**Master thesis**

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Faculty of BMS

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# Exploring the advertising effects of persuasion knowledge on in-game advertising for stream viewers

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## Abstract

**Objective.** Persuasive in-game advertising is increasingly being used in online games. These persuasive advertisements are not only viewed by the player of the game itself but also by viewers of online streams in which the game is played. Although there is a lot of knowledge about the effects of persuasion knowledge in general, there is very little knowledge about the effects of persuasion knowledge on viewers of an in-game advertisement shown in an online stream. This study investigated the advertising effects of streamer ad acknowledgement, advertising prominence and platform ad acknowledgment on game streaming viewers and the potential effect of persuasion knowledge.

**Methods.** For this research a quantitative online 2 (platform ad acknowledgement vs no platform ad acknowledgement) x 2 (streamer ad acknowledgement vs no streamer ad acknowledgement) x 2 (advertising prominence vs no advertising prominence) between subject experimental design was conducted among 158 participants. Of those participants 50.6% were female and 49.4% were male. Most participants native language was Dutch (79.7%) followed up by German (7.0%).

**Results.** No effects were found for advertising prominence, platform ad acknowledgement or streamer ad acknowledgement on brand recall, brand recognition, purchase intention or brand attitude. Advertising prominence, platform ad acknowledgement and streamer ad acknowledgement did positively increased persuasion knowledge and there was a correlation effect found between persuasion knowledge brand recall, brand recognition and purchase intention. There was no mediation effect found for the manipulations on the advertising effects through persuasion knowledge. There was no interaction effect found.

**Conclusion.** This study suggests that being open and transparent about persuasive marketing attempts in a live stream can help build trust towards the brand and overcome or avoid

negative coping responses towards persuasion knowledge. This study helps marketeers with using persuasive ads in online streams, gives streaming platforms insights in improving trustworthiness without influencing advertising effects and provides streamers and e-sporters with arguments to attract brand advertisers.

**Keywords:** *persuasion knowledge, advertising effects, online streams, online games, persuasive advertising, in-game advertising*

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# 1. Introduction

New interactive marketing techniques are transforming the way brands persuade consumers. One of those new interactive marketing techniques is in-game advertising. Shrum (2017) describes in-game advertising as the inclusion of a product or brand in an existing digital game that also features other brands or products. Smith et al., (2014) define in-game advertising as "the integration of nonfictional products and brands within the playing environment of video and computer games through simulated real-life marketing communications mechanisms". The brands or products are part of the gameplay and can make a game more realistic (Nelson, 2002) (Vashisht, 2016). Word wide approximately 3.03 billion people play video games (Clement, 2022). A game like EA Sports FC 2024 already attracts 8 million active gamers monthly alone, making it a powerful platform for brands advertise on.

Not only the game industry is still rising. The streaming industry with platforms like YouTube and Twitch keep on rising as well and are still very popular. The industry is worth around $9.2 billion dollars in 2023 (Twitch Statistics & Charts, z.d.) with Twitch having an average of 2,496,261 viewers per day in 2023. On these platforms various streams can be watched. From just chatting streams where the streamer is engaging with their audience through conversations and discussions about different topics, to gaming streams where people stream their gameplay and audio and take their audience with them in their gaming experience. Reviewing all these numbers, it could be stated that advertising in a game can be very beneficial. Not only people that are playing a game, but also people that are watching a streamer play a game can see advertisements. This can lead to a lot of exposure to an advertisement (Clement, 2022).

Persuasion can be anything that involves molding or shaping attitudes (Perloff, 2017). Persuasion knowledge is the recognition that someone, often a brand, is trying to influence you for a specific purpose, which is most often a marketing or sales purpose. Advertisements can also be persuasive. Persuasive advertisements are trying to convince their audience to purchase their product or like their brand. There is a lot of literature available on the effects of persuasive advertisements not to mention about the effects of persuasion knowledge, especially on people's attitude towards a brand (a consumer's overall evaluation of the brand (Faircloth et al., 2001)), brand recall (consumer's ability to retrieve the brand when given the product category (Keller, 1993)), brand recognition (the consumers ability to confirm prior exposure to the brand (Keller, 1993)), and purchase intention (consumers conscious plans to buy a product resulting from a personal process and an evaluative and normative judgment (De Toni et al., 2022)).

But there is a big literature gap when it comes to the effects of persuasion knowledge on viewers of an in-game advertisement shown in an online stream. These viewers are probably not the main target audience of the advertisement, and therefore quickly overlooked. But these people still see the advertisement and can still be potential buyers, likers, or dis-likers of the advertised brand of product. The available literature about this topic is little and what is available differs much. However, knowing if there is a positive or negative connection between persuasion knowledge through an online stream and brand attitude, purchase intention, brand recall and brand recognition can help marketers improve and adjust their marketing techniques. This can, in the end, lead to higher market shares whether the effects are positive or negative. For this reason, it is of much importance to conduct a new study researching this topic.

Persuasive in-game advertising is a very rewarding way of advertising since there are a lot of active video game players. Watching these gamers play games via a streaming platform is

likewise very popular. However, there is a lack of research done on the effects of persuasion knowledge on viewers that see in-game advertisements via a streaming platform. This study focused on measuring the effect of persuasion knowledge on the attitude towards the brand of viewers of an in-game advertisement shown in an online stream, their purchase intention, brand recall and brand recognition. This study focused on three independent variables that are all intending to evoke persuasion knowledge. The first variable being a pop-up on the viewers screen that warns them that there is a persuasive ad in the game. The second variable is that the streamer will mention the persuasive ad in the game. The third variable is a big screen filling advertisement that appears right before the game starts. Since persuasion knowledge is not measured directly in this study it appeared as a mediator. It is important that the respondents in this study acknowledged the independent variables as messages that are telling them there is a persuasive advertisement in the stream. An online experimental 2x2x2 study was conducted with the manipulation of the independent variables.

**RQ: What are the advertising effects of streamer ad acknowledgement, advertising prominence and platform ad acknowledgment on game streaming viewers and is this mediated by persuasion knowledge?**

# 2. Theoretical Framework

The aim of the research was to investigate the effect of platform ad acknowledgment, streamer ad acknowledgement and advertising prominence on brand recall, brand recognition, purchase intention and brand attitude and the possible mediation effect of persuasion knowledge. Before the study is discussed in more detail, previous findings in the literature on persuasion knowledge, brand recall, brand recognition, purchase intention, brand attitude, platform ad acknowledgment, streamer ad acknowledgement and advertising prominence will be reviewed. First the dependent variables brand recall, brand recognition, purchase intention and brand attitude will be discussed followed by the independent variable's platform ad acknowledgment, streamer ad acknowledgement and advertising prominence. Lastly, persuasion knowledge will be reviewed.

## 2.1 In-game advertising

There are different types of advertising or product placement in games. The first method is called advergames. According to Shrum (2017) advergames are games that are primarily designed to persuade and promote a brand, company, or product. They resemble a traditional advertisement. This study however focused on in-game advertising.

In-game advertising can also be seen as product placement. According to Shrum (2017) in-game advertising is the inclusion of a product or brand in an already existing digital game that could also feature other brands or products. The primary purpose of the game is to entertain and not promote. The brands or products are part of the gameplay and can make a game more realistic (Nelson, 2002). In-game advertising can be compared with product placement in movies. Most of the time the brands are placed in the game in a visual or verbal way and can integrate into the story of the game nicely. This can also be seen as product

placement. An example of this can be a billboard in the background of a game (Shrum, 2017). However, not all advertisements in in-game advertisements integrate into the storyline of the game. Some advertisements can appear very prominent in the middle of the screen and can be removed by waiting a few seconds or by closing the advertisement manually.

**2.2 Twitch**

Marketers can advertise their products on Twitch via different ways. On the website itself traditional web and video marketing can be used. On the whole website advertisements can be found. Even on the front page. Twitch acknowledges that their core demographic is gamers. This means that companies that want to make profit from advertising on Twitch need to have gamers as a target. This can be a good explanation on why most of the advertisements on their website are coming from the game industry. A second way of advertising via Twitch can be done via sponsored broadcast. With sponsored broadcast a streamer is paid to promote a brand whilst streaming. The stream does not have the intent to be an advertisement, but the advertising message is incorporated in the stream. According to Panneton (2019) the most prominent and effective form of sponsored advertising on Twitch is sponsored gameplay. This entails that streamers get paid to play a game on their live stream. Whilst these are more of the traditional forms of (influencer) marketing, some companies have found that streaming on a live stream platform itself is can also be good promotion for their brand.

This study focused on in-direct in-game advertising on Twitch. As stated before, games can contain advertisements in them. Players can play a game like EA Sports FC 24 and encounter various banners that promote a brand or product. In EA Sports FC 24 this is called a Football Manager advertisement (McCarthy, 2021). Running this kind of advertisement can be very interesting for companies because it is cheaper than running an advertisement in a real football stadium but also reaches a lot of football lovers and gamers McCarthy (2021). The

advertisements are placed on places where in real football stadiums also advertisements run, and they do not obstruct the gameplay. They are integrated in the game. It could be argued that the advertisements make the game even look more realistic. Especially with the rising popularity of esports, advertising in a game like EA Sports FC 24 is looking very appealing for marketers. Platforms like Twitch do not mention that there are advertisements being displayed in the stream. It is up to the viewer to notice the advertisement, or not.

### 2.3 Brand attitude

Based upon the information gathered from advertisements, consumers can form an opinion about a brand. Brand attitude is defined by (Faircloth et al., 2001) as “a consumer’s overall evaluation of the brand.” Fishbein and Ajzen (1975) describe brand attitude as “a learned predistortion to respond in a consistently favorable or unfavorable manner with respect to the given object.” This indicates that brand attitude has an influence on consumers favorability towards brands. Faircloth et al., (2001) stated that consumers self-reported brand value is based upon their attitude towards the brand and that market shares increase when brand attitude becomes more positive. It could be stated that a consumer’s attitude towards a brand is an individual process. Therefore, this study uses the definition of Spears & Singh (2004) to define brand attitude. According to them brand attitude is “an individual’s internal evaluation of the brand”. It can be concluded that a positive brand attitude positively influences marketing strategies, but a consumer’s attitude towards a brand can be affected by various factors. This study intended to measure the effect of persuasion knowledge on brand attitude within in-game advertising viewers watching an online stream is. As mentioned before, persuasion knowledge can lead to consumers thinking they know the true intentions of the brand, and this can lead to a more positive brand attitude.

**2.4 Purchase intention**

Purchase intention is defined by De Toni et al., (2022) as "Consumers conscious plans to buy a product resulting from a personal process and an evaluative and normative judgment." It can be seen as the willingness of the consumer to buy a product. According to Spears & Singh (2004) purchase intentions are personal action tendencies relating to the brand. They define purchase intention as an individual's conscious plan to make an effort to purchase a brand or product.

In the study of Panic, Cauberghe, and De Pelsmacker (2013) A significant relationship between persuasion knowledge and purchase intention was found for television advertisements but not for advergames. This can make sense since theoretical frameworks like the Persuasion Knowledge Model tell us that persuasion knowledge can awaken negative coping responses (Williams, 2002). These negative responses can be overcome. But it is hard. To overcome these responses, it is important to first know which negative response an advertisement will elevate. From there on different activities, that are in line with the negative responses, can be done. The most important strategies are to build trust with the consumer, be transparent, explain that the brand is not obligating the consumer anything and submit good and factual reasoning on why people should buy the brand or product (Fransen et al., 2015).

Other studies like the study of Vanwesenbeeck et al. (2016) and the study of Vanwesenbeeck, Ponnet, et al. (2016) found a significant relationship between persuasion knowledge and purchase intention. It could be argued that persuasion knowledge therefore has a positive effect on purchase intention. But it should be stated that in the above-mentioned studies children or young adolescents were the target audience and the games studied were either social network games or advergames. This study focused on the effect within in-game advertising and with a broader target group that started at eighteen years old. So, for significant relationships other studies needed to be taken into account. However, research on

in-game advertisements and purchase intention is still scarce (Hussain et al., 2022). According to Hussain et al. (2022) in-game advertisements involve high levels of interaction. This can influence the consumer on an emotional level resulting in positive purchase intention. This indicates that purchase intention in in-game advertising can only be significant if the level of interaction is high. Yuwen Shiu et al., (2023) acknowledge this in their research by stating that good immersive experiences positively impact consumers' purchase decisions because positive emotional responses may promote purchase intention. In conclusion, there is still a literature gap about the relationship between persuasion knowledge and purchase intention in in-game advertising.

### 2.5 Brand recall and brand recognition

Besides brand attitude and purchase intention, persuasion knowledge can also have an influence on brand awareness. Brand awareness measures the accessibility of the brand in the memory of a person. Brand awareness can be measured by brand recall and brand recognition. According to Keller (1993) brand recall is consumers ability to retrieve the brand when given the product category and brand recognition is the consumers ability to confirm prior exposure to the brand, when given the brand as a cue. For this study it was interesting to research if participants could retrieve a brand when given the category (brand recall) and if they could verify prior exposure to the brand (brand recognition) even when the participants had been made aware of the persuasive advertisement.

### 2.6 Persuasion in games

Persuasion can be anything that involves molding or shaping attitudes (Perloff, 2017). This study will talk about persuasive advertisements through digital games. Interactive marketing techniques can be a good way to unconsciously persuade consumers. It can lead to brand

recall and brand recognition. In-game advertising is a kind of interactive marketing technique. In the study of Nelson (2002) it is stated that media context can influence one's cognitive state, emotional state, and their processing of embedded brand messages. People can be so into a game that they do not see or remember the advertisement in the game. They can forget about the external context in the game like a billboard with an advertisement on it. But they are unconsciously still influenced by the advertisement. Because the people playing the game were not focused on the advertisement it could be stated that they did not create any resistance against the advertisement and or brand. This is in any way very beneficial for the brand. Therefore, it could be stated that advertising in a game can lead to better sales for a brand and or product.

**2.7 Platform ad acknowledgment**

According to Eisend & Tarrahi (2021) people tend to be more receptive to persuasive advertisements if they are made aware of them. Eisend & Tarrahi (2021) state that making consumers aware of the persuasive message behind the advertisement will create less distrust of the brand and/or product. This makes consumers feel like the brand is being transparent and this can increase the credibility of the brand in their eyes. It also makes consumers feel that they have the freedom to make their own choices and not be influenced by persuasive advertisements by brands. They feel like they are not pushed into any directions and can make their own decisions. This can also help increase the credibility of the brand in the consumers eyes, which can lead to higher advertising effects. Therefore, this study researched the effect of platform acknowledgement of the advertisement (platform ad acknowledgment). In this study this means that there is a pop-up on Twitch that says that in this stream (and game) a persuasive advertisement is displayed. Because of the positive effects found in literature on the effects of making consumers aware of persuasive advertisements, this study hypothesized

that the effect of platform ad acknowledgment on the dependent variables is positive. Therefore, the following hypothesis was stated:

**H1** Platform ad acknowledgment positively affects (a) brand recall, b brand recognition, c purchase intention and d brand attitude.

**2.8 Streamer ad acknowledgement**

As mentioned, when talking about advertisement acknowledgement before, consumers like to be made aware of a persuasive advertisement. Another way to ensure advertisement acknowledgement in streams can be done via de streamer, one of the key factors in a stream. In 2.8 the reasons why acknowledging a persuasive advertisement were mentioned. The reasoning is the same for a verbal mention of the streamer. However, there are some disadvantages that can occur when verbally mentioning something about a persuasive advertisement. The mention can feel very unnatural for the viewers. Other than that, it interrupts a pleasant watching experience, and it can also feel forced. This can make the viewers distrust the streamer and or brand. Which can lead to negative advertising effects. It could also be that viewers watch a stream without sound on. When the persuasive advertisement is only being mentioned verbally the viewer will not be made aware of this. As mentioned before, not acknowledging/being made aware of persuasive advertisements can lead to negative advertising effects. Even though, there are some possible negative outcomes when using streamer ad acknowledgement in a stream this study believed that the positive effects overruled the negative effects Therefore the following hypothesis was stated:

**H2** Streamer ad acknowledgement positively affects (a) brand recall, b brand recognition, c purchase intention and d brand attitude.

**2.9 Advertising prominence**

The level of prominence of a brand in a game can differ a lot. Van Reijmersdal et al., (2012) concluded that giving a brand a prominent place in the game will result in stronger cognitive responses then giving the brand a subtle placement (van Reijmersdal et al., 2012). This is supported by the study of Vashisht and Royne (2016) who concluded that prominent placement would lead to higher brand recall. However, it could be argued that game players can unconsciously process an advertisement that is placed in the background of a game.

The Limited Capacity Model of Motivated Mediated Message Processing describes that a person's capacity to process information is divided in between primary and secondary tasks. When a person is playing a game, their primary task is to play the game. In-game advertisements are a secondary task. The effectiveness of the in-game advertisement can thus be determined by the location of the ad, the involvement of the player and a player's gaming experience (Bittner & Shipper, 2014). This theory would also suggest that prominent product placement will lead to a better brand recall. But there is no theory supporting this when it comes to viewers watching a streamer play a game. It could be argued that the prominent placement also increases advertising effects because the viewers are just as much into the game as the player. But as stated before not every stream viewer is paying high levels of attention to the actual stream. It might even be that some viewers skip the advertisement, even with a prominent placement, because they were not looking at the stream the time the advertisement was shown. To research the effect of advertising prominence the following hypothesis was stated:

**H3** Advertising prominence positively affects (a) brand recall, b brand recognition, c purchase intention and d brand attitude.

### 2.10 Persuasion knowledge in games

What happens when people know that brands are trying to persuade them through the game that they are playing? Literature about the effects of persuasion knowledge differ. Generally, study found that persuasion knowledge will lead to less favorability towards a brand (Eisend & Tarrahi, 2021). But other studies argue that persuasion knowledge can also help to improve the consumers' skills to see the benefits of the persuasion attempt (Eisend & Tarrahi, 2021). This might lead to more favorable evaluations of the brand. According to the study of Groen (2022) persuasion knowledge is of importance to increase chance of selection and playing behavior. Game designers should be open about the persuasive intentions of the game because this will lead to positive attitudes towards the persuasive game. When people already have a positive prior attitude towards the persuasive message, they will most likely have a positive attitude towards the persuasive game. In the study of Groen (2022) a positive prior attitude was defined as selection behavior, interest to play and intention to play the persuasive game. This can be supported by the study of van Reijmersdal et al. (2012) which concluded that persuasion knowledge does not influence children's response to the brand or game. This indicates that even though the children knew that they were being persuaded via the game to favor a brand, they did not use this information as a defense mechanism. This could be an indicator that persuasion knowledge may not have a negative effect on brand attitude.

The Persuasion Knowledge Model concludes that people over time will be aware of the true intentions of marketers and the marketing tactics used. People will use this knowledge to interpret, evaluate and respond to the marketers and their tactics (Williams, 2002). The Persuasion Knowledge Model also suggests that knowledge can lead to reactance. Reactance

means that consumers resist messages that are or tend to be persuasive (Segijn et al., 2021). It can be developed when consumers feel that their autonomy or freedom of choice is threatened. This can lead to consumers being critical of a brand, their products, and their true intentions. It is important that marketers acknowledge persuasion knowledge and that this can create reactance. To overcome reactance marketers can for example try to make advertisements that do not interfere with consumers autonomy or freedom of choice.

In this study the effect of indirectly being exposed to persuasion and therefore creating persuasion knowledge on the viewers' thoughts on the brand was researched. This study had chosen the independent variables platform ad acknowledgment, streamer ad acknowledgement and advertising prominence. Platform ad acknowledgment refers to a small pop-up that will appear on screen. This pop-up contains a statement mentioning that a persuasive advertisement is being displayed. advertising prominence refers to a big advertisement that is being displayed on screen. This advertisement blocks the whole screen and will disappear after 5 seconds. Streamer ad acknowledgement refers to the streamer mentioning the persuasive advertisement. These three variables were chosen because of their close relationship with persuasion knowledge in advertising and because they were all easy to incorporate in the Twitch video stream without feeling out of place.

This study predicted that the relationship between the independent and dependent variables would be influenced by persuasion knowledge as a mediator. This means that the impact of the independent variables on the dependent variables is dependent on the level of the participants' persuasion knowledge. Therefore, the following hypothesis were stated:

**H4** Persuasion knowledge mediates the influence of platform ad acknowledgment on (a) brand recall, b brand recognition, c purchase intention and d brand attitude.

**H5** Persuasion knowledge mediates the influence of streamer ad acknowledgement on (a) brand recall, b brand recognition, c purchase intention and d brand attitude.

**H6** Persuasion knowledge mediates the influence of advertising prominence on (a) brand recall, b brand recognition, c purchase intention and d brand attitude.

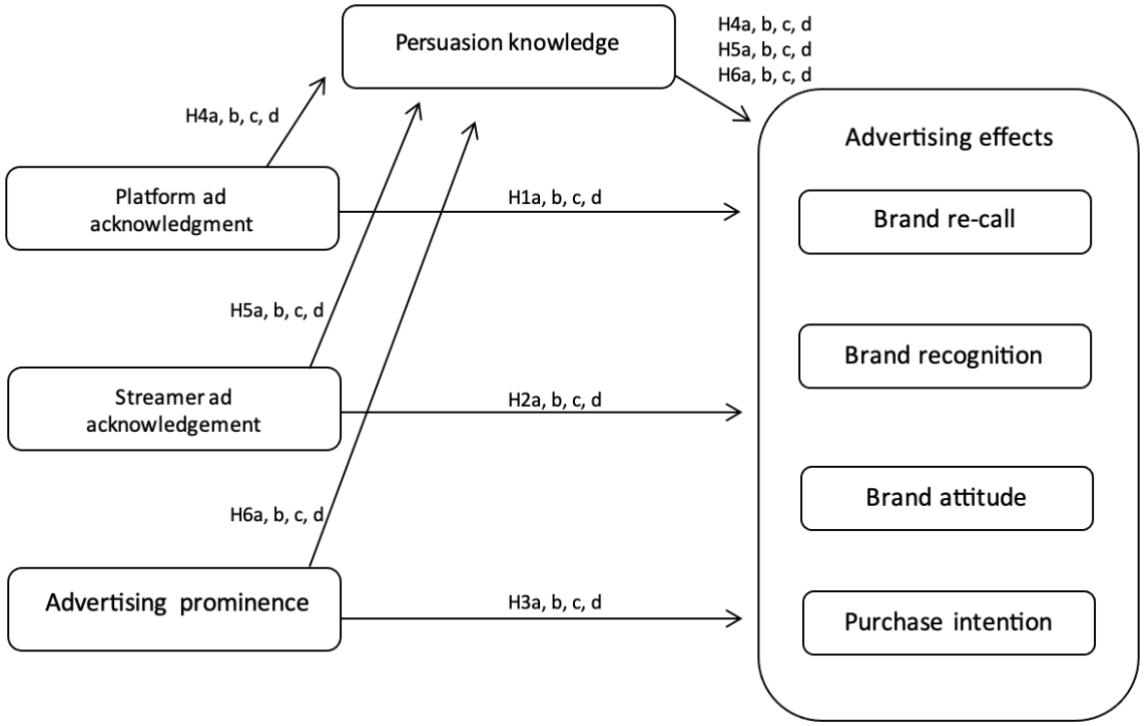
This study predicted that the independent variables not only had an effect on their own but also amplified each other. The more combinations of the independent variables the more the effect was the prediction. The statement is based upon the research discussed before. The more transparent brands are, the more positive people are towards persuasion.
However, it was crucial to research whether they did not cancel each other out. Because if they did, future researchers and marketers should know which combinations can be used together and which cannot. So, for this study the following sub-question was created:

**Sub-question:**

**Does the interaction between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence also influence the advertising effects?**

**Figure 1**

*Conceptual model of the effect of the manipulations on the advertising effects and the possible mediation effect of persuasion knowledge.*



# 3. Methods

## 3.1 Design

For this research a quantitative online experiment was conducted. The data collected in this study were gathered through a 2 (platform ad acknowledgement vs no platform ad acknowledgement) x 2 (streamer ad acknowledgement vs no streamer ad acknowledgement) x 2 (advertising prominence vs no advertising prominence) between subject experimental design. These conditions were presented in eight different videos. Participants only saw one video that was randomly assigned to them. The videos were displayed in an online survey. The eight conditions were as follows:

**Table 1**

*Research design with number of participants per condition and number of females per condition.*

| | **Streamer ad acknowledgement** | | **No streamer ad acknowledgement** | |
|---|---|---|---|---|
| | **Advertising prominence** | **No advertising prominence** | **Advertising prominence** | **No advertising prominence** |
| **Platform ad acknowledgement** | Condition 1<br>N = 21<br>Females: 14 | Condition 2<br>N = 16<br>Females: 8 | Condition 3<br>N = 21<br>Females: 11 | Condition 4<br>N = 22<br>Females: 7 |
| **No platform ad acknowledgement** | Condition 5<br>N = 24<br>Females: 13 | Condition 6<br>N = 15<br>Females 7 | Condition 7<br>N = 19<br>Females: 9 | Condition 8<br>N = 20<br>Females 11 |

**3.2 Subjects**

The sample of this research consisted of people above the age of 18, adults. There was no upper age limit. It was beneficial if the participants had little knowledge about Twitch and EA Sports FC 24, but it was not obligatory. People from all genders, educational levels and socioeconomic statuses could participate in this research. To find these participants linear snowball sampling was used, starting from the network of the researcher. The survey was shared via different social media such as Instagram, Facebook, LinkedIn, and WhatsApp. A relatively large number of companies that had affinity themselves with Twitch or EA FC Sports 24 or a target audience that had affinity with those two subjects were contacted via e-mail and LinkedIn and asked to spread the survey amongst their employees and audience. The companies varied from a big football team in Twente that had their own e-sport team, to an e-sport team, the management of varies e-sporters and a large and well-known e-sports website. Additionally, an e-sporter that is a member of a e-sport team that has over millions of followers shared the survey with their network. This purposive sampling method was used to provide the sample with participants that had interest in and some knowledge of this study.

This study was aiming for 30 participants per condition. The actual sample size of this study was $N$ = 158 participants. The gender of the participants was almost evenly divided with a few more females (50.6%) than males (49.4%). The native language of most of the participants was Dutch (79.7%) followed up by German (7.0%). The oldest participant in this study was 73 years old and the youngest was 18 years old, this was also the minimum age participants needed to be to be able to participate in this study. The participants were almost equally divided over the eight conditions, and the gender for each condition was also almost equal with a few more females in some conditions which can be explained by the 1.2% more female participants than males in this study. For a specific overview of these results see table 1. More than half of the participants were familiar with Twitch (59.5%), but only a small

percentage thought that Twitch wanted the best for its users (22.8%). This could be explained by the feeling that Twitch only wants to make profit which was the opinion of almost half of the participants (45.0%). A good number of participants have actually played EA FC Sports 24 or other games in this series before (38.5%). 16.4% of the participants even described the game as one of their favorite games. Only a small number of participants hated it when the game EA FC Sports 24 was mentioned somewhere (8.9%) meaning that only a few participants had an aversion against this game before participating in this study.

### 3.3 Stimulus design

This study used the full lay-out of a Twitch live-stream for the experiment. The lay-out of the experiment stream looked similar to a real stream. Therefore, a fake chat was placed in the stream. The chat contained neutral comments. This ensured that the chat was only there to make the stream look as real as possible and that it did not distract the participants. The chat was the same for all the conditions and was not manipulated. The stream presented to the participants was a pre-recorded stream. They did not actually follow the stream live as this was not realistic for this study.

The game that was played in the stream was EA FC Sports 24. This game is chosen firstly because of its famousness. The chance participants in in this study would know the game or/and even know how the game works on a basic level was very high. If this study had chosen a game that was probably new to a lot of participants, the participants were more likely to focus on how the game works and the visuals then on the gameplay itself, which was important for this study. Secondly, this game was chosen because in this game it is not unusual to find advertisements. Advertisements are already shown in the game in the same way as they are in real-life football stadiums. Therefore, seeing advertisements in this game

was not uncommon for the participants. Even though it cannot be proven for sure, this could have helped limit the influence of the general appearance of the ad on the results.

In this study the streamer was an unknown figure to most of the respondents. He was someone chosen by the researcher. It could be the case that a few respondents will recognize the streamer from their social lives. The streamer in this study was not a streamer in real life but is someone with the capabilities of making it look like a real stream. This study did not contain a known person because that could raise bias and pre-made opinions about the person. For this study it was important that the respondents had a neutral opinion about the streamer. This study had chosen for a male streamer. The reason behind this is that 99% of the top 100 streamers in 2022 on Twitch are male (Young, 2022). Thus, having a male streamer is more representative as to real-life. Secondly, there could be some resistance from male participants when the streamer would have been female.

A neutral brand and product type was chosen to minimize potential confounds that could result from brand familiarity and loyalty, such as controversies relating to the brand or entrenched brand attitudes. Therefore, for the brand Waiakea was used in this study. This water brand is very unknown and hard to purchase in Europe, where the study was conducted and spread. The advertised product being water contributes into keeping the advertisements as neutral as possible.

As Waiakea is an existing brand, it could still have been that some participants recognized the brand. This could have influenced their responses in this study because they could have an already formed positive or negative opinion about the brand. To tackle this bias, a manipulation check at the end of the experiment was placed. Every participant was asked if they have ever heard of or seen the brand Waiakea before this experiment. This way it can be assessed if the participants knew the brand before the experiment or not. Researching this was crucial as any prior opinions about the brand the participants had might have

impacted their responses regarding brand attitude, brand recall, brand recognition, and purchase intention.

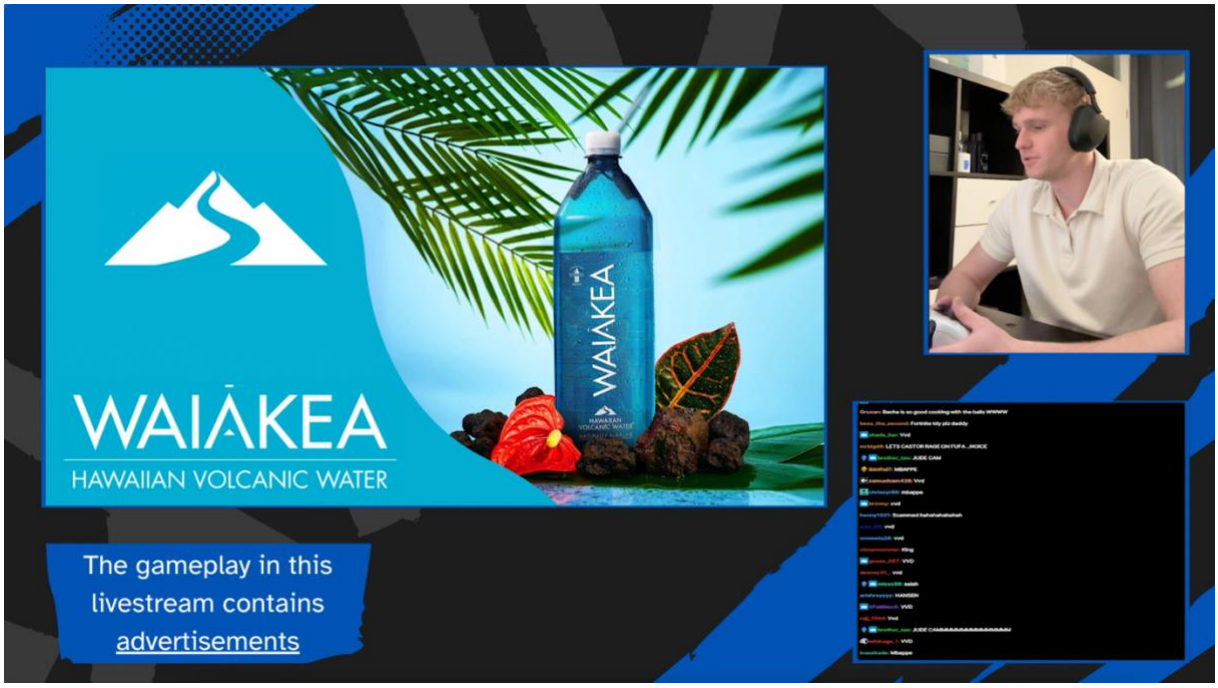
The independent variables platform ad acknowledgment, streamer ad acknowledgement, and advertising prominence were all manipulated. For the manipulation of platform ad acknowledgement, a block with the text ‘The gameplay in this video contains advertisements’ warning the participants that there is a persuasive advertisement in the game, was placed onto the layout of the video. The manipulation of streamer ad acknowledgement was conducted by letting the streamer mention the advertisement in the video. When the streamer scored, he said: ‘Goal, right next to the ad of Waiakea'. Manipulate advertising prominence, a big, screen filling, Waiakea advertisement was shown in the beginning of the video. An aim of this study was trying to establish a correlation between persuasion knowledge and the manipulated variables. Figure 2 illustrates the manipulations advertising prominence and platform ad acknowledgement.

Manipulating the game itself proved to be very difficult. Firstly, the livestream needed to be recorded with a streamer. Even though there was a script, every new game differs in terms of difficulty and could never exactly play out the same as is written in the script. Therefore, making sure the streamer mentioned the advertisement at the right time, to implement streamer ad acknowledgement, took a lot of takes. Advertisements of Waiakea needed to be edited into the gameplay which turned out to be rather difficult. As there is a lot happening in the gameplay, the video editing program that was intended to be used for this, Adobe Premiere Pro, lacked the ability to do so. Therefore, a professional video-editor was asked to edit in these ads. After the gameplay was ready, it was edited into Twitch streaming frame, with a live chat and recording of the streamer. All in all, the process of making the stimuli was very time consuming and experienced quite a few unexpected hurdles along the way.

Before the actual experiment a pretest was conducted. In this pretest every condition in this experiment was tested once. The video's containing conditions one, two, three and five were presented to four participants. As not all conditions needed to be tested the video's including only one or no condition were not presented to pre-test participants. This way every condition was tested twice in total. The participants were asked to watch the video with the researcher next to them. Whilst looking at the video and survey participants were allowed to ask the researcher questions about any uncertainties and the researcher asked questions to the participants about what they noticed about the video. It was important to test whether the participants had actually seen the advertisements or not and if the stimuli were clear. The survey was tested by ten different pre-test participants in the same way the videos were tested however instead of testing the stimuli they were asked if they fully understood every question and if they had any trouble whilst filling it out. After the participants completed the pre-test, they had the chance to ask any last questions and give their opinion about the experiment.

It was of most importance that in this pretest errors were picked up upon and could be removed from the experiment. The main errors picked upon in the pre-test about the video were that the sound of the gameplay that was not correctly synced and that the video of the streamer needed to be more cropped so that the arms were more out of frame to make the video more professional and easier to watch. The main errors in relation to the survey were mostly about the writing style and interpunction.

**Figure 2**
*The manipulation of streamer ad acknowledgement and platform ad acknowledgement*




### 3.4 Procedure

Data was collected via an online survey. This was done via the platform Qualtrics. After all the errors that were picked up during the pre-test were removed the real experiment was conducted. When opening the survey participants were asked to give their consent to participate in this study.

First demographic questions asking for the participants age, gender and native language were asked. After that participants needed to watch a randomly assigned video that, to them, looked like a recorded online stream. This video contained one of the eight conditions. After watching the video, the participants needed to fill out a questionnaire measuring the dependent variables brand attitude, purchase intention, brand recall and brand recognition. After the dependent variables they needed to fill out questions that measured persuasion knowledge and control questions about the streamer, Twitch, affective appraisal, platform trust and EA FC Sports 24.

### 3.5 Measures

After watching the stream and seeing one of the eight conditions the participants filled out a questionnaire measuring the dependent variables. The first dependent variable being brand recall followed by brand recognition, purchase intention and brand attitude.

#### 3.5.1 Brand recall

The scale of Nicholls and Roslow (1999) was used to measure brand recall. The following questions were asked to the participants:

- Can you please name three mineral water brands that you can think of right now. If you cannot think of three, fill in as many as you can.
- There was a water brand mentioned in the video that you have just watched. What brand was mentioned, or did you see in the video?

If participants gave the answer Waiakea in both of the questions they received a score of 2, in only one question a score of 1 and if they could not answer any questions with Waiakea they received a score of 0. So, the highest brand recall score would be 2 and the lowest would be 0.

#### 3.5.2 Brand recognition

After brand recall, brand recognition was measured partially based on the scales of of Yoo and Donthu (2001) and Spears and Singh (2004). Participants could reflect with their own opinion about five items via a five-point Likert scale where is (1) Strongly Disagree; (2) Disagree; (3) Neither agree nor disagree; (4) agree; (5) Strongly agree.

#### 3.5.3 Purchase intention

After measuring brand recognition, purchase intention was measured. This scale was partially based on the scale of Chen et al. (2017). This scale has four items measuring purchase intention. The scale was modified to fit into the conditions of this study.

### 3.5.4 Brand attitude

Followed by that brand attitude was measured. This scale is based on the scale of Spears and Singh (2004). In this scale five items measuring brand attitude were presented to the participants.

### 3.5.5 Persuasion knowledge

The mediation effect of persuasion knowledge was also measured. To make sure the participants were aware of the persuasive advertisement they were asked the following questions: “Did you see an advertisement for Waiakea in the video you just watched?” with answers options -A Yes, I saw an advertisement for Waiakea in the video and -B No, I did not see an advertisement for Waiakea in the video and “Where or how did you notice an advertisement in the video you have just watched? If applicable, multiple answers are possible” with answer options -A Via the warning about a advertisement -B Because a big advertisement appeared on screen at the beginning of the live stream video -C Because the streamer mentioned the advertisements -D Because I saw the advertisement in the game -E I was not aware of the advertisement. Participants could choose multiple answers as they could have gotten a condition with up to four different kinds of Waiakea advertisements. If participants answered the first question “Did you see an advertisement for Waiakea in the video you just watched?” with “A -yes I saw an advertisement for Waiakea in the video” they received 1 point. If they answered the second question with the right conditions that were presented to them, they received another point. For example, participants that were exposed to

condition 3 only received a point if they answered they the question with -A Via the warning about a advertisement and -B Because a big advertisement appeared on screen at the beginning of the live stream video. Thirdly, all participants that selected option -D Because I saw the advertisement in the game, also received 1 point as in all video's one advertisement in the gameplay itself was presented. With this point system the highest amount of persuasion knowledge was 3 and the lowest amount of persuasion knowledge was 0. Because the questions asked to measure the mediator are giving away that there is an advertisement in the video, the mediator was measured after the dependent variables to avoid contamination with the questions about the dependent variables.

### 3.5.6 Control variables

At the end of the survey, control questions were asked to the participants to find out if there were no other factors influencing their answers. The participants could reflect on all the statements via a five-point Likert scale. The first control questions asked were about the streamer in the video. These statements were partially based on the statements Guo et al. (2022) used in their study. The second control were about Twitch and online streams, the third about affective appraisal, the fourth about platform (Twitch) trust and the last control question was about the game EA FC Sports 24. After all the control questions were asked the survey was finished.

### 3.5.7 Reliability and validity

Thirteen items of the dependent variables scales brand attitude, brand recognition and purchase intention were subjected to a factor analyses, using varimax rotation. This was done via SPSS version 26. Prior to the analysis, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3

and above. The KaiserMeyer-Olkin value was .861, exceeding the recommended value of .6 (Kaiser 1970, 1974, as cited in Pallant, 2011) and Bartlett's Test of Sphericity (Bartlett, 1954, as cited in Pallant, 2011) reached statistical significance, supporting the factorability of the correlation matrix.

Principal components analysis revealed the presence of three components with eigenvalues exceeding 1, explaining 46.2%, 15.9%, and 11.7% of the variance respectively. An inspection of the screeplot revealed a clear break after the third component. Using Catell's (1966) scree test, three factors were clearly revealed.

The interpretation of the three components was consistent with previous research on the three scales of brand attitude, brand recognition and purchase intention with brand attitude items loading strongly on component 1, purchase intention items loading strongly on component 2 and brand recognition items loading strongly on component 3. Factor 1 brand attitude: This factor explained 35.1% of the variance and included items related to pleasantness, likability, appeal, quality and favorability of the product. Factor 2 purchase intention: This factor explained 15.9% of the variance and included items related to interest and future investment in the product. Factor 3 brand recognition: This factor explained 11.7% of the variance and included items related to remembrance and recognition of the product. The results of this analysis support the use of the three scales for brand attitude, purchase intention and brand recognition as suggested by the author. These scales are based on the scales of Spears and Singh (2004) for brand attitude, Chen et al. (2017) for purchase intention and Yoo and Donthu (2001) and Spears and Singh (2004) for brand recognition.

In the current study the Cronbach alpha coefficient for the scale of Purchase Intention was .9. The Cronbach alpha coefficient for the scale of Brand attitude was .089. In the current study the scales of brand recall consisted of open-ended questions, therefore a reliability test based on Cronbachs' alpha could not be performed. To help prevent response bias in this

study the item ‘I have difficulty in imagining Waiakea in my mind’ was reversed. In the current study the Cronbach alpha coefficient for the scale of brand recall was .76. The Cronbach alpha if item BR4Recoded if deleted was .87. Therefore, a new reliability test was performed without the item BR4recoded. The new the Cronbach alpha concluded in .87. Therefore, item BR4Recoded ‘I have difficulty in imagining Waiakea in my mind’ was deleted from the scale.

# 4. Results

## 4.1 Descriptive results

The following chapter gives an overview of the descriptive results of the dependent variables by giving their mean, standard deviation, and the mean and standard deviation per condition.

Participants in this study showed a medium high level of brand attitude *(M = 2.92, SD = .54*). The distribution of brand attitude per condition is presented in table 3.

**Table 3**

*An overview of the means and standard deviations for brand attitude per condition*

| | **Streamer ad acknowledgement** | | **No streamer ad acknowledgement** | |
|---|---|---|---|---|
| | **Advertising prominence** | **No advertising prominence** | **Advertising prominence** | **No advertising prominence** |
| **Platform ad acknowledgement** | M = 3.07<br>SD = 0.45 | M = 3.02<br>SD = 0.68 | M = 3.02<br>SD = 0.60 | M = 2.90<br>SD = 0.44 |
| **No platform ad acknowledgement** | M = 2.87<br>SD = 0.59 | M = 2.96<br>SD = 0.39 | M = 2.81<br>SD = 0.67 | M = 2.77<br>SD = 0.75 |

Participants in this study did not show a have a high level of brand recognition *(M = 1.98, SD = .82*). The distribution of brand attitude per condition is presented in **table 4**.

**Table 4**

*An overview of the means and standard deviations for brand recognition per condition*

| | **Streamer ad acknowledgement** | | **No streamer ad acknowledgement** | |
|---|---|---|---|---|
| | **Advertising prominence** | **No advertising prominence** | **Advertising prominence** | **No advertising prominence** |
| **Platform ad acknowledgement** | M = 2.19<br>SD = 0.67 | M = 2.16<br>SD = 1.02 | M = 2.21<br>SD = 0.72 | M = 1.79<br>SD = 0.76 |
| **No Platform ad acknowledgement** | M = 1.89<br>SD = 0.96 | M = 1.71<br>SD = 0.37 | M = 1.71<br>SD = 0.66 | M = 2.04<br>SD = 1.03 |

Participants in this study also did not show a have a high level of purchase intention *(M = 2.25, SD = .87*). The distribution of purchase intention per condition is presented in **table 5**.

**Table 5**

*An overview of the means and standard deviations for purchase intention per condition*

| | **Streamer ad acknowledgement** | | **No streamer ad acknowledgement** | |
|---|---|---|---|---|
| | **Advertising prominence** | **No advertising prominence** | **Advertising prominence** | **No advertising prominence** |
| **Platform ad acknowledgement** | M = 2.30<br>SD = 0.92 | M = 2.36<br>SD = 1.00 | M = 2.37<br>SD = 0.79 | M = 2.11<br>SD = 0.73 |
| **No platform ad acknowledgement** | M = 2.10<br>SD = 0.78 | M = 2.39<br>SD = 0.76 | M = 2.17<br>SD = 0.87 | M = 2.18<br>SD = 1.14 |

The same applied for brand recall *(M = .23, SD = .49*). The distribution of brand recall per condition is presented in **table 6**.

**Table 6**

*An overview of the means and standard deviations for brand recall per condition*

| | **Streamer ad acknowledgement** | | **No streamer ad acknowledgement** | |
|---|---|---|---|---|
| | **Advertising prominence** | **No advertising prominence** | **Advertising prominence** | **No advertising prominence** |
| **Platform ad acknowledgement** | M = 0.53<br>SD = 0.60 | M = 0.28<br>SD = 0.63 | M = 0.24<br>SD = 0.44 | M = 0.18<br>SD = 0.48 |
| **No platform ad acknowledgement** | M = 0.40<br>SD = 0.60 | M = 0<br>SD = 0 | M = 0.11<br>SD = 0.27 | M = 0.84<br>SD = 0.35 |

**4.2 Effects on brand attitude, brand recall, brand recognition and purchase intention**

To investigate whether there is a significant effect of the independent variables on the dependent variables one-way between-subjects multivariate analysis of variance (MANOVA) was used. Preliminary assumption testing was conducted with no serious violations noted (Appendix B).

The first one-way between-subjects multivariate analysis of variance investigated H1 Platform ad acknowledgment positively affects (a) brand recall, (b) brand recognition, (c) purchase intention and (d) brand attitude. The Wilks' Lambda value shows that the variability of the dependent variables brand recall brand recognition, purchase intention, and brand attitude were not influenced by the independent variable platform acknowledgement, $F$ (4, 148) = 1.33, $p$ = .263; Wilks' Lambda = .97; *partial-η2* = .04. When the results for the

dependent variables were considered separately, none of the variables brand recall ($F$ (1, 151) = 2.8, $p$= .096), brand recognition ($F$ (1, 151) = 2.19, $p$= .141), purchase intention (($F$ (1, 151) = .37, $p$= .543) and brand attitude ($F$ (1, 151) = 2.93, $p$= .089) showed a significant effect. Therefore, H1a, 1b, 1c and 1d were rejected. This result shows that regardless of whether the streaming platform acknowledges the persuasive advertisement or not, none of the dependent variables were influenced by this. Thus, it could be stated that platforms can be very open and honest about persuasive advertisements being displayed on their platform without changing the opinion of viewers on the brand, their willingness to buy the product or their awareness of the product.

A second one-way between-subjects multivariate analysis of variance investigated Hypothesis 2 Streamer ad acknowledgement positively affects (a) brand recall, (b) brand recognition, (c) purchase intention and (d) brand attitude. The Wilks' Lambda value shows that the variability of the dependent variables brand recall, brand recognition, purchase intention and brand attitude were not influenced by the independent variable streamer acknowledgement F (4, 149) = 1.59, p = .179; Wilks' Lambda = .96; *partial-η2* = .04. When the results for the dependent variables were considered separately, none of the variables brand recognition ($F$ (1, 152) = .20, $p$= .657), purchase intention ($F$ (1, 152) = .17, $p$= .681) and brand attitude ($F$ (1, 152) = 1.07, $p$= .303) showed a significant effect. The dependent variable brand recall ($F$ (1, 152) = 4.97, $p$= .027) did show a significant effect. An inspection of the mean scores indicated that participants who heard the streamer mention the persuasive advertisement reported higher of levels of brand recall ($M$ = .33, $SD$ = .24) than participants who did not hear the streamer mention the persuasive advertisement ($M$ = .16, $SD$ = .39). However, since the MANOVA test was not significant, this positive effect could be found because as a coincidence. Therefore, hypothesis 2a was still rejected. Hypotheses 2b, 2c and 2d were also rejected. This result showed that regardless of whether the streamer

acknowledged the persuasive advertisement or not, the dependent variables brand recall, purchase intention, brand recognition and brand attitude were not influenced by this. Thus, it could be stated that a streamer can freely mention and acknowledge a persuasive advertisement without changing the opinion of viewers on the brand, their willingness to buy the product or their awareness of the product.

The third one-way between-subjects multivariate analysis of variance investigated Hypothesis 3 Advertising prominence positively affects (a) brand recall, (b) brand recognition, (c) purchase intention and (d) brand attitude. The Wilks' Lambda value shows that the variability of the dependent variables brand recall brand recognition, purchase intention, and brand attitude, were not influenced by the independent variable advertising prominence F (4, 149) = 1.49, p = .179; Wilks' Lambda = .96; *partial-η2* = .04. When the results for the dependent variables were considered separately, none of the variables brand recognition (*F* (1, 152) =.30, *p*= .582), purchase intention (*F* (1, 152) = .01 *p*= .939) and brand attitude (*F* (1, 152) = .18, *p*= .670) showed a significant effect. The dependent variable brand recall (*F* (1, 152) = 5.16, *p*= .025), did show a significant effect. An inspection of the mean scores indicated that participants that saw a prominent persuasive advertisement reported higher of levels of brand recall (*M* = .32 *SD* = .52) than participants that did not see a prominent persuasive advertisement (*M* = .14, *SD* = .44). However, since the MANOVA test was not significant, this positive effect could again have been found as a coincidence. Therefore, hypothesis 3a was still rejected. Hypotheses 3b, 3c and 3d were also rejected. So, regardless of whether the advertisement was very prominently shown in the stream, the dependent variables purchase intention, brand recognition and brand attitude were not influenced by this. Thus, it could be stated that it does not matter if a big advertisement is very prominently present, viewers' purchase intention, brand attitude, brand recall and brand

recognition stay the same.

### 4.2 Exploring the correlational effect of persuasion knowledge

To investigate the relationships between the independent variables, persuasion knowledge, and the dependent variables, Hayes' Process macro was used (Introduction to Mediation, Moderation, and Conditional Process Analysis: Third Edition: A Regression-Based Approach, 2021).

#### 4.2.1 Brand recall

The results of the analysis revealed that the effect of advertising prominence on persuasion knowledge was positively significant ($\beta = .58$, S.E.= .17, $p = .001$). This means ad big advertisement made viewers aware of the fact that the advertisement was trying to persuade them. In the beginning of sections 4.2.2, 4.2.3 and 4.2.4 this result will be discussed again as for some of analyses different values occurred. This is due to the slight difference in number of participants caused by a small portion of participants not completing the entire survey and therefore not answering all the questions regarding the dependent variables. Secondly, the analysis revealed that the effect of persuasion knowledge on brand recall was also positively significant ($\beta = .24$, S.E.= .03, $p = .000$). This result implies that when people knew that a brand was trying to persuade them, it could have increased their ability to retrieve the brand when given the product category. The analysis results that the direct effect of advertising prominence on brand recall was not significant ($\beta = .04$, S.E.= .07, $p=.518$). The indirect effect of advertising prominence on brand recall with persuasion knowledge as a mediator was also not significant with an unstandardized regression coefficient of .14 (95% confidence interval [.0506, -.2418]). The total effect was significant ($\beta = .18$, S.E.= .08, $p=.012$). Even though a positive significant total effect was found, no mediation was possible

due to no significant indirect or direct effect. Therefore **H6a** "Persuasion knowledge mediates the influence of advertising prominence on brand recall" was rejected.

The effect of streamer ad acknowledgement on persuasion knowledge was significant (β = .50, S.E.= .17, p = .024). Once more, this result will be discussed again in sections 4.2.2, 4.2.3 and 4.2.4. This suggests that when a streamer acknowledged the persuasive advertisement, viewers were aware of the fact that the advertisement was trying to persuade them. Secondly, the direct effect of streamer acknowledgement on brand recall was not significant (β = .08, S.E.=.07, p= .252). The indirect effect of streamer acknowledgement brand recall with persuasion knowledge as a mediator was significant with an unstandardized regression coefficient of .09 (95% confidence interval [. 0110, .2483]). But the total effect was not significant (β = .17, S.E.= .07, p= .252) meaning that since the direct effect was also insignificant, no mediation was possible. Therefore, **H5a** "Persuasion knowledge mediates the influence of streamer ad acknowledgement on brand recall was rejected.

The effect of platform ad acknowledgement on persuasion knowledge was significant (β = .50, S.E.= .17, p = .005). This result will also be discussed again in 4.2.2, 4.2.3 and 4.2.4. This result means that the platform warning the viewer of a big persuasive advertisement in the live stream made the viewers aware of the fact that the advertisement was trying to persuade them. Secondly, the analysis resulted that the direct effect of platform ad acknowledgement on brand recall was not significant (β = -.00, S.E.= .07, p= .999). The indirect effect of platform ad acknowledgement on brand recall with persuasion knowledge as a mediator was significant with an unstandardized regression coefficient of .12 (95% confidence interval [.0353, .2006]). The total effect not significant (β = .12, S.E.=.08, p=.122).). These results implied that even though the indirect effect was significant, the total and direct effect were not, therefore no mediation was possible. Therefore, **H4a** "Persuasion

knowledge mediates the influence of platform ad acknowledgment on brand recall" was rejected.

In conclusion, all of the independent variables had a positive effect on persuasion knowledge. This study was, among other things, aiming to evoke persuasion knowledge the independent variables and with this result, it could be concluded that was successful. The results also imply that persuasion knowledge correlate with brand recall. There were no direct effects found, supporting the results of the MANOVA TEST meaning that the platform ad acknowledgement, streamer ad acknowledgement and advertising prominence did not influence brand recall, the ability to retrieve the brand when given the product category.

### 4.2.2 Brand recognition

The results of the analysis revealed that the effect of advertising prominence on persuasion knowledge was significant ($\beta$ = .58, S.E.=.18, p = .001. Secondly, the effect of persuasion knowledge on brand recognition was also significant ($\beta$ = .28, S.E.= .06, p = .000). This result implies that when people knew that something was trying to persuade them, it could have increased their ability to confirm prior exposure to the brand, when given the brand as a cue. Thirdly, the analysis resulted that the direct effect of advertising prominence on brand recognition was not significant ($\beta$ = .05, S.E.= .13, p= .693). The indirect effect of advertising prominence on brand recognition with persuasion knowledge as a mediator was significant with an unstandardized regression coefficient of .16 (95% confidence interval [0.06, 0.30]). The total effect was not significant ($\beta$ = -.11, S.E.= .12, p= .380), meaning that since the direct effect was also not significant, even with the significant indirect effect, a mediation effect was not possible. Therefore, **H6b** "Persuasion knowledge mediates the influence of advertising prominence on brand recognition" was rejected.

The results revealed that the effect of streamer acknowledgement on persuasion knowledge was significant (β = .40, S.E.= .18, p = .024). Secondly, the direct effect of streamer acknowledgement on brand recognition was not significant (β =-.07, S.E.= .13, p= .580). The indirect effect of streamer acknowledgement on brand recognition with persuasion knowledge as a mediator was not significant with an unstandardized regression coefficient of .11 (95% confidence interval [.0158, -.2283]). The total effect was also not significant (β =-.04, S.E.=.13, p= .754). These results imply that there was no mediation effect found. Therefore, **H5b** "Persuasion knowledge mediates the influence of streamer ad acknowledgement on brand recognition was rejected.

The effect of platform ad acknowledgement on persuasion knowledge was significant (β = .50, S.E.= .17, p = .005. Secondly, the analysis resulted that the direct effect of platform ad acknowledgement on brand recognition was not significant (β = .07, S.E.= .13, p= .591). The indirect effect of platform ad acknowledgement on brand recognition with persuasion knowledge as a mediator was significant with an unstandardized regression coefficient of .13 (95% confidence interval [.0391, .2483]). The total effect was not significant (β = .20, S.E.= .13, p= .131) meaning that with a non-significant total and direct effect, no mediation was possible. Therefore, **H4b** "Persuasion knowledge mediates the influence of platform ad acknowledgment on brand recognition" was rejected.

In conclusion, the results indicate that persuasion knowledge correlate with brand recognition. There were no direct effects found, supporting the results of the MANOVA TEST meaning that the platform ad acknowledgement, streamer ad acknowledgement and advertising prominence did not influence brand recognition. There were no mediation effects found indicating that persuasion knowledge did not influence the effect of platform ad acknowledgement, streamer ad acknowledgement and advertising prominence on participants ability to confirm prior exposure to the brand, when given the brand as a cue.

### 4.2.3 Purchase intention

The effect of advertising prominence on persuasion knowledge was significant (β = .57, S.E.= .17, p = .001). Secondly, the effect of persuasion knowledge on purchase intention was also positively significant (β = .15, S.E.= .06, p = .020). This result implies that when people knew that a brand was trying to persuade them, it could have increased their willingness to buy the product. Thirdly, the analysis reported that the direct effect of advertising prominence on purchase intention was not significant (β = -.12, S.E.= .14, p= .382), The indirect effect of advertising prominence on purchase intention with persuasion knowledge as a mediator was significant with an unstandardized regression coefficient of .09 (95% confidence interval [.0095, .1955]) The total effect was not significant (β = -.04, S.E.= .1390, p= .779). This implies that there was no mediation possible as the indirect effect was significant, but the total and direct effect were not. Therefore, **H6c** "Persuasion knowledge mediates the influence of advertising prominence on purchase intention" was rejected.

The effect of streamer acknowledgement on persuasion knowledge was significant (β = .39, S.E.=.18, p = .028). Secondly, the analysis resulted that the effect of persuasion knowledge on purchase intention was significant (β = .13, S.E.= .06, p = .033). Thirdly, the analysis showed that the direct effect of streamer acknowledgement on purchase intention was not significant (β = .02, S.E.= .14, p= .897). The indirect effect of streamer acknowledgement purchase intention with persuasion knowledge as a mediator was not significant with an unstandardized regression coefficient of .05 (95% confidence interval [-.0021, .1317]). The total effect was also not significant (β = .07, S.E.= .14, p= .612). With no significant direct, indirect or total effect found, mediation was not possible. Therefore, **H5c** "Persuasion knowledge mediates the influence of streamer ad acknowledgement on purchase intention was rejected.

The effect of platform ad acknowledgement on persuasion knowledge was significant (β = .49, S.E.=.17, p = .006). Secondly, the effect of persuasion knowledge on purchase intention was also significant (β = .14, S.E.= .06, p = .032). Thirdly, the results implied that the direct effect of platform ad acknowledgement on purchase intention was not significant (β = .06, S.E.= .14, p= .679). The indirect effect of platform ad acknowledgement on purchase intention with persuasion knowledge as a mediator was significant with an unstandardized regression coefficient of .07 (95% confidence interval [.0042, .1536]). The total effect of was not significant (β = -.01, S.E.= .14, p= .945). Meaning that with no significant total or direct effects, no mediation was possible. Therefore, **H4c** "Persuasion knowledge mediates the influence of platform ad acknowledgment on purchase intention" was rejected.

In conclusion, the results indicate that persuasion knowledge correlate with purchase intention. There were no direct effects found, supporting the results of the MANOVA TEST, meaning that the platform ad acknowledgement, streamer ad acknowledgement and advertising prominence did not influence purchase intention. There were again no mediation effects found indicating that persuasion knowledge did not influence the effect of platform ad acknowledgement, streamer ad acknowledgement and advertising prominence on participants willingness to buy the product.

### 4.2.4 Brand attitude

The effect of advertising prominence on persuasion knowledge was significant (β = .56, S.E.= .18, p = .002). Secondly, the analysis showed that the effect of persuasion knowledge on brand attitude was not significant (β = .08, S.E.=.04, p = .064). This result showed that when viewers knew that something was trying to persuade them, it did not influence their overall evaluation of the brand. Thirdly, the analysis resulted that the direct effect of advertising prominence on brand attitude was not significant (β = -.00, S.E.= .09, p= .957). The indirect

effect of advertising prominence on brand attitude with persuasion knowledge as a mediator was also not significant with an unstandardized regression coefficient of .04 (95% confidence interval [.-.0084, .1104]). The total effect was not significant (β = .04, S.E.= .09, p= .669). This result indicates that there was no mediation effect found. Therefore, **H6d** "Persuasion knowledge mediates the influence of advertising prominence on brand attitude" was rejected.

The results of the analysis showed that the effect of streamer acknowledgement on persuasion knowledge was significant (β = .41, S.E.= .18, p = .022). Secondly, the analysis resulted that the effect of persuasion knowledge on brand attitude not significant (β = .07, S.E.= .04, p = .081). Thirdly, the analysis showed that the direct effect of streamer acknowledgement on brand attitude was not significant (β = .09, S.E.= .09, p= .304). The indirect effect of streamer acknowledgement brand attitude with persuasion knowledge as a mediator was also not significant with an unstandardized regression coefficient of .03 (95% confidence interval [-.0039, ,0790]). The total effect was not significant (β = .06, S.E.= .09, p= .486). This result indicates that there was no mediation effect possible, meaning that if viewers are aware of the persuasive advertisement, the streamer mentioning the advertisement does not influence their overall evaluation of the brand. Therefore, **H5d** "Persuasion knowledge mediates the influence of streamer ad acknowledgement on brand attitude was rejected.

The results of the analysis showed that the effect of platform ad acknowledgement on persuasion knowledge was significant (β = .49, S.E.= .18, p = .006). Secondly, the analysis resulted that the effect of persuasion knowledge on brand attitude was not significant (β = .06, S.E.= .04, p = .124). Thirdly, the analysis showed that the direct effect of platform ad acknowledgement on brand attitude was not significant (β = .12, S.E.= .09, p= .182). The indirect effect of platform ad acknowledgement on brand attitude with persuasion knowledge as a mediator was also not significant with an unstandardized regression coefficient of .03

(95% confidence interval [-.0086, .0745]). The total effect was not significant (β = -.15, S.E.= .09, p=.089). Therefore, **H4d** "Persuasion knowledge mediates the influence of platform ad acknowledgment on brand attitude" was rejected.

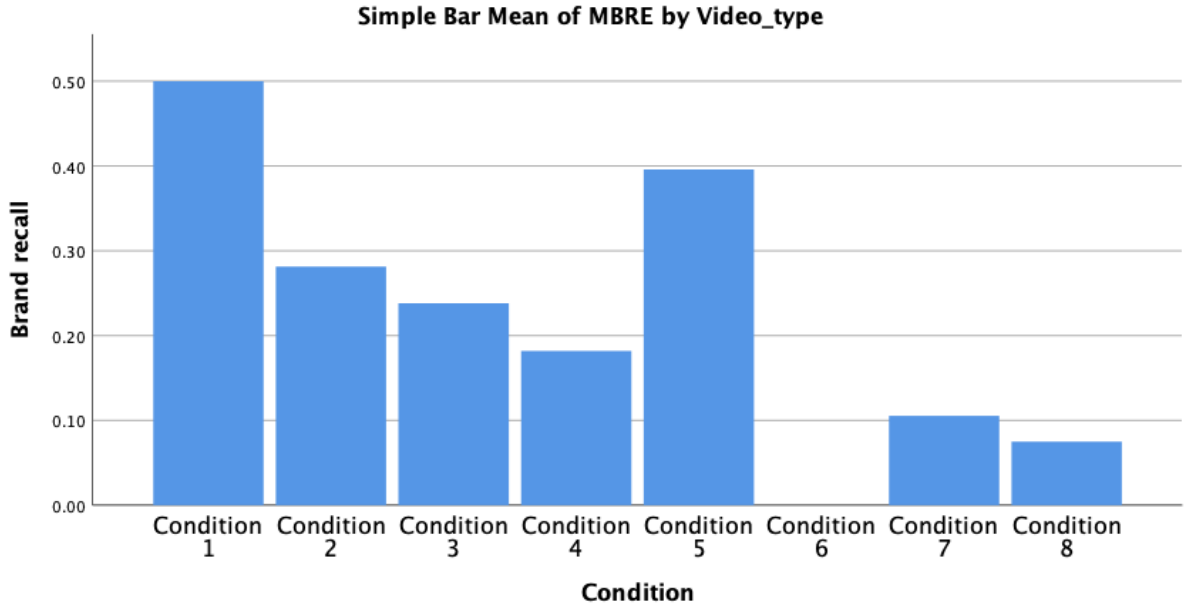
In conclusion, the results indicate that persuasion knowledge does not correlate with brand attitude. There were no direct effects found, supporting the results of the MANOVA TEST, meaning that the platform ad acknowledgement, streamer ad acknowledgement and advertising prominence did not influence brand attitude. There were again no mediation effects found indicating that persuasion knowledge did not influence the effect of platform ad acknowledgement, streamer ad acknowledgement and advertising prominence on participants overall evaluation of the brand.

### 4.3 Interaction effect

To examine the sub-question of this research "Does the interaction between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence influence the advertising effects?" a three-way MANOVA test was performed. There was no significant interaction effect found between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence on the combined dependent variables (F(28, 513) = 1.18, *p* = .240; Wilks' Lambda = .798). This result indicated that there was no combined effect of between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence on brand recall, brand recognition, purchase intention and brand attitude. However, when the results for the dependent variables were considered separately brand recall did show a significant effect (*F* (7, 145) = .2.72, *p*= .011). An inspection of the means of brand recall for each condition revealed that participants that saw condition 1 scored the highest (Figure 3) on brand recall. This result supports the findings of the significant positive interaction effect found for brand recall, as condition 1 consisted of all three independent

variables. However, since the three-way MANOVA test was not significant, the sub-question could not be answered with yes. Since the three-way MANOVA was not significant there is not enough evidence to prove that the interaction effect for brand recall is coincidence. Therefore, the answer to the sub-question: “Does the interaction between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence influence the advertising effects?” is no, it does not. This result implies that even when a participant saw a big advertisement, heard a streamer mention the advertisement and was alerted by the platform about the advertisement, it did not have an influence on their brand recall, brand recognition, purchase intention or brand attitude.

**Figure 3**
*Inspection of the means of brand recall for each condition*




### 4.4 Overview of results of tested hypotheses

After the tests were conducted give an overview of all of the results from the tested hypothesis was created (see table 7).

**Table 7**
*Overview of the tested hypotheses*

| Hypothesis | Result |
|---|---|

| | | | |
|---|---|---|---|
| H1 | | *Platform ad acknowledgment positively affects* | |
| | a | brand recall | Rejected |
| | b | brand recognition | Rejected |
| | c | purchase intention | Rejected |
| | d | brand attitude | Rejected |
| H2 | | *Streamer ad acknowledgement positively affects* | |
| | a | brand recall | Rejected |
| | b | brand recognition | Rejected |
| | c | purchase intention | Rejected |
| | d | brand attitude | Rejected |
| H3 | | *Advertising prominence positively affects* | |
| | a | brand recall | Rejected |
| | b | brand recognition | Rejected |
| | c | purchase intention | Rejected |
| | d | brand attitude | Rejected |
| H4 | | *Persuasion knowledge mediates the influence of platform ad acknowledgment on* | |
| | a | brand recall | Rejected |
| | b | brand recognition | Rejected |
| | c | purchase intention | Rejected |
| | d | brand attitude | Rejected |
| H5 | | *Persuasion knowledge mediates the influence of streamer ad acknowledgement on* | |
| | a | brand recall | Rejected |
| | b | brand recognition | Rejected |
| | c | purchase intention | Rejected |
| | d | brand attitude | Rejected |
| H6 | | *Persuasion knowledge mediates the influence of advertising prominence on* | |
| | a | brand recall | Rejected |
| | b | brand recognition | Rejected |
| | c | purchase intention | Rejected |
| | d | brand attitude | Rejected |
| Sub-question | | Does the interaction between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence also influence the advertising effects? | No |

# 5. Discussion

## 5.1 Discussion of results

This study was aiming to explore the advertising effects of persuasion knowledge on in-game advertising for stream viewers. Even though none of the hypotheses were accepted, the results did give a clear indication of what the impact is of the three different persuasive

advertising methods used in online streams and the role of persuasion knowledge. These insights will now be discussed.

### 5.1.1 The effects of platform ad acknowledgement, advertising prominence and streaming ad acknowledgement

The MANOVA tests and the direct effect results revealed that there was no significant effect found for the independent variables platform ad acknowledgement, advertising prominence and streaming ad acknowledgement on the dependent variables brand recall, brand recognition, purchase intention and brand attitude. This means that none of the advertisements. None of the ways in which the advertisement was presented led to respondents having a more positive attitude towards or greater intention to purchase Waiakea. This means that none of the independent variables made the dependent variables go up or go down. Therefore, it could be stated that participants' brand recall, brand recognition, purchase intention and brand attitude stayed the same after seeing a big advertisement, a streamer mentioning the advertisement or being warned via the platform about the advertisement. However, when the results for the dependent variables were considered separately two significant effects were found. A positive significant effect of streamer ad acknowledgement on brand recall and a positive significant effect of advertising prominence on brand recall. These results suggest that when participants heard the streamer acknowledging the advertisement or saw a big advertisement in the beginning of the stream, their ability to retrieve the brand when given the product category, went up. However, since there were no effects found in the MANOVA tests, there is not enough evidence to prove that there is indeed a positive significant relationship between these variables. This could indicate that the significance found in this test is a coincidence. This may be related to and explained by the

relatively low number of participants. Therefore, even though there was a significant value found, the hypotheses H2a and H3a were still rejected.

### 5.1.2 The relationship between platform ad acknowledgement, advertising prominence, streaming ad acknowledgement and persuasion knowledge

This study intended to evoke persuasion knowledge among the participants through the independent variables: platform ad acknowledgement, advertising prominence and streaming ad acknowledgement. The results of the Hayes' Process macro test revealed that there was a positive significant effect between all the independent variables: platform ad acknowledgement, advertising prominence and streaming ad acknowledgement among the participants. So, when participants heard the streamer mention the advertisement, saw the warning about the advertisement or saw a big advertisement on the screen, their persuasion knowledge went up. It could be stated that in this research a causal relationship between the independent variables and persuasion knowledge was found. Therefore, it could be concluded that persuasion knowledge was evoked by the independent variables.

### 5.1.3 The correlation between persuasion knowledge and brand recall, brand recognition and purchase intention

The results of the Hayes' Process macro test revealed that there was a significant effect of persuasion knowledge on brand recall, brand recognition and purchase intention. Suggesting that when participants knew about the persuasive advertising attempt, their ability to retrieve the brand when given the product category, confirm prior exposure to the brand when given the brand as a cue and their willingness to buy the product, increased. These results would suggest that marketers should make viewers aware of their persuasive advertising attempt as it would increase viewers' brand awareness and makes viewers more

willing to buy the advertised product. But this study does not have enough evidence to prove that statement. There was indeed a positive significant effect found, however there could have been other factors influencing the dependent variables. This means that there was a correlation between persuasion knowledge and the dependent variables but there is not enough proof to state that persuasion knowledge alone had a direct positive effect on the dependent variables and made them go up. Other factors could have also played a role in this. A factor other than persuasion knowledge that could have led to an increase of brand recall, brand recognition and purchase intention could have been the advertisement in game itself. This advertisement was edited in the gameplay itself, right next to the goals and was implemented in all the video's so all of the participants could have seen this ad. This extra exposure to Waiakea could have led to higher of brand recall, brand recognition and purchase intention as they were exposed to the ad repeatedly. Another factor that could have led to the positive effect on those advertising effects is the attractiveness of the advertisement. As one advertisement was bright blue and the other advertisement was also bright blue with flowers, participants could have perceived the advertisement as very attractive. Previous studies have found a positive effect of advertising attractiveness on purchase intention (Arief et al., 2023). This means that when people find advertisements very attractive, their willingness to buy a product increases. A third factor regarding the increase of those three-advertising effect could be related to participants knowing that they are participating in a study regarding advertising in live streaming. This could have made them more aware of the advertisements or even made them look for them. This study did not find a significant effect between persuasion knowledge and brand attitude. This result means that if viewers were aware of the persuasive advertising attempt, it did not influence their attitude towards the brand.

### 5.1.4 Exploring mediated correlations

Additionally, the results of the Hayes' Process macro test revealed that there was a positive indirect effect for streamer ad acknowledgement on brand recall, mediated by persuasion knowledge. A positive indirect effect for platform ad acknowledgement on brand recall, brand recognition and purchase intention, mediated persuasion knowledge. And a positive indirect effect for advertising prominence on brand recognition and purchase intention, mediated persuasion knowledge. These results suggest that persuasion knowledge mediated the effect of the independent variables on the above-mentioned dependent variables. However, since the direct effects and total effects were found to be not significant this could only be interpreted as a correlational relationship between persuasion knowledge and the dependent variables. A mediation effect could not be proven in this study as there was no evidence of a causal relationship. This implies that although some indirect effects were found, it cannot be concluded that if there was an effect of the independent variables on the dependent variables it was higher or lower when persuasion knowledge was evoked. The indirect effects found in this study could also have been significant because of other factors that could have had an influence on the dependent variables. Like i.e., the effect of the advertisement in the gameplay, the attractiveness of the advertisement or the awareness of participating in a marketing related study, as discussed in 5.1.2.

### 5.1.5 Sub-question

This study predicted that the independent variables not only had individual effects but also amplified each other. The sub-question of this study "Does the interaction between platform ad acknowledgment, streamer ad acknowledgement and advertising prominence also influence the advertising effects?" was however answered with no. The reason of not having an interaction effect between the independent variables on the dependent variables could be

related to the low numbers of participants in this study. There were not enough participants in this study to reliably investigate this and draw a conclusion. There was however an interaction effect found for brand recall. Yet, this effect could not be fully supported by this study because the three-way MANOVA test did not find any effect.

### 5.2 Theoretical implementations and practical implications

According to the Persuasion Knowledge Model, persuasion knowledge can awaken negative coping responses on a person's attitude towards a brand and their willingness to buy the advertised product (Williams, 2002; see also Friestad & Wright, 1994). Nelson (2002) suggests that persuasive advertising in games does not necessarily have to lead to reactance towards the brand or advertisement as when players are so into a game they will forget about the advertisement. This study concludes that even though participants knew a brand was trying to persuade them it did not influence their attitude, purchase intention or brand awareness towards that brand. With this result, it could be stated that streamers and brands can be open and honest about the use of persuasive advertising in a livestream. Suggesting that using persuasive advertisements in streams does not awaken the negative coping responses that Friestad & Wright (1994) describe. This can be supported by the study of Fransen et al. (2015b) which stated that a motive why people experience reactance towards a brand after knowing about the persuasive attempt is because of their concerns of deception. People do not want to be misled. So, a reactance strategy can be to contest the brand on their credibility and trustworthiness. To overcome this a brand needs to be transparent about their persuasive strategies. This is supported by the study of Fransen et al. (2015) which suggests that the most important strategy to overcome negative responses formed towards a brand because of persuasion knowledge, is building trust with the consumer by being transparent about the persuasive attempt. This can be confirmed by the findings of Eisend & Tarrahi

(2021) who state that being transparent makes people less distrusting about a brand and makes viewers feel that they can have their own opinions and freedom of choice. Which is valuable since Fransen et al. (2015b) describe that people experience more reactance towards an advertisement when knowing about the persuasive attempt when they feel like their freedom is threatened. In conclusion, this study suggests that future marketers and live streamers should be honest and transparent about the persuasive advertisement that is included in a live stream as it does not influence viewers' overall evaluation of the brand and could potentially create trust towards the brand and streamer. Increasing trust can help overcome or even prevent negative coping responses towards persuasion knowledge (Kirmani, Amna & Campbell, Meg. 2009).

The study of Van Reijmersdal et al. (2012) states that the more prominent the advertisement is being displayed the higher the brand recall and brand recognition is. As stated before, this study did not find enough evidence to prove that statement. However, because there was no evidence found of an effect of advertising prominence on brand recall, brand recognition, purchase intention or brand attitude, it could be stated that advertising in a live stream does not have a negative influence on stream viewers. This means that brands can safely advertise in a live stream without fearing negative consequences. In line with these results is the relationship between streamer ad acknowledgement and the advertising effects, where also no effect was found. It can be argued that advertising in a live stream and making the live streamer mention the brand and or advertisement does not have any negative consequences for the brand. These results can be used by live streamers to argue why brands should work with them, by means of a brand deal, i.e., by placing advertisements in the live stream or making the live streamer mention the brand. This can help live streamers retain and obtain sponsorship deals. This result is also useful for brands that are often mentioned accidentally or spontaneously in live streams, like car brands in racing games for example.

Those brands do not need to worry about the possible negative consequences of the placement in the game, as this study found none.

This study found that when a live stream platform warns viewers about a persuasive advertisement displayed in the live stream, it does not influence viewers' brand recall, brand recognition, purchase intention or brand attitude. These results could be very interesting for live stream platforms themselves as this indicates that if they are transparent about persuasive advertising on their platform, there are no consequences towards the advertising effects for the advertised brand. Being open and transparent about the persuasive advertisement in the live stream can create trust with the viewers and is needed to improve or strengthen viewers' positive feelings about the brand and or platform. These positive feelings can in time lead to higher purchase intention (Dai & Cui, 2022). This study found that only a small percentage of the participants thought that Twitch wanted the best for its users (22.8%). This result may resemble a slight hint of distrust among the participants towards Twitch. This is more reason to state that streaming platforms like Twitch need to be transparent about persuasive advertising on their platform. This transparency can also be validated towards brands that want to advertise on these streaming platforms as this study found that this does not lead to any negative effects on viewers' brand attitude. In conclusion, this study suggests that acknowledging a persuasive advertisement in a live stream does not impact the viewers' opinion about a brand and therefore is a good way of informing the viewers that a persuasive advertisement is being used on this platform, which can create trust with the viewers.

## 5.3 Future research directions and limitations

### 5.3.1 Future research directions

Even though there were some significant effects found, this study did not have enough evidence to prove that there was indeed a significant effect of streamer ad acknowledgement and advertising prominence on brand recall. Keller (1993) mentioned that brand awareness,

brand recall and brand recognition, is also influenced by affection and emotion. The advertised brand in this study, Waiakea, was specifically chosen for their predicted unfamiliarity with the participants. Therefore, it was very likely that participants did not feel very much affection and emotion with Waiakea. It could be interesting for future researchers to study whether a brand that awakens affection and emotion does have an influence on brand awareness.

This study focused on the effect of advertising prominence, streamer ad acknowledgement and platform ad acknowledgement on advertising effects on a brand. As this study solely focused on the effects on a brand it might be interesting to research what the effects are on the streamer. This study found that 31.0% really liked the streamer in this study. It could be interesting to know whether these variables influence viewers' attitudes towards the streamer and if the awareness of the streamer gets influenced.

Hussain et al. (2022) and Yuwen Shiu et al., (2023) previously concluded that an increase of purchase intention in in-game advertising can only be significant if the interaction level is high. This statement could explain why purchase intention in this study did not increase after watching the video. It can be argued that purchase intention did not increase because of the low levels of interaction the stream may have had with the viewer given that the viewers did not play the game themselves which already decreases the level of interaction with the game. It could be interesting to research whether a more interactive stream would lead to an increase of purchase intention.

As discussed before there was no combined interaction effect found for platform ad acknowledgement, streamer ad acknowledgement and advertising prominence on the advertising effects. However, there was an interaction effect found for brand recall. Although this study could not prove this effect, it could be interesting for future researchers to explore this interaction effect. As there were also two effects found for brand recall on advertising

prominence and streamer ad acknowledgement, but these effects could also not be proven. Future researchers should explore the role of brand recall for brand advertising in online streams, with a larger sample size than was used in this study.

For future researchers, it could be interesting to explore the exact reason why seeing an advertisement in an online stream, does not directly have an impact on the advertising effects. Exploring whether this has something to do with the focus on the stream or game in the stream or the normality of seeing an advertisement in a game like it is in EA FC Sports 24, could provide valuable insights and help marketers and researchers better understand their target audience. As stated at the beginning of this paper van Nelson (2002) found that people can be so into a game that they do not see or remember the advertisement in the game and because the people playing the game were not focused on the advertisement, they did not create any resistance against the advertisement and or brand. It would be interesting to research if the same applies to adults who watch streams and do not play the game themselves.

Future researchers could also examine the effect of the livestream platform itself. In this study the platform Twitch was used because of its famousness. The results of this study found a slight hint of distrust among the participants towards Twitch. It could be interesting to investigate whether the platform ad acknowledgement, streamer ad acknowledgement and advertising prominence does lead to advertising effects on other streaming platforms like YouTube.

### 5.3.2 Limitations

This study experienced some limitations. Firstly, the manipulation check scale was not optimal and could have been more extensive in order to make sure that the manipulation was actually seen and observed by the participants. For this study, a new scale with a reward

system was used where participants could earn points if they answered the questions correctly. In this case ‘correctly’ was if they answered that they had seen an advertisement, selected the right advertisement that was presented to them and selected that they had seen an advertisement in the game itself. This scale was used as in time it seemed to be a good scale to use. However, only after data collection another, better scale was found by Friestad and Wright (1994). Using this scale could have contributed to a more reliable and stable scale. Especially since this scale is already often used in studies and is a confirmed good and reliable scale to use.

The second limitation is about the control questions. Initially, the control questions in this study were set up to be five different scales that should measure streamer, online streams, video experience, Twitch, EA Sports FC 24. After conducting the results, a factor analysis was performed in order to make sure the scales were reliable and valid. The factor analysis however concluded that almost none of the preconceived scales had good coherence and the items did not belong together in the way that was ideal for this study. However, the control questions did give a good overview of what prior knowledge the participants had with regard to online streams, video experience, Twitch, EA FC Sports 24. These questions therefore gave a good indication of who the participants in this study were and what their knowledge and affiliation with the subject of this study was. It is suggested that future researchers use more reliable scales for their control questions so that these could help them research their results more in-depth.

This study mostly used textual, even verbal, based advertisements. Only the advertisement used for advertising prominence had visual content (in this case the water bottle itself). Generally, people will pay more and longer attention to textual-based advertisements because it takes longer to encode these advertisements than to encode visuals e.g., pictures (Rayner et al., 2001, as cited in Boerman et al., 2011). However, this does not mean that

textual-based advertisements attract more attention. Other studies like Myers & Sar (2013) claim that visual advertisements have dominant effects over textual advertisements. It can be interesting for future researchers to explore whether using more visual-based advertisements in a study environment similar to this study has an influence on the advertising effects.

This study did not obtain the desired number of 240 participants (20 participants multiplied by 8 conditions) but obtained 158 participants. This could have contributed to the fact that there were no significant results found for all of the hypotheses and the sub-question. A larger number of participants could have maybe led to some significant results and would have ensured that there was enough statistical power to accurately research the effects. Especially the answer to the sub-question in this research should be interpreted with the lower number of participants in mind. A positive note to this limitation is that the conditions were almost evenly filled, not only in numbers but also in gender.

Because this study contained three different independent variables and therefore a lot of different conditions, which all needed to be examined by a large group of participants, it could be stated that it might be better to study these variables in isolation. The specific focus on only one dependent variable could result in more detailed information on what that variable does to the dependent variables. This would also reduce time and allow the researcher to inspect the relationship between the variables more precisely.

## 6. Conclusion

This study explored the effects of streamer ad acknowledgement, platform ad acknowledgement and advertising prominence on brand recall, brand recognition, purchase intention and brand attitude in in-game advertising for stream viewers. An aim of this study was trying to establish a correlation between persuasion knowledge and the manipulated variables. Even though none of the hypotheses could be accepted, this study still gives valuable recommendations to future marketers, brands, live streamers, and e-sporters regarding the impact of streamer ad acknowledgement, platform ad acknowledgement and advertising prominence. This study suggests that being open and transparent about persuasive marketing attempts in a live stream can help build trust towards the brand and overcome or avoid negative coping responses towards persuasion knowledge. Even though this study had some limitations that need to be taken into account persuasion knowledge in this study did not have an effect on brand recall, brand recognition, purchase intention or brand attitude and to the knowledge of this study can therefore be evoked in online streams without any issue. These results can help marketers with their decision-making regarding using a persuasive advertisement in an online stream, may provide live stream platforms with insights into potential ways to improve their trustworthiness without affecting brands' advertising on their platform, while also offering live streamers and e-sporters arguments that could help persuade brands to advertise in their stream. Future researchers need to explore other factors that can influence advertising effects in live streams like the streamer, the appearance of the ad or the platform itself.

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**Appendix**
**Appendix A: Qualtrics survey**

**Master Thesis Anna van Eijk**

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**Start of Block: Informed consent**

Thank you Thank you for participating in this study. Before you decide to participate, it is important that you understand the purpose of the study and what your involvement will entail. *Please read the following information.*

The aim of this study is to research the advertising effects of persuasion knowledge in in-game advertisements presented in an online Twitch stream. The results of this study can help marketers improve and adjust their marketing techniques which can result in an increase of their sales.

When you continue with this survey you will be asked to watch a short video and after that you will be asked to answer multiple questions regarding the video you have watched among other questions about your (little or much) experience with FIFA 22 and live streams. Completing the survey will take approximately 10 minutes.

By accepting the **informed consent**, you indicate that you have read and understood the information provided in the consent form below, that you are **at least 18 years old**, and that you voluntarily agree to the terms and conditions and participate in this study: The survey is completely anonymous and participating is voluntarily. You have a right withdraw from the study at any time without any implications, your data can always be deleted. The collected data will be kept confidential and non-transcribed data will be deleted, if applicable. There are no direct benefits for participants in this study. Your data will only be used for inferential analyses and cannot say anything about you, individually.
For any questions regarding the study or survey please feel free to contact:
**masterthesisquestions@gmail.com**

Again thank you in advance for participating in this study!

○ I consent (1)

○ I do not consent (2)

**End of Block: Informed consent**

---

**Start of Block: Demographics**

Age What is your age in number of years?

_____

Gender What gender do you identify as?

- ○ Female (2)
- ○ Male (3)
- ○ Other, please specify (4) _____
- ○ Prefer not to say (5)

---

Language What is your native language?

- ○ Dutch (1)
- ○ English (2)
- ○ German (3)
- ○ Spanish (4)
- ○ Other, please specify (5) _____

**End of Block: Demographics**

---

**Start of Block: Twitch live stream**

Q4.1 In the following video you will see a live stream on Twitch of the video game FIFA 24. Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

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Q4.2 In the following video you will see a live stream on Twitch of the video game FIFA 24. Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

---

Q4.3 In the following video you will see a live stream on Twitch of the video game FIFA 24.
Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

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Q4.4 In the following video you will see a live stream on Twitch of the video game FIFA 24.
Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

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Q4.5 In the following video you will see a live stream on Twitch of the video game FIFA 24.
Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

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Q4.6 In the following video you will see a live stream on Twitch of the video game FIFA 24.
Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

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Q4.7 In the following video you will see a live stream on Twitch of the video game FIFA 24.
Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

---

Q4.8 In the following video you will see a live stream on Twitch of the video game FIFA 24.
Please make sure to watch the whole video.

When you are finished watching the video, click on the arrow below to continue.

---

Q5 Did you finish watching the entire video?

○ Yes, I have watched the entire video. (1)

**End of Block: Twitch live stream**

---

**Start of Block: Brand Recall**

Q6 The next couple of questions are about what you have seen in the video.

Can you please name three mineral water brands that you can think of right now. If you cannot think of three, fill in as many as you can.

_____

_____

_____

_____

_____

---

Page Break

Q7 There was a water brand mentioned in the video that you have just watched. What brand was mentioned, or did you see in the video?

○ Write down your answer here. (1)

_____

○ I did not see a brand. (2)

**End of Block: Brand Recall**

---

**Start of Block: Brand recognition**

Q8 Can you please indicate you opinion about the following statements?

| | Strongly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| I am aware of the brand Waiakea (1) | ○ | ○ | ○ | ○ | ○ |
| Some characteristics of Waiakea come to my mind quickly (2) | ○ | ○ | ○ | ○ | ○ |
| I can quickly recall the symbol or logo of Waiakea (3) | ○ | ○ | ○ | ○ | ○ |
| I have difficulty in imagining Waiakea in my mind (4) | ○ | ○ | ○ | ○ | ○ |
| I can recognize Waiakea among other competing brands (5) | ○ | ○ | ○ | ○ | ○ |

**End of Block: Brand recognition**

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**Start of Block: Purchase intention**

Q9 Can you please indicate you opinion about the following statements?

| | Stronly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| The next time I have a choice between water brands I will choose Waiakea over other brands. (1) | ○ | ○ | ○ | ○ | ○ |
| I am interested in trying products from the Waiakea brand (2) | ○ | ○ | ○ | ○ | ○ |
| I will buy Waiakea in the future (6) | ○ | ○ | ○ | ○ | ○ |
| I want to buy Waiakea (8) | ○ | ○ | ○ | ○ | ○ |

**End of Block: Purchase intention**

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**Start of Block: Brand attitude**

Q10 Can you please indicate you opinion about the following statements?

| | Stronly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| Waiakea looks appealing (1) | ○ | ○ | ○ | ○ | ○ |
| Waiakea is a good brand (2) | ○ | ○ | ○ | ○ | ○ |
| Waiakea is a pleasant brand (3) | ○ | ○ | ○ | ○ | ○ |
| Waiakea is a favorable brand (4) | ○ | ○ | ○ | ○ | ○ |
| Waiakea is a likeable brand (5) | ○ | ○ | ○ | ○ | ○ |

**End of Block: Brand attitude**

---

**Start of Block: Persuasion knowledge manipulation check**

Q11 Did you see an advertisement for Waiakea in the video you just watched?

○ Yes, I saw an advertisement for Waiakea in the video (1)

○ No, I did not see an advertisement for Waiakea in the video (2)

Q12 Where or how did you notice an advertisement in the video you have just watched?
If applicable, multiple answers are possible

- ☐ Via the warning about a advertisement (1)
- ☐ Because a big advertisement appeared on screen at the beginning of the live stream video (2)
- ☐ Because the streamer mentioned the advertisements (3)
- ☐ Because I saw the advertisement in the game (4)
- ☐ I was not aware of the advertisement (5)

**End of Block: Persuasion knowledge manipulation check**

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**Start of Block: Streamer**

Q13 Can you please indicate you opinion about the following statements?

| | Strongly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| I liked the streamer that was presented to me in the video (1) | ○ | ○ | ○ | ○ | ○ |
| I think the streamer in the video was paid to advertise a brand (2) | ○ | ○ | ○ | ○ | ○ |
| I trust the information the streamer has provided me with (3) | ○ | ○ | ○ | ○ | ○ |
| Watching this streamer's live stream is a pleasant way to use my leisure time (4) | ○ | ○ | ○ | ○ | ○ |
| The streamer said/did something I disliked (5) | ○ | ○ | ○ | ○ | ○ |

**End of Block: Streamer**

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**Start of Block: Twitch, affective appraisal and platform trust**

Q15 Can you please indicate you opinion about the following statements?

| | Strongly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| I have watched an online stream before (1) | ○ | ○ | ○ | ○ | ○ |
| I have watched an online stream before on Twitch (2) | ○ | ○ | ○ | ○ | ○ |
| I have watched an online stream on a platform other than Twitch before (3) | ○ | ○ | ○ | ○ | ○ |
| I regularly watch streams (4) | ○ | ○ | ○ | ○ | ○ |

Q16 Can you please indicate how your overall experience with the video you just watched was?

| | Strongly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| Happy (1) | ○ | ○ | ○ | ○ | ○ |
| Relaxed (3) | ○ | ○ | ○ | ○ | ○ |
| Likable (4) | ○ | ○ | ○ | ○ | ○ |
| Satisfactory (5) | ○ | ○ | ○ | ○ | ○ |

Q17 Can you please indicate you opinion about the following statements?

| | Strongly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| I knew the platform Twitch before I participated in this study (1) | ○ | ○ | ○ | ○ | ○ |
| As a platform twitch wants the best for its users (2) | ○ | ○ | ○ | ○ | ○ |
| As a platform Twitch is just looking to make a profit (3) | ○ | ○ | ○ | ○ | ○ |
| Twitch is platform that wants to influence viewers (6) | ○ | ○ | ○ | ○ | ○ |

**End of Block: Twitch, affective appraisal and platform trust**

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**Start of Block: FIFA 24**

Q18 Can you please indicate you opinion about the following statements?

| | Strongly disagree (1) | Disagree (2) | Neither agree nor disagree (3) | Agree (4) | Strongly agree (5) |
|---|---|---|---|---|---|
| I have played FIFA 24 and others in the Fifa series before (1) | ○ | ○ | ○ | ○ | ○ |
| I hate it when FIFA 24 is mentioned somewhere (2) | ○ | ○ | ○ | ○ | ○ |
| FIFA 24 is one of my favorite games (3) | ○ | ○ | ○ | ○ | ○ |

**End of Block: FIFA 24**

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**Appendix B** *Mahalanobis Distance, applications and interpretations*:

For advertising prominence, the maximum value for Mahalanobis distance (15.29) was less than the critical value (18.47). Therefore, it can be assumed that there were not substantial multivariate outliers. For streamer acknowledgement the maximum value for Mahalanobis distance (15.29) was less than the critical value (18.47). Therefore, it can be assumed that there were not substantial multivariate outliers. For platform acknowledgement the maximum value for Mahalanobis distance (15.27) was less than the critical value (18.47). Therefore, it can be assumed that there were not substantial multivariate outliers. For no condtion the maximum value for Mahalanobis distance (15.29) was less than the critical value (18.47). Therefore, it can be assumed that there were not substantial multivariate outliers.

## **Appendix C** *Script for live stream, used by the live streamer*

**Script for all eight conditions. Master thesis Anna van Eijk**
**Twitch live stream playing FIFA 22.**

[The whole video/Twitch stream a pop-up mentioning the advertisement in the gameplay is presented]

Hey everyone. Welcome to my stream. Thank you for joining in! Good to see you guys again, hope you have been doing great. Today I'm in the mood for a good round of FIFA, 22 are you in? We're going to start up the game right away and go.

[Whilst starting up the game a big advertisement will fill the screen]

Streamer: Alright, let's jump right into it. I really like the way I set up my team. Such good players. Wow it's straight off a very good match guys. See this other guy, he is… good! Can we win this do you think? Let's see.

[little silence, focuses on the game]

Streamer: Check out these smooth moves! We're dribbling, passing, and aiming for that goal! Oh, the adrenaline rush is real, my friends.

Streamer: Oh almost, I'm getting close to a goal now… Wow go go go go… Are you guys enjoying it as much as I do? Let's move to the right a little bit and and and GOAL!!

[Scores a goal]

Streamer: what a goal!!!! Wow that was awesome! That's what we've been waiting for! Wow. Straight into the corner next to the add. [Streamer add acknowledgement]

Streamer: Hey, shoutout to everyone in the chat! Keep those cheers and words of encouragement coming. We're in this together, aiming for that championship title!

Streamer: Can we try to score another goal? Yeah, we can… Oh but this other guy is good. Very good even. Are you guys this good in FIFA? Let me know in the chat!

[little silence, focuses on the game]

Streamer: oh no, the game is almost done… I want to score another goal but can i? Don't think so… Oh no don't let him score… just a few seconds anddddd YES! I have won! Wow finally a clean win. It got a little bit closer than I liked to admit but still, very nice. Did you guys like it?

[Finish the stream]
Streamer: Well, unfortunately that's it for today's stream guys! Thank you very much for watching hope you liked it, subscribe if you want to and give me some love in the chat! Hope to see you next time!

Green: Platform add acknowledgment
Purple: Advertising prominence
Orange: Streamer add acknowledgement

**Appendix D** *Pre-test results*

For the pre-test the video's containing conditions one, two, three and five were presented to a participant. As not all conditions needed to be tested the video's including only one or no condition(s) were not presented to pre-test participants. This way every condition was tested twice in total.
The survey was tested by ten different participants.

**Participant 1**
**Video condition 1**:
- Watching the video, the participant noticed that the gameplay sound and video were not equal, and a delay of 4 seconds was noted.
- The participant suggested making the streamer a bit smaller and cropping the arms in the video. He noted that that would make the video nicer.

**Survey**:
- The participant had nothing to note on the survey. He could fill in all the questions and did not encounter any struggles.

**Participant 2**
**Video condition 2:**
- The participant did not have any struggles with watching the video. She did however note that the sound of the gameplay was a bit late. So, when the referee in the gameplay whistled the sound of the whistle was later.

**Survey**:
- The participant said that reading the informed consent at the start of the survey was very long. She implied that a lot of people would probably just scroll down and click accept without reading it. Also, she implied that it would maybe scare of some participants.

After hearing the comments from participants one and two about the sound delay in the gameplay the video's/conditions were adjusted. The following pre-test participants where new versions of the videos were the sound of the gameplay was in sync with the video.

**Participant 3**
**Video condition 3:**
- The participant did not encounter any struggles watching the video and even commented that the video was nice to watch and that she did not feel like the video was as long as it was.

**Survey:**
- The participant did not have any struggle filling out the survey and did not have any questions.

**Participant 4**
**Video condition 5:**
- The did not encounter any problems watching the video.

**Survey:**
- The participant did not have any questions about the survey.

**Participant 5**
**Survey:**
- The participant did not have any questions and did not encounter any difficulties when filling out the survey.

**Participant 6**
**Survey:**
- The participant noted that filling out Q15 was a bit hard to answer with the answer options in his opinion. Because the questions are according to him more yes and no questions instead of Strongly disagree, disagree, neither agree or disagree, agree, strongly agree. In his opinion only the last statement could be answered like that instead of yes and no.

**Participant 7**
**Survey:**
- The participant found the informed consent very long. He said that if he was not participating in a pre-test but was participating in the real test and was just filling out the survey, he would probably not read it.
- The participant could not think of any water brands and did not at first see the message 'If you cannot think of three, fill in as many as you can.' Therefore, he was thinking very hard about the question until the researcher reminded him that he did not have to fill in three.

**Participant 8**
**Survey:**
- The participant did not have any questions and did not encounter any difficulties when filling out the survey.

**Participant 9**
**Survey:**
- The participant was of the opinion that Q15 was a bit hard as she thinks it could not be answered in this scale. The questions are more yes or no answers questions according to her.

**Participant 10**
- The participant did not have any questions and did not encounter any difficulties when filling out the survey.

An important note is that none of the participants that tested the videos with the conditions noticed the time change of the gameplay in the middle of the video. This is very positive as this means that the cut in the video did not influence the viewers opinion on whether this was a real live-stream or not.