minimum | | 20 |
| Maximum | | 39 |

B-test

**Figure 5.** Figure 5 illustrates the central tendency of the demographic variable, Age for a/b test.


A-test B-test

**Figure 6.** Figure 6 illustrates the respondents' highest level of education for a/b test.

## 4.2 Univariate analysis on Focus Question

A univariate analysis has been performed to clarify and determine the statistics and data that has been collected from the two experimental surveys. As previously mentioned the purpose of the a/b test was to strictly examine the independent variable argument strength and its effect on information credibility. The a-test included a 4.01 score (out of 5.00) argument, which resulted in a 3.33 mean value and 4.00 median value in terms of credibility (1.00 being the least credible and 5.00 being the most credible). On the other hand, the b-test included a 2.72 score (out of 5.00) argument, which resulted in a 1.94 mean value and 2.00 median value (see appendix 7.2). Figure 6 and 7 illustrates the distribution of this data in a bar chart.

In terms of dispersion, the a-test showcased a standard deviation of 1.128, whilst the skewness and kurtosis turned out to be -.481 and -.494 respectively. The b-test had a standard deviation of 1.156 and a skewness and kurtosis of 1.089 and .304 respectively (see appendix 7.2).

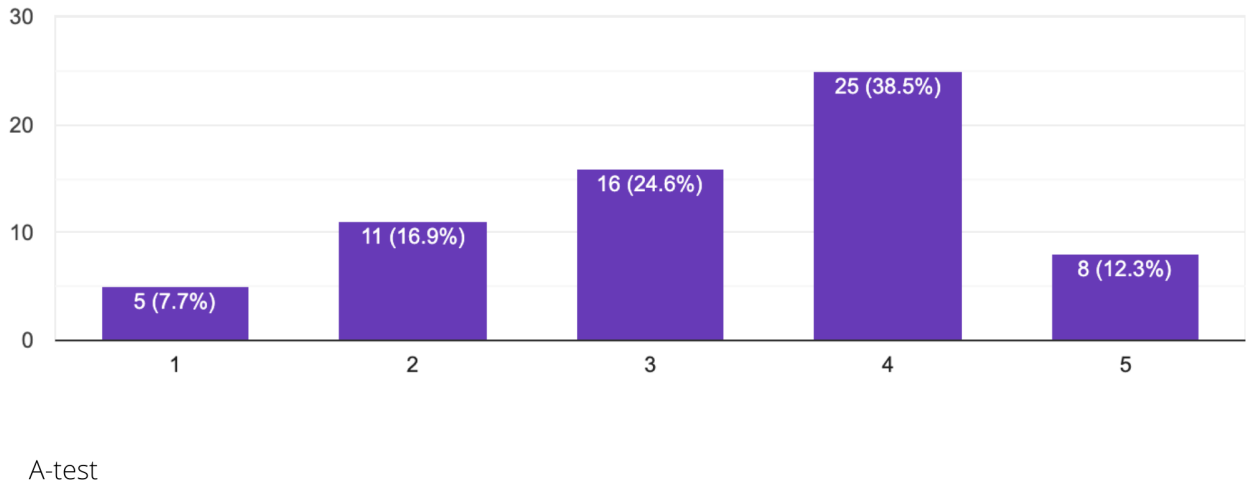



**Figure 7.** Figure 7 illustrates the responses from the a-test regarding how credible the information is perceived. On the x-axis, 1 = Not at all credible, 5 = Very credible.

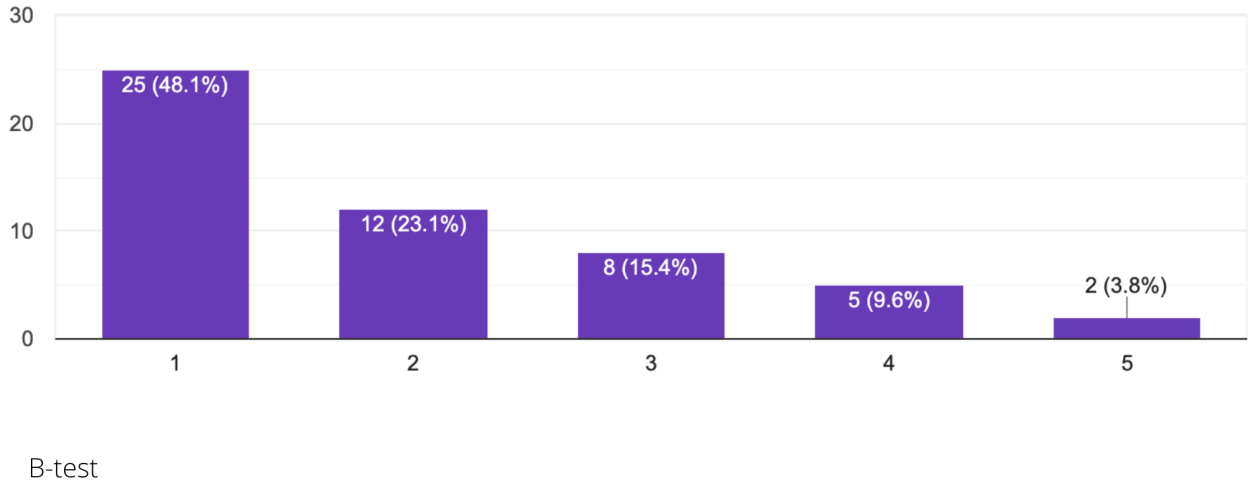



**Figure 8.** Figure 8 illustrates the responses from the b-test regarding how credible the information is perceived. On the x-axis, 1 = Not at all credible, 5 = Very credible.

### 4.2.1 Comparison of Means

As an a/b test is a split test using two different surveys and data bases, comparing means in this case focuses on identifying the means of each individual survey and comparing the values with one another. As noted earlier, the mean value for the a-test was 3.33, whilst the mean value for the b-test was 1.94. Since the a-test included the stronger argument and received a notably higher credibility score than the b-test, argument strength has been proven to have a positive impact on information credibility within the scope and circumstances of this study.

To further analyze the data and comparison of means, a t-test was performed in SPSS. A t-test is a type of inferential statistic used to detect whether or not the means of two sets of data are significantly different. A p-value, which describes the likelihood of the results occurring by fluke, is then calculated to represent the result. A t-test assumes that the data follows a normal distribution and an equality in variances between the two test groups. A p-value less than 0.05 signifies a statistically significant difference between the two test groups (Kim, 2015).

The p-value for this study was calculated to 0,000000002485236138 27 implying that the results are statistically significant. As SPSS does not show the whole p-value, a t-test in Excel was also conducted to confirm the numbers. The data tables can be found in Figure 9.

**One-Sample Statistics**

| | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Credability_b_test | 51 | 1,9412 | 1,15606 | ,16188 |
| Credibility_a_test | 64 | 3,33 | 1,128 | ,141 |

**One-Sample Test**

| | Test Value = 0 | | | | | |
|---|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference Lower | Upper |
| Credability_b_test | 11,991 | 50 | ,000 | 1,94118 | 1,6160 | 2,2663 |
| Credibility_a_test | 23,611 | 63 | ,000 | 3,328 | 3,05 | 3,61 |

**One-Sample Effect Sizes**

| | | Standardizer[a] | Point Estimate | 95% Confidence Interval Lower | Upper |
|---|---|---|---|---|---|
| Credability_b_test | Cohen's d | 1,15606 | 1,679 | 1,248 | 2,103 |
| | Hedges' correction | 1,17377 | 1,654 | 1,229 | 2,072 |
| Credibility_a_test | Cohen's d | 1,128 | 2,951 | 2,379 | 3,518 |
| | Hedges' correction | 1,141 | 2,916 | 2,351 | 3,476 |

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation.
Hedges' correction uses the sample standard deviation, plus a correction factor.

**Figure 9.** Figure 9 illustrates the t-test of the combined data of the a/b test from the focus question.

## 4.3 Attitude and Behavioral Statistics

In order to understand our respondents and their relationship with SM, the survey concluded with five questions examining their attitudes and behaviors. The data collected regarding the

respondents attitudes and behavior indicate a similarity in response. The tables below illustrate the results in further detail.

**Q1. Where do you predominantly get your news from?**

a-test

| **Answer** | **Percent (%)** |
|---|---|
| News Websites | 48.4 |
| Social Media | 40.3 |
| Friends and Family | 8.1 |
| TV / Radio | 3.2 |

b-test

| **Answer** | **Percent (%)** |
|---|---|
| News Websites | 54.0 |
| Social Media | 24.0 |
| Friends and Family | 2.0 |
| TV / Radio | 20.0 |

**Q2. What technology device do you use the most?**

a-test

| **Answer** | **Percent (%)** |
|---|---|
| Mobile Phone | 98.4 |
| Computer | 1.6 |
| Other Device | 0.0 |

b-test

| **Answer** | **Percent (%)** |
|---|---|
| Mobile Phone | 94.0 |
| Computer | 4.0 |
| Other Device | 2.0 |

**Q3. What is your daily social media consumption?**

a-test

| **Answer** | **Percent (%)** |
|---|---|
| More than 4h | 13.8 |
| 2h & 1 minute - 4h | 38.5 |
| 30 min - 2h | 43.1 |
| Less than 30 min | 3.1 |
| I do not use social media | 1.5 |

b-test

| **Answer** | **Percent (%)** |
|---|---|
| More than 4h | 13.7 |
| 2h & 1 minute - 4h | 35.3 |
| 30 min - 2h | 49.0 |
| Less than 30 min | 2.0 |
| I do not use social media | 0.0 |

**Q4. I trust what is published on the internet**

a-test

| Answer | Percent (%) |
|---|---|
| Fully agree | 0.0 |
| Agree somewhat | 56.9 |
| Disagree somewhat | 33.8 |
| Fully disagree | 9.2 |

b-test

| Answer | Percent (%) |
|---|---|
| Fully agree | 2.0 |
| Agree somewhat | 54.0 |
| Disagree somewhat | 38.0 |
| Fully disagree | 6.0 |

**Q5. I have a positive attitude towards social media**

a-test

| Answer | Percent (%) |
|---|---|
| Fully agree | 7.8 |
| Agree somewhat | 62.7 |
| Disagree somewhat | 19.6 |
| Fully disagree | 9.8 |

b-test

| Answer | Percent (%) |
|---|---|
| Fully agree | 4.6 |
| Agree somewhat | 66.2 |
| Disagree somewhat | 27.7 |
| Fully disagree | 1.5 |

(See Appendix 7.1)

A comparison of all answers regarding attitudes and behavior indicates a notable similarity in attitudes towards SM. Due to this similarity, data collected from our focus question from both test groups can be accurately compared to each other. As the sampling frame is not of the general public, conclusion can only be applied to the demographics that were tested in this study.

Bryman (2011) mentions the importance of stability in quantitative research, which is one of the three factors within reliability, and explains how results should not be comparable between two groups if their attitudes differ at a larger scale. Stability is the term used for judging the reliability of how stable the results are based on the fluctuation of their respondent's attitudes over time. If a substantial difference in attitudes and behaviors towards SM was found in this

study, it could be an indication that the responses regarding our focus question obtain a bias or skew, and would not be reliable for conducting a fair comparison of test a and b.

# 5. Discussion & Conclusion

*In this section, the results of the study are discussed in relation to previous research, followed by a conclusion of the study. Finally, suggestions for further research are presented.*

## 5.1 Discussion

In communication research, credibility and argument strength is constantly highlighted as central to the field of strategic communication and message credibility. By studying the Swedish people's perception of argument strength, this study has engaged in a form of target group analysis where the insights of how Swedes perceive information credibility form a basis for future communication research initiatives regarding information credibility and perceived argument strength.

Ruohan Li and Ayoung Suh (2015) mention the two routes of persuasion, central and peripheral, where this study explored the influence of message credibility found within the central route of persuasion, alternatively what Viviani and Pasi (2017) define as trustworthiness. As seen in the comparison of means and the collective data retrieved from the experiment, the a-test was perceived as more credible (mean value = 3.33) than the b-test (mean value = 1.94) due to the differences in the two arguments presented. Petty, Barden and Wheeler (2009) mention how the central route of persuasion involves a type of persuasion and evaluation that requires deeper consideration and thought processing of the information presented. If this holds true, the sample groups used in the experimental study have exhibited the importance of processing information on a more thorough level and how critical it is for them when evaluating.

Gain-framed messages and loss-framed messages are two terms that have previously been used in this study regarding the prospect theory within communication. These two message framing strategies are consequently both showcased in the two arguments used in the a/b test. The argument presented in the a-test is the following: “Every cigarette you smoke causes damage to

your lungs. All you need are damaged cells to develop lung cancer. Quitting today may save your life.”. The argument presented in the b-test is the following: “Smoking can interfere with your social life and cause embarrassing moments. If this hasn’t happened yet, it will.”. As the a-test argument highlights the positive benefits of quitting smoking and the b-test argument emphasizes the negative consequences that result from smoking, it can clearly be stated that the a-test argument acts as a gain-framed message whilst the b-test argument acts as a loss-framed message. Furthermore, Kahneman and Tversky’s prospect theory can be validated through the results of this study as it expresses the same attributes of a gain-framed message and a loss-framed message.

Frequently in previous research on information credibility, gain-framed messages have been considered an important explanatory factor in how the public perceives information. In contrast to this, a number of researchers have challenged this assumption by presenting studies where gain-framed messages have not had as strong of an explanatory power to information credibility as previously thought. Many researchers however, agree that gain-framed messages and information credibility have a positive correlation, and that loss-framed messages often lead to a worse outcome of perceived information than gain-framed messages. The results of this study could confirm this positive correlation, as the respondents perceived the gain-framed message as more credible.

As this study was based on a positivist approach and carried out a variable-oriented survey, it means that the result is a simplified version of reality. There are several arguments as to why the results had a certain outcome and there are other aspects of this area that have not been observed and analyzed in this study. For example, demographic characteristics influencing the over-representation of responses from individuals with similar age, education and attitudes towards SM have had a strong influence on the type of responses received. Since the mean age for the a-test was 24.38, the b-test 24.14 and the oldest participant who responded was age 50 it is a clear indication there is a lack of age variation. As a consequence of this, one might not be able to make any generalizations on an older demographic based solely on this study.

An interesting question to ask would be how the responses would differ if a larger and more diverse sample would have been used instead. Thus, it is not only these conclusions and results that apply in the relationship between argument strength and information credibility. The sampling group is also not representative of the entire Swedish population and how they perceive the correlation between the two variables. On the other hand, argument strength is an important measure of information credibility as it has historically been revealed to have great influence on perceived messages. Moreover, argument strength has been an important aspect to take into consideration when communicating and publishing messages or other media.

This study has concluded that argument strength has a positive correlation with information credibility and that recipients are significantly affected by central route persuasion and message credibility. This study has also revealed that there are differences in arguments and their strength even if the arguments have the same purpose and are seeking to achieve a similar reaction. Through the learnings of prospect theory and understanding whether or not an argument is arguing from a perspective of emphasizing the negative consequences or highlighting the positive benefits, people can enhance recipients' perceived credibility of a certain piece of information.

Our experiment and study turned out to be a success as our results validated our hypothesis.

## 5.2 Conclusion

The purpose of this study was to investigate whether argument strength affects information credibility. The experimental study aimed to contribute with knowledge and data to the field of message credibility and offer an uncommon methodology as well as new insights within the Department of Strategic Communication for future communication initiatives concerning credibility and argument strength. The study resulted in 116 respondents, of which 115 of these were used to present the final result. Based on previous research in the subject, the following hypothesis was formulated: There is a positive correlation between argument strength and information credibility.

In conclusion, to answer the research question regarding what impact an argument's strength has on information credibility; the results of the study found that argument strength has a significant correlation to the perception of information credibility, therefore proving our hypothesis to be true.

## 5.3 Further Research

This study investigates what impact argument strength has on information credibility in a SM context in Sweden. For further studies, it would be advised to investigate additional factors such as the influence of the type of source or the influence of visual elements to determine if they have an effect on information credibility. This study could also be conducted with additional demographic questions with the intention of determining if there are any differences in what information is seen as credible for separate groups in society. This could be occupation, place of residence, and age groups (Generation Y, X, Baby boomers etc). A similar study done at a larger scale, could be conducted in countries other than Sweden and these different sets of data could be compared and analyzed, in order to learn more about how different groups perceive information and what different factors contribute the most to information being seen as credible. The more times this type of experimental study is performed within the field of study the stronger and more solid the data will be.

Furthermore, in the case of performing a similar survey in the future, a survey including more questions investigating each factor would be favorable and enhance the strength of the study. Another modification that could be done to the survey design, if more time was available, would be to test multiple groups with a larger variation of content pieces.

Lastly, as stated in chapter 3.6, this study was conducted in a relatively short time period, with limited resources, and technical obstacles i.e the script’s lack of optimization for mobile phones. For these reasons a convenience sampling method was used instead of a random sampling method. In future research, the chosen sampling method should be reviewed. Intending to

accurately generalize the results to people living in Sweden, a random sampling method with more participants, would generate a more representative result and is therefore preferred.

# 6. References


6, P., Bellamy, C. (2011). *Principles of methodology: Research design in social science*. London: Sage. https://dx.doi.org/10.4135/9781446288047

Baade, B. (2019). *Fake News and International Law.* European Journal of International Law, 29(4), 1357–1376. https://doi-org.ludwig.lub.lu.se/10.1093/ejil/chy071

BBC. (2016). *The rise and rise of fake news*. Gathered from https://www.bbc.com/news/blogs-trending-37846860

Bouranta, N., Chitiris, L., & Paravantis, J. (2009). *The relationship between internal and external service quality.* International Journal of Contemporary Hospitality Management, 21(3), 275-293.

Bryman, A. (2012). *Social Research Methods* (4. ed.). Oxford University Press.

Bryman, A. (2011). *Social Research Methods* (3. ed.). Oxford University Press.

Buller, D. B., & Burgoon, J. K, (1996). *Interpersonal Deception Theory*. Communication Theory. 6(3), 203-242. https://doi.org/10.1111/j.1468-2885.1996.tb00127.x

Chung, I. K. J. (2011). *Social amplification of risk in the internet environment*. Risk Analysis , 31(12), 1883–1896. https://doi.org/10.1111/j.1539-6924.2011.01623.x

Colman, A. M., & Norris, C. E. (1997). *Comparing rating scales of different lengths: equivalence of scores from 5-point and 7-point scales.* Psychological Report, 80, 355-362.

Davis, J. J. (1995). *The effects of message framing on response to environmental communications*. Journalism & Mass Communication Quarterly. 72(2), 285–299. https://doi.org/10.1177/107769909507200203

Abowitz, D. A., & Toole, T. M. (2010). *Mixed method research: Fundamental issues of design, validity, and reliability in construction research.* Journal of Construction Engineering and Management, 136(1), 108–116. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000026

Djurfeldt, G., Larsson, R., & Stjärnhagen, O. (2018). *Statistisk verktygslåda 1 : samhällsvetenskaplig orsaksanalys med kvantitativa metoder* (Tredje upplagan). Studentlitteratur.

Egan, L. (January 5 2021) *'We won': Trump spreads misinformation about 2020 election during final Georgia rally*. NBC News. Gathered from https://www.nbcnews.com/politics/2020-election/we-won-trump-spreads-misinformation-about-2020-election-during-final-n1252802

Fellenor, J., Barnett, J., Potter, C., Urquhart, J., Mumford, J. D., & Quine, C. P. (2018). *The social amplification of risk on Twitter: the case of ash dieback disease in the United Kingdom*. Journal of Risk Research, 21(10), 1163–1183. https://doi.org/10.1080/13669877.2017.1281339

Fellows, R., and Liu, A. 2008. Research methods for construction, 3rd Ed., Blackwell Science, Oxford, U.K.

Finstad, K. (2010). Response Interpolation and Scale Sensitivity: Evidence Against 5-Point Scales. Usability Metric for User Experience, 5(3), 104-110.

Flanagin, A. J., & Metzger, M. J. (2000). *Perceptions of Internet Information Credibility.* Journalism & Mass Communication Quarterly, *77*(3), 515–540. https://doi.org/10.1177/107769900007700304

Fogg, B. J. (2003). *Prominence-interpretation theory: Explaining how people assess credibility online*. Conference on Human Factors in Computing Systems - Proceedings, 722–723. https://doi.org/10.1145/765891.765951

Hallahan, K., Holtzhausen, D., van Ruler, B., Vercic, D., & Sriramesh, K. (2007). *Defining Strategic Communication*. International Journal of Strategic Communication. 1(1), 3–35. https://doi.org/10.1080/15531180701285244

Holtzhausen, D. R., & Zerfass, A. (2014). *The Routledge handbook of strategic communication*. Routledge. https://doi.org/10.4324/9780203094440

Internetstiftelsen. (2021). *Svenskarna och internet 2021*. Gathered from https://svenskarnaochinternet.se/app/uploads/2021/09/internetstiftelsen-svenskarna-och-internet-2021.pdf

Oh, J., & Ki, E.-J. (2019). *Factors affecting social presence and word-of-mouth in corporate social responsibility communication: Tone of voice, message framing, and online medium type.* Public Relations Review, *45*(2), 319–331. https://doi.org/10.1016/j.pubrev.2019.02.005

Krosnick, J. A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. Applied Cognitive Psychology, 5(3), 213-236.

Li, R., & Suh, A. (2015). *Factors Influencing Information credibility on Social Media Platforms: Evidence from Facebook Pages*. Procedia Computer Science, 72, 314–328. https://doi.org/10.1016/j.procs.2015.12.146

Maheswaran, D., & Meyers-Levy, J. (1990). *The Influence of Message Framing and Issue Involvement*. Journal of Marketing Research (JMR), 27(3), 361–367. https://doi.org/10.2307/3172593

Mills, A. J., Durepos, G., & Wiebe, E. (2010). *Encyclopedia of case study research*. SAGE Publications. https://dx.doi.org/10.4135/9781412957397

O'Keefe, D. J., & Jensen, J. D. (2008). *Do loss-framed persuasive messages engender greater message processing than do gain-framed messages? A meta-analytic review*. Communication Studies. 59(1), 51–67. https://doi.org/10.1080/10510970701849388

Pasi, G., & Viviani, M. (2020). *Information Credibility in the Social Web: Contexts, Approaches, and Open Issues*. ArXiv Preprint. https://doi.org/10.48550/arXiv.2001.09473

Pelletier, L. G., & Sharp, E. (2008). *Persuasive communication and pro environmental behaviours: How message tailoring and message framing can improve the integration of behaviours through self-determined motivation*. Canadian Psychology, 49(3), 210–217. https://doi.org/10.1037/a0012755

Petty, R. E., Barden, J., & Wheeler, S. C. (2009). The Elaboration Likelihood Model of persuasion: Developing health promotions for sustained behavioral change. In R. J. DiClemente, R. A. Crosby, & M. C. Kegler (Eds.), Emerging theories in health promotion practice and research (pp. 185–214). https://richardepetty.com/wp-content/uploads/2019/01/2009-emerging-health-theories-galley-petty-barden-wheeler.pd

Petty, R. E., Cacioppo, J. T., & Goldman, R. (1981). *Personal involvement as a determinant of argument-based persuasion*. Journal of Personality and Social Psychology, *41*(5), 847–855. https://doi.org/10.1037/0022-3514.41.5.847

Preston, C. C., & Colman, A. M. (2000). Optimal number of response categories in rating scales: reliability, validity, discriminating power, and respondent preferences. Acta Psychologica, 104(2000), 1- 15.

Reporters without borders. (2022). *Index*. Gathered from https://rsf.org/en/ranking

Rothman, A. J., Bartels, R. D., Wlaschin, J., & Salovey, P. (2006). *The Strategic Use of Gain- and Loss-Framed Messages to Promote Healthy Behavior: How Theory Can Inform Practice*. Journal of Communication. 56(Suppl 1), S202–S220. https://doi.org/10.1111/j.1460-2466.2006.00290.x

Statista. (2021). *Share of adults who use social media as a source of news in selected countries worldwide as of February 2021*. Gathered from https://www.statista.com/statistics/718019/social-media-news-source/

Kim, T-K. (2015). *T test as a parametric statistic. Korean Journal of Anesthesiology, 68(6),* 540–546. https://doi.org/10.4097/kjae.2015.68.6.540

Tayal, P., & Bharathi. S, V. (2021). *Reliability and trust perception of users on social media posts related to the ongoing COVID-19 pandemic*. Journal of Human Behavior in the Social Environment*,* 31(1–4), 325–339. https://doi.org/10.1080/10911359.2020.1825254

Tractinsky, N., Cokhavi, A., Kirschenbaum, M., & Sharfi, T. (2006). Evaluating the consistency of immediate aesthetic perceptions of web pages. *International Journal of Human - Computer Studies*, *64*(11), 1071–1083. https://doi.org/10.1016/j.ijhcs.2006.06.009

Trost, J. (2012). *Enkätboken* (4., uppdaterade och utök. uppl.). Studentlitteratur.

Trost, J., & Hultåker, O. (2016). *Enkätboken* (femte upplagan). Studentlitteratur.

Tseng, S., & Fogg, B. J. (1999). *Credibility and Computing Technology*. Communications of the ACM*,* 42(5), 39–44. https://doi.org/10.1145/301353.301402

Tuch, A. N., Presslaber, E. E., Stöcklin, M., Opwis, K., & Bargas-Avila, J. A. (2012). *The role of visual complexity and prototypicality regarding first impression of websites: Working towards understanding aesthetic judgments.* International Journal of Human - Computer Studies, 70(11), 794–811. https://doi.org/10.1016/j.ijhcs.2012.06.003

Vijaykumar, S., Jin, Y., & Pagliari, C. (2019). *Outbreak communication challenges when misinformation spreads on social media.* RECIIS, 13(1). https://doi.org/10.29397/reciis.v13i1.1623

Viviani, M., & Pasi, G. (2017). *Credibility in social media: opinions, news and health information - a survey*. Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery, 7(5), (25 pp.).https://doi.org/10.1002/widm.1209

Wang, S., Cunningham, N. R., & Eastin, M. S. (2015). *The Impact of eWOM Message Characteristics on the Perceived Effectiveness of Online Consumer Reviews.* Journal of Interactive Advertising, *15*(2), 151–159. https://doi.org/10.1080/15252019.2015.1091755

Wazir, Z. (June 16 2021). *Countries Seen to Care About Human Rights*. US.News. Gathered from https://www.usnews.com/news/best-countries/articles/the-10-countries-that-care-the-most-about-human-rights-according-to-perception

Webster, M., & Sell, J. (2014). *Laboratory Experiments in the Social Sciences, 2nd ed. [Elektronisk resurs]*. Academic Press.

Wobbrock, J. O., Magee, M. J., Burger, M. A., & Hsu, A. K. (2019). *Isolating the effects of web page visual appearance on the perceived credibility of online news among college students*. HT 2019 - Proceedings of the 30th ACM Conference on Hypertext and Social Media, 191–200. https://doi.org/10.1145/3342220.3343663

Wrench, J. S. (2013). *Quantitative research methods for communication: a hands-on approach* (2. ed.). Oxford University Press. https://dx.doi.org/10.4135/9781412957397

Yin, C., & Zhang, X. (2020). *Incorporating message format into user evaluation of microblog information credibility: A nonlinear perspective*. Information Processing and Management. 57(6). https://doi.org/10.1016/j.ipm.2020.102345

Yilmaz, G., & Quintero Johnson, J. M. (2016). *Tweeting Facts, Facebooking Lives: The Influence of Language Use and Modality on Online Source Credibility*. *Communication Research Reports*, *33*(2), 137–144. https://doi.org/10.1080/08824096.2016.1155047

Zhao, X., Strasser, A., Cappella, J. N., Lerman, C., & Fishbein, M. (2011). *A measure of perceived argument strength: Reliability and validity*. Communication Methods and Measures. 5(1), 48–75. https://doi.org/10.1080/19312458.2010.54782

# 7. Appendix

## Appendix 7.1 Survey

Hej,

Vi är två studenter i strategisk kommunikation vid Lunds universitet som nu skriver vårt examensarbete. Vi undersöker hur svenskar ser på trovärdighet.

Undersökningen är helt anonym och kommer endast att ske i forskningssyfte. Dina svar kommer därför inte att kunna kopplas till dig och svaren kommer enbart att sparas en kort tid. Enkäten tar endast några minuter att besvara.

Tack för din medverkan!

Hälsningar,
Hampus och Marcus

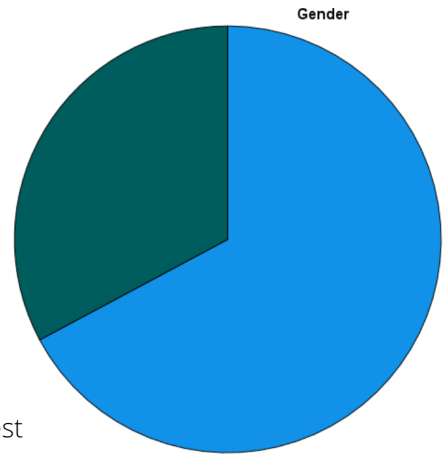
Vid frågor kontakta
hampus.sjoblom94@gmail.com

**Part 1:** Demografiska frågor

1. **Vad är ditt kön?**
   - Man
   - Kvinna
   - Annat/vill inte uppge

**Gender**

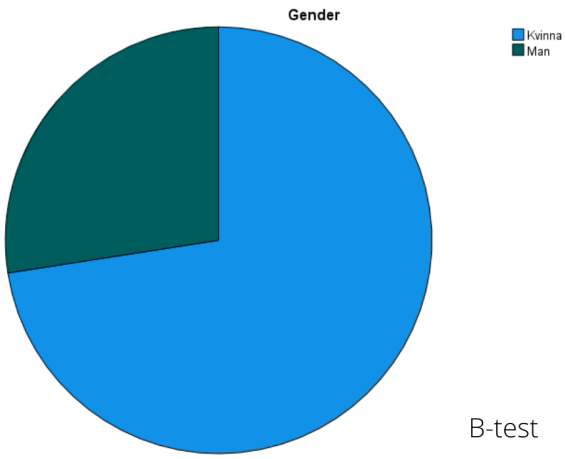
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Kvinna | 43 | 67,2 | 67,2 | 67,2 |
| | Man | 21 | 32,8 | 32,8 | 100,0 |
| | Total | 64 | 100,0 | 100,0 | |




A-test

**Gender**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Kvinna | 37 | 72,5 | 72,5 | 72,5 |
| | Man | 14 | 27,5 | 27,5 | 100,0 |
| | Total | 51 | 100,0 | 100,0 | |




B-test

## 2. Hur gammal är du?

**Statistics**

Age

| | | |
|---|---|---|
| N | Valid | 64 |
| | Missing | 0 |
| Mean | | 24,38 |
| Median | | 24,00 |
| Mode | | 24 |
| Minimum | | 18 |
| Maximum | | 50 |

**Age**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 18 | 1 | 1,6 | 1,6 | 1,6 |
| | 20 | 4 | 6,3 | 6,3 | 7,8 |
| | 21 | 5 | 7,8 | 7,8 | 15,6 |
| | 22 | 8 | 12,5 | 12,5 | 28,1 |
| | 23 | 12 | 18,8 | 18,8 | 46,9 |
| | 24 | 14 | 21,9 | 21,9 | 68,8 |
| | 25 | 8 | 12,5 | 12,5 | 81,3 |
| | 26 | 5 | 7,8 | 7,8 | 89,1 |
| | 27 | 3 | 4,7 | 4,7 | 93,8 |
| | 28 | 1 | 1,6 | 1,6 | 95,3 |
| | 32 | 1 | 1,6 | 1,6 | 96,9 |
| | 48 | 1 | 1,6 | 1,6 | 98,4 |
| | 50 | 1 | 1,6 | 1,6 | 100,0 |
| | Total | 64 | 100,0 | 100,0 | |

A-test

**Statistics**

Age

| | | |
|---|---|---|
| N | Valid | 51 |
| | Missing | 0 |
| Mean | | 24,14 |
| Median | | 23,00 |
| Mode | | 23 |
| Minimum | | 20 |
| Maximum | | 39 |

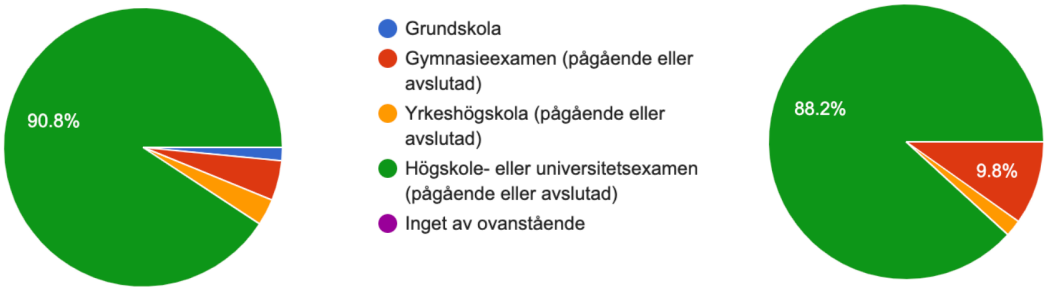
**Age**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 20 | 2 | 3,9 | 3,9 | 3,9 |
| | 21 | 2 | 3,9 | 3,9 | 7,8 |
| | 22 | 11 | 21,6 | 21,6 | 29,4 |
| | 23 | 12 | 23,5 | 23,5 | 52,9 |
| | 24 | 8 | 15,7 | 15,7 | 68,6 |
| | 25 | 5 | 9,8 | 9,8 | 78,4 |
| | 26 | 4 | 7,8 | 7,8 | 86,3 |
| | 27 | 2 | 3,9 | 3,9 | 90,2 |
| | 28 | 3 | 5,9 | 5,9 | 96,1 |
| | 33 | 1 | 2,0 | 2,0 | 98,0 |
| | 39 | 1 | 2,0 | 2,0 | 100,0 |
| | Total | 51 | 100,0 | 100,0 | |

B-test

**3. Vad är din högsta utbildningsnivå?**

- Grundskola
- Gymnasieexamen (pågående eller avslutad)
- Yrkeshögskola (pågående eller avslutad)
- Högskole- eller universitetsexamen (pågående eller avslutad)
- Inget av ovanstående

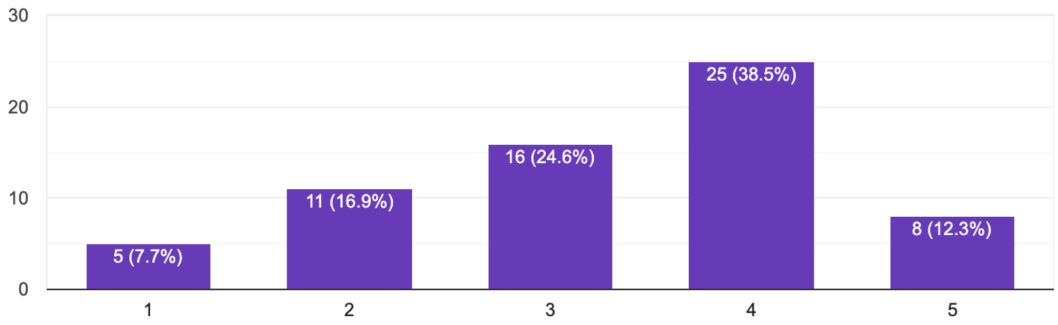



A-test B-test

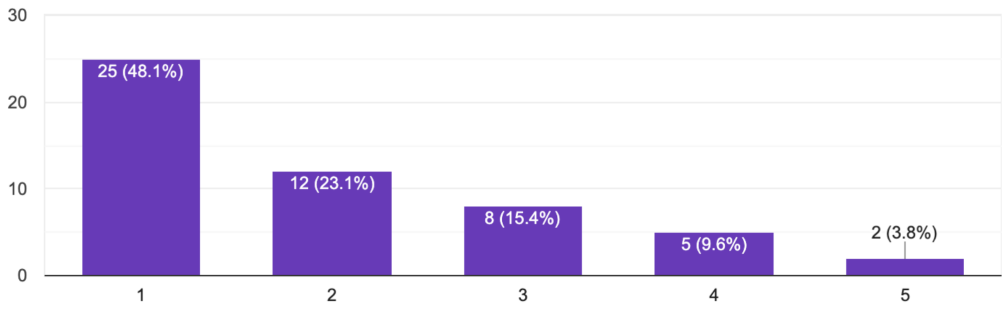
**Part 2:** Trovärdighet

**4. Hur pass tillförlitlig är informationen enligt dig?**

1. Inte alls tillförlitlig
5. Mycket tillförlitlig




A-test

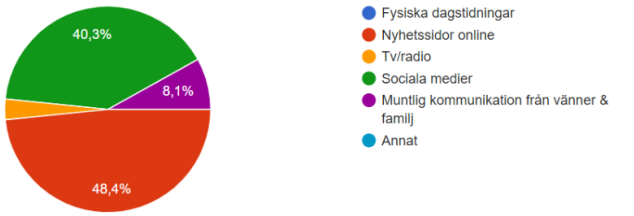



B-test

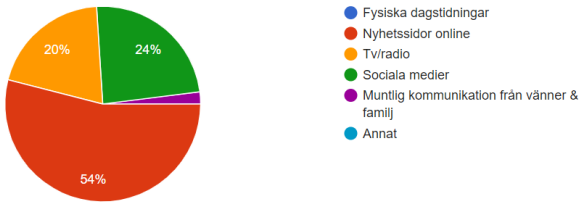
**Part 3**: Attityder till sociala medier

**5. Varifrån får du huvudsakligen nyheter?**

- Fysiska dagstidningar
- Nyhetssidor online
- Tv/radio
- Sociala medier
- Muntlig kommunikation från vänner och familj
- Annat



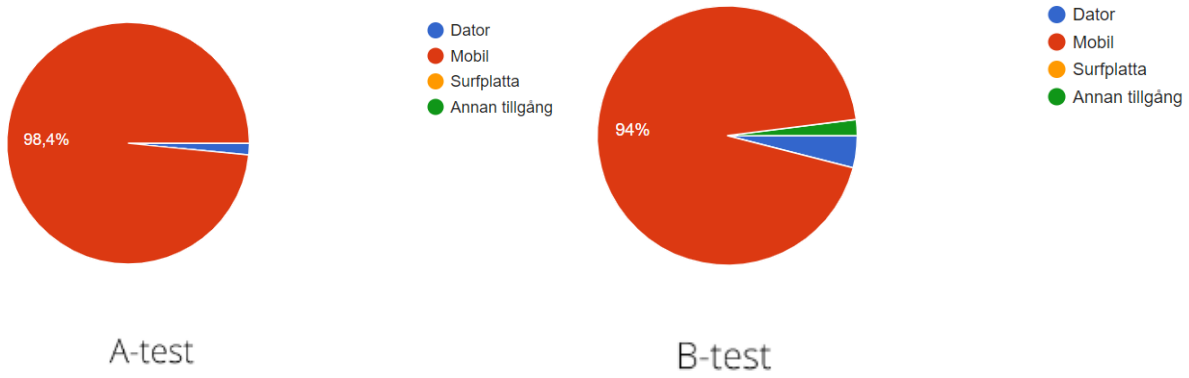

A-test




B-test

**6. Vilken enhet använder du huvudsakligen när du använder sociala medier?**

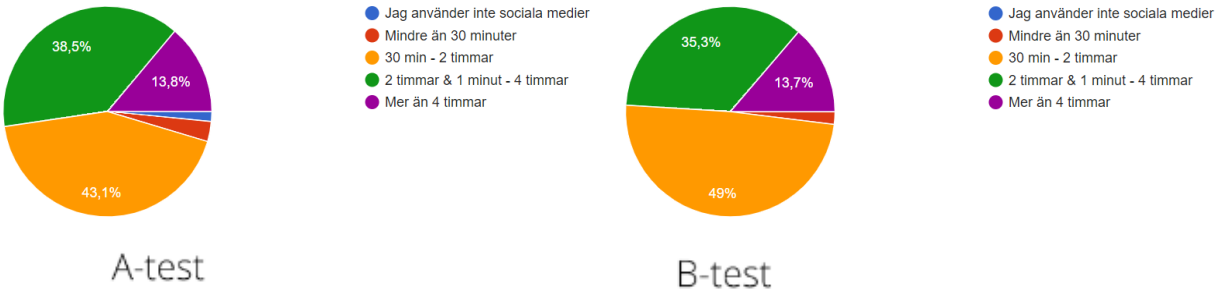
- Dator
- Mobil
- Surfplatta
- Annan tillgång




A-test B-test

**7. Hur mycket tid spenderar du dagligen på sociala medier?**

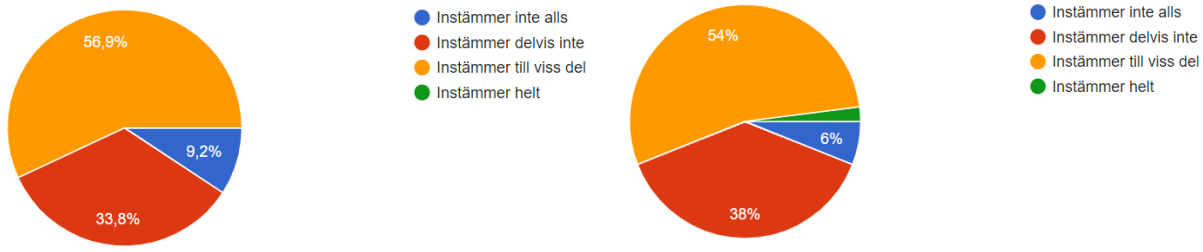
- Jag använder inte sociala medier
- Mindre än 30 minuter
- 30 min - 2 timmar
- 2 timmar & 1 minut - 4 timmar
- Mer än 4 timmar




A-test B-test

**8. Jag litar på det som skrivs på internet**

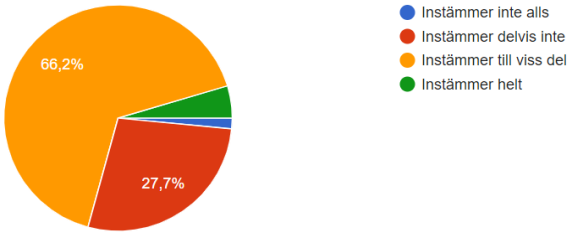
- Instämmer inte alls
- Instämmer delvis inte
- Instämmer till viss del
- Instämmer helt



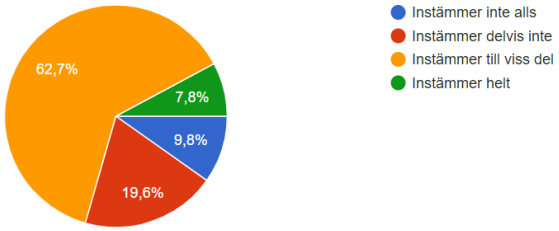

A-test B-test

**9. Jag har en positiv inställning till sociala medier**

- Instämmer inte alls
- Instämmer delvis inte
- Instämmer till viss del
- Instämmer helt




A-test




B-test

## Appendix 7.2 Credibility a/b test

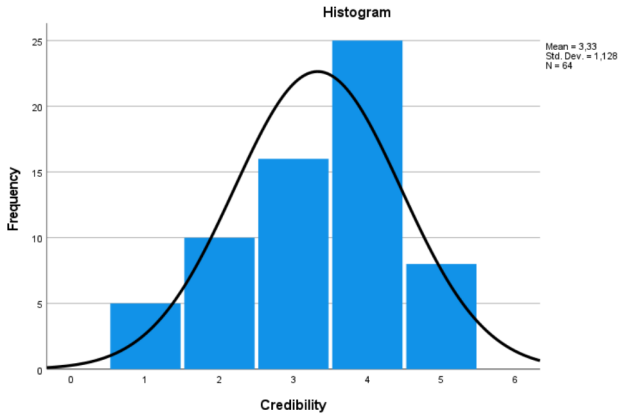
**Statistics**

Credibility

| | | |
|---|---|---|
| N | Valid | 64 |
| | Missing | 0 |
| Mean | | 3,33 |
| Median | | 4,00 |
| Mode | | 4 |
| Std. Deviation | | 1,128 |
| Skewness | | -,481 |
| Std. Error of Skewness | | ,299 |
| Kurtosis | | -,494 |
| Std. Error of Kurtosis | | ,590 |
| Minimum | | 1 |
| Maximum | | 5 |

**Credibility**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 5 | 7,8 | 7,8 | 7,8 |
| | 2 | 10 | 15,6 | 15,6 | 23,4 |
| | 3 | 16 | 25,0 | 25,0 | 48,4 |
| | 4 | 25 | 39,1 | 39,1 | 87,5 |
| | 5 | 8 | 12,5 | 12,5 | 100,0 |
| | Total | 64 | 100,0 | 100,0 | |




A-test

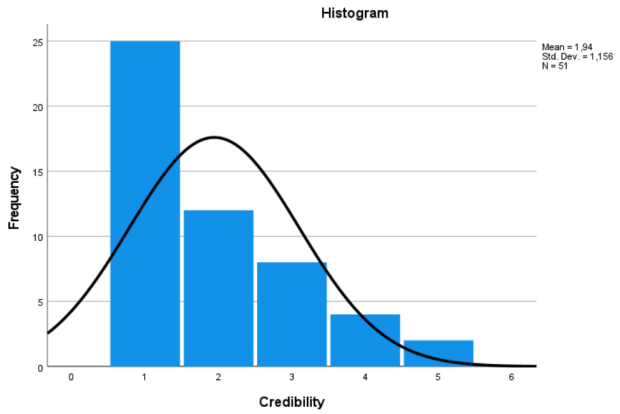
**Statistics**

Credibility

| | | |
|---|---|---|
| N | Valid | 51 |
| | Missing | 0 |
| Mean | | 1,94 |
| Median | | 2,00 |
| Mode | | 1 |
| Std. Deviation | | 1,156 |
| Skewness | | 1,089 |
| Std. Error of Skewness | | ,333 |
| Kurtosis | | ,304 |
| Std. Error of Kurtosis | | ,656 |
| Minimum | | 1 |
| Maximum | | 5 |

**Credibility**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 1 | 25 | 49,0 | 49,0 | 49,0 |
| | 2 | 12 | 23,5 | 23,5 | 72,5 |
| | 3 | 8 | 15,7 | 15,7 | 88,2 |
| | 4 | 4 | 7,8 | 7,8 | 96,1 |
| | 5 | 2 | 3,9 | 3,9 | 100,0 |
| | Total | 51 | 100,0 | 100,0 | |




B-test