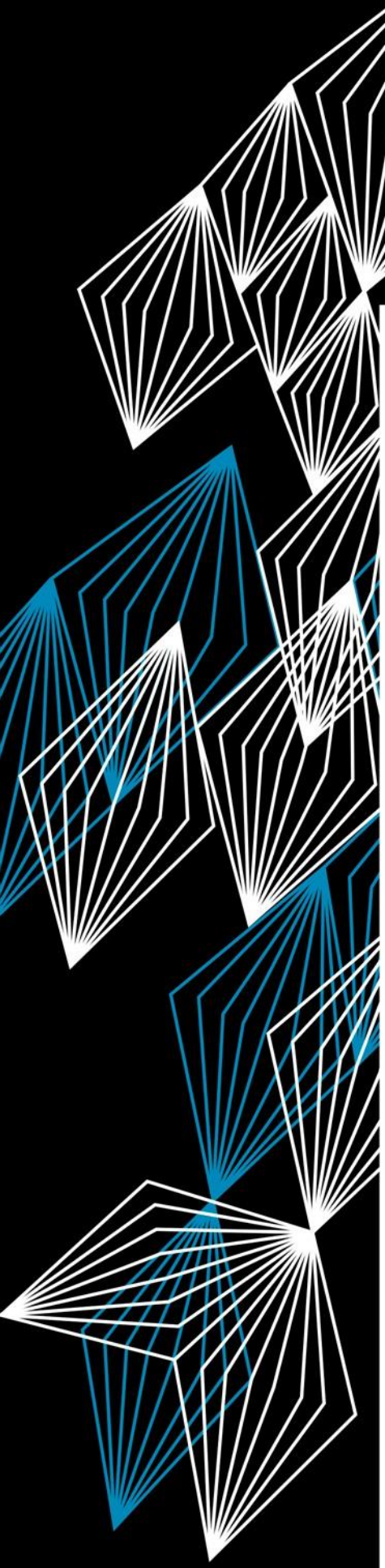

MASTER THESIS

THE INFLUENCE OF COMPANY-PRODUCED AND USER-GENERATED INSTRUCTIONAL VIDEOS ON PERCEIVED CREDIBILITY AND USABILITY

Roos Homburg

Faculty of Behavioural, Management, and Social Sciences
Master: Communication Studies
Specialization: Technical Communication
Student number: 1442848

Supervisor: **Dr. J. Karreman**
Second assessor: **Dr. A.J.A.M. van Deursen**

March 20, 2017

UNIVERSITY OF TWENTE.

Abstract

The traditional paper manual is losing our attention, while the amount of online instructional videos grows rapidly. Many companies notice this change and produce their own online instructional videos. At the same time, users themselves are making and sharing their own instructional videos on online social platforms such as YouTube. This user-generated content (UGC) is a popular source of information for other users. A combination of the two types of instructional videos also exists: companies co-operating with users through sponsoring. The idea behind this is that users helping users could be more effective than companies helping users. People's perception of source credibility could play a role in this, as no companies with ulterior motives are involved. This study investigates the differences in people's perception of source credibility of instructional videos by different sources, and tries to determine the role of trustworthiness, competence, and goodwill as determinants. It also looks into the effect of the sources on perceived usability of the product and the instructional video. Data was gathered in an experiment with three types of software tutorial videos. Results of the study indicate that there are generally no differences in the outcomes of users' credibility or usability assessments when the source differs, but the content of the instructions is equal. This shows that letting users provide the instructions could still be as effective a letting professionals do so. The only exception is the component goodwill: users do perceive sources of the two user-generated videos as more caring than the company as a source, with the independently produced user-generated video scoring higher on goodwill than the sponsored user-generated video. The outcomes can help organizations in the design process of instructions: they can benefit from co-operation with users, as long as they make sure that the instructional design is sufficient.

Key words

instructional video, perceived usability, source credibility, user-generated content

Table of contents

1. Introduction

The growing amount of informational content on the Internet has changed *what* people know and also *how* they know what they know (Metzger & Flanagin, 2008). Nowadays, anyone can put information online and become the source of other people's knowledge. This development has brought several changes to the technical communication domain. An example of this are user instructions. Even though nowadays many designers of technological products focus on the improvement of the user experience of a product and make them more intuitive, people are still in need of instructions. Nevertheless, a large part of users refuses to consult traditional printed instructions when facing this need. Instead, they now turn to online platforms, such as user forums or video sharing sites such as YouTube (Swarts, 2012). The majority of the information on these platforms is shared by fellow consumers or users, which is called user-generated content (UGC): content created, co-created and/or shaped by users or consumers. UGC platforms are quickly changing environments, where content creation and sharing has become a social process (Selber, 2010). It is not surprising that many users now try to find answers to their questions online and end up on these platforms, where fellow users provide them with many forms of instructions.

A recent development in the field of technical communication is the growing demand for reduction in delivered content by organizations and an increased interest in content delivered by consumers (LaRoche & Traynor, 2013). After all, consumers informing consumers has been proven to be popular as seen on social media channels. Furthermore, there is more focus on the integration of organizational and user-generated content (UGC) (Andersen, 2014). This has resulted in a growing use of wikis, crowdsourcing and the creation of content based on user feedback and input. Organizations are now asking their audiences to contribute by documenting and sharing their individual knowledge with others. When looking at the types of information complementing - or even replacing - the traditional printed manual, instructional videos (or online tutorials) are rather popular. Platforms such as YouTube host an enormous amount of videos aimed at entertaining and educating a wide audience of viewers from all over the world. Anyone can register and get an account to start posting these videos. Not only users are doing so, but also organizations are trying to reach their audience through these platforms.

The large variety of information and sources on online video sharing platforms has many benefits for both users and organizations. However, it has also made assessing the credibility of this information and its sources more complex (Metzger & Flanagin, 2008). How can users really know if the other user's information is trustworthy, or if the fellow user has sufficient expertise on the subject, if the source is anonymous? Many users of the Internet do not have the motivation and/or ability to verify the credibility of online information (Metzger, 2007). However, they do consult these online sources to find the answers to their questions, instead of consulting traditional manuals. Apparently, users do find fellow users to be credible sources. An explanation for the popularity of user-generated instructional videos can be because they generally are much more informal than most printed manuals, and it seems as if the user is directly speaking to the recipient (Swarts, 2012). This could contribute to a higher perception of source credibility, because the fellow user seems 'equal' to the recipient and without ulterior motives. Jonas (2010) researched source credibility of UGC amongst Filipino youth. He concluded that they find UGC more credible than content produced by organizations. It is interesting to know whether the same applies to other contexts.

Nowadays, a growing amount of organizations, such as Adobe, are already making and posting high quality instructional videos on the Internet. If UGC is perceived as more credible than company-produced content, organizations can use this information to make better instructional videos. An example is by co-operating with content-producing users. Besides looking at the credibility of the source, it is also useful to know what kind of effects these sources have on the usability of the product, which is the ultimate goal of technical instructions. This means that the instructions should make our technical products easy to learn, efficient to use, easy to remember, being without too many errors, and above all, satisfying to use (Nielsen, 1993).

This research tests three types of instructional videos on YouTube: an official company-produced video featuring an expert as the main character, an independently user-generated instructional video by only the user, and a combination of the two, which is a sponsored user-generated instructional video. An active user is the main character in this video, however, the video is provided and/or sponsored by the organization behind the product. Even though the sources of the three videos are different, the instructions they give are equal. This study aims to explain the influence of the sources on credibility of the instructions and the perceived usability of the featured product and the video. This leads to the following research question:

- *To what extent does the source of an instructional video influence a user's perception of credibility and their perception of usability of the product and the instructional video?*

2. Theoretical framework

This chapter forms the foundation of this study. First of all, it briefly explains the growing use and advantages of instructional video. The second part is about the characteristics and challenges of user-generated content. After this, theoretical background of the term source credibility is provided, and the components of source credibility are discussed. The chapter concludes with a theoretical overview of perceived usability in the context of this study.

2.1 Instructional video

The traditional printed manual has lost many people's interest, but instructions on online video platforms have grown to become very popular (Swarts, 2012). There are several advantages to choosing the use of an instructional video over paper-based instructions. First of all, scholars have concluded that the way that visual and audio are combined can strengthen the way people process the information, called dual processing (Mayer & Moreno, 1998). Van der Meij and Van der Meij (2014) also highlight the fact that instructional videos can show the task sequence in the same way the viewer would see it in real life, which makes it easier for the viewer to imitate them. An advantage of instructional videos over printed instructions is the ability to use moving screen captures in the form of screen recordings. Gellevij and Van der Meij (2004) have shown that users benefit from screen captures in software documentation: they support switching attention, developing a mental model, identifying and locating objects, and verifying screen states. However, screen captures in printed manuals are different from screen recordings in instructional videos: switching attention can be more difficult when the video is a software tutorial, because the user is performing the task in the same screen as the video. Nevertheless, previewing the screen states in a video can still contribute to developing a mental model of the task, help the user to identify and locate the right buttons, and verify if the screen they are seeing when they are performing the task is correct. Instructional videos allow viewers to have the combined benefits of dual processing and screen recordings, which is not possible in traditional printed instructions.

Moreover, using visual and affective elements in instructional videos adds a different dimension to the learning experience. Videos can be used as a subtler way to instruct users in a more engaging, persuading, and reassuring way than in printed instructions (Morain & Swarts, 2012). The combination of audio and visuals does result in a more dynamic way of instructing, with several benefits over paper-based instructions. Van der Meij (2014) looked at the cognitive and motivational effects of video tutorials for software training and found that they increase user motivation, correspond with high task performance during the training and the learning effect after training was also satisfactory. The advantages were also visible in a comparison between paper manuals and instructional video for computer tasks, where the information in the videos was perceived as easier to learn or remember (Poe Alexander, 2013). However, the same study showed also a disadvantage of the instructional video: it took users longer to complete tasks, which made the printed manual more preferable for them. Furthermore, the actors in the instructional videos can be considered as virtual agents, which can also contribute to the learning experience because they are dynamic and have personalized their message to the users who are 'like them' (Kim, 2012). These motivating agents can also help improve

people's task performance (Van der Meij, 2013). However, the effectiveness of the instructional videos is highly dependent on the quality of the design guidelines on which they are based (Van der Meij, 2014). Several guidelines for designing effective instructional videos exist. In general, the same qualities that make good written procedures count for instructional videos: clear goals, a structure that supports reading to do, concrete details, and user feedback (Morain & Swarts, 2012). Van der Meij and Van der Meij (2013)'s guidelines for effective instructional videos for software training are: provide easy accessibility, use animation with narration, provide functional interactivity, preview the task, provide mainly procedural information, give clear and simple tasks, make the video short, and strengthen demonstration with practice.

We can make two distinctions looking at the production of instructional videos: company-produced instructional videos and user-generated instructional videos. Company-produced instructional videos are videos which are developed and/or produced by the company behind the product or service to which the instructions are related. Huarng, Yu and Huang (2010) looked into the growing production of instructional videos for advertising purposes. They conclude that this is a way for companies to positively influence potential users' intention to purchase a product, because the videos can highlight the usefulness of this product in a playful and easy-to-learn manner. In the contrary, user-generated instructional videos are generally not produced with a commercial point of view. The next sub-chapter focuses more on this type of content.

2.2 User-generated content

The term user-generated content (UGC) refers to the content created, co-created and/or shaped by users or consumers. It generally includes media content created by the audience instead of by (commercial) professional parties, and which is mainly spread through the Internet (Daugherty, Eastin & Bright, 2008). Nowadays, many Web 2.0-based platforms such as YouTube, Wikipedia, Facebook, and Blogger host and support UGC. Content has to meet three requirements to be considered as UGC: (1) the website on which it is posted should provide public access, or in case of a social media platform it should be available for a certain group of people, (2) it should involve a certain amount of creativity, which means that reposting existing content without modification is excluded, and (3) it should not have been produced in professional and commercial environments (Organisation for Economic Cooperation and Development, 2007). This means that there is a wide variety of UGC: from blogs to user reviews, discussion forums, videos, podcasts and more, the list goes on with endless possibilities for users to create and share their own content.

Two kinds of behaviors can be observed on UGC platforms: consuming content, which is simply reading and/or listening, and generating content, which includes own production and/or the discussion of content (Ahn, Duan, & Mela, 2016). Users who create their own content and decide to share this with the public can have different motivations for doing so. Daugherty et al. (2008) looked at consumer motivations for creating UGC and found that one of the two main sources of motivation are the ego-defensive functions, such as minimizing self-doubt, getting a sense of belonging and possibly removing their guilt for not participating. The other drivers are the social functions users obtain by generating content, which is more about connecting with other users, by taking the chance to interact with their important reference groups through sharing content. Ahn et al. (2016) add that users on a UGC platform expect the amount and timing of participation of others to be similar to their own participation.

The number of user-generated instructional videos on YouTube nowadays is much higher than company-produced instructional videos. The fact that the amount of UGC grows rapidly compared to non-UGC, can be easily explained by the presence of the enormous amount of users on the Internet, but also because it takes relatively less effort to produce UGC. Company-produced or editorial content generally takes more development time, while UGC generally takes less production time while more of it gets developed (Cha, Kwak, Rodriguez, Ahn, & Moon, 2007). Generally speaking, users making instructional videos do not have commercial benefits as an objective for developing such a video. However, there is another type of user-generated instructional videos: sponsored user-generated

videos. These videos are made by real users, but are visibly or invisibly sponsored by the company behind the product featured in the video. In this case, the producer of the video receives payment, free products and/or other benefits. This could result in different motives of the user in the video. In this study, we use the terms independent user-generated videos and sponsored user-generated videos to distinguish between the two different types of UGC.

An active UGC platform can be highly beneficial for both the user and the organization behind the involved product and/or service. The more fellow users generate content, the higher the chances that other users can find the content they are looking for (Ahn et al., 2016). The amount of organizations that welcome user participation in creating content in important business-contexts also grows (Andersen, 2014; Ansari & Munir, 2010). These organizations benefit from the fact that users create content, adjust content, and provide feedback on existing content. The growing amount of UGC is an opportunity for organizations to learn from the user trends and comments (Mackiewicz, 2015). Furthermore, organizations should manage UGC, because it can boost or secure their reputation, as many users base their decisions on other users' opinions (Manaman, Jamali, AleAhmad, 2016). Kim and Johnson (2016) add that even though organizations cannot entirely influence brand-related UGC, they should use that which is written and respond to it as part of their overall organizational reputation management strategy. Predicting the popularity of UGC initiatives is important for content providers, advertisers and social media researchers, but very challenging, because of the many factors influencing content popularity (Figueiredo, Almeida, Gonçalves, & Benevenuto, 2016). Jonas (2010) argues that companies should learn how to work with opinion leaders that are making UGC. He suggests that companies should enable blog sponsorships, product reviews, UGC creation contests, and customer feedback through UGC.

There is a growing need for organizations to improve the quality of UGC, so that it becomes more readable, informative, and correct for other users (Mackiewicz, 2015). If UGC about their companies' products is incorrect, this could harm the way users interact with their products and ultimately their opinion about the product and/or services. Unfortunately, UGC is not always reliable and quality highly differs. Finding and improving low-quality information on UGC platforms such as Wikipedia is an important issue nowadays (Anderka, Stein, & Lipka, 2012). A lack of editorial control could threaten the future and usefulness of UGC platforms (Cha et al., 2007), because it can result in incorrect, misleading, or even dangerous information, such as in the case of health information. Baeza-Yates (2009) investigated how we can estimate the quality of UGC. He concludes that unfortunately, the feasibility of the quality evaluations highly depends on the type of content and the availability of judgments by other people. This asks for a critical look at the quality of UGC by the individual obtaining this information.

Besides looking at the information quality, one should also consider the credibility of the content. Even though information can seem to be correct, that does not always have to mean the source is trustworthy or competent. Metzger (2007) looked into the skills that users need in order to assess the credibility of online information. Her dual process model explains that a user's motivation to evaluate web credibility is key in the assessment process, and that process is dependent on the fact whether they have the ability to evaluate the credibility of online information. She explains that many scholars agree on the idea that credibility assessments should not be left up to users, because they are not able to put in the effort to verify the credibility of online information. Nonetheless, the next sub-chapter will point out that scholars did find some aspects that people take into consideration when assessing credibility of a source.

2.3 Source credibility

The previously mentioned growth in UGC has improved connectivity and information availability. This makes the assessment of credibility more important and, unfortunately, at the same time more complex, as anyone can be an (anonymous) content-creator and thereby the source of someone else's information. Many scholars have written about credibility of source and message. A high-credibility source is generally found to be more persuasive than a low-credibility source (Pornpitakpan,

2004). Metzger and Flanagin (2008) make a general distinction between two domains: psychology and communication mainly focus on the speaker or *source credibility*, while information science mainly focuses on the message or *information credibility*. However, even though the domains use these different terms, their concept of credibility is rather similar: It includes both the message and speaker, or source. It seems impossible to separate the credibility of the message and the credibility of the source, as they are intertwined. This research project will further use the term source credibility, because it mainly investigates the credibility of the source. However, this also covers the information credibility. Furthermore, it is important to note that in the case of instructional videos the term '*source'* can both refer to the source behind the video (the company, or user) as well as the person providing the instructions in the video (the actor, or user). In this study, the source is seen as the creator of the instructions. An actor in a company-produced instructional video provides the instructions in the role of a spokesperson. They thereby also can play a role in the user's source assessment. For that reason, the variables on which source credibility is judged refer to the company or user who created the instructional video, but also to the spokesperson of the company or the user being present in the instructional video.

Several models and theories about the process of credibility assessment exist. Key elements in credibility assessment are *trust*, *believability*, and *information bias* (Metzger & Flanagin, 2008). Pornpitakpan (2004) mentions five categories of interacting variables that play a role in determining source credibility: *source*, *message*, *channel*, *receiver*, and *destination*. Scholars mainly agree that the essential part of credibility is that it is based on the listener/user/recipient's *perception* of the credibility of the objects of assessment (the source, message, or media), and not on the objects of assessments itself (Choi & Stvilia, 2015; Haley, 1996; O'Keefe, 1990). The central view throughout most definitions is *believability* (Hilligoss & Reih, 2007). Metzger and Flanagin (2008) analyzed definitions of source credibility and concluded that they generally fit in two dimensions: perceived *trustworthiness* and perceived *expertise.* Hovland and Weiss (1951) first defined source credibility as the message receiver's perception of the *trustworthiness* of the message source. A few years later, the message receiver's perception of the *expertise* of the source was added (Hovland, Janis, & Kelley, 1953). Grewal, Gotlieb and Marmorstein (1994) added that the perceived *expertise* or *knowledge* bias of the source can affect the receiver's perception of source credibility, especially when the expertise is low. However, when for example instructing appropriation of computer technology, one should design instructions including certain leaders that are perceived to be highly competent and trustworthy, and the instruction style should be highly dynamic and engaging to achieve persuasion (Johnston & Warkentin, 2010). The two dimensions that influence people's perception of source credibility, *trustworthiness* and *expertise* / *knowledge*, might also weigh differently depending on the context (Pornpitakpan, 2004).

Similar to this study, Jonas (2010) compared people's perception of credibility of company-produced content (banner advertisement, email newsletter, and official company blog) and UGC (user blog, forums and wikis, and user videos on content sharing sites). He found that the majority of Filipino youth find UGC sources more credible than company sources, even when they are personally unknown or unrelated to the user. His study includes components *perceived trustworthiness* and *perceived expertise* as determinants of source credibility. This research will look at the role of source credibility in a more specific form of UGC: instructional videos. Another difference is the comparison of three types of instructional videos: company-produced, sponsored user-generated, and independent user-generated videos. The first type involves the company behind the product featured in the instructions as a source, while the second and third type have a real-life user as the source. The difference between sponsored and independent videos is the involvement of the featured company, which is visible through a logo and should give the viewer the impression that the company was somewhat involved in the development process of the video. When deciding the *trustworthiness* of an online source, people will look at the *commercial implication*, *perceived integrity*, *perceived transparency,* and *perceived decency* of the operator (Choi & Stvilia, 2015).

This study hypothesizes that instructional videos from users are perceived as more *trustworthy* than company-produced videos, because it is likely that fellow users are perceived as more honest and genuine about the product, as they do not have anything to gain from the instructions, while companies can be concerned with their products' reputation. Another difference is expected between independent and sponsored UGC: the sponsored videos could be perceived as more trustworthy than company-produced videos, because a user is involved. At the same time they can be perceived as less trustworthy than independent user-generated videos, because the users do get some sort of reward for their instructions, which could mean that the company behind the product influenced the user. This results in the following hypothesis:

- H1: Independent user-generated content sources are perceived to be more trustworthy than sponsored user-generated content sources and company-produced content sources, while sponsored user-generated content sources are perceived to be more trustworthy than company-produced sources

Even though nowadays most scholars use perceived *trustworthiness* and *expertise* of the source as the only determinants of source credibility, several other variables were added in the last decades. Berlo, Lemert and Mertz (1969) used three dimensions to define source credibility: *safety*, *qualification*, and *dynamism*. They argue that people judge *safety* by looking at the extent in which the source is just, friendly and honest, in other words: their perceived *trustworthiness*. The *qualification* dimension judges the source's skills, experience and the degree to which they are informed/uninformed. This is very similar to the *expertise* dimension of Hovland et al. (1953). Johnston and Warkentin (2010) also suggest that elements of *source competency*, *trustworthiness*, and *dynamism* are determinants of attitudes and behavioral intentions to engage in recommended IT actions, with *competence* being rather similar to *expertise*. That is why components *expertise* and *competence* will be combined as one dimension in this study. The opposite of perceived trustworthiness is expected for the *perceived competence* of the source: the company behind the product is generally more informed about the product than an independent user, so it is more likely that a company is perceived as more of an expert, or more competent. A sponsored user is less informed, but because of the connection with the company it can be expected that they are perceived as more competent than independent users:

- H2: Company-produced content sources on YouTube are perceived to be more competent than independent or sponsored user-generated content sources, while sponsored user-generated content sources are perceived to be more competent than independent user-generated content sources

McCroskey and Teven (1999) examined *goodwill*, or perceived *caring*, as a component of source credibility and found that it is indeed an influencer to credibility assessments. They concluded that *goodwill*, together with *competence* and *trustworthiness*, is a main determinant of source credibility. This resulted in their highly used "Scale of Ethos/Credibility", which was also used in this study. It includes eighteen statements about the three determinants of source credibility. The goodwill component includes questions about whether people for example think the source cares about them, has their interests at heart, and understands them. This study hypothesizes that people will perceive the independent user as most caring, because this person is the closest to their situation and it is most likely that they have their best interests at heart, because they lack commercial drivers. The company source is expected to be perceived as having the least goodwill, and the sponsored user will be in between the company and the independent user:

- H3: Independent user-generated content sources are perceived to be more caring than company-produced content sources or sponsored user-generated content sources, while sponsored user-generated content sources are perceived to be more caring than company-produced content sources

The remaining third dimension used by Berlo et al. (1969) and Johnston and Warkentin (2010), *dynamism*, includes potency and activity factors, such as: whether the source is perceived to be aggressive or meek, emphatic or hesitant, bold or timid, active or passive, and energetic or tired. They explain this as an evaluative dimension, and refer to it as "disposable energy", or: "the energy available to the source which can be used to emphasize, augment, and implement his suggestions". Ohanian (1990) also developed a source credibility scale, in which she adds *attractiveness* of the source as a third dimension, instead of *dynamism*. She argues that the degree to which the source is perceived to be attractive, classy, beautiful, elegant and/or sexy influences their overall perception of credibility. The researcher chose to use the newer source credibility scale of McCroskey and Teven (1999), which does not include *dynamism* and/or *attractiveness* as determinants of source credibility, but does include *goodwill*, which is expected to be very relevant when comparing the fellow user with the commercial company.

In summary, the used determinants for perceived source credibility in this study are the perceived *trustworthiness* of the source (Hovland & Weis, 1951; Metzger & Flanagin, 2008), the perceived *competence* or *expertise* of the source (Berlo et al., 1969; Choi & Stvilia, 2015; Grewal et al., 1994; Hovland et al, 1953; Johnston & Warkentin, 2010), and the perceived *goodwill*, or *caring*, of the source (McCroskey & Teven, 1999). Furthermore, users do not only assess the credibility of the *operator* (the source), but also of the *content*, and *design* to come to a web credibility judgement (Choi & Stvilia, 2015). Other influences include variables such as *demographic characteristics* (age, gender, education), *user involvement* (motivation, ability, domain experience), and *technology proficiency* (information literacy, media reliance, comprehension, experience) (Choi & Stvilia, 2015; Pornpitakpan, 2004; Wathen & Burkell, 2002). These variables will also be taken into account in this study. Moreover, the *design* of the online content, the *type of content,* the *type of product*, and *message* itself are important influencers of the viewer's perception of credibility (Choi & Stvilia, 2015; Pornpitakpan, 2004). The next sub-chapter will focus on more on the content and message.

2.4 Perceived usability

Providing 'user-friendly' products and systems has been the center of attention for many designers for over decades. However, this term is not always appropriate, as every user might have different needs, and their perception of user-friendliness of a product can exists of many other aspects than simply the "friendliness" of the product or system (Nielsen, 1993). That is where the concept of usability comes in, which can be considered as a more applicable framework for evaluating user-friendliness. Usability can be explained as the extent to which a user can successfully work with an artifact (Shackel & Richardson, 1991). According to Nielsen (1993), the attributes to usability are: *learnability* (it should be easy to learn), *efficiency* (it should be efficient to use), *memorability* (it should be easy to remember), *errors* (it should have a low error rate) and *satisfaction* (it should be pleasant to use). Many more scholars written about the concept of usability and its components, because it is important for developers to provide highly usable and satisfactory products to meet the needs and expectations of users. The main concepts have been collected in the standardized definition of usability: 'the *effectiveness*, *efficiency*, and *satisfaction* with which *specified users* can *achieve goals* in *particular environments*' (ISO, 1998). In other words, to reach high perceived usability of a product, it should not only be useful, accurate, and complete, but also acceptable and comfortable to use. Unfortunately, usability is not always easy to measure, as it is very multidimensional and depends on the user, his or her goals, and the context in which it is used (Lewis, 1995). This study tries to find the influence of different sources on the user experience of people who watch instructional videos. It aims to find possible differences in the evaluation of perceived usability of the instructions and the perceived usability of the product featured in instructional videos.

The concept of "user experience" (UX) is very related to usability, but much broader, as it also includes the user's behaviors, attitudes, and emotions about using a particular product, device or software, which is also about usability and usefulness (Nielsen & Norman, 2014). De Jong, Yang, and Karreman (2017) looked at user expectations and user experiences with written manuals. They compared official manuals, or manuals developed by the manufacturer of the product, with commercial manuals by

external parties who are not involved in the product development, and found that users have higher expectations for the commercial manual than the official manual regarding the connection with real-life tasks, language and instructions, and layout. However, the users considered the official source to be more of an expert than the external source. In the end, the study showed no differences in perceived quality after having used the manuals to perform real-life tasks. Due to the fact that the constructs of the study of De Jong et al. (2017) were used to evaluate printed manuals, not all constructs are applicable to this research context. The ones that will be used to evaluate the different aspects of the user's experience with the instructional videos are: the *quality of information (redundancy)*, *language and instructions*, *visual elements (layout)*, *perceived ease of use,* and *preference of source*.

The *quality of information* construct is used to explore whether the amount and relevance of the information given in the instructional videos are sufficient. In the research of De Jong et al. (2017) this construct is called redundancy, which focusses on the relevance and wordiness of printed manuals. Due to the different nature of videos, this construct could explain whether the video is clear, useful, complete and whether it contains the right amount of information. When comparing company-produced instructional videos to user-generated videos, it is expected that users perceive the company-produced videos as having the highest quality of information, because as a manufacturer they do have all the user information available. The instructional video of the sponsored user is expected to be perceived as having higher information quality than the one from the independent user, because the sponsored user is somehow involved with the company, while the independent user is not:

- H4: Company-produced instructional videos on YouTube are perceived to provide higher quality of information than independent and sponsored user-generated instructional videos, while sponsored user-generated instructional videos are perceived to provide higher quality of information than independent user-generated instructional videos

The *language and instructional style* focuses on the quality of the textual and visual instructions in the study of De Jong et al. (2017), for example by asking the user to determine whether the written information is easy to understand, and if it is easy to follow. Due to the fact that the instructions in an instructional video are spoken instead of written, this study focuses on whether the language use in the video is clear, the instructions are easy to follow, and if the amount of talking is sufficient. It is expected that the user-generated videos are perceived as being more satisfactory in the language and instructional style than company-produced videos, because users are generally more similar to the viewer than a commercial company. Sponsored user-generated videos are expected to be less satisfactory than independent user-generated videos on this aspect, because they could be influenced by the demands of the company, but more satisfactory than company-produced videos, because the instructions are still provided by a user instead of company:

- H5: Independent user-generated instructional videos on YouTube are more satisfactory when it comes to language and instructional style than sponsored user-generated and company-produced instructional videos, while sponsored user-generated instructional videos are more satisfactory when it comes to language and instructional style than company-produced videos

The *visual elements* construct was inspired by the layout construct of De Jong et al. (2017), which is about the visual look of the manual, whether it is user-friendly and appealing. This study hypothesizes that the visual elements of company-produced instructional videos are perceived as being better than the two user-generated videos, because the budget for the production of company-produced videos is generally higher than the one of users. When comparing the two user-generated videos, it is expected that sponsored user-generated videos are perceived as providing better visual elements than independent user-generated videos, because the sponsored user does have the sponsoring deal advantages:

- H6: Company-produced instructional videos on YouTube are perceived to provide better visual elements than independent and sponsored user-generated instructional videos, while

sponsored user-generated instructional videos are perceived to provide better visual elements than independent user-generated instructional videos

The differences in 'expected' perceived usability are measured by comparing the predicted *ease of use* of the software, because the software product is not actually used by the subjects in this study. This study hypothesizes that user-generated instructional videos will score higher on these points than company-produced instructional videos, because the user is the one who actually has to use the product, which makes them more suitable to assure the viewer about the ease of using this product. The company could benefit from exaggerating the ease of use, while the independent user has nothing to lose by stating an honest opinion. It is expected that the sponsored user will score in between the two, because they are still a real user, however they could be limited by the company:

- H7: Independent user-generated instructional videos on YouTube result in higher expected ease of use of the product than sponsored user-generated instructional videos and company-produced instructional videos, while sponsored user-generated instructional videos result in higher expected ease of use of the product than company-produced instructional videos

The *preference of source* construct is a good reflection of the general feelings users have about instructional videos, because it explores whether the videos are the preferred source of instructions for them, and whether they would prefer a user-generated video over a company-produced video, or if they prefer a whole other type of instructions over videos. This study expects that the independent user-generated instructional videos are the most preferred source for instructions, because they do include the benefits of instructional video, but lack commercial benefit and can thereby be more objective than company-produced videos. The sponsored user-generated is here also expected to be in between, because it does have the benefit of having a (perhaps semi-) objective user being the source, but does include involvement of the company:

- H8: Independent user-generated instructional videos are more preferred as a source of instructions than sponsored user-generated and company-produced instructional videos, while sponsored user-generated instructional videos are more preferred as a source of instructions than company-produced instructional videos

3. Method

The hypotheses as stated in the theoretical framework were tested in an online experiment using survey research. This chapter explains the choices for this research design and the results of the conducted pre-test. It also describes the three different types of instructional videos used, and how they were selected. This is followed by the sample statistics. The final paragraph is about the design of the survey, which includes a factor analysis and a reformulation of the constructs.

3.1 Research design

The concept of source credibility in different types of instructional video was explored through quantitative research. Participants had to watch one of the three types of instructional video and were asked to answer an online survey afterwards. Three types of instructional content were used in this research: company-produced content, sponsored user-generated content and independent user-generated content. The data was collected using the online survey software Qualtrics. Figure 1 shows the variables that were measured for the different videos, which are based on the theoretical framework.

The study uses three instructional videos with three different sources: one instructional video produced by a company, one instructional video produced by a user, but visibly sponsored by the company behind the product, and one instructional video produced by a user, and visibly no company involved. The videos are about using software called Samsung Recovery, which can be used to perform factory reset on Samsung laptops or PCs. The videos were displayed in the online questionnaire as a

YouTube video. The participants were randomly assigned to one of the three video types and answered the same questionnaire afterwards.

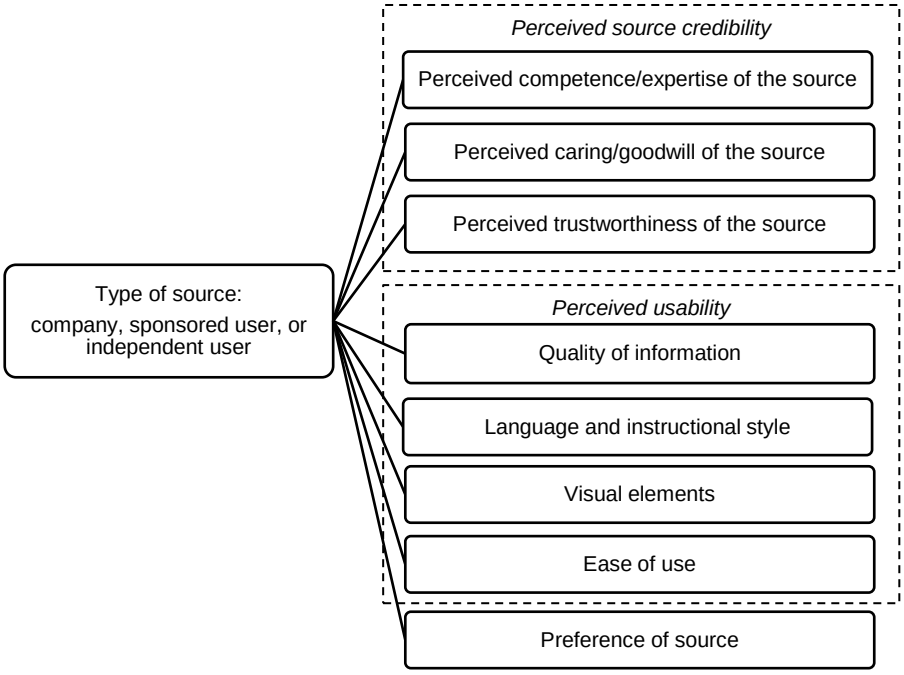

Figure 1. Measured source assessment variables

The most important criterion taken into consideration when selecting the instructional videos is that they should be representative for instructional videos from users and companies. Due to the fact that there is a wide range of instructional videos available on the internet, it can be argued that the average company-produced tutorial video or the average user-generated video simply does not exist, as the quality depends on many different factors and different viewers might differently evaluate these videos. Nevertheless, the intention of this study is to find the influence of different sources on credibility and usability assessments, which would mean that the quality of the instructions itself should be sufficient enough not to influence the outcomes. For this reason, eight criteria of Van der Meij and Van der Meij (2013) were used to evaluate whether a selected video was effective for software training. This means that the videos should:

1. be easily accessible (with a clear title)
2. use animation with narration
3. enable functional interactivity
4. preview the task
5. include mainly procedural information
6. give clear and simple tasks
7. be short
8. strengthen demonstration with practice

The company-produced instructional video of Samsung (figure 2) was found on YouTube. This video is publicly available since 2011 and has a clear title which includes ‘How to’ and the action (factory reset), which is in line with guideline 1. The video starts with an introduction of the goal of the video and continues with a step-by-step spoken and visual demonstration on how to perform factory reset with Samsung Recovery software (in accordance with guidelines 2 to 6). The video lasts approximately two minutes (guideline 7). The only guideline that could not be met is guideline 8: ‘strengthen demonstration with practice’, because using exercise material is not applicable to this task. The Samsung video contains several elements which are typical for company-produced videos. For example, the background of the video is white and the lighting in the video is very bright, like it was

filmed in a professional film studio. Moreover, the voice-over in the video is rather formal, and the woman does not share any personal information. She also uses the official product names of Samsung's software and notebook, which makes is appear quite similar to advertising videos. The audio sound in the video is very clear and professional, without any background noises, and the video is professionally edited.

Figure 2. Company-produced video

To make sure that the instructions in the other two (user-generated) videos were comparable to the one of Samsung, the researcher developed these videos. This resulted in a video with similar explanations and demonstrations (figure 3), which lasts around two and a half minutes. The content of the sponsored user-generated video (figure 4) is equal to the independent user-generated video, but does contain a frame around the screen which contains the phrase 'sponsored by Samsung', with the Samsung logo included. There are several elements that make these two videos typical user-generated videos. First of all, the user explains why she decided to perform factory reset and makes clear that she is a real user of a Samsung laptop by stating so. She also talks to her audience in an informal way, like she would be speaking to a friend. The video is filmed in what appears to be at her home, which is also very typical for user-generated videos. Consequently, the lighting and audio are of lower quality. The editing is also clearly less professional than the Samsung version, which is visible by the regular animations used from Windows Movie Maker.

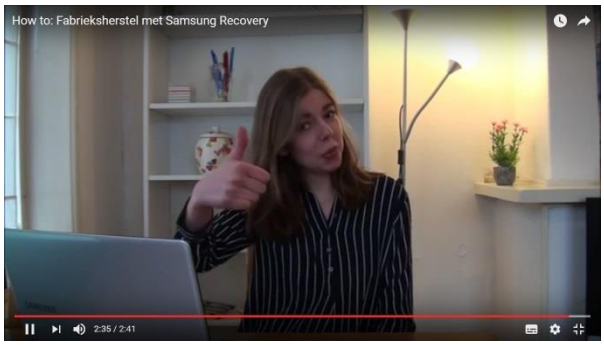

Figure 3. Independent user-generated video

Figure 4. Sponsored user-generated video

3.2 Pre-test

Prior to distributing the questionnaire, a small pilot study was conducted to test the questionnaire. This pre-test included five participants, who were asked to complete the final version of the online survey and assess whether the questions were clear and the survey was user-friendly. Overall, they were satisfied about the survey, because the questions were short, clear and correct. They also commented that assessing the instructional video through the survey was easy and entertaining. However, they did come up with some suggestions for improvement that resulted in several small changes in the survey. For example, they noted that it would be nice to have more introduction before some of the questions. This resulted in the addition of a short explanation of the reasons and/or context for some questions, such as the ones about users' prior experience with computers and Samsung. The same is true for the questions after the instructional video. Another suggestion was that the term 'visual elements' used in some of the questions is jargon and not clear for everybody. A clarification of the term was then added to the final survey.

The pre-test did not show any problems in the compatibility of the instructional video. Unfortunately, some problems with the display of the instructional video occurred in the first week of the data collection period. Even though the survey software Qualtrics that was used showed compatibility for most devices, some participants mentioned that they had trouble viewing the video on their smartphones or iOS devices. Luckily, this problem was resolved quickly by adding an extra link redirecting users that are unable to view the video to the original video on YouTube. However, this short period of compatibility problems could have resulted in a lower completion rate, because it was not possible to continue with the survey without watching the video.

3.3 Sample

A few selection criteria were used in this study. First of all, participants should be familiar with using modern technology, such as smart phones or popular software programs, and with using the internet in everyday life. The survey and instructional videos are in Dutch, so the sample should have sufficient knowledge of the Dutch language. A convenience sampling method was used to approach the participants. The researcher used two ways to find respondents. First, the Faculty of Behavioural, Management and Social Sciences of the University of Twente provided the opportunity to approach Bachelor students, who participate in studies as part of their curriculum. Secondly, respondents were approached through the researchers' social network. They were also asked to share this with their connections. The participants were randomly divided into three groups. All groups were asked to complete the same survey, but the source of instructional video differed per group. Group 1 watched the company-produced video, group 2 the sponsored user-generated video, and group 3 the independent user-generated video. In total, 143 completed responses were collected. The respondents' age differs between 18 and 70 years old. Other background characteristics of the groups are displayed in table 1. The majority of this group, 79 participants, are university students from the Faculty of Behavioral, Management and Social Sciences of the University of Twente. They were rewarded with 0.25 credits. The other 64 participants were approached through the social network of the researcher and did not receive any form of reward.

Table 1. Background information sample

		Group 1 (CPC)	Group 2 (sponsored UGC)	Group 3 (independent UGC)
Number of participants	N	47 (33%)	49 (34%)	47 (33%)
	University of Twente students	25 (53%)	28 (57%)	26 (55%)
Gender	Male	19 (40%)	18 (37%)	14 (30%)
	Female	28 (60%)	31 (63%)	33 (70%)
Age	M (SD)	28 (13)	29 (14)	27 (14)
Educational level	Secondary school	1 (2%)	-	1 (2%)
	Vocational school (MBO)	4 (9%)	3 (6%)	1 (2%)
	Higher education (HBO/WO)	42 (89%)	46 (94%)	45 (96%)
Experience with factory reset	Yes	20 (43%)	16 (33%)	16 (34%)
	No	20 (43%)	28 (57%)	21 (45%)
	Does not remember	7 (15%)	5 (10%)	10 (21%)
Experience with Samsung laptop	Yes	7 (15%)	8 (16%)	7 (15%)
	No	40 (85%)	41 (84%)	40 (85%)
Experience with Samsung Recovery	Yes	-	-	2 (4%)
	No	45 (96%)	48 (98%)	43 (92%)
	Does not remember	2 (4%)	1 (2%)	2 (4%)

3.4 Measures

Data for this study was collected using survey research. The survey used in this study can be found in Appendix I. The questionnaire consists of questions about the participant's perception of source credibility and perceived usability and satisfaction about the product in the instructional videos. A seven-point Likert scale was used to measure the respondents' attitudes about the statements. Respondents were first asked to answer questions about their demographics, prior experience with the software and current sources of information when it comes to instructions for using technical devices in general. After this, respondents were asked to put themselves in the role of a user of a Samsung laptop that is experiencing problems. They then were randomly shown video 1 (company-produced), 2 (sponsored UGC) or 3 (independent UGC).

After watching the instructional video on how to use Samsung Recovery software, respondents were asked to evaluate the source of the video by answering statements about credibility. The scales used to measure perceived *competence*, *goodwill*, and *trustworthiness* are previously used scales as formulated by McCroskey and Teven (1999). This study uses a combined scale for perceived competence and expertise by adding one statement of the expertise scale of Ohanian (1990). The second part of the study consists of the evaluation of the usability and satisfaction of the Samsung software after seeing the video. Respondents were only able to do this by making an estimation, as they did not have to use the actual software. The initial questions about perceived usability and satisfaction were derived from the study of De Jong et al. (2017). The constructs *quality of information*, *redundancy*, the *perceived ease of use*, *language and style*, *layout*, and *preference of source* were reformulated to fit in the context of instructional videos, which resulted in five initial constructs. The first category of questions asks about the *quality of information* in the video, whether this is clear, complete, and useful. The next category is about the perceived *ease of using* the actual software. The third, *language and instructional style*, focuses on whether the language use is clear and easy to understand and whether the instructions are easy to follow. The *visual elements* (*layout*) category follows by asking about user-friendliness and helpfulness of the visual parts of the video, such as screen recordings. The study concludes with a separate part about the *preference of source*. The respondents were then asked which information source they would prefer to solve the previously stated problems.

A factor analysis (orthogonal rotation, Varimax) was performed to measure the extent to which the statements in the survey measure the formulated constructs of perceived usability and satisfaction (appendix II). The initial four constructs were not valid, but the analysis resulted in a new subdivision with four valid constructs: *quality of information*, *ease of use*, *relevance*, and *visual elements*. The new categorization of the constructs is displayed in appendix III. Preference of source did not fit to these constructs, but will be used as a separate construct, because this is still relevant for this study. A reliability analyses showed that the source credibility constructs, the usability constructs, and the preference of source construct are all reliable (table 2).

Table 2. Reliability analysis

	Construct	Cronbach's alpha
Source credibility	Competence	α = .79
	Goodwill	α = .73
	Trustworthiness	α = .82
Usability	Quality of information	α = .79
	Ease of use	α = .85
	Relevance	α = .79
	Visual elements	α = .72
	Preference of source	α = .68

Most of the hypotheses about the perceived usability (H4, H6, and H7) remain the same after the revision. H8 about the preference of source will still be tested as it is, just not as part of the perceived usability. The only changed hypothesis is H5, which was previously about the language and instructional style, but is now about the relevance of the instructional video. This study hypothesizes that independent user-generated instructional videos are perceived as most relevant, because the fellow user is closest to the wishes and needs of the viewer. The sponsored user-generated video is expected to score higher on relevance than the company-produced video, but lower than the independent user-generated video, because the user could have been influenced by the sponsoring company about what to include in the video. The reformulated H5 is:

- H5: Independent user-generated instructional videos on YouTube are perceived to be more relevant than sponsored user-generated or company-produced instructional videos, while sponsored user-generated instructional videos are perceived to be more relevant than company-produced instructional videos

4. Results

First of all, the study provides insight into the current sources people use when facing questions about their technical devices in general. Table 3 displays the results, which tells us that most of the participants (83%) use search engines such as Google and Bing to find this sort of information. Results of these searches can both result in company-produced content and user-generated content. More than half of the participants asks their family and/or friends to help them (59%), or consult the website of the manufacturer (57%). The platform used in this study, YouTube.com, is also a popular information source for 46% of the respondents. At the same time, an equal amount of respondents still consult the traditional paper manual. Less consulted information sources are user forums (32%), customer service (25%), and external parties such as ICT services (11%).

Table 3. Current sources for information about technical devices

		Group 1 (CPC)	Group 2 (sponsored UGC)	Group 3 (independent UGC)	**Total**
Number of participants	N	47	49	47	**143**
Current sources for information about technical devices	Paper manual	20 (43%)	24 (49%)	22 (47%)	**66 (46%)**
	Customer service	12 (26%)	12 (25%)	11 (23%)	**35 (25%)**
	Store	8 (17%)	5 (10%)	3 (6%)	**16 (11%)**
	Website of manufacturer	28 (60%)	28 (57%)	26 (55%)	**82 (57%)**
	Family and/or friends	25 (53%)	27 (55%)	32 (68%)	**84 (59%)**
	External party (such as ICT service)	1 (2%)	7 (14%)	7 (15%)	**15 (11%)**
	Search engine (e.g. Google, Bing)	41 (87%)	39 (80%)	38 (81%)	**118 (83%)**
	User forum	13 (28%)	21 (43%)	11 (23%)	**45 (32%)**
	YouTube.com	21 (45%)	23 (47%)	21 (45%)	**65 (46%)**

The participants in this study were randomly divided into one of the three groups. Before comparing the groups, it is important to know whether the background characteristics (table 2) of the groups are comparable. The variety in gender in the three groups was not found to be significantly different in a Chi-square test for independence, χ^2 (2, N = 143) = 1.20, p = .55. A one-way Analysis of variance (ANOVA) also did not show a significant difference in age between the groups, F(2, 143) = 0.14, p =.87. It is important to note that even though the mean age of the group is around 28 years old, a majority of 64% of the respondents was in the age category of 18 to 25 years old. Moreover, a Kruskal Wallis H Test showed no significant difference in educational levels between the groups, χ^2 (2, N = 143) = 1.52, p = .47. Furthermore, a Chi-square test did not find a significant difference in the

respondents' level of experience with factory reset between the groups, χ^2 (4, N = 143) = 3.92, p = .42, their experience with Samsung laptops, χ^2 (2, N = 143) = 0.05, p = .98, or their experience with Samsung Recovery software, χ^2 (4, N = 22) = 5.97, p = .20. In other words, no significant differences in background variables were found, which allows further comparison of the three groups.

Table 4. Means of constructs per type of source

	Company-produced video		Sponsored user-generated video		Independent user-generated video	
Construct	M	SD	M	SD	M	SD
Trustworthiness	4.89	0.92	4.96	0.91	5.25	0.78
Competence	4.88	1,06	4.74	0.91	4.60	0.76
Goodwill	4.54	0.80	4.76	0.79	4.90	0.81
Quality of information	5.69	0.92	5.59	0.92	5.66	0.80
Relevance	4.99	1.24	4.93	1.42	5.08	1.29
Visual Elements	5.14	1.19	4.67	1.04	4.90	1.06
Ease of use	5.65	1.12	5.54	1.02	5.71	1.08
Preference of source	4.89	1.15	4.47	1.04	4.56	1.26

Note: Variables were measured on 7-point Likert scales (1 = low, 7 = high), in case of 'preference of source' this means low is not in favor of the instructional video and high is in favor of the instructional video.

Table 4 displays the mean scores of the constructs belonging to the categories source credibility, usability and preference of source. Several Multivariate analyses of variance (MANOVAs) were performed to find the influence of the type of source on source credibility and usability scores. First of all, the study shows no significant differences in perceived *trustworthiness* between the company, sponsored user, or independent user as a source, F(2, 143) = 2.29, p = .11. However, when looking at the mean scores of the three videos, the expected differences as stated in H1 are visible: the mean of perceived trustworthiness is higher for the independent user-generated video than for the sponsored user-generated video and the company-produced video. The mean of the sponsored user-generated video is also lower than the one of the independent user-generated video, but higher than the company-produced mean. These results are however still insignificant and do not provide sufficient support for H1.

Moreover, the analyses did not show a significant difference between the groups in terms of the *perceived competence*, F(2, 143) = 1.07, p = .35. However, similar to the *perceived trustworthiness*, the mean scores do show the expected tendency as stated in H2: the average score on perceived competence is higher for the company-produced video than the user-generated videos. Between the two types of UGC, the sponsored video does have a higher mean than the independent video.

Results on the third and final component of source credibility, *perceived caring or goodwill*, also did not show a significant difference on a 0.05 significance level, F(2, 143) = 2.49, p = .09. However, it did show a significant result when setting a 0.1 significance level. The mean scores are also in agreement with the expectations of this study (H3): the perceived goodwill is higher for the user-generated videos than the company-produced video. In this case, the independent user-generated video scores higher than the sponsored video. In summary, the different types of sources generally showed no significant effect on the perceived source credibility, and its components *perceived trustworthiness* and *perceived competence,* besides a significant influence on the *perceived goodwill* of the source*.*

Looking at the *perceived usability* constructs, the scores on *quality of information* do not significantly differ depending on the type of source, F(2, 143) = 0.16, p = .85. Exactly the same is true for the outcomes of the *relevance* construct*,* F(2, 143) = 0.16, p = .85. The results of the *visual elements* ratings also do not show a significant difference, F(2, 143) = 2.25, p = .11. Moreover, the scores on the *ease of use* of the instructional videos do not point out a significant difference between sources,

F(2, 143) = 0.29, *p* = .75. This means that this study found no support for H4 until H7. Furthermore, the mean scores of the usability constructs also do not show any of the expected patterns. Finally, the separate construct of the *preference of source* does not provide a significant difference per group, *F*(2, 143) = 1.82, *p* = .17.

In conclusion, this study did not find any significant effects of source differences in instructional videos on the *perceived trustworthiness*, *competence*, *usability*, or *source preference*. In other words, this study found no support for most of the stated hypotheses, except for H3 about the source credibility component *goodwill*.

5. Discussion

5.1 Main findings

First of all, this study examined whether different sources of instructional videos have an influence on the user's *perception of credibility* of the instructions. Research results generally show no support to indicate that source differences do influence the outcomes of perceived source credibility assessment. It can now carefully be argued that people can perceive independent users equally as credible (or believable) as sponsored users or a company when it comes to instructional videos. This is especially true for two of the three source credibility components measured in this study, *perceived trustworthiness* and *competence* (or *expertise*). Prior to the research, this study assumed that when instructions are provided by a fellow user who is not involved with a company, other users would perceive this to be more *trustworthy*. The opposite was expected about the *perceived competence*: users would consider the manufacturer of the featured product to be more of an expert in instructing users than somebody who is not informed about it except for their own experience (the independent user). Both the assumptions are untrue in case of the instructional videos about Samsung Recovery used in this study: sources of independent user-generated, sponsored user-generated and company-produced instructional videos can all be perceived equally trustworthy and competent.

This contradicts the findings of Jonas (2010), who found that Filipino youth do evaluate user-generated content as more credible than company-produced content, based on perceived trustworthiness and expertise. A difference between Dutch and Filipino youth could explain a part of the difference. On the other hand, it seems more likely that the context of this study, it being about a software tutorial, can explain the difference to existing literature on source credibility. It is important to keep in mind that people's motivation to evaluate credibility is crucial in the evaluation process (Metzger, 2007), and can highly differ per context. Previous studies on source credibility have mainly looked at source credibility in other domains, such as in health information, legal environments, or product reviews. The task in this study, performing a factory reset on a laptop, could have had unfortunate outcomes if the instructions were incorrect due to low trustworthiness or low expertise of the source. However, this is nothing compared to the consequences of untrustworthy or incompetent sources providing information about their medication or about a suspect in front of a judge in a courtroom. Metzger's (2007) dual processing model also stresses the importance of people's motivation to evaluate credibility. However, we do not know how to make people motivated to evaluate a source's credibility. In case of software instructions, it could be that people are simply not that motivated to verify the source, because it does not seem important to them.

Another finding of this study is the difference in the evaluation of the source credibility component *perceived goodwill*: the source of the independent user-generated video was perceived as most caring for the receiver, whilst the source of the sponsored user-generated video (with the content being almost entirely equal) was perceived as less caring. Moreover, users did perceive the source of the company-produced video as the least caring. According to the source credibility model of McCroskey and Teven (1999), which was also used in this study, goodwill should definitely be considered as a strong predictor of believability and/or likeableness, together with trustworthiness and competence.

This study shows that while users do not find instructional videos to be more trustworthy or competent when they are provided by a fellow user, they do have the feeling that fellow users care more about their well-being, that they understand them, and that they have their interests at heart. When a company gets involved by sponsoring a user to produce an instructional video, or when the company produces the video, recipients perceive the video as less caring, and thereby could make the instructional video less believable and/or likeable for the user.

Secondly, this study examined whether different sources of instructional videos have an influence on the user's *perception of usability* of the featured product and video. Findings suggest that including a different source of instructions in a video does not affect the perceived usability of the product and the video. Moreover, the study did not find any proof to assume that users prefer fellow users (independently or sponsored) over companies as their source for instructional video. The official instructional video of Samsung is as preferable as a the user-generated video about the same task. The findings also do not indicate any influence of source differences on the measured constructs of perceived usability of the product and the instructional video, which was subdivided into quality of information, relevance, visual elements, and ease of use. The instructional design of the videos was equal in all three video types, which can explain the similar scores on these subjects. This is different compared to the study of De Jong et al. (2017), in which users have a preference for commercial (non-official) manuals over official manuals. They stress that the image of official manuals is bad, which they found in low expectations of this manuals, and that this could lead to lower task performance. However, their study does include written instructions of two professional companies, in which the instructions itself slightly differ. The difference with this study could be explained by the form of the instructions (printed manuals versus instructional videos), and the use of two professional companies as sources (official and non-official, but commercial versus user and official company). Nevertheless, the most likely explanation for the difference is that in this study the instructional design is equal in all three videos. As mentioned earlier by Van der Meij (2014): the effectiveness of the instructional videos is highly dependent on the quality of the design guidelines on which they are based. If the source does not influence the outcomes of the users' evaluations of the instructions, this definitely points towards the instructions themselves as being the most important factor in the results.

These outcomes are important for professional organizations wanting to create instructional videos, because they show that users of technical products do not seem to mind if those are provided by professionals or amateurs. A perhaps disappointing conclusion can be made for professional content creators: this study suggests that producing a professional commercial instructional video generally does not result in extra value over user-generated videos. It could even be less effective than user-generated videos, because the company can be perceived as less caring than a fellow user as a source. The positive side of this is that companies can definitely use the growing amount of amateur video creators, or vloggers, in their instructional strategy, which could result in time-saving and financial benefits. When choosing to motivate users to co-operate with a company, sponsoring can be used. Another benefit of choosing users as a source over professionals is that the company could benefit from the network of the user, when they have an existing viewer-base or even fan-base. However, it is important to stress that when wanting to produce effective instructional videos, professionals are advised to put their time and effort into using design guidelines for the design of instructional videos, as the quality of instructions should be sufficient in the video, regardless of the source they choose for the production process.

Companies should also keep in mind that most users do use search engines such as Google or Bing when they are need of instructions about their technical devices. These search engines can lead users to instructions from any source, company-produced or user-generated. To keep the users satisfied by providing high-quality instructional videos (by either professionals or amateurs), professionals should make sure that those instructions can be easily found. In this study, half of the participants noted that they still use the traditional paper manual when facing problems with technical devices. In that sense, companies should better not exclude this from the product package. However, they can integrate the benefits of instructional videos by referring users to these videos for additional information if they are

provided on their website or on platforms such as YouTube, which as this study shows is a popular information channel in this context.

5.2 Limitations and suggestions for future research

This study used a limited sample size, which might have had an influence on the outcomes. The majority of the respondents' are young adults between 18 and 35, with an average age of 28 years old. This group of respondents is very familiar with using technical devices, as well as consulting the Internet or social media channels for information. They are very used to this information being available at all times, which might explain their online information searching behavior and the high preference for using search engines as their key to finding the right instructions. Factors such as the receiver's prior experience, domain expertise, and issue involvement are important influencers in their source credibility assessment (Choi & Stvilia, 2015; Pornpitakpan, 2004; Wathen & Burkell, 2002). The outcomes might have been different when an older group of respondents was used, because they have been more familiar with the paper manual from when they were young, which could also influence the way they evaluate instructional videos. Besides looking at older participants, it is also interesting to know whether credibility assessments are made differently by children, as most of them grew up using the Internet as a primary source of information. The same applies to the educational level of the respondents, as almost all of the respondents are currently in or graduated in higher education. Scores on credibility of the different videos could be higher when looking at lower educational levels, as ability to evaluate credibility and comprehension are important factors in the evaluation process (Metzger, 2007; Pornpitakpan, 2004). If receivers of instructions are not able to evaluate credibility or not aware of certain credibility flaws, they might accept the instructions more easily. At the same time, it could also be the case that higher educated persons are more confident in their own ability to perform certain tasks without consulting instructions, and thereby make them less accepting of instructions from companies or other users, resulting in lower scores on source credibility and usability.

The outcomes of the part of the study about the evaluation of perceived usability of the software are also limited, because the participants did not have to use the actual software in an experimental setting. In this study, users had to imagine they were looking for instructions on how to perform factory reset, which can be considered as a task with important outcomes, in which correct instructions can be crucial. They were asked to answer the questions about usability accordingly, which resulted in an 'expected' evaluation, instead of a real-use evaluation. This could have made differences in motivation or sense of relevance of the respondents. In experimental or real-life situations, when the actual task has to be performed, the outcomes might be different. These experiments could involve an initial study measuring the expected usability after watching the instructional video, and the actual usability after having performed the actual task. Moreover, the context of this study involved a software tutorial as instructional video. The results could be very different when the videos are about other subjects, such as crafting or medical instructions.

Another improvement point of the study is the limited pre-test of the different instructional videos. Even though the two user-generated videos clearly involve a user introducing herself as a user, it could have occurred that respondents failed to notice this, or the 'sponsored by' logo on the screen of the sponsored video. They also could have failed to notice that the company-produced video was really made by Samsung, instead of another professional. It is crucial for this study to know whether viewers of the videos notice the type of source they are dealing with. Even though the researcher made sure to include the previously mentioned cues in the videos that point to the type of source, it cannot be said for sure that the users actually noticed who the source of this video was. A pre-test asking potential users to distinguish the type of source could have helped to prevent this. Another way to make sure that the participants in this study noticed the difference would have been to ask them this as a specific question after having watched the video. Unfortunately, neither the pre-test or questionnaire did include such a question. At the same time, it is important to be aware of the fact that in a real-life setting people can also be ignorant in identifying the source, because they are unable or unmotivated to verify the actual source. Pointing the respondents towards identifying the source can then influence

their evaluation of the source, which makes it less representative for situations outside of research settings.

This study looked at credibility and usability assessments, which did include the assessment of the practical part of the instructional videos, such as the relevance, and the information quality. However, there could also be other aspects at play in the evaluation of instructional videos, such as people's motivation to perform the task or the entertainment of the video. It could be the case that users do find a user-generated video more motivating or entertaining than a company-produced video, which could make them more successful in performing the task. Even though the perceived usability and preference of source did explain a part of people's satisfaction about the videos (as satisfaction is a part of usability), the focus was not on motivational factors. Future research should look into this. It would be useful to know if people do find the instructional videos to be more enjoying, or motivating when it is includes a real user, or if it is similar to when it includes the official company. Moreover, this study used the three source credibility components according to McCroskey and Teven (1999), while the other determinants, namely the *dynamism* of the source (Berlo et al., 1969; Johnston & Warkentin, 2010) and the perceived *attractiveness* of the source (Ohanian, 1990; Pornpitakpan, 2004) were not taken into account. It could be the case that respondents in this study did find the actor in the user-generated videos highly attractive, or that her way of providing the instructions was more dynamic than how Samsung did it or vice versa. One suggestion for future research is to include testing instructional videos that include different actors providing the instructions, and letting respondents judge them on their attractiveness, so that these can be compared to the scores of the videos. Another is to test highly-dynamic and lower-dynamic instructional videos and find out how users perceive these videos in terms usability and credibility.

A final suggestion is to consider the advice of Warnick (2004), who looked into the importance of source credibility in what she calls the "authorless" online environment of today, in which sources of information (and whether or not they are sponsored) are not always clearly shown. She argues that author functions and credibility are losing their importance, because anybody can be a source nowadays. Instead, we should put more effort into the design, structure and usefulness of information and how they can influence credibility. Her advice is to revise the old theoretical models on which online credibility judgments are based to let them fit to practice. The theoretical framework used in this study to determine source credibility is rather traditional, while the theory used to measure the usability of instructional videos is more up to date. Future research should definitely aim to develop models that combine credibility and usability assessments of content in the online environment of today, which is still limited at this point in time.

5.3 Conclusion

This study contributes to the design of instructional videos by looking at the influence of different sources on the effectiveness of instructional videos, considering users' source credibility and usability assessments. Designers of instructions should know that according to this study, users who independently create instructional videos are perceived as being most caring for other users, while company-produced videos are perceived as having the lowest goodwill. However, this study did not yet find support to claim that company-produced videos or user-generated videos differ in perceived trustworthiness and competence or expertise of the source, or in perceived usability of the product or instructions. With the growing popularity and use of instructional videos and UGC, this continues to be a relevant research direction.

Literature list

Ahn, D., Duan, J.A., & Mela, C.F. (2016). Managing user-generated content: A dynamic rational expectations equilibrium approach. *Marketing Science, 35*(2), 284-303.

Anderka, M., Stein, B., & Lipka, N. (2012). Predicting quality flaws in user-generated content: The case of Wikipedia. In *Proceedings of the 35th International ACM SIGIR Conference on Research and Development in Information Retrieval* (pp. 981-990). New York, NY: ACM.

Andersen, R. (2014). Rhetorical work in the age of content management: Implications for the field of technical communication. *Journal of Business and Technical Communication, 28*(2), 115-157.

Ansari, S., & Munir, K. (2010). Letting users into our world: Some organizational implications of user-generated content. *Research in the Sociology of Organizations, 29*, 79-105.

Baeza-Yates, R. (2009). User generated content: How good is it? In *Proceedings of the 3rd Workshop on Information Credibility on the Web* (pp. 1-2). New York, NY: ACM.

Berlo, D.K., Lemert, J.B., & Mertz, R.J. (1969). Dimensions for evaluating the acceptability of message sources. *Public Opinion Quarterly, 33*(4), 563–576. doi: 10.1086/267745

Cha, M., Kwak, H., Rodriguez, P., Ahn, Y.Y., & Moon, S. (2007, October). I tube, you tube, everybody tubes: Analyzing the world's largest user generated content video system. In *Proceedings of the 7th ACM SIGCOMM conference on Internet measurement* (pp. 1-14). New York, NY: ACM.

Choi, W., & Stvilia, B. (2015). Web credibility assessment: Conceptualization, operationalization, variability, and models. *Journal of the Association for Information Science and Technology, 66*(12), 2399–2414. doi: 10.1002/asi.23543

Daugherty, T., Eastin, M.S., & Bright, L. (2008). Exploring consumer motivations for creating user-generated content. *Journal of Interactive Advertising, 8*(2), 16-25.

De Jong, M. D. T., Yang, B., & Karreman, J. (2017) The image of user instructions: Comparing users' expectations of and experiences with an official and a commercial software manual. *Technical Communication, 64*(1), 38-49.

Figueiredo, F., Almeida, J.M., Gonçalves, M.A., & Benevenuto, F. (2016). TrendLearner: Early prediction of popularity trends of user generated content. *Information Sciences 349–350*(2016), 172–187.

Gellevij, M., & Van der Meij, H. (2004). Empirical proof for presenting screen captures in software documentation. *Technical Communication, 52*(2), 224-238.

Grewal, D., Gotlieb, J., & Marmorstein, H. (1994). The moderating effects of message framing and source credibility on the price-perceived risk relationship. *Journal of Consumer Research, 21*(1), 145-153.

Haley, E. (1996). Exploring the construct of organization as source: Consumers' understandings of organizational sponsorship of advocacy advertising. *Journal of Advertising, 25*(2), 19-35.

Hilligoss, B., & Rieh, S.Y. (2007). Developing a unifying framework of credibility assessment: Construct, heuristics, and interaction in context. *Information Processing and Management, 44*(4), 1467-1484. doi: 10.1016/j.ipm.2007.1

Hovland, C.I., & Weiss, W. (1951) The influence of source credibility on communication effectiveness. *The Public Opinion Quarterly, 15*(4), 635-650.

Hovland, C.I., Janis, I.L., & Kelley, H.H. (1953). *Communication and persuasion: Psychological studies of opinion change*. New Haven, CT: Yale University Press.

Huarng, K.H., Yu, T.H.K., & Huang, J.J. (2010). The impacts of instruction video advertising on customer purchasing intentions on the Internet. *Service Business, 4*(1), 27-36.

ISO. (1998). *Ergonomic requirements for office work with visual display terminals (VDTs), Part 11, Guidance on usability* (ISO 9241-11: 1998(E)). Geneva, Switzerland: Author.

Johnston, A.C., & Warkentin, M. (2010). The influence of perceived source credibility on end user attitudes and intentions to comply with recommended IT actions. *Journal of Organizational and End User Computing, 22*(3), 1-21.

Jonas, J. R. (2010). Source credibility of company-produced and user-generated content on the internet: An exploratory study on the Filipino youth. *Philippine Management Review*, *17*(1), 121-132.

Kim, A.J., & Johnson, K.K. (2016). Power of consumers using social media: Examining the influences of brand-related user-generated content on Facebook*. Computers in Human Behavior 58*(2016), 98-108.

Kim, C. (2012). The role of affective and motivational factors in designing personalized learning environments. *Educational Technology Research and Development, 60*, 563-584.

LaRoche, C., & Traynor, B. (2013). *Technical communication on life support: Content strategy and UX are the reclamation*. Paper presented at the IEEE International Professional Communication 2013 Conference, Vancouver, BC (pp. 1-6).

Lewis, J. R. (1995). IBM computer usability satisfaction questionnaires: Psychometric evaluation and instructions for use. *International Journal of Human-Computer Interaction, 7*, 57–78.

Manaman, H.S., Jamali, S., & AleAhmad, A. (2016). Online reputation measurement of companies based on user-generated content in online social networks. *Computers in Human Behavior, 54*(2016), 94-100.

Mayer, R.E., & Moreno, R. (1998). A split-attention effect in multimedia learning: Evidence for dual processing systems in working memory. *Journal of Educational Psychology, 90*(2), 312-320.

McCroskey, J.C., & Teven, J.J. (1999). Goodwill: A reexamination of the construct and its measurement. *Communication Monographs, 66*, 90-103.

Metzger, M.J. (2007). Making sense of credibility on the web: Models for evaluating online information and recommendations for future research. *Journal of the American Society for Information Science and Technology, 58*(13), 2078-2091.

Metzger, M.J., & Flanagin, A. J. (2008). Digital media and youth: Unparalleled opportunity and unprecedented responsibility. In *Digital Media, Youth, and Credibility* (pp. 5-28). Cambridge, MA: The MIT Press.

Morain, M., & Swarts, J. (2012). YouTutorial: A framework for assessing instructional online video. *Technical Communication Quarterly, 21*(1), 6–24.

Nielsen, J. (1993). *Usability Engineering*. Cambridge, MA: Academic Press.

Nielsen, J., & Norman, D. (2014). *The definition of user experience*. Retrieved February 1, 2017, from https://www.nngroup.com/articles/definition-user-experience/

O'Keefe, D.J. (1990). *Persuasion: Theory and research*. Newbury Park, CA: Sage Publications.

Ohanian, R. (1990). Construction and validation of a scale to measure celebrity endorsers perceived expertise, trustworthiness and attractiveness. *Journal of Advertising, 19*(3), 39-52.

Organisation for Economic Cooperation and Development [OECD] (2007). *Participative web and user-created content: Web 2.0, wikis, and social networking*. Paris: Organisation for Economic Co-operation and Development.

Poe Alexander, K. (2013). The usability of print and online video instructions. *Technical Communication Quarterly, 22*(3), 237-259.

Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Social Psychology, 34*(2), 243-281.

Samsung Nederland. (2011, November 7). *How to; Notebook: Reset naar fabrieksinstellingen* [Video file]. Retrieved from https://www.youtube.com/watch?v=5Thy20aSYiA&feature=youtu.be

Selber, S. (2010). A rhetoric of electronic instruction sets. *Technical Communication Quarterly, 19*(2), 95-117.

Shackel, B., & Richardson, S. J. (1991). *Human factors for informatics usability*. Cambridge, U.K.: Cambridge University Press.

Swarts, J. (2012). Modes of help: Best practices for instructional video. *Technical Communication, 59*(3), 195-206.

Van der Meij, H. (2013). Motivating agents in software tutorials. *Computers in Human Behavior, 29*, 845-857.

Van der Meij, H. (2014). Developing and testing a video tutorial for software training. *Technical Communication, 61*(2), 110-122.

Van der Meij, H., & Van der Meij, J. (2013). Eight guidelines for the design of instructional videos for software training. *Technical Communication, 62*(1), 48-62.

Van der Meij, H., & Van der Meij, J. (2014). A comparison of paper-based and video tutorials for software training. *Computers and Education, 78*, 150-159.

Warnick, B. (2004). Online ethos: Source credibility in an “authorless” environment. *American Behavioral Scientist, 48*(2), 256-265.

Wathen, C.N., & Burkell, J. (2002). Believe it or not: Factors influencing credibility on the web. *Journal of the American Society for Information Science and Technology, 53*(2), 134-144.

Appendix I Survey

Part 1: Background questions

1. What is your gender?
2. What is your age?
3. What is your highest educational level?
4. What is your current occupational status?
5. Do you own a PC or laptop?
6. Have you ever performed factory reset on a PC or laptop?
7. Have you ever owned a Samsung laptop?
8. Have you ever performed factory reset with Samsung Recovery?
9. If you have questions about your technical devices, such as smartphones or laptops, where do you search for information?

Part 2: Watching the instructional video

After answering the background questions, the respondent is randomly assigned to watch one of the three instructional videos. After watching the video, they can continue to the third part of the questionnaire.

Part 3: Source credibility (seven-point Likert scale)

3.1 Competence/expertise (McCroskey & Teven, 1999)

The creator of this video is…

- intelligent – unintelligent
- untrained – trained
- inexpert – expert
- informed – uninformed
- incompetent – competent
- bright – stupid
- expert – not an expert (Ohanian, 1990)

3.2 Goodwill (McCroskey & Teven, 1999)

The creator of this video…

- cares about me – doesn't care about me
- has my interests at heart – doesn't have my interests at heart
- self-centered – not self-centered
- concerned with me – unconcerned with me
- insensitive – sensitive
- not understanding – understanding

3.3 Trustworthiness (McCroskey & Teven, 1999)

The creator of this video is…

- honest – dishonest
- untrustworthy – trustworthy
- honorable – dishonorable
- moral – immoral

- unethical – ethical
- phoney – genuine

Part 4: Perceived usability & satisfaction (seven-point Likert scale)

4.1 Quality of information

1. This video contains clear information about factory reset using Samsung Recovery
2. This video contains complete information about factory reset using Samsung Recovery
3. This video contains useful information about factory reset using Samsung Recovery
4. This video contains too much information
5. The video contains a lot of information that is not relevant for users

4.2 Ease of use

1. After watching this video I am able to easily perform factory reset with Samsung Recovery
2. After watching this video I am easily able to quickly perform factory reset with Samsung Recovery

4.3 Language and instructional style

1. The language use in the video is clear
2. The spoken information in the video is easy to understand
3. The video contains too much talking
4. The instructions in the video are easy to follow

4.4 Visual elements

1. The visual elements of the video are user-friendly
2. The visual elements of the video are appealing
3. The visual elements of the video are helpful

Part 5: Preference of source (seven-point Likert scale)

1. I would prefer to ask someone else to perform factory reset instead of using this video
2. I would prefer to use Google instead of using this video
3. I would prefer to consult an online forum instead of using this video
4. I would prefer to keep trying by myself instead of using this video
5. I would prefer to ask the customer support of Samsung instead of using this video

Appendix II Factor analysis

Rotated Component Matrix

Statement (initial construct)	Component			
	1	2	3	4
The language use in the video is clear (language & instructional style)	0,76			
The spoken information in the video is easy to understand (language & instructional style)	0,75			
This video contains clear information about factory reset using Samsung Recovery (quality of information)	0,73			
This video contains useful information about factory reset using Samsung Recovery (quality of information)	0,63			
This video contains complete information about factory reset using Samsung Recovery (quality of information)	0,45			0,41
After watching this video I am easily able to quickly perform factory reset with Samsung Recovery (ease of use)		0,90		
After watching this video I am able to easily perform factory reset with Samsung Recovery (ease of use)		0,89		
The instructions in the video are easy to follow (language & instructional style)		0,60		
This video contains too much information (quality of information)			0,82	
The video contains a lot of information that is not relevant for users (quality of information)			0,79	
The video contains too much talking (language & instructional style)			0,77	
The visual elements of the video are user-friendly (visual elements)				0,84
The visual elements of the video are appealing (visual elements)				0,80
The visual elements of the video are helpful (visual elements)				0,62

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

Appendix III Usability constructs

Component 1: Quality of information

1. The language use in the video is clear
2. The spoken information in the video is easy to understand
3. This video contains clear information about factory reset using Samsung Recovery
4. This video contains useful information about factory reset using Samsung Recovery
5. This video contains complete information about factory reset using Samsung Recovery

Component 2: Ease of use

1. After watching this video I am easily able to quickly perform factory reset with Samsung Recovery
2. After watching this video I am able to easily perform factory reset with Samsung Recovery
3. The instructions in the video are easy to follow

Component 3: Relevance

1. This video contains too much information
2. The video contains a lot of information that is not relevant for users
3. The video contains too much talking

Component 4: Visual elements

1. The visual elements of the video are user-friendly
2. The visual elements of the video are appealing
3. The visual elements of the video are helpful