Cryptocurrency Websites:

An experimental study of the effect of tutorials on services provided by cryptocurrency websites

Master Thesis
M.Sc. Communication Science

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Abstract

Background & Purpose: The financial world is transforming before our eyes. The advent of new digitized assets, cryptocurrencies, and outbreaking financial channels and instruments which they create, build new possibilities in the field of financial transaction and investment. As a result, new businesses have emerged by leveraging this financial transformation, with the most common being cryptocurrency websites. These websites are seen as difficult to use by many users, especially those with less experience. For that reason, different types of tutorials are employed in order to help users navigate through the website and benefit from their service. The purpose of the current study is to examine the possible effects of step-by-step tutorials, screencast tutorials and a combination of the two tutorials on perceived user-friendliness, user satisfaction and behavioral intention to use as well as the moderating roles of user expertise, perceived financial risk and perceived task complexity.

Methodology: In the context of this current research, a 2 (step-by-step tutorial: yes or no) x 2 (screencast tutorial: yes or no) experimental design was conducted. Three types of tutorials were designed and incorporated into two different cryptocurrency websites. Participants were exposed (or not) to one type of tutorial and then were asked to complete a questionnaire (N=177). The dependent variables were measured on a 7 point Likert scale.

Findings: The study unveiled that screencast tutorials positively affected user satisfaction, perceived user-friendliness and intention to use the website when the levels of financial risk are perceived to be high. However, if no tutorial is provided, high levels of perceived financial risk lead to lower levels of perceived user-friendliness, user satisfaction and intention to use the website, while low levels of perceived financial risk lead to higher levels of the aforementioned factors.

Keywords: cryptocurrency, website, quantitative research, tutorial, step-by-step, screencast

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1. Introduction

The past decade, the world of finance has taken a shift toward new innovative financial channels, the cryptocurrencies (Hileman & Rauchs, 2017). With an estimated market capitalization which exceeds $750 billion (Best, 2021), cryptocurrency is a rapidly evolving economic field as well as an economic trend (Wątorek et al., 2020). It has established a new standard for financial transactions, introducing an alternative type of capital. The cryptocurrency enables borderless exchanges and its biggest contribution to the industry is the development of new business platforms (Hileman & Rauchs, 2017). The last few years, numerous cryptocurrency websites have been developed with a focus on the investment or the exchange of cryptocurrencies.

The terminology used in these types of websites can intimidate users due to lack of understanding while it has been suggested that financial transactions and the process of investment within cryptocurrency websites can be a demanding procedure, especially for novice users of cryptocurrency (Wątorek et al., 2020). For that reason, the need for tutorials is progressively becoming a necessity within this type of website. However, the presence of tutorials is still not prominent in cryptocurrency websites despite the beneficial properties of them that have been underlined by the research community so far (Frommel et al., 2017; Glomo-Narzoles & Glomo-Palermo, 2020). Importantly, tutorials allow users to learn on demand and at the time they feel more motivated (Baysinger, 1997). Furthermore, users have different levels of cognitive capacities and tutorials enable them to repeat them as many times as needed (Baysinger, 1997). Last but not least, tutorials can be proven useful not only to novice users but also to expert users. That is because tutorials are easy to review and users can skip parts if needed. Importantly, the use of tutorials is most evident for websites that the users have the tendency to use repeatedly (Kamm et al., 1998; Aftab, Hu & Lee, 2020). Cryptocurrency websites fall into this category. For that reason, the use of tutorials is critical for the success of the utilitarian websites because first impressions have long term effects on users' perceptions of the website (Kamm et al., 1998).

Although there is a wide variety of tutorials that can be employed for assisting purposes on a website, two main types of tutorials are extensively used; step-by-step tutorials and screencast (screen recording)

tutorials. In this study, the term "step-by-step tutorial" refers to the guided exploration of a system which works as a practical manual for the user (Charney & Reder, 1986), while screencast tutorials are screen recording processes which capture the steps on the computer screen (Lloyd & Robertson, 2012). Furthermore, the moderating role of user expertise, perceived task complexity and perceived financial risk will also be taken into consideration. The present study explores what type of tutorial serves the cryptocurrency websites the best way. Also, it examines the effects of step-by-step, screencast tutorials and their interaction on perceived user-friendliness, user satisfaction as well as on the intention to use the services of the cryptocurrency website. For the purpose of this study, a multivariate experimental study across two cryptocurrency websites has been conducted. The cryptocurrency sites which will be used in this experimental research in order to answer the study's research question are EasyBit.com (https://easybit.com/) and Profitbird.com (https://profitbird.com/about/). EasyBit.com is a cryptocurrency website which deals with the exchange of 55 cryptocurrencies. It is a digital tool to help crypto-users exchange their cryptocurrency at the best rates possible within a secure environment. Profitbird.com is a cryptocurrency website which deals with the investment experience of cryptocurrencies. This website promises to provide an effortless investment experience by leveraging the website's intelligent trading technology. Both websites are developed and designed by highly skilled and motivated professionals from Greece and the Netherlands respectively.

There has been extensive research of tutorials but it is mostly constrained in the education field (DeVaney, 2009) and in game studies (Frommel et al., 2017). However, no exhaustive research has been conducted examining the effect of tutorials in the field of information technology, such as websites and especially cryptocurrency websites. The novelty of this paper lies in this research gap.

Based on the literature, the present paper addresses the following research question:

To what extent do step-by-step and screencast tutorials positively influence perceived user-friendliness, user satisfaction and behavioural intention to use cryptocurrency websites?

To properly frame the research, the following section introduces and examines the context for the relevant literature of the study, including the Technology Acceptance Model, the dependent variables

of intention to use, perceived user-friendliness and user satisfaction. Consequently, the independent variables of step-by-step and screencast tutorials are discussed as well as the moderating variables of user expertise, perceived task complexity and perceived financial risk.

2. Theoretical Framework

The purpose of this chapter is to elaborate on the theoretical background related to this experimental research. First, the technology acceptance model is provided as a foundation model for one of the dependent variables, intention to use. Next, the dependent, independent and moderating variables are presented and explained as well as their corresponding hypotheses.

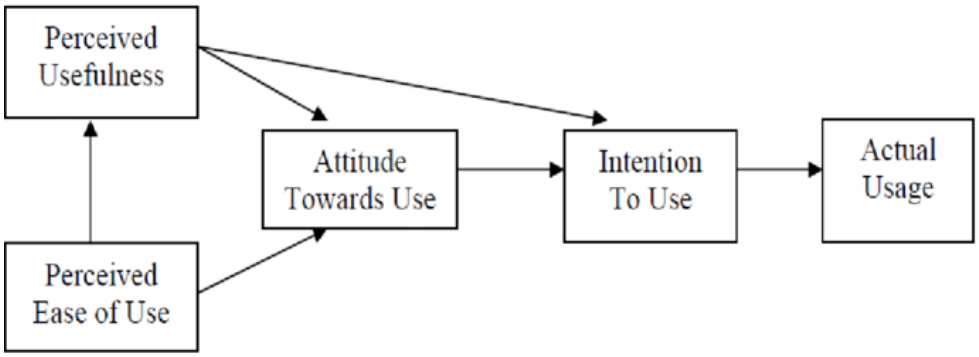
2.1 Technology Acceptance Model

An extant body of research has examined the factors that influence the use and acceptance of a technology. Technology Acceptance Model (TAM), a technology adoption model, which was developed in 1989 by Davis (Kumar et al., 2018) summarizes this topic. TAM predicts and suggests how users can end up adopting and actually using new technology as well as users' motivational procedures to adopt this new technology (Davis & Venkatesh, 1996). Furthermore, it also frames the benefits that are important for users in order to keep using a technology (Davis & Venkatesh, 1996). The model has been adapted and applied to several fields, websites being one of them (Kumar et al., 2018). The current research uses this model as a basis to explain the adoption of the website.

According to TAM, some of the several influencing factors that are related to use and acceptance of a technology are perceived usefulness and perceived ease of use. Perceived ease use is defined as *"*the degree to which a person believes that using a particular system would be free of effort*"* (Venkatesh & Davis, 1996, p.452), while perceived usefulness is defined as *"*the user's perception of the degree to which using the system will improve his or her performance in the workplace*"* (Venkatesh & Davis, 1996, p.452). Both of these factors affect the attitude of the users which affects the user's intention to use the technology (Davis, 1989). A visual representation of the TAM can be found in Figure 1.

Figure 1.

The Technology Acceptance Model of Davis (Davis, 1989)



Conclusively, TAM can be used as a foundation to predict the adoption of new technologies as well as the determinant factors for adopting this technology. The present study intends to prove more influencing factors rather than the already existing ones.

2.1.1 Intention to Use

Behavioural intention to use is a vital construct in the TAM. Perceived ease of use and perceived usefulness are factors which affect the attitude of users which then affects user's behavioral intention to use (Davis, 1989). Acceptance or adoption of the innovation can be used as similar terms to behavioral intention to use. Based on this literature, users are not likely to adopt a system if its use is perceived as difficult.

In the context of new technologies (including websites), a crucial influencing factor of intention to use a product or a service is satisfaction. According to Bhattacherjee (2001), satisfaction with prior use constitutes a key determinant of intention to use a technology. In the same line, more studies have shown that satisfaction positively influences intention to use e-services (Liao et al., 2007).

Summarizing, intention to use is highly correlated to the constructs of perceived usefulness and perceived ease of use of an interface. In the following, perceived user-friendliness and user satisfaction as related constructs to intention to use are presented.

2.2 Perceived User Friendliness

The term "user friendly" is a psychologically complex construct (Coombs, 2000) and it is usually used to characterize a computer system which is easy to understand and operate while it does not need any specific training (Lehoux, 2004; Meyer & Harper, 1984). It is defined as "something that enables the user to interact in a meaningful and conversationally fluent manner" (Coombs, 2000, p.20). The construct has been in the spotlight the last 20 years because of the rapid growth of information technology and Human Computer Interface knowledge (Lehoux, 2004). According to Norman (1988), the user perceives a device or a system as user friendly when there is a good conceptual model, i.e. a representation of the core concepts of the system. A good conceptual model has to be understandable for the user and include clear instructions of operation. Similarly, Lun (1995) proposed that the level of user friendliness can be assessed by examining two components: 1) user-acceptance – the extent to which the user is willing to use and adopt this technology in an effective way and 2) user-competence – the extent to which the user has the abilities to use the technology effectively. User-acceptance is mostly affected by the technical dimensions of a device or a system while user-competence is mostly impacted by the human dimensions. This means that the user friendliness of a system seems to be highly related with intention to use the system.

To summarize, the level of user friendliness of a technology results from the consistent interaction between the technical and human characteristics (Lehoux, 2004). Last, it requires quick learning curves as well as immediacy of usage (Coombs, 2000).

2.3 User Satisfaction

User satisfaction is an important determinant for long-term success of every organization, service and product. Importantly, user satisfaction reflects the customer's perception of a product or service and it also signifies successful technological adoption (Hult et al., 2017; Mahmood et al., 2000). User satisfaction is defined as the user's level of comfort and acceptability of an interactive technology during the interaction of the system (Konradt et al., 2016). In the case of a service in a cryptocurrency website, user's satisfaction can be noticed by their willingness to continue exploring a given website. Conclusively, user satisfaction is highly correlated with technological adoption as well as perceived

user-friendliness. They constitute key determinants for the success of a website as well as essential factors of the present study.

2.4.Tutorials

The beneficial properties of tutorials are widely acknowledged (Frommel et al., 2017). In the field of education, tutorials constitute a method of learning and a type of guidance which is used to transfer knowledge. Also, tutorials are widely used in the field of game studies (Frommel et al., 2017). Their main purpose is to provide information to users in order to complete a certain task successfully and easily. A tutorial is a common characteristic of commercial manuals (Charney & Reder, 1986). Furthermore, a tutorial benefits users by providing them with directions, step by step-guidance and hands-on practice (Charney & Reder, 1986). Importantly, tutorials enable users to evidence the prompts and feedback of a system (Charney & Reder, 1986).

2.4.1. Step-by-step Tutorials

In this study, step-by-step tutorials refer to the guided exploration of a system which works as a practical manual for the user (Charney & Reder, 1986). A step-by-step tutorial describes every step of a certain procedure briefly accompanied by short explanations (Charney & Reder, 1986). During step-by-step tutorials, procedural details are omitted (Charney & Reder, 1986). Furthermore, a step-by-step tutorial gives the ability to users to define their own problems and execute the problem solving procedure upon their own initiative. According to Charney & Reder (1986), the users tend to spend less time on training and testing the system. In their research, the final outcomes of the problem solving procedure turned out to be more successful with a step-by-step tutorial compared to those of a regular tutorial, which contains detailed instructions of every relevant concept and procedure. Also, the users' satisfaction levels and behavioral adoption are also higher when exposed to a step-by-step tutorial (Charney & Reder, 1986). The results of this preliminary study are reconfirmed by two studies conducted by Alves et al. (2020) and Wang et al. (2020). The study of Alves et al. (2020) revealed that using step-by-step instructions can reduce the task time dramatically (less than half), which leads to higher satisfaction

levels. In the same vein, the study of Wang et al. (2020) supported that the use of step-by-step instructions highly increased the possibility of completing a certain given task successfully.

Based on the literature provided, the following three hypotheses are formed:

Hypothesis 1a: The use of step-by-step tutorials in cryptocurrency websites will increase perceived user friendliness

Hypothesis 1b: The use of step-by-step tutorials in cryptocurrency websites will increase user satisfaction

Hypothesis 1c: The use of step-by-step tutorials in cryptocurrency websites will increase intention to use the website

2.4.2 Screencast Tutorials

Screencast tutorials are screen recording processes which capture all the movements on the computer screen, including mouse clicks, typing, resizing and scrolling (Lloyd & Robertson, 2012; Farkas, 2009). In recent years, screencast tutorials have become a dynamic tool for educators (Martin & Martin, 2015). Also, the e-world of business has gravitated towards employing this type of tutorials as a training tool on websites due to their ease of creation and familiarity to users (Pierce, 2009). Screencast tutorials are usually accompanied by synched audio commentary (Lloyd & Robertson, 2012). Furthermore, screencast tutorials can also be characterized as an improved form of podcasts or vodcasts (Lloyd & Robertson, 2012). It is a medium which is used for demonstration of instructions for problem solving or software instructions or errors through an active learning process (Lloyd & Robertson, 2012).

According to the cognitive theory of multimedia learning, screencast tutorials enhance and amplify the learning process under the condition that the combination of narration and animation is appropriately presented in terms of consistency, communication and conversational manner (Lloyd & Robertson, 2012). In that way, active cognitive processing and deeper learning and understanding is accomplished (Lloyd & Robertson, 2012). A study conducted by Green et al., (2012) showed that students who viewed

a screencast tutorial noticed an improvement in course performance. In the same line, a study by Tekinarslan (2013) reported that screencast tutorials positively affected the understanding of concepts as well as performance. Last, performance is positively associated with user satisfaction (Cleverley, Burnett & Muir, 2017)

According to that theory, the following hypotheses are suggested:

Hypothesis 2a: The use of screencast tutorials in cryptocurrency websites will increase perceived user-friendliness

Hypothesis 2b: The use of screencast tutorials in cryptocurrency websites will increase user satisfaction

Hypothesis 2c: The use of screencast tutorials in cryptocurrency websites will increase intention to use the website

2.4.3. Combining Step-by-step Tutorials and Screencast Tutorials

According to Smith (2001), Gellevij et al (2002) and Watson (2004), tutorials which tend to employ more than one medium are more effective during the learning processes compared to tutorials which use only one medium. This statement can also be substantiated by media richness theory. Media richness theory plays an important role in terms of media choice and use (Markus, 1994). The theory suggests that media richness is a characteristic of a communication medium which refers to the ability of that medium to convey messages which differ in the amount of message content (Markus, 1994). In case of a medium which is not rich enough, messages could be easily misinterpreted (Markus, 1994). For that reason, messages should be conveyed through channels which hold the "minimum sufficient research capacity" (Markus, 1994, p.272). In other words, the medium should reflect the level of complexity of the message that needs to be conveyed. In that way, performance is improved (Markus, 1994).

In general, people tend to skip written instructions but engage in tutorials which facilitate the stimulation of senses while their level of interest increases (Brumfield, 2008). Incorporating vision and sound into

screencast tutorials, memory capacity is enhanced which is a function of the learning progress (Brumfield, 2008).

Procedures in cryptocurrency websites can prove demanding, especially for novice users with no prior experience in websites (Wątorek et al., 2020). Cryptocurrency websites are not "everyday" websites that are used regularly by internet users. The terminology used in these types of websites can intimidate users due to lack of understanding while transactions in cryptocurrency websites seem to be a demanding process for someone who has no experience in such a website.That is why a richer medium, such as a screencast tutorial which incorporates step-by-step instructions, can be more efficient at these types of websites where levels of complexity tend to be higher. Therefore, a combination of the two tutorials may be the best solution for users and for their user experience within the website.

Based on the above mentioned literature on tutorials, it is apparent that there is not a consistent line on which type of tutorial has proven to be more effective in terms of user satisfaction, perceived user-friendliness and intention to use the website.

According to that theory, the following hypotheses are suggested:

Hypothesis 3a: The use of screencast tutorials which incorporate step-by-step instructions in cryptocurrency websites will have the biggest effect on increasing perceived user friendliness compared to the use of step-by-step or (basic) screencast tutorials

Hypothesis 3b: The use of screencast tutorials which incorporate step-by-step instructions in cryptocurrency websites will have the biggest effect on increasing user satisfaction compared to the use of step-by-step or (basic) screencast tutorials

Hypothesis 3c: The use of screencast tutorials which incorporate step-by-step instructions in cryptocurrency websites will have the biggest effect on increasing intention to use the website compared to the use of step-by-step or (basic) screencast tutorials.

2.5 The moderating role of user expertise

User expertise is defined as "a combination of acquired complex skills, experience and knowledge capabilities"(Sedera & Dey, 2013, p. 621). However, user expertise is not related to one's innate abilities and capabilities (Sedera & Dey, 2013). Website developers should incorporate tutorials on their websites in case they doubt the level of users' expertise (Frommel et al., 2017).

Prior research on game studies examined the effect of user expertise on task completion time. Novice users who did not viewed the tutorial prior to the task, noted significantly longer task completion times compared to novice users who viewed the tutorial (Frommel et al., 2017). Also, their satisfaction levels were higher for those who experienced tutorials. Similarly, novices with a tutorial had similar rates of task completion time and satisfaction with those of expert users.

Although the results of this research were based on spoken dialogue systems, similar results are also expected from user expertise on cryptocurrency websites. That is because users should learn the website's capabilities and limitations. Also, cryptocurrency users tend to have regular access to these types of websites, so they will use the system repeatedly, similar to the case of spoken dialogue systems.

However, expert users, who have already gained some experience with the website, use the website more efficiently and consequently they perceive a lean medium, such as step-by-step tutorial, as a richer one, which can be used successfully for complex tasks (Markus, 1994). On the contrary, novice users would prefer a richer medium, such as screencast tutorial, in order to perform better different tasks within a cryptocurrency website.

Based on the above mentioned literature, the following hypotheses are proposed:

Hypothesis 4a: The effect of step-by-step tutorials on perceived user friendliness are moderated by the level of user expertise. As the level of user expertise increases, the effect of step-by-step tutorials on perceived user-friendliness also increases.

Hypothesis 4b: The effect of step-by-step tutorials on user satisfaction are moderated by the level of user expertise. As the level of user expertise increases, the effect of step-by-step tutorials on user satisfaction also increases.

Hypothesis 4c: The effect of step-by-step tutorials on intention to use are moderated by the level of user expertise. As the level of user expertise increases, the effect of step-by-step tutorials on intention to use the website also increases.

Hypothesis 5a: The effect of screencast tutorials on perceived user friendliness are moderated by the level of user expertise. As the level of user expertise increases, the effect of screencast tutorials on perceived user-friendliness also decreases.

Hypothesis 5b: The effect of screencast tutorials on user satisfaction are moderated by the level of user expertise. As the level of user expertise increases, the effect of screencast tutorials on user satisfaction also decreases.

Hypothesis 5c: The effect of screencast tutorials on intention to use are moderated by the level of user expertise. As the level of user expertise increases, the effect of screencast tutorials on intention to use the website also decreases.

2.6 The moderating role of perceived task complexity

Task complexity is widely studied in the field of information processing and decision making literature (Campbell, 1988). Morgeson and Humphrey (2006) define task complexity as "the extent to which the tasks on a job are complex and difficult to perform" due to the characteristics of these tasks (p. 1323) as well as the user's perceptions of those characteristics such as perceived complexity (Campbell, 1988). Task complexity is a compound and complex construct which incorporates the user, task and system into a unit of analysis (Marshall & Byrd, 1998). The variable is usually mediated by the user's domain knowledge i.e. the more domain knowledge a user has, the less complex he perceives the task to be. It is also affected by the level of information homogeneity. Furthermore, the levels of perceived task complexity affect and predict human performance and behaviors as well as the subprocesses of

decision-making, such as intention to use a system and user satisfaction (Marshall & Byrd, 1998; Liu & Li, 2012).

A task which is perceived as complex requires users with high cognitive competence and skills (Morgeson & Humphrey, 2006). Also, task complexity is considered as both objective and subjective (Rouse and Rouse, 1979). Objective task complexity relates to the characteristics of the task and task performer's characteristics. In contrast, subjective task complexity, often mentioned as perceived task complexity, is experienced when the complexity of the task outweighs the capacity of the task performer (Liu & Li, 2012).

Based on this literature the following hypotheses have been proposed:

Hypothesis 6a: The effect of step-by-step tutorials on perceived user friendliness is moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of step-by-step tutorials on perceived user-friendliness decreases.

Hypothesis 6b: The effect of step-by-step tutorials on user satisfaction are moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of step-by-step tutorials on user satisfaction also decreases.

Hypothesis 6c: The effect of step-by-step tutorials on intention to use are moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of step-by-step tutorials on intention to use the website also decreases.

Hypothesis 7a: The effect of screencast tutorials on perceived user friendliness are moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of screencast tutorials on perceived user-friendliness also decreases.

Hypothesis 7b: The effect of screencast tutorials on user satisfaction are moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of screencast tutorials on user satisfaction also decreases.

Hypothesis 7c: The effect of screencast tutorials on intention to use are moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of screencast tutorials on intention to use the website also decreases.

2.7 The moderating role of perceived financial risk

Perceived risk can be defined as a consumer's belief about negative uncertain outcomes in regard to the outcomes that stem from online purchases or transactions (Kim, Ferrin & Rao, 2008; Leeraphong & Mardjo, 2013). Featherman and Pavlou (2003) define perceived risk as "the potential loss in the pursuit of a desired outcome of using e-services" (p.454) while Dowling and Staelin (1994) define the construct of perceived risk as consumer's perceptions of the uncertainty and adverse consequences of engaging in an activity (p.119). It is an online construct which has been proven to influence behavioral outcomes, such as intention to use. Importantly, Zeithaml and Bitner (1996) suggest that perceived risk is at higher levels when purchasing a service instead of purchasing a product. That is because service is an intangible, non-standardized process which is mostly sold without guarantee. Kim, Ferrin & Rao (2008) state that several types of risks have been identified by scholars but only three of them are crucial in an online transaction, namely financial risk, process risk and privacy risk. For the study at hand, perceived financial risk is the main construct of research. Financial risk refers mainly to monetary costs and time (Bart, Urban & Shankar, 2005; Kim et al., 2008) and occurs when users experience a financial loss while engaging with online purchases or transactions .

According to the theory of reasoned action, users with low risk perceptions have higher potential to buy an online product or perform an online transaction (Pavlou, 2003). In contrast, high risk concerns can lead to unwillingness to use a technology (Jarvenpaa, Tractinsky & Vitale, 1999; Pavlou, 2003) or to withdrawal (Leeraphong & Mardjo, 2013) while it has a negative effect in adopting a new technology. That is because users fear that the losses from using this technology outweigh the gains. Consumers tend to be very sensitive to perceived risks when conducting an online transaction (Kim, Ferrin & Rao, 2008). According to Tan (1999) and Samadi and Yaghoob-Nejadi (2009), risk is more predominant in online transactions than in offline transactions, which are more traditional. Risk perceptions can be

considered as mediators between the information system/technology and the intention to use this technology.

In the context of this study, cryptocurrency websites are not "everyday" websites that are used regularly by internet users. The terminology used in these types of websites can intimidate users due to lack of understanding while transactions in cryptocurrency websites seem to be a demanding process for someone who has no experience in such a website. That is why perceived financial risk in regard to services provided by cryptocurrency websites can be considered as high.

These findings have been translated into the following hypotheses:

Hypothesis 8a: The effect of step-by-step tutorials on perceived user-friendliness are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of step-by-step tutorials on perceived user-friendliness decreases.

Hypothesis 8b: The effect of step-by-step tutorials on user satisfaction are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of step-by-step tutorials on user satisfaction decreases.

Hypothesis 8c: The effect of step-by-step tutorials on intention to use the website are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of step-by-step tutorials on intention to use the website decreases.

Hypothesis 9a: The effect of screencast tutorials on perceived user-friendliness are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of screencast tutorials on perceived user-friendliness decreases.

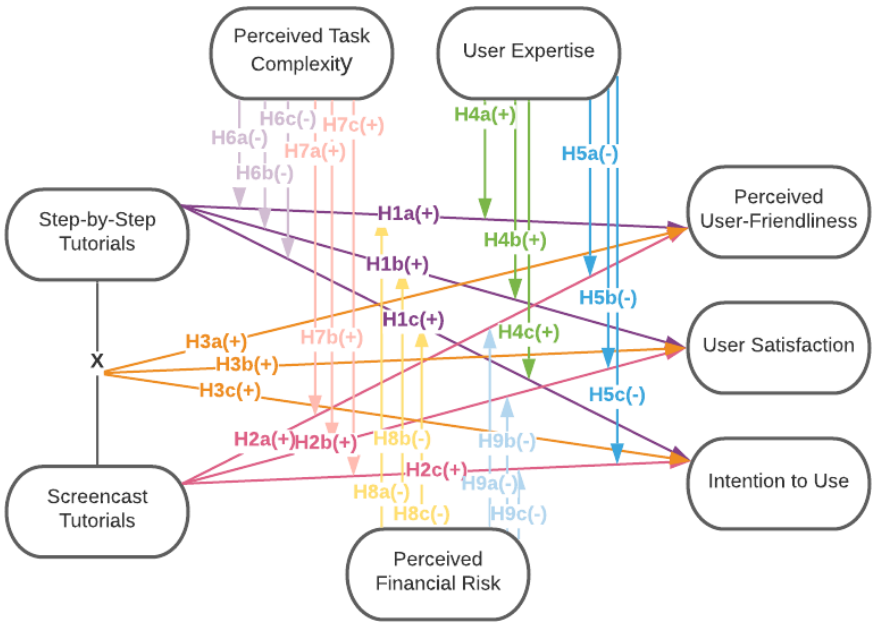
Hypothesis 9b: The effect of screencast tutorials on user satisfaction are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of screencast tutorials on user satisfaction decreases.

Hypothesis 9c: The effect of screencast tutorials on intention to use the website are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of screencast tutorials on intention to use the website decreases.

Below the research model of this experimental study is presented:

Figure 2.

Research Design



3. Method

In the following sections, the research design, the sample and research instruments as well as the procedure are presented.

3.1. Research Design

The purpose of this research is to investigate the extent to which tutorials on cryptocurrency websites have an effect on perceived user-friendliness, user satisfaction and behavioral intention to use the website and to examine the extent to which the moderating role of user expertise, perceived task complexity and perceived financial risk affects this relationship. To do so, a 2 (step-by-step: yes or no) by 2 (screencast: yes or no) experimental research design was conducted. Therefore, four experimental conditions were created which are presented in Table 1.

Table 1.

Experimental Conditions

Components	Step-by-step (Yes)	Step-by-step (No)
Screencast (Yes)	Cryptocurrency website with screencast tutorial with step-by-step instructions (34 participants)	Cryptocurrency website with screencast tutorial (51 participants)
Screencast (No)	Cryptocurrency website with step-by-step tutorial (41 participants)	Cryptocurrency website with no tutorial (51 participants)

3.2. Stimuli

Two types of tutorials (step-by-step and screencast) and a combined tutorial (a screencast tutorial which incorporated step-by-step instructions) were designed for each website tested for the purpose of this experimental study. To create a more realistic experience, the user interface of the two websites (EasyBit.com and ProfitBird.com) was used as a frame for the different tutorials. To be more precise, manipulations were applied to the original pages on both websites. That means that the participants of the experimental study viewed what they would normally view as a regular visitor/user of the website

but with the incorporation of one tutorial, specifically designed for research purposes. The tutorials for each website were carefully designed to match the website's user interface.

3.2.1 Step-by-step tutorials

Two pictures of step-by-step tutorials were created, one for each website. The tutorials were carefully designed in order to match the interface of the website. That means that the font , the font size and the font coloring were imitating the exact characteristics of each website. Last, the step-by-step tutorials were composed of step-by-step instructions which were provided by the developers of the website in order to successfully complete a given task. The instructions were made as simple as possible in order to be easy to understand and follow even for a novice user. Figure 3 depicts the step-by-step tutorial which was created for EasyBit.com and Figure 4 shows the step-by-step tutorial which was designed for ProfitBird.com.

Figure 3.

EasyBit's step-by-step tutorial

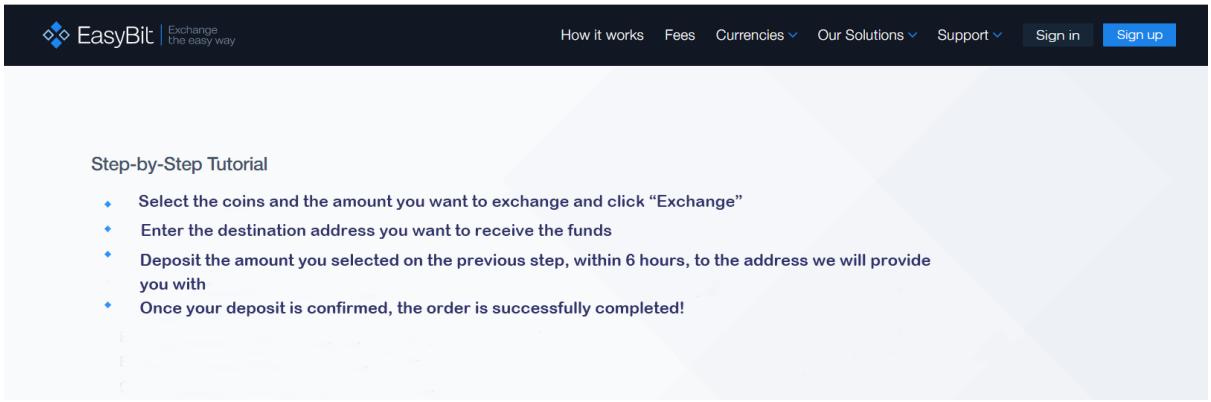
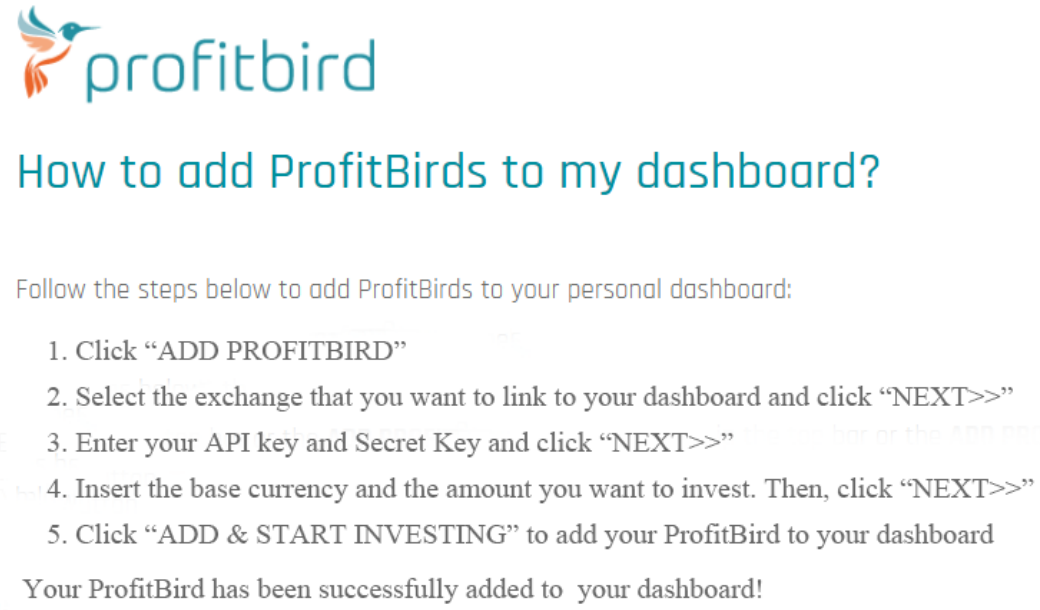


Figure 4.

Profitbird's step-by-step tutorial



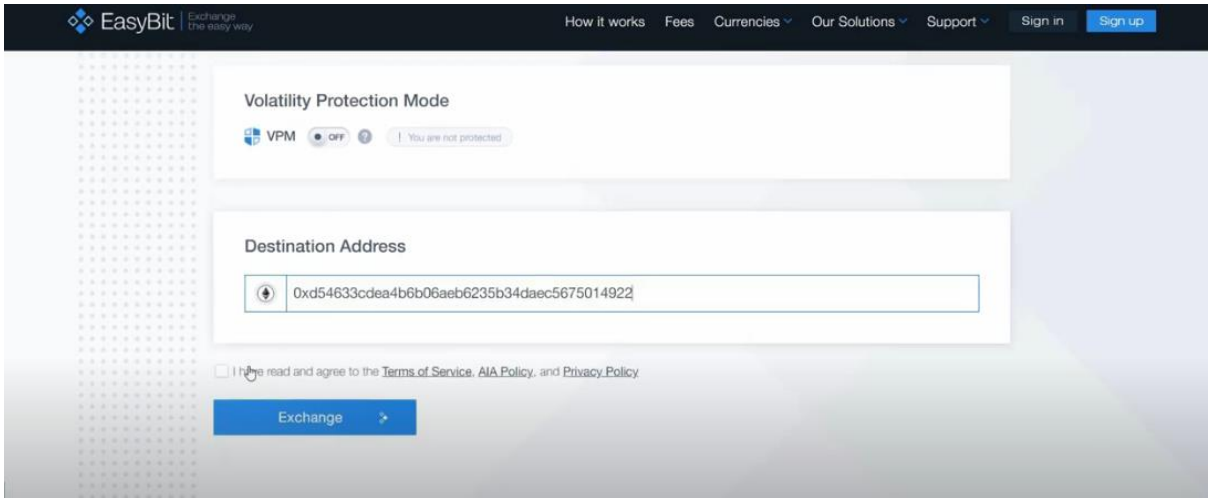
3.2.2 Screencast tutorials

Two videos of screencast tutorials were created for each website. As with the step-by-step tutorials, the screencast tutorials were designed in order to match the interface of each website (font, font size, font coloring). The videos of the screencast tutorials were capturing the actions which were conducted on the screen. Also, the length of the videos was kept short (35 seconds for Profitbird's tutorial and 43 seconds for EasyBit's tutorial). The following links provide access to the tutorials of EasyBit.com and Profitbird.com respectively which were designed for the purpose of this study, while Figure 5 and 6 are screenshots from the screencast tutorials:

1. https://youtu.be/FUVzIFDiXcE

Figure 5.

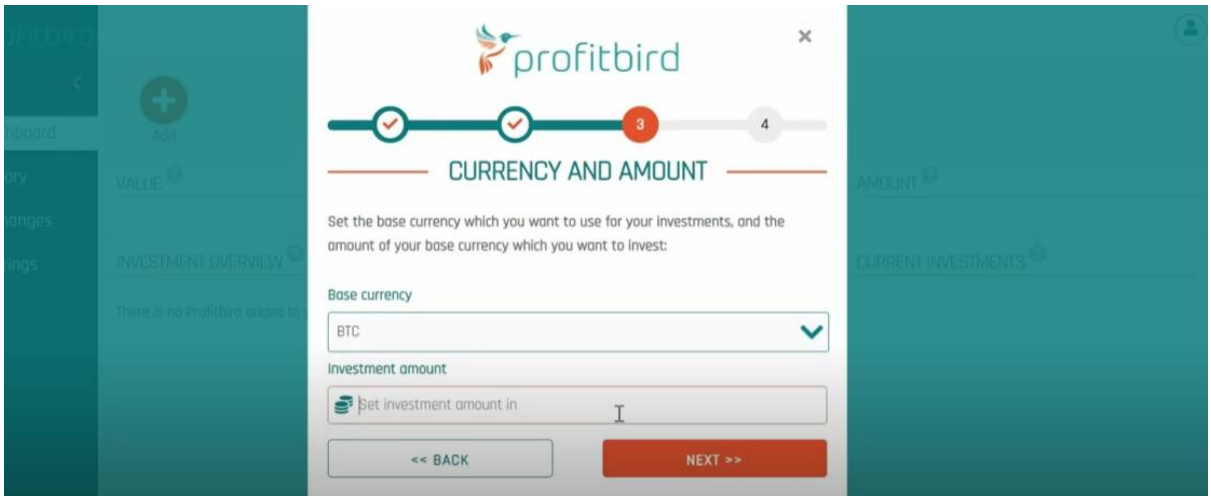
Screenshot of screencast tutorial - Easybit.com



2. https://youtu.be/5F1gU4spoXQ

Figure 6.

Screenshot of screencast tutorial - Profitbird.com



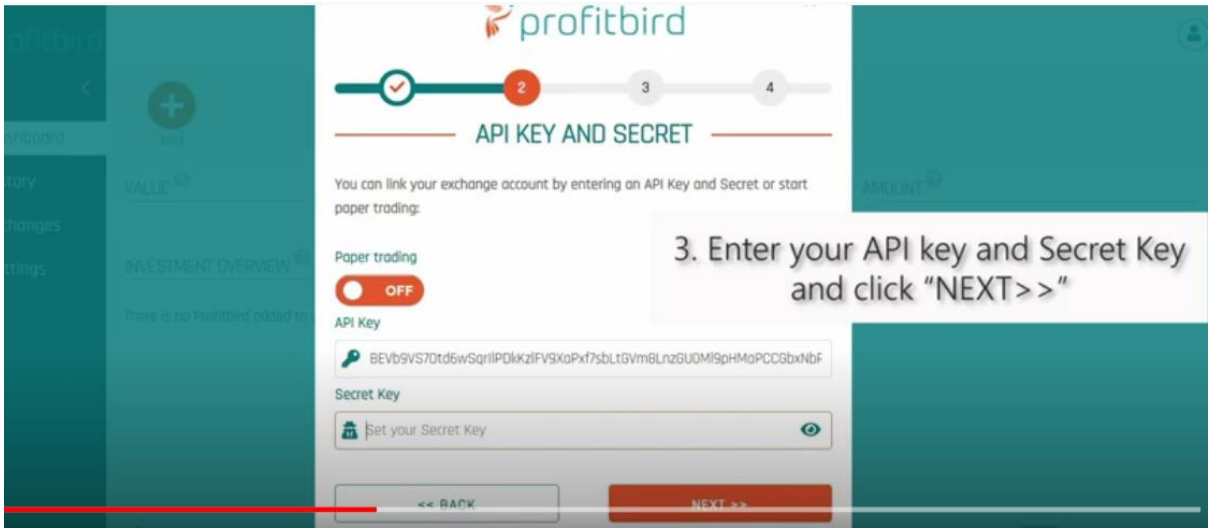
3.2.3 Step-by-step x screencast tutorials

Two videos of step-by-step x screencast tutorials were designed for each website. For this type of tutorial, the screencast tutorials were adapted in order to incorporate the step-by-step instructions which were used in the step-by-step tutorials. The following links give access to the relevant tutorials of EasyBit.com and Profitbird.com respectively, while Figure 7 and 8 are screenshots from the tutorials:

1. https://youtu.be/IfNm-CtVRKg

Figure 7.

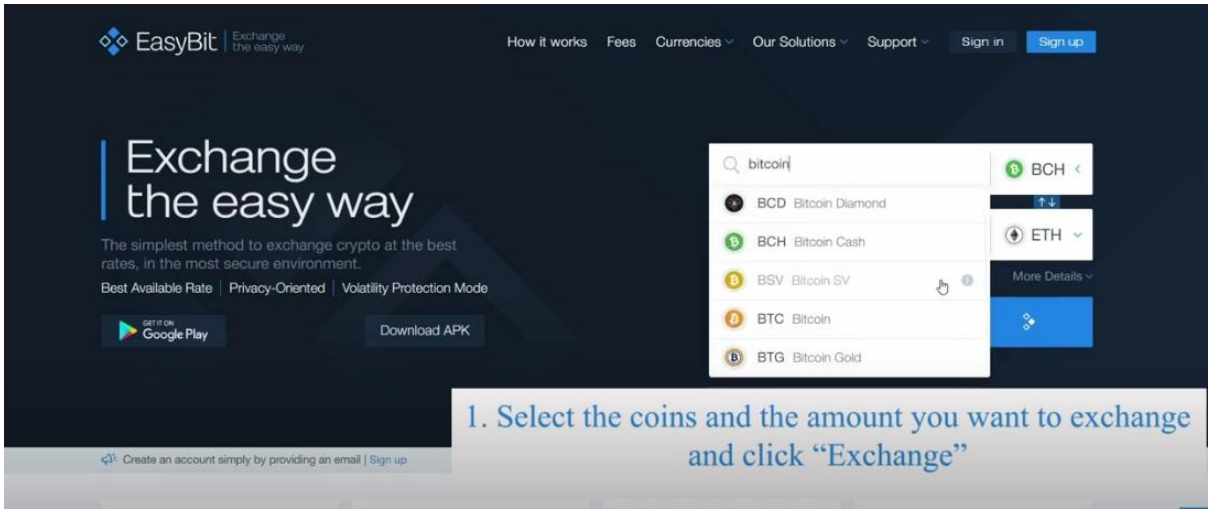
Screenshot of screencast x step-by-step tutorial - Profitbird.com



2. https://youtu.be/68GDHKCZypE

Figure 8.

Screenshot of screencast x step-by-step tutorial - Easybit.com



3.2.4 Manipulation Check

To test whether the participants observed the tutorials and were aware of the condition that they were exposed to, a manipulation check, composed of three questions, regarding the name of the website and the tutorials that they were exposed to, was conducted. The manipulation was carried out right after participants' exposure to the stimuli (screenshots of the website and tutorials). For the manipulation checks, three questions were asked;

- Did the website provide you with step-by-step instructions for completing this task? No - Yes
- Did the website provide you with a screen recording tutorial for completing this task? No - Yes
- What was the name of the website that you saw? EasyBit.com - EasyCryp.com - Profitbird.com - Gainbird.com

The step-by-step manipulation was not recognized quite well. From all the participants who were in the step-by-step condition, only 43.5% of them answered that they had seen step-by-step instructions for completing the task., while 33.3% of the participants answered that they had seen step-by-step instructions when they had not seen any.

On the contrary, the screencast manipulation was recognized well. In the screencast condition, 55.2% of the participants answered that they had seen a screen recording tutorial while 83.9% of the participants answered correctly that they had not seen a screen recording tutorial.

In order to check the success of these manipulations and whether the results differed significantly, a chi-square test was performed for both types of tutorials. For both manipulations, no expected cell frequencies were below 5. However, not all the results of the chi-square tests worked as intended; only the manipulation of the screencast tutorials revealed significant difference ($\chi^2(1)=15.61$, $p < .001$). The p value under .001 reveals that the participants are dependent on the condition that they were in. The manipulation of the step-by-step tutorials was not significant ($\chi^2(1)=.78$, $p=.376$). That means that the participants were not dependent on the condition that they were assigned to. A possible explanation to this result is that they did not understand the term correctly or they did not notice the step-by-step tutorial. This result poses a limitation in the present study.

3.3 Procedure

The experiment was created in English and was distributed via a link through social media (Facebook, Instagram, LinkedIn and email). In the first part of the experiment, participants were asked to give their consent for their participation in the study. Next, a question in regard to participants' interest in cryptocurrency was asked to the participants. Thereafter, through a randomization procedure in

Qualtrics, the participants were assigned to one of the two websites which was accompanied with a short introduction and a short scenario with a task. Then, the participants had to devote a few minutes to look at the screenshots of the website. The next step required the participants to either read carefully the step-by-step tutorial or watch carefully the screencast tutorial or the screencast tutorial with the step-by-step cues, depending on what tutorial they were randomly assigned to. In the following, three questions which worked as manipulation checks had to be answered by the participants. Finally, participants were asked to complete a questionnaire in regard to the variables of interest (by explicit order - dependent variables: perceived user-friendliness, user satisfaction, intention to use – moderators: user expertise, perceived financial risk and perceived task complexity). Last, participants were thanked for their contribution in this study.

3.4 Participants

The participants of this study were collected via snowball sampling. Snowball sampling is a non-probability way of sampling and means that available subjects, like family, friends and acquaintances, of the researcher were approached and they were asked to distribute the survey to others (Babbie, 2020). The target group of this experimental study was adults with no restriction in gender or origin. The participants of the study were eliminated to those who showed at least a slight interest (or more) in cryptocurrency (173 participants). This elimination occurred after an introductory question "are you interested in cryptocurrency?" on a 5-point Likert scale (not interested at all - very interested). Out of 547 participants, only 177 (95 males and 80 females) responses were valid and suitable for further analysis (32% of the participants). More precisely:

- 53 responses were omitted because they hadn't completed the survey at all or they managed less than 75% of the questionnaire (75% progress in Qualtrics),

- 152 responses were deleted because they completed the survey in less than 3 minutes (average completion time of questionnaire 4 min.). That shows that whoever completed the questionnaire in less than 3 minutes did not pay close attention to the tutorials or the provided screenshots of the websites. As a result, their answers cannot be reliable for this research and were omitted.

- according to the analytic results of the survey provided by Qualtrics, 10 responses were omitted because they didn't watch the tutorials

- based on the answers given from the introductory question "are you interested in cryptocurrency?" 6 responses were deleted because they were "not at all interested" in cryptocurrency - 5 point Likert scale (not interested at all - very interested)

- 149 responses were deleted due to the researcher's mistake in the original survey flow. More precisely, there was no further information in regard to what kind of tutorial (if any) the participants saw. As a result, the researcher cannot infer further results.

Participants came from 11 different European and non-European countries, but Greek (78 participants) and North American (74 participants) dominated. The age of the participants ranged from 18 to 70 years old. They were then clustered into three age groups; 18-30 years old, 31-50 years old and 51-70 years old. The most dominant age group was the younger one, 18-30 years old, with 94 participants, then the age group of 31-50 years old with 73 participants and last, the age group of 51-70 years old with 8 participants. In terms of education, over 75% of the participants had a bachelor's degree (47.4%, 83 participants) or a master's degree (32%, 56 participants), while 12% of the participants held a PhD (21 participants. The demographic information of survey respondents is presented extensively in Table 2.

Table 2.

Participants' demographic information

Conditions	Step-by-Step Screencast		No No	Yes Yes	Yes No	No Yes	Total
N			49	34	41	51	175
Gender	**Male**	Frequency	32	17	20	26	95
		Percentage	65.3%	50%	48.7%	50.9%	54.2%
	Female	Frequency	17	17	21	25	80
		Percentage	34.6%	50%	51.2%	49%	45.7%
Crypto Interest	**No Interested**	Frequency	2	1	0	0	3
		Percentage	4%	2.9%	0%	0%	1.7%
	Interested	Frequency	50	34	41	51	173
		Percentage	95.8	99.9%	100%	100%	99.8%
Age	**18-30 years old**	Frequency	25	20	22	27	94
		Percentage	50.9%	58.7%	53.6%	52.8%	53.7%
	31-50 years old	Frequency	24	11	18	20	73
		Percentage	48.8%	32.3%	43.8%	59.2%	41.6%
	51-70 years old	Frequency	1	3	1	3	8
		Percentage	2%	8.7%	2.4%	5.8%	4.5%
Education Level	**Bachelor**	Frequency	17	21	23	22	83
		Percentage	34.6%	61.7%	56%	43.1%	47.4%
	Master	Frequency	17	6	11	22	56
		Percentage	34.6%	17.6%	26.8%	43.1%	32%
	PhD	Frequency	9	3	6	3	21
		Percentage	18.3%	8.8%	14.6%	5.8%	12%
	Other	Frequency	7	4	1	3	15
		Percentage	14.2%	11.7%	2.4%	5.8%	8.5%
Nationality	**North American**	Frequency	23	17	15	19	74
		Percentage	46.9%	49.9%	36.5%	37.2%	42.2%
	Greek	Frequency	22	11	20	25	78
		Percentage	44.8%	32.3%	48.7%	49%	44.5%
	Other European	Frequency	3	4	5	2	12
		Percentage	6%	11.6%	12%	3.8%	65%
	Other Worldwide	Frequency	0	1	1	3	5
		Percentage	0%	2.9%	2.4%	5.8%	2.7%
	No Answer	Frequency	2	1	0	1	4
		Percentage	4%	2.9%	0%	1.9%	2.2%

3.5 Measures

The questionnaire of this experimental research was created via the software program of "Qualtrics", www.qualtrics.com, an online survey tool. The questionnaire was created in English language because the participants of the study come from different European (e.g. Netherlands, Germany, Greece etc.) as

well as non-European countries (e.g. The United States, Russia, China etc.) Last, the results of the questionnaire were analyzed via SPSS, a statistical software platform.

Before the main part of the study started, a question in regard to participants' interest in cryptocurrency functioned as a filter question in order to avoid participants with no interest in cryptocurrency, who are not the target group of this research ("are you interested in cryptocurrency?" - 1=not interested at all, 7=very interested). The main part of the study consisted of a set of statements which measured the dependent variables of perceived user-friendliness, user satisfaction, behavioral intention to use and the moderating variables of user expertise, perceived task complexity and perceived financial risk. The statements were rated on a seven-point Likert scale, where 1 stands for "strongly disagree" and 7 stands for "strongly agree". The reason behind using a seven-point Likert scale is that it provides a wider range of options, which contributes in measuring people's objective reality more sufficiently (Joshi, Kale, Chandel, & Pal, 2015).

In order to check whether each item of the construct results in one construct a Factor Analysis was performed. The first factor analysis revealed that one item from the construct of "Perceived Financial Risk" was loading in the construct of "Perceived Task Complexity", one item from the construct of "Perceived User-Friendliness" was loading in the construct of "Perceived Financial Risk" and last, one item from the construct of "User Expertise" was loading in the construct of "Perceived User Friendliness". As a solution, the three interfering items from the constructs of "Perceived Financial Risk", "Perceived User Friendliness" and "User Expertise" were deleted.

All the statements can be found on Appendix A1. In the following, the statements which were used for the measurement of the variables are given:

Perceived user-friendliness was measured with five statements that were originally created by the researcher (α=.88) . One example item from this scale is the following: "This cryptocurrency website can be used efficiently by both novice and expert users". After the factor analysis, the statement "this cryptocurrency website seems difficult to use" was deleted because it was interfering with other variables.

User satisfaction was measured with five statements. Three items come from a shortened satisfaction scale which was originally created by E. F. Stone (1977) and was adapted and used in the survey. Two items were originally created by the researcher (α=.91). The scale which was used consists of opposing adjectives on a 7-point Likert scale.

Intention to use was measured with five statements. The first three statements are from the user intention scale which was developed by Palmer (2002) and are revised in order to fit the subject of the survey. The last two statements were developed by the researcher (α=.93). The statements of this scale can be found on Appendix A3. One example item of this scale is the following: "I would probably revisit this cryptocurrency website if I needed this service in the future."

User Expertise was measured with five statements (four after the erasure of one interfering statement). These statements are from a credibility scale that has been developed by Newell and Goldsmith (2001) (α=.93). One example item is the following: "I have a sufficient amount of experience with cryptocurrency websites". After the factor analysis, the statement "I consider myself as a novice user in cryptocurrency websites" was deleted because it was interfering with other variables.

Perceived financial risk was measured with five statements. Four of the five statements were created by Featherman and Pavlou (2003) and were adapted to the survey. The last statement was originally created by the researcher (α=.93). One example item of this scale is the following: "I fear that I would lose money if I use the services of this cryptocurrency website". After the factor analysis, the statement "It would benefit me financially if I use the services of this cryptocurrency website" was deleted because it was interfering with other variables.

Perceived task complexity was measured with five statements that are originally created by Maynard and Hackel (1997). The statements were adapted to the survey's subject by including the perception into the statements (α=.94). One example item from this scale is the following: "I perceive the task which was given to me as complex".

Furthermore, Cronbach's Alpha was calculated for each of the constructs in order to ensure reliability. A construct, in order to be considered as reliable, needs to have a minimum value of .70. The lowest

measured Cronbach's Alpha was .88 and belonged to the construct of "Perceived User Friendliness" while the highest measured Cronbach's Alpha was .94 and belonged to the construct of "Perceived Task Complexity". The results of the final factor and reliability analysis (after the deleted statements) can be seen in the following table (Table 3).

Table 3.

Reliability and Factor Analysis

	Factor					
Statements	**1**	**2**	**3**	**4**	**5**	**6**
This cryptocurrency site seems user friendly.	.74					
This cryptocurrency site can be used efficiently by both novice and expert users.	.73					
This cryptocurrency website seems easy to use.	.80					
I would imagine that most people would learn to use this system very quickly.	.77					
Please indicate how you would assess the support provided by the cryptocurrency website - Unsatisfying:Satisfying		.61				
Please indicate how you would assess the support provided by the cryptocurrency website - Insufficient:Sufficient		.78				
Please indicate how you would assess the support provided by the cryptocurrency website - Frustrating:Gratifying		.80				
Please indicate how you would assess the support provided by the cryptocurrency website - Awful:Nice		.83				
Please indicate how you would assess the support provided by the cryptocurrency website - Unpleasant:Pleasant		.86				
I would probably revisit this cryptocurrency website if I needed this service in the future.			.73			
I would recommend this cryptocurrency website to others who are interested in this service			.80			
I would probably choose this cryptocurrency website if if I needed this service in the future			.73			
I intend to continue using this cryptocurrency website in the future			.81			
I intend to adopt using this cryptocurrency website in the future			.71			
I have a sufficient amount of experience with cryptocurrency websites.				.87		
I am skilled in performing tasks within cryptocurrency websites.				.92		
I consider myself as an expert user in cryptocurrency websites.				.85		
I have confidence in my ability to perform tasks within cryptocurrency websites.				.83		
I fear that I would lose money if I use the services of this cryptocurrency website.					.91	
I fear that it would lead to a financial loss for me if I use the services of this cryptocurrency website.					.91	
Using the services of this cryptocurrency website subjects my cryptocurrency account to potential fraud.					.80	
Using the services of this cryptocurrency website subjects my cryptocurrency account to financial risk.					.84	
I perceive the task which was given to me as complex.						.80
I perceive the task which was given to me as mentally demanding.						.92
I perceive the task which was given to me as challenging.						.83
It would require a lot of thought if I were to perform the task which was given to me.						.93
It would require a lot of effort if I were to perform the task which was given to me.						.91
Explained Variance	3.5%	20.1%	9.7%	7.6%	4.9%	36.7%
Eigenvalue	.95	5.45	2.64	2.07	1.32	9.92
Cronbach Alpha	.88	.91	.93	.93	.93	.94

3.6 Data Analysis Strategy

The analysis of the study was conducted via the software program, SPSS. After the collection of data and the data cleaning according to completeness and relevance, a number of actions were performed. First of all, manipulation checks for the two tutorials were conducted in order to examine whether the participants observed the tutorials and were aware of the condition they were in. Next, two chi-square tests were performed to check whether the results of the manipulations checks differed significantly. Subsequently, the descriptive statistics of the participants were conducted according to gender, interest in cryptocurrency, age, educational level and nationality. Thereafter, a reliability and factor analysis was conducted in order to check whether all the items resulted in the same construct as intended. This analysis resulted in the deletion of three statements, which were interfering with other constructs. Then, Cronbach's alpha was calculated in order to ensure reliability of constructs. Thereupon, the general descriptive statistics of the dependent variables were calculated. Last, a multivariate analysis of variance (MANOVA) to check whether there are significant differences between the four experimental conditions. In that way, the MANOVA examined the effects of the independent variables (step-by-step tutorial and screencast tutorial), including the moderating variables (perceived task complexity, user expertise, perceived financial risk) on all the dependent variables (perceived user-friendliness, user satisfaction, intention to use). To test the effect of the moderating variables on the dependent, a median split was conducted at the moderators and as a result they were transformed into dichotomous variables. All analyses were evaluated based on a significance value of 5% (Alpha level 0.05).

4. Results

The following section describes the results of this experimental study. In the first part, the general descriptive statistics of the dependent variables are displayed and also explained. In the second part, multiple analysis of variances is conducted and the final results of the analysis is given. The purpose of this analysis is to check whether there are significant differences between the four experimental conditions.

4.1. General Results

First, the mean scores as well as the standard deviations of the dependent variables are calculated. In Table 4, a summarized descriptive analysis of these variables categorized by the experimental conditions is given.

Table 4.

Descriptive Statistics of Dependent Variables

Measures		**Step-by-Step Yes**			**Step-by-Step No**			**Screencast Yes**			**Screencast No**		
		M	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*
Dependent Variables	**Perceived User-Friendliness**	5.24	.86	75	5.36	1.16	101	5.38	.97	85	5.23	1.10	91
	User Satisfaction	5.41	1.16	64	5.32	1.30	84	5.37	1.21	74	5.35	1.28	74
	Intention to Use	5.06	1.15	75	5.19	1.16	101	5.08	1.02	85	5.19	1.28	91

To check whether these results of the mean differences are truly meaningful, a multivariate analysis of variances for all the variables is conducted in the following section.

4.2 Multivariate Analysis of Variances

In order to analyze the main effects and interaction effects of the independent variables and the moderators on the dependent variables, a multivariate analysis of variances (MANOVA) has been conducted. A MANOVA analysis investigates whether the results of the mean scores of the dependent

variables are significant when manipulated by the four experimental conditions; no tutorial, step-by-step tutorial, screencast tutorial and screencast tutorial with step-by-step instructions. The result of the MANOVA analysis can be seen in Table 5 and 6.

The effects of Wilk's Lambda in Table 5 show that there is a main effect for the effect of screencast tutorials and perceived financial risk (p<.001). Also, one marginally interaction effect of step-by-step and screencast tutorial has been found as well (p=.060). All the other effects do not show any main effect due to their insignificant results.

Table 5.

Wilk's Lambda effects

Effects Wilk's Lambda	***Value***	***F***	***df***	***Sig.***
Step-by-step	.98	.61	133	.609
Screencast	.96	1.42	133	.239
Step-by-step*Screencast	.94	2.53	133	**.060****
Step-by-step*Perceived Task Complexity	.99	.37	133	.774
Step-by-step*Perceived Financial Risk	.97	1.34	133	.264
Step-by-step*User Expertise	.97	.99	133	.397
Screencast*Perceived Task Complexity	.97	1.12	133	.342
Screencast*Perceived Financial Risk	.88	5.47	133	**.001***
Screencast*User Expertise	.99	.30	133	.824

7 point Likert scale (1=strongly disagree/7=strongly agree)
**significant result*
***marginally significant*

Table 6.

MANOVA analysis

Variables	*Items*	*Mean Square*	*F*	*df*	*Sig.*
Step-by-Step	Perceived User-Friendliness	.28	.34	1	.558
	User Satisfaction	.43	.33	1	.565
	Intention to Use	.24	.24	1	.625
Screencast	Perceived User-Friendliness	2.13	2.56	1	.119
	User Satisfaction	.50	.38	1	.537
	Intention to Use	.05	.05	1	.812
Step-by-Step * Screencast	Perceived User-Friendliness	1.56	1.88	1	.172
	User Satisfaction	1.88	1.43	1	.234
	Intention to Use	.31	.29	1	.586
Step-by-Step * Perceived Task Complexity	Perceived User-Friendliness	.06	.07	1	.788
	User Satisfaction	.88	.67	1	.413
	Intention to Use	.78	.76	1	.385
Step-by-Step * Perceived Financial Risk	Perceived User-Friendliness	1.22	1.46	1	.228
	User Satisfaction	.23	.17	1	.674
	Intention to Use	1.14	1.10	1	.295
Step-by-Step * User Expertise	Perceived User-Friendliness	.10	.12	1	.727
	User Satisfaction	3.30	2.50	1	.116
	Intention to Use	.88	.84	1	.359
Screencast * Perceived Task Complexity	Perceived User-Friendliness	1.42	1.71	1	.193
	User Satisfaction	.17	.13	1	.718
	Intention to Use	.13	.13	1	.715
Screencast * Perceived Financial Risk	Perceived User-Friendliness	9.34	11.23	1	**.001***
	User Satisfaction	6.48	4.92	1	**.028***
	Intention to Use	14.77	14.22	1	**.001***
Screencast * User Expertise	Perceived User-Friendliness	.03	.04	1	.839
	User Satisfaction	.76	.58	1	.447
	Intention to Use	.00	.00	1	.933

7 point Likert scale (1=strongly disagree / 7=strongly agree)

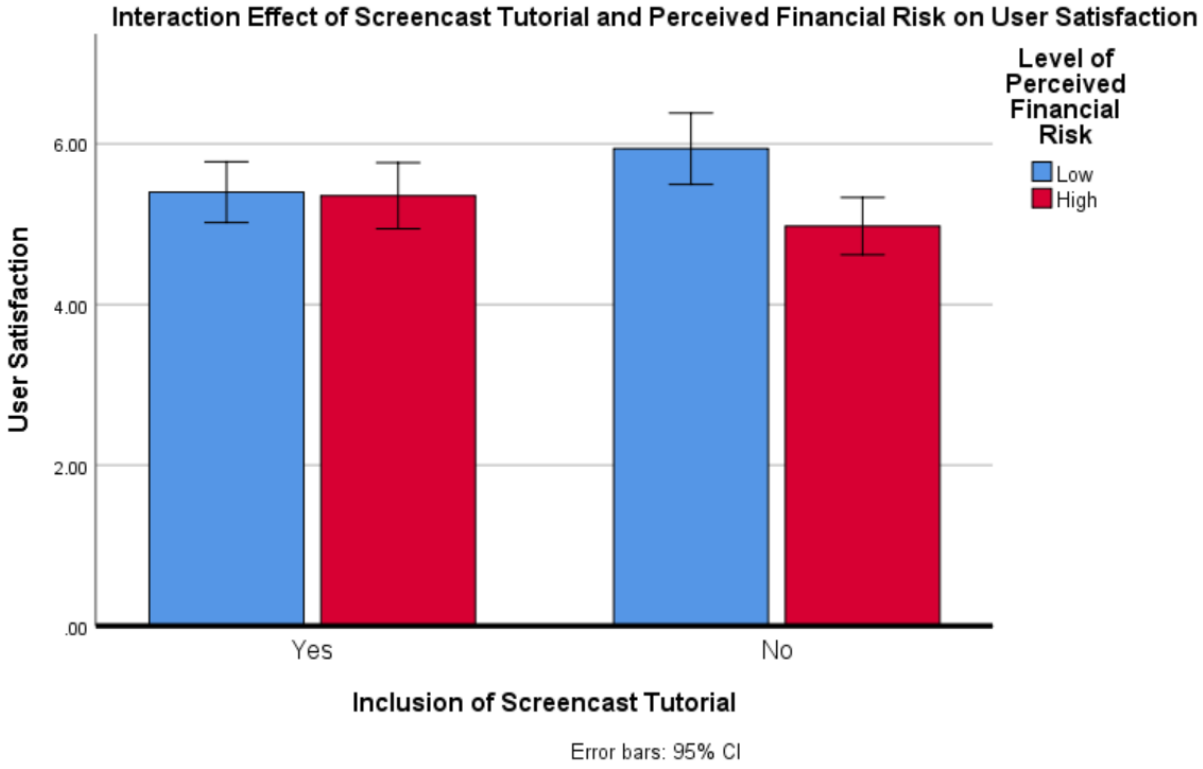
**significant result*

As seen in Table 6, there is no main effect for any of the variables. The only interaction effect that is significant is that of the independent variable of screencast tutorials and the moderating variable of perceived financial risk on all the dependent variables (perceived user-friendliness: $p<.001$, user satisfaction: $p=.028$ and intention to use: $p<.001$).

To illustrate the significant interaction between screencast tutorial and perceived financial risk for the dependent variables of user satisfaction, intention to use and perceived user-friendliness, the bar charts of these interactions are presented in the Figures 9, 10 and 11 below respectively.

Figure 9.

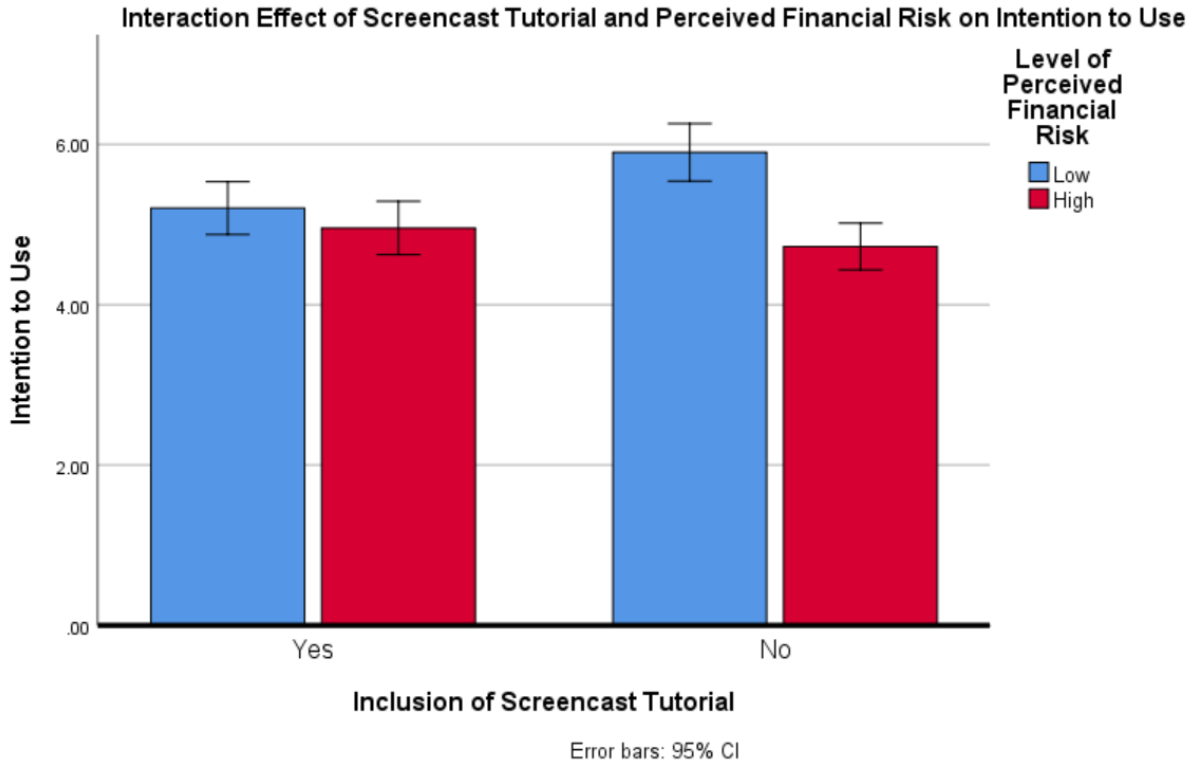
Bar Chart of the Interaction between Screencast and Perceived Financial Risk on User Satisfaction



As can be concluded by the Figure above (Figure 9), the influence of the level of perceived financial risk on user satisfaction depends on whether a screencast tutorial is provided. If a tutorial is provided, then user satisfaction is independent of perceived financial risk. If no tutorial is provided, high levels of perceived financial risk lead to lower satisfaction, while low levels of perceived financial risk lead to higher satisfaction.

Figure 10.

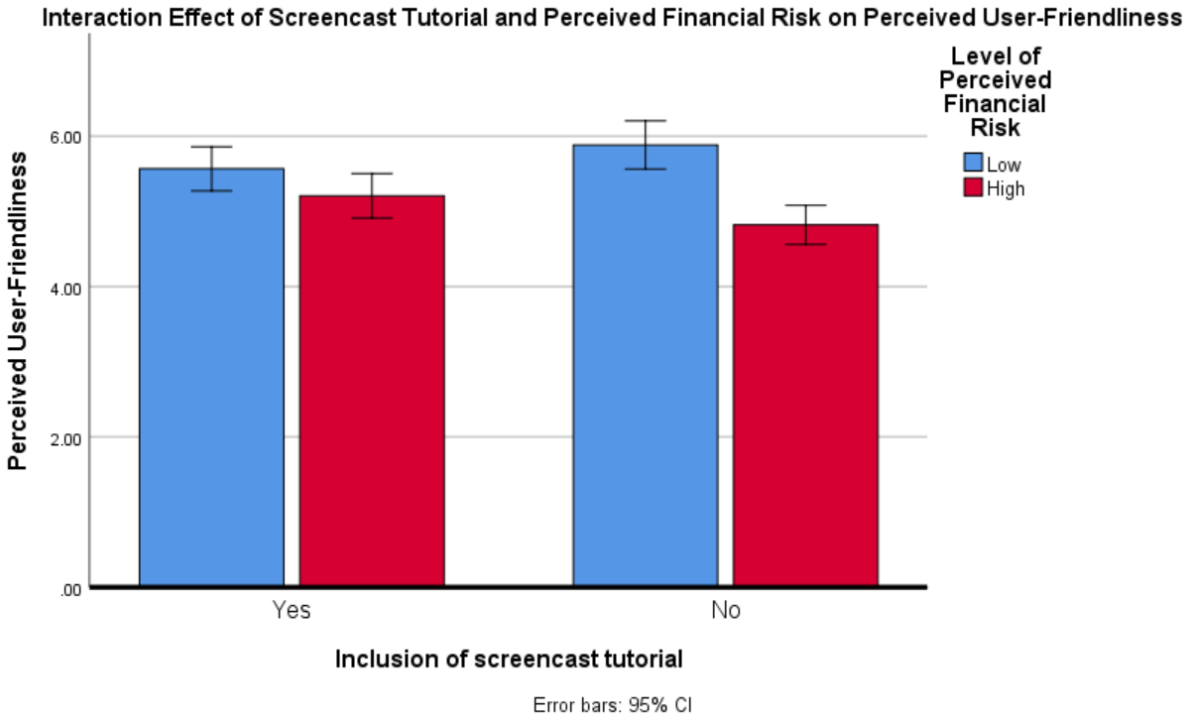
Bar Chart of the Interaction between Screencast Tutorial and Perceived Financial Risk on Intention to Use



Similarly, Figure 10 shows again that the influence of the level of perceived financial risk on intention to use the website depends on whether a screencast tutorial is provided. If a screencast tutorial is provided, then user satisfaction is independent of perceived financial risk. If no tutorial is provided, high levels of perceived financial risk lead to lower levels of intention to use the website, while low levels of perceived financial risk lead to higher levels of intention to use the website.

Figure 11.

Bar Chart of the Interaction between Screencast tutorial and Perceived Financial Risk on Perceived User-Friendliness



Lastly, Figure 11 above depicts similar results as the rest of the bar charts. On the basis of the confidence intervals, the condition where a screencast tutorial is not provided differs significantly to the condition where a screencast tutorial is not provided. Also, the influence of the level of perceived financial risk on perceived user-friendliness depends (again) on whether a screencast tutorial is provided. If a screencast tutorial is provided, then user satisfaction is independent of perceived financial risk. If no tutorial is provided, high levels of perceived financial risk lead to lower levels of perceived user-friendliness toward the website, while low levels of perceived financial risk lead to higher levels of perceived user-friendliness.

From all the analysis above, it can be concluded that only a few hypotheses are supported by the data. Table 10 presents analytically all the hypotheses that are supported and rejected by the analysis of the collected data.

Table 10.

Overview of the supported and rejected hypotheses

Hypotheses		***Dependent Variables***	***Result***
H1	The use of **step-by-step tutorials** in cryptocurrency websites will increase _____.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H2	The use of **screencast tutorials** in cryptocurrency websites will increase _____.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H3	The use of **screencast tutorials** which incorporate **step-by-step instructions** in cryptocurrency websites will have the biggest effect on increasing _____ compared to step-by-step or (basic) screencast tutorials.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H4	The effect of step-by-step tutorials on _____ is moderated by the level of user expertise. As the level of user expertise increases, the effect of step-by-step tutorials on _____ also increases.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H5	The effect of screencast tutorials on _____ is moderated by the level of user expertise. As the level of user expertise increases, the effect of screencast tutorials on _____ also decreases.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H6	The effect of step-by-step tutorials on _____ is moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of step-by-step tutorials on _____ decreases.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H7	The effect of screencast tutorials on _____ is moderated by the level of perceived task complexity. As the level of perceived task complexity increases, the effect of screencast tutorials on _____ also decreases.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H8	The effects of step-by-step tutorials on _____ are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of step-by-step tutorials on _____ decreases.	**a. perceived user-friendliness**	Rejected
		b. user satisfaction	Rejected
		c. intention to use the website	Rejected
H9	The effects of screencast tutorials on _____ are moderated by the level of perceived financial risk. As the level of perceived financial risk increases, the effect of screencast tutorials on _____ decreases.	**a. perceived user-friendliness**	**Supported**
		b. user satisfaction	**Supported**
		c. intention to use the website	**Supported**

5. Discussion

The current study aimed to investigate whether cryptocurrency websites which incorporate step-by-step or screencast tutorials deliver a better overall experience to users in terms of user-friendliness, satisfaction and intention to use the website. Additionally, it has been examined if user expertise and users' perceptions of task complexity and financial risk influence the above statement. It is a first attempt to examine the effects of tutorials on services provided by cryptocurrency websites. In the following, the results of the present study will be addressed.

5.1 Step-by-step Tutorials

There are several studies that support that the inclusion of tutorials lead to higher satisfaction, user-friendliness and adoption levels. According to Charney & Reder (1986), a problem solving procedure is solved easier and faster with the providence of a step-by-step tutorial. Similarly, the use of step-by-step instructions can reduce the task time dramatically (less than half), which leads to higher satisfaction levels (Alves et al., 2020). In the same vein, the study of Wang et al. (2020) supported that the use of step-by-step instructions highly increased the possibility of completing a certain given task successfully. However, the results of the present experimental study did not prove those of Charney & Reder (1986), Alves et al. (2020) and Wang et al. (2020). This can be explained as follows:

A step-by-step tutorial can be characterized by a smaller increase of cognitive loads (compared to screencast tutorials) due to its simple demonstration of written instructions (Charney & Reder, 1986). The lack of non-verbal information may impede the overall procedure of task solving and may need a user with higher cognitive capacity. Another reason why step-by-step tutorials do not significantly influence user satisfaction, perceived user-friendliness and intention to use the website is the actual type of website that was used in this research, cryptocurrency. Cryptocurrency websites are not "everyday" websites that are used regularly by internet users. The terminology used in these types of websites can intimidate users due to lack of understanding while transactions in cryptocurrency websites seem to be a demanding process for someone who has no experience in such a website. As mentioned in the study's theoretical background, the medium should reflect the level of complexity of the message that needs to be conveyed (Markus, 1994). In the present study scenario, the media are the step-by-step tutorial,

screencast tutorial and screencast tutorial with step-by-step instructions and the message that needs to be conveyed is how a user can perform a given task within a cryptocurrency website. A possible explanation is that these types of tutorials do not reflect the level of complexity of the given task enough in order to produce significant main effects.

5.2 Screencast Tutorials

According to Lloyd & Robertson (2012) screencast tutorials amplify the users' learning curve of the procedure which results in higher levels of satisfaction. Also, the theory of multimedia learning reports that the use of screencast tutorials make the learning process easier. Green et al. (2012) reconfirms this theory by showing that students who saw a screencast tutorial improved in course performance. Task performance is closely associated with user satisfaction (Alves et al., 2020), perceived user-friendliness ((Lindholm et al., 2018) and intention to use (Lu et al., 2014). However, the results of the current study did not show that websites that include screencast tutorials improve users' satisfaction and their perceptions of user-friendliness as well as intention to use. This can be explained as follows:

Simple screencast tutorials, as the one used in this study, which do not incorporate any type of entertaining element, like sound e.g. music playing in the background, lack in promoting engagement to users. In an educational context, this is also supported by Bokiev et al., 2018) who stated that "music … provide teachers with a rich and authentic resource that they can utilize to promote student engagement … and to make a satisfactory connection between entertainment and learning" (p.327). Also, the fact that the screencast tutorial was only displayed once to the participants is another factor that can explain these results. Engagement would be easier to establish when there are multiple exposures to the user.

5.3 Combining Step-by-Step & Screencast Tutorials

As stated above, cryptocurrency websites are not regularly used by internet users and they usually incorporate difficult terms that not every user is familiar with and understands. Media Richness Theory states the medium richness should correspond to the message's level of difficulty (Markus, 1994). Due to the increased level of difficulty in cryptocurrency websites, the current study hypothesized that the

combination of step-by-step and screencast tutorial will lead to increased levels of perceived user-friendliness, user satisfaction and intention to use. However, the results did not support this hypothesis.

This can be explained according to the reasons related with screencast tutorials, i.e. lack of sound and lack of repetition which leads to lack in engagement. Also, maybe the richness of this medium is still not enough for the level of difficulty encountered in cryptocurrency websites. A richer medium with an actual instructor would maybe lead to the desired outcome.

5.4 The moderating role of User Expertise

As mentioned in the theoretical framework, user expertise influences task completion time in a negative way; the more expert a user is, the less time it will take to complete a certain task related to its expertise (Frommel et al., 2017). Task completion time is also positively related with perceived user-friendliness, user satisfaction as well as intention to use. Based on this literature, it was assumed that user expertise will influence the results of step-by-step tutorials on the dependent variables positively, while the results of screencast tutorials on the dependent variables will be influenced negatively. However, the final results do not support any of the formed hypotheses. This can be explained as follows:

On the one hand, expert users would likely not need any type of tutorial or guidance in order to successfully complete a given task within a cryptocurrency website. On the other hand, novice users would likely need a richer medium/tutorial than the offered step-by-step and screencast tutorials. Also, they would probably need the possibility of repeating the tutorial as many times as needed in order to fully comprehend the relevant task.

5.5 The moderating role of Perceived Task Complexity

According to Marshall & Byrd (1998) and Liu & Li (2012), perceived task complexity affects and predicts human performance and behaviors as well as decision making processes, such as intention to use a system and user satisfaction. Also, a task which is perceived as difficult requires high cognitive capacity and skills in order to perform it optimally (Morgeson & Humphrey, 2006). However, the results of the current study do not support any of the formed hypotheses.

The explanation of these results comes from a study conducted by Haerem & Rau (2007). The authors tried to explain their unsupported hypothesis in regard to perceived task complexity. They explained that users' perceptions of task complexity do not affect factors related to performance, such as perceived user-friendliness, user satisfaction and intention to use, because other factors such as motivation play a more important role.

5.6 The moderating role of Perceived Financial Risk

Perceived financial risk is an online construct. It has been proven to affect behavioral outcomes, such as intention to use and other related constructs. Higher levels of perceived financial risk are mostly related with online services (Zeithaml & Bitner, 1996) and especially online transactions (Tan, 1999; Samadi & Yaghoob-Nejadi, 2009). The theory of reasoned action states that users with low levels of perceived financial risk are more likely to buy an online product or service. On the contrary, high levels of perceived financial risk can lead to unwillingness to use a technology (Jarvenpaa, Tractinsky & Vitale, 1999; Pavlou, 2003) or to withdrawal (Leeraphong & Mardjo, 2013). This literature is in line with the formed hypotheses related to screencast tutorials.

As expected, the presence of a screencast tutorial nullifies individual differences when interacting with perceived financial risk. More precisely, when users perceive that they are subject to financial risk, the presence of a screencast tutorial tends to increase user's satisfaction, perceived user-friendliness and intention to use the website. However, participants who perceived little or no financial risk at all were proven to be more satisfied with the website, perceived the website as more user-friendly and were more likely to use the website again in the future when no tutorial was provided at all.

5.7 Theoretical and Practical Implications

In the following, the theoretical and practical implications of this experimental study will be posed. Starting with the theoretical implications, the incorporation of the right type of guidance in websites which offer e-services, such as cryptocurrency websites is very important. A service constitutes an intangible and non-standardized process which is mostly sold without guarantee (Zeithaml &Bitner, 1996). That is the reason it is mostly related to higher risk perceptions, such as financial. In contrast, a

tutorial helps counteract the negative effects of perceived financial risk. The following results add up to the already existing tutorial literature.

The present study attempts to give some theoretical insights in order to enlighten the existing theoretical gaps in regard to which type of guidance is more suitable for websites, and even more for cryptocurrency websites. If a tutorial is provided, then user satisfaction, perceived user-friendliness and intention to use the website are independent of perceived financial risk. If no tutorial is provided, high levels of perceived financial risk lead to lower satisfaction, while low levels of perceived financial risk lead to higher satisfaction. In conclusion, the main success of this study is revealing the moderating role of perceived financial risk in a website context.

As for the practical implications, the results of the present study can be proven useful for cryptocurrency web designers and web developers. In the light of these findings, it is advisable to provide a screencast tutorial of the main tasks that can be conducted within the cryptocurrency website, especially when the user's perceived financial risk tends to be high. In that way, users perceive the site to be more user friendly, their levels of satisfaction are higher and the intention to keep using the website is also higher. These outcomes become important and insightful when it comes to the decision on what type of tutorial should the website incorporate as a type of guidance. These results can also be generalized for all the websites that the in-site navigation is not self-explanatory for the users and thus, some type of guidance needs to be provided. Website designers and website developers can leverage these results and integrate the mentioned recommendations into their website's interface. This will contribute to improving their user retention rate, user satisfaction and perceived user-friendliness.

Furthermore, the results interestingly show that users are even more satisfied, perceive the site to be more user-friendly and have higher levels of intention to use the website when perceived financial risk is low and no tutorial is provided. As a result, an intuitive website design with nudges that reassure financial security for the users may also be the key to all website developers.

5.8 Limitations and Future Research

Like any study, the present experimental study is subject to some limitations. These limitations provide future fruitful research opportunities.

First, the experimental study was conducted online. That poses some further limitations on the research. Participants were consulted but were not obligated to fill in the questionnaire from a desktop or laptop. According to data provided by Qualtrics, some of the participants filled the survey via their mobile phone. In that case, the stimuli may not have been as visible as they would have been in a pc. As a result, participants may accidentally have skipped important information that could have been proved useful in the questionnaire that followed. The decision not to terminate the research when a participant decided to take part in the study through his mobile phone was in order to facilitate access and not cause frustration.

Second, the initial idea was to test given tasks of the study and the effect of tutorials in a test page of the official websites of EasyBit.com and Profitbird.com. However, due to the large amount of time needed for the development of such test pages, the tasks which were assigned to each participant were not tested on the website's test page. The participant had to critically think by himself if he is competent enough to fulfill that certain task through a multiple of questions asked in regard to perceived task complexity. To be more precise, after watching the tutorial, the participant could only mentally move through the individual steps described by the tutorial in order to perform the task which was assigned to him and then answer the relevant questions. For future studies, it would be interesting to study the effect of tutorials in real time with participants actually performing the given tasks on the test page of official cryptocurrency websites. It would yield valuable results which could be leveraged by website designers.

Last, the present study researched only three types of tutorials. However, there are still more types of tutorials that can be used as guidance and support in a website whose effect remains still unknown. Therefore, it would be interesting to research the extensions of these tutorials. For example, future

research could study the effect of step-by-step tutorials which are also accompanied by the corresponding pictures of the website's interface as well as the effect of screencast tutorials with a voiceover or background music. It would also be interesting to research multiple exposures to tutorials and then test their effects. That is because richer resources, such as corresponding pictures to the step-by-step instructions, music and multiple exposures to the tutorial could lead to a better engagement and thus a better learning experience.

5.9 Conclusion

Cryptocurrency websites have emerged due to the rise of cryptocurrency during the past decade. They vary in the services provided from transaction to investment. However, these websites are not "everyday" websites that are regularly used by internet users. That is why actions within this type of website seem to be a demanding process for someone who has no experience. For that reason, the need for in-site guidance/instructions through tutorials is considered vital for the website's usability.

The current study was a first attempt to show how the inclusion of tutorials in a cryptocurrency website affects behavioral outcomes and perceptions, such as users' perceived user-friendliness, satisfaction and intention to use. To do so, the present study attempted to answer the following pertinent research question: To what extent do step-by-step and screencast tutorials positively influence perceived user-friendliness, user satisfaction and behavioral intention to use cryptocurrency websites? According to the results, the answer is that tutorials do not positively influence these factors, regardless of what kind.

Additionally, this study revealed that when the users perceive financial risk while using the services of the website, the inclusion of tutorials positively affects perceived user-friendliness, user satisfaction and intention to use the website. However, participants who perceived little or no financial risk at all were proven to be more satisfied with the website, perceived the website as more user-friendly and were more likely to use the website again in the future when no tutorial was provided at all.

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Appendix A

1. User Expertise Scale – 7 point Likert scale (totally disagree – totally agree)

a. I have a great amount of experience with cryptocurrency websites.

b. I am skilled in performing tasks within cryptocurrency websites.

c. I consider myself as a novice user in cryptocurrency websites.

d. I consider myself as an expert user in cryptocurrency websites.

e. I have confidence in my ability to perform tasks within cryptocurrency websites.

2. Perceived Task Complexity Scale – 7 point Likert scale (totally disagree – totally agree)

a. The task I performed within the cryptocurrency website was complex.

b. The task I performed within the cryptocurrency website required a lot of thought.

c. The task I performed within the cryptocurrency website is mentally demanding.

d. The task I performed within the cryptocurrency website is challenging.

3. Perceived Financial Risk Scale – 7 point Likert scale (totally disagree – totally agree)

a. I fear that I would lose money if I use the services of this cryptocurrency website.

b. I fear that it would lead to a financial loss for me if I use the services of this cryptocurrency website.

c. Using the services of this cryptocurrency website subjects my cryptocurrency account to financial risk.

d. It would benefit me financially if I use the services of this cryptocurrency website.

4. User Satisfaction Scale – 7 point Likert scale

Please indicate how you would assess your overall experience within the cryptocurrency website

Unsatisfying	( )	( )	( )	( )	( )	( )	( )	**Satisfying**
Insufficient	( )	( )	( )	( )	( )	( )	( )	**Sufficient**
Frustrating	( )	( )	( )	( )	( )	( )	( )	**Gratifying**
Awful	( )	( )	( )	( )	( )	( )	( )	**Nice**
Unpleasant	( )	( )	( )	( )	( )	( )	( )	**Pleasant**

5. Intention to Use Scale – 7 point Likert scale (totally disagree – totally agree)

a. If I needed this service in the future, I would probably revisit this cryptocurrency website.

b. I would recommend this cryptocurrency website to others who are interested in this service.

c. If I needed this service in the future, I would probably try this cryptocurrency website again.

d. I intend to continue using this cryptocurrency website in the future.

e. I intend to adopt using this cryptocurrency website frequently.

6. Perceived User-Friendliness – 7 point Likert scale (totally disagree – totally agree)

a. This cryptocurrency website seems user friendly.

b. This cryptocurrency website can be used efficiently from both novice and expert users.

c. This cryptocurrency website seems easy to use.

d. This cryptocurrency website seems difficult to use.

e. I would imagine that most people would learn to use this system very quickly.