WHAT TRIGGERS CHILDREN TO PLAY VOLLEYBALL?

A research into the underlying factors influencing the intention to actively play volleyball with engagement levels in marketing communication tools as a key role.

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Abstract

Recently sport associations battle with losing memberships, especially among children, and would like to know how they can attract children toward their sport. In collaboration with the Nevobo (Dutch Volleyball Association) this research provides insights into the underlying factors influencing children to actively play volleyball, while in addition these factors are influenced by engagement levels in marketing communication tools. In order to assess the underlying factors, constructs of Theory of Planned Behavior (attitude, injunctive norm, descriptive norm, self-efficacy and peer acceptance) and Self-Determination Theory (intrinsic motivation, introjected regulation, identified regulation, and external regulation) were used in this study. In addition, four videos were created based on level of engagement, starting with inflatable volleyball equipment (volleyball bus) as low level of engagement, then a challenge, an interactive wall, and a VR game (which is considered the highest level of engagement). By means of a quasi-experiment, children aged 8 to 12 years old were asked to watch one of the movies (except for the control group) followed by a survey they had to fill out. Through self-report measures attitude, injunctive norm, descriptive norm, self-efficacy, peer acceptance, intrinsic motivation, introjected regulation, identified regulation, and external regulation were measured. Analyses were performed to assess the effect the different videos have on the psychological factors and to measure the effect of the psychological factors on active volleyball participation. The results of this study suggest that barely no effect is seen on engagement levels in marketing communication tools with the exception of peer acceptance on the volleyball bus as a significantly higher score was found in comparison to the control group. Moreover, injunctive norm, peer acceptance, intrinsic motivation, introjected regulation, and identified regulation showed a significant positive influence on active volleyball participation. These new insights could help academics to do better research among children and sport participation. In addition, the current study gives insights on which factors influence active volleyball participation and how the Nevobo can implement this in their marketing communication strategy.

Keywords

Theory of planned behavior, self-determination theory, active volleyball participation, engagement levels in marketing communication tools

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1. Introduction

The Dutch Volleyball association Nevobo is battling with losing members and it is not the only one. In the last couple of years several sports associations, including the bigger Dutch associations such as KNVB (soccer) and KNLTB (tennis), are struggling with declining memberships (AD, 2018; NOC*NSF, 2020). From 2013 to 2019 there was a decline of 220,200 members among sport associations (NOC*NSF, 2020). NOC*NSF, which is the umbrella organization for sports in the Netherlands, states that Covid-19 led to a decline of 44% in the past year in sports participation (Omroep West, 2021). This will not only result into a decline in physical health but also mental health (Omroep Weste, 2021). In addition, when taking a closer look at the decline in membership. Sladek (2013) states that the current generation attaches less value towards memberships. Where traditionally the association was the main place to practice sports, now there are many other alternatives. This is in line with the NOC*NSF (2020), which states that the Nevobo has a total of 112,000 members but 239,000 athletes. This means that not everybody who plays volleyball is a member of the sport association. Besides that, the NOC*NSF (2020) shows that the number of members did indeed decrease from 2013 till 2019 with 8% among 5 through 9 years old and 5% among 10 through 14 years old. However, the number of athletes that play volleyball increased with 3% (aged 5-9) and 4% (aged 10-14). The same report shows that among boys (aged 5-18) soccer is by far the most popular sport (volleyball does not make it in the top 10), while for girls (aged 5-18) the number one sport in 2019 was swimming (volleyball comes in on the 10^{th} place).

In order to increase the amount of members at the Nevobo, it is important to understand what triggers children to actively play volleyball. According to Funk et al. (2016) every "sport interaction involves an individual's psychological and physical responses, and includes beliefs, emotions and perceptions that occur before, during and after the use or anticipated use of a sport product or service" (p. 3). Therefore, in order to enhance sports participation and engage in sports it is important to understand why people would participate in a sport and thus understand their behavior. Previous research used the Theory of Planned Behavior (TPB, Ajzen, 1991) as a framework to understand human behaviors in relation to exercise behavior (e.g. Armitage & Conner, 2001; Downs & Hausenblas, 2005; McEachan, Conner, Taylor, & Lawton, 2011). According to the TPB model (Ajzen, 1991), an individual's personal behavior is defined by one's behavioral intention to perform the behavior. In turn, behavioral intention is defined by three factors: attitude, subjective norms, and perceived behavioral control.

Downs and Hausenblas (2005) performed a meta-analysis to predict exercise related behavior and found out that TPB could explain 30.4% of the variance in intention with attitude and PBC as the largest predictors. A few years later, McEachan, Conner, Tayler, and Lawton (2011) also conducted a meta-analysis to predict exercise related behavior and were able to explain 44.3% of the variance in intention, also with attitude and PBC as the largest predictors. When taking a closer look at children and exercise behavior, researchers claim that social norms play a more important role with children than with adolescents (Allen, 2003; Kohl & Hobbs, 1998), especially the influence of parents and peers. Research conducted by Craggs, Corder, van Sluijs, and Griffin (2011) supports this by stating that peer support has a positive association with physical activity.

In addition, another factor that plays an important role in sports participation is motivation (Dilsad, Kin Yan Ho, Al-Haramlah, & Mataruan-Dos Santos, 2020; Matsumoto & Takenaka, 2004). Research has shown that individuals with strong intentions are more likely to be motivated to perform the behavior and to expend efforts to achieve their goals (Norman, Clark, & Walker, 2005). Meta-analyses have indicated that the TPB typically explains between 40% and 50% of the variance in intention (e.g. Godin & Kok, 1996), and between 23% and 34% of the variance in behavior (e.g. McEachen et al., 2011). Therefore, Ajzen (1991) suggested that additional predictors could be added to TPB if they account for a considerable variance, which in this case will be motivation.

Therefore, the self-determination theory (SDT; Deci & Ryan, 1985) will be used to measure motivation as it has shown to be useful allowing us to explain the why and wherefore of people's behavior and helps us understand the reasons why one is committed to sports (Moreno-Murica et al., 2013). SDT consists of three "fundamental forms of behavior regulation: self-determined, non-self-determined or demotivated" (Moreno-Murica et al., 2013, p. 551). Self-determined motivations tend to be intrinsically driven, while non-self-determined motivation are performed because they must be done (Moreno-Murica et al., 2013). Demotivation is characterized by a lack of motivation (Moreno-Murica et al., 2013).

Moreover, SDT has been widely used to understand one's motivations to participate in physical activity, mainly done on adolescents subjects (Dilsad et al., 2020; Kondric, Sindik, Furjan-Madic, & Schiefler, 2013). However, Sebire, Jago, Fox, Edwards, and Thompson (2013) researched the validity and reliability of SDT for physical activity among children aged 7 to 11 years old and showed that these measures were supported among this age group. Children's

motivation is mostly based on enjoyment and inherent satisfaction of physical activity (Kohl & Hobbs, 1998; Sebire Jago, Fox, Edwards, & Thompson, 2013). This is in line with McCullagh, Matzkanin, Shaw, and Meldonado (1993) stating that intrinsic motives such as having fun and feeling good are primary reasons for sports participation among children. Additionally, among children a form of rewards and punishments also appeared to be important (Kohl & Hobbs, 1998). A research conducted by Foley, Beets, and Cardinal (2011) showed that when children were monitored during their play their activity increased. Therefore, motivation among this age group is seen as a relevant factor and thus SDT and TPB will be combined in the current study.

Besides measuring the factors that has an impact on one's behavior, Funk et al. (2016) states that it is possible to influence the psychological factors of SDT and TPB with marketing activities as these are considered to be the primary sources of information that helps a member to determine whether the sport will satisfy one's needs and wants. This is in line with Sladek (2013), who states that the younger generation has different values than the older generation when it comes to membership and marketing plays a key role in this. Therefore, it is interesting to see whether certain marketing communication tools can trigger these factors. Previous research has shown that engagement is a very important aspect when it comes to children and marketing (Grover, 2019). There are several marketing tools that can help engage children better. Therefore, the level of engagement in marketing communication tools will be the key role for the current study.

Hence, several marketing communication tools based on level of engagement will be tested. The Nevobo has a so-called volleyball bus with inflatable volleyball equipment to introduce children to volleyball while at the same time they can participate in volleyball related activities and test their skills. This bus is used to promote volleyball and can be requested by schools and clubs but is also used as a side-event during big events. Grover (2019) states that for children it is important that they enjoy themselves and have fun playing. Therefore, the volleyball bus is seen as a perfect fit. In order to increase the level of engagement, several items will be added to the volleyball bus to increase the level of engagement; a challenge, an interactive wall, and a VR game.

The current study aims to provide insight on children's behavioral intention to actively participate in volleyball. Combing SDT and TPB could help academics to see which factors have a significant influence on the behavioral intention. New insights could help sports

associations to know which psychological factors should be triggered during i.e. marketing campaigns. The following research question is created as a guidance for the current study:

> *'Which psychological factors (attitude, socials norms, PBC and motivation) positively influence Dutch children's (aged 8-12) intention to actively participate in volleyball?'*

However, the current study will not only combine SDT and TPB in order to get a better understanding on children's behavioral intention to actively participate in volleyball but will also test whether marketing communication tools can trigger the factors that influence one's behavior. Especially, if a higher level of engagement will lead to a higher impact on the psychological factors. Therefore, the following research question is created as well:

> *'To what extent does engagement levels in marketing communication tools impact the psychological factors (attitude, social norms, PBC and motivation)?'*

In order to answer these questions, an empirical study has been carried out. In the current study, Dutch children were asked to participate in an online survey where they were randomly assigned to watch one video (marketing communication tool) followed by survey questions. Based on self-reported measure the relationship between the marketing communication tool and the psychological factors as well as the relationship between the psychological factors and behavioral intention were examined.

2. Theoretical Framework

This chapter will provide the theoretical foundation of the factors that are related to active sport participation. It is important to understand what the underlying factors are that drive children to play a volleyball and thus gives insights on why children actively participate in playing volleyball. In this section, the sport consumer decision-making model, Theory of Planned Behavior (TPB) and self-determination theory (SDT) will be discussed. In addition, the four marketing communication tools, volleyball bus, challenge, interactive wall, and VR game, will be further explained. This chapter will be concluded with a conceptual research model in order to provide an overview on how the marketing communication tools and the underlying factors are expected to influence each other.

2.1 Sport consumer decision-making model

According to Funk et al. (2016) 'a typical consumer decision-making model includes the study of both external and internal forces" (p. 7). Figure 1 represents a view of a decision-making model of the sport consumer.

Fig. 1. Sport consumer decision-making model (Funk et al., 2016, p. 7)

- The *input* phase consists of the external forces, which in turn represent two categories: marketing activities and socio-cultural factors. Funk et al. (2016) states that these are both key sources of information, which provide help in understanding whether or not a sport product or service will fulfill somebody's wants and needs.
- The *internal processing* consists of several psychological forces, namely motivation, attitudes, personality and perception of constraints. These are the unobservable psychological mechanisms where the sport customer evaluates the inputs of the first stage (Funk et al., 2016).
- The *output* phase is the final stage of the sport consumer decision-making model. This stage relates to both behavioral and attitudinal outcomes (Funk et al., 2016).

The sport consumer decision-making model places emphasis on how decisions are made through a series of inputs, internal processing, and outputs. This model can be linked to the current study as following. The *input phase* are the four marketing communication tools that will be used to promote volleyball and create a higher level of engagement among the target audience. The *internal processing* consists of both SDT, which involves intrinsic and extrinsic motivations, and the TPB, which involves the factors attitude, subjective norms, and perceived behavioral control. The *output phase* will be TPB's behavioral intention, which in this case is active participation in volleyball.

2.2 Theory of Planned Behavior

As mentioned above the *internal processing* consist of psychological forces. The Theory of Planned Behavior (TPB; Azjen, 1991) is a widely acknowledge psychological framework to understand people's behavior (e.g. Eddosary et al., 2015). According to the TPB model, an individual's personal behavior is defined by one's behavioral intention to perform the behavior. In turn, behavioral intention is defined by three factors: attitude, subjective norms, and perceived behavioral control.

2.2.1 Attitude

Attitude "refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). Attitude is a feature of an individual's salient behavioral beliefs (Ajzen, 1991; McEachan et al., 2011), meaning the likelihood that performing a behavior will lead to certain outcomes. If one holds a positive attitude toward the belief the outcomes will be positive, if one holds a negative attitude toward the belief the outcomes will be negative. In addition, attitude is also mentioned by Funk et al. (2016) as one of the psychological forces that predicts sports attitude formation and behavior.

In past research, attitude is found to be a powerful predictor of exercise related behavior. Researchers found support that attitude has a great influence on and can predict behavioral intention in exercise related behavior (e.g. Downs & Hausenblas, 2005; McEachen et al., 2011). Downs & Hausenblas (2005) and McEachen et al. (2011) both found that attitude is the strongest predictor on one's intention related to exercise behavior. In other words, if one's attitude toward a certain behavior is positive this will strengthen one's intention to actually perform the behavior (Ajzen, 1991). In this case this means that if children hold a positive attitude toward active volleyball participation then it is more likely that he/she will actually actively play volleyball.

The present study defines attitude as an individual's perception and tendencies of behavior toward actively participating in volleyball. If an individual holds a positive attitude toward active volleyball participation, then they are more likely to actively participate. Therefore, the following hypothesis is proposed:

> *H1: A positive attitude toward active volleyball participation is positively related to the intention to actively participate in volleyball.*

2.2.2 Social norms

Besides attitude, subjective norms are another factor that determines one's behavioral intention. In general, subjective norms have been widely used to investigate "perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188). However, past research suggested that subjective norms are very limited in predicting social influences on one's behavioral intention (e.g. Norman, Clark, & Walker, 2005) and should be extended into two dimensions (Cialdini & Goldstein, 2004). The two dimensions together are also known as social norms and consists of a) injunctive social norms and b) descriptive social norms. Injunctive social norm is defined as one's perception about how significant others think one should behave, while descriptive norm is defined as one's perception about what significant others do.

Even though previous studies related to exercise behavior state that attitude is a greater predictor of behavioral intention than social norms (e.g Downs & Hausenblas, 2005; McEachen et al., 2011), several studies related to exercise behavior showed that social norms play an important role. Rhodes and Courneya (2003) showed that both injunctive and descriptive norm served as a common factor toward the prediction of the intention to exercise. When taking a closer look at children and exercise, Allen (2003) states that "youth sport participants frequently report social reasons for their involvement in sport" (p. 1) and Kohl and Hobbs (1998) even showed that peer influences are quite important with organized sports (which includes volleyball). Peer influences, in general, are of great influence in active sport participation among children (Allen, 2003; Craggs et al., 2011, Kohl & Hobbs, 1998; Wood, Taks, & Danylchuk, 2008) and therefore, within the current study, social norms are expected to have a significant relation on active volleyball participation.

Funk et al. (2016) also mentioned the influence of one's socio-cultural environment as an important factor in the sport-consumer decision making model and state that an individual creates several 'reference groups' that will have an influence on one's decisions. While Funk et al. (2016) state that this is an *input* rather than a *psychological* mechanism, the TPB model claims social norms are considered to be a psychological factor.

In the current study, we will stick to the TPB model and refer to social norms as 'the social influence on the intention of an individual to actively participate in volleyball'. The greater the social influence one perceives on active participation, the stronger one's intention is to actively participate in volleyball. Based on this, the following hypotheses are proposed:

H2a: Injunctive norm is positively related to the intention to actively participate in volleyball

H2b: Descriptive norm is positively related to the intention to actively participate in volleyball.

2.2.3 Perceived Behavioral Control

The last factor of the TPB model is Perceived Behavioral Control (PBC), which "refers to the perceived ease or difficulty of performing the behavior" (Ajzen, 1991, p. 188). In other words, PBC assesses how well an individual can control aspects that might help or hinder the actions that are essential to address a certain situation. If one believes he or she has the means to engage in a certain behavior, he or she is likely to have a high level of PBC and this will lead to a positive influence on the intention to perform that behavior (Ajzen, 1991).

In the case of exercise behavior, past research claims that PBC, next to attitude, is a strong predictor of behavioral intention (e.g. Downs & Hausenblas, 2005; McEachen et al., 2011). Several resources can influence one's perception of control toward active sports participation. In the case of exercise behavior among children, Downs and Hausenblas (2005) found out that self-efficacy is one of those resources. This in line with research conducted by Allen (2003) who states that among children self-confidence about their physical ability is of importance when participating in a sport.

In addition, as mentioned before, peer acceptance has a great impact on children (Allen, 2003; Craggs et al., 2011, Kohl & Hobbs, 1998; Wood et al., 2008). Peer acceptance is defined as one wants to play volleyball but as peers do not play he/she will not play either and therefore is seen as a PBC factor in the current study.

Funk et al. (2016) have mentioned perception of constraints as one of the psychological factors. Constraints have been defined as "factors that are assumed by researchers and perceived or experienced by individuals to limit the formation of leisure preferences to inhibit or prohibit participation in leisure activities" (Funk et al., 2016, p. 113). This is in line with the definition of PBC by Ajzen (1991).

In general, if one holds little control over a specific behavior because the necessary resources are not available, one's behavioral intention will be lower even though one might have a positive attitude and/or social norm toward the specific behavior. In the current study

these constraints are self-efficacy and peer acceptance. Derived from this, the third hypotheses will be:

> *H3a: Self-efficacy is positively related to the intention to actively participate in volleyball.*
>
> *H3b: Peer acceptance is positively related to the intention to actively participate in volleyball.*

2.3 Self-Determination Theory

Besides the TPB factors, Funk et al. (2016) also state that motivations are part of the *internal processing* phase of the sport consumer. This is supported by previous research showing that motivation is an important predictor in sports and sports participation (Dilsad et al., 2020; Matsumoto & Takenaka, 2004). The self-determination theory (SDT; Deci & Ryan, 1985) has been widely used to understand one's motivations to participate in physical activity (e.g. Dilsad et al., 2020; Kondric et al., 2013; Sebire et al., 2013). SDT has shown to be useful allowing us to explain the why and wherefore of people's behavior and helps us understand the reasons why one is committed to sports (Moreno-Murica et al., 2013).

Most research on SDT has been done among adults, however, past research on exercise motivation among youth showed that motivation is a strong predictor in exercise behavior (Downs, Savage, & DiNallo, 2013; Sebire et al., 2013). SDT explains six types of motivations within two dimensions: intrinsic motivations and extrinsic motivations.

2.3.1 Intrinsic motivation

Intrinsic motivation is considered to be the most self-determined behavior. Intrinsic motivation is based on one's "interest and satisfaction derived from being active rather than engaging for a separable outcome" (Sebire et al., 2013, p. 2). In other words, it refers to everything that pushes one from the inside.

When taking a closer look at children's motivation in exercise behavior, research showed that it is mostly based on enjoyment and inherent satisfaction of physical activity (Kohl & Hobbs, 1998; Sebire et al., 2013). According to McCullagh et al. (1993), intrinsic motives such as having fun and feeling good are the primary reasons for sports participation among children. Accordingly, the following hypothesis is formulated:

> *H4: Intrinsic motivation is positively related to the intention the actively participate in volleyball.*

2.3.2 Extrinsic motivation

Extrinsic motivations are the opposite of intrinsic motivations and "refers to what drives us form the outside" (Kondric et al., 2013, p. 11). External motivations can be distinguished into four types: external, introjected, identified and integrated regulations (Deci & Ryan, 1985). External and introjected regulations are believed to be the controlled regulatory styles while identified and integrated regulation are believed to be the autonomous regulatory styles (Lonsdale, Hodge, & Rose, 2008).

- Integrated regulations is the most self-determined form and is identified as one's behavior that is perceived as important as one's own needs and values. Integrated motivations share qualities with intrinsic motivation but are still considered extrinsic motivations as the goals one is trying to achieve are for reasons extrinsic to the self, instead of the intrinsic enjoyment.
- Identified regulation involves giving a conscious value toward a behavior in such a way that the action is acknowledge when it is personally important.
- Introjected regulation is described as one's behavior that is carried out to achieve social recognition or avoid internal pressures.
- External regulation is the least self-determined form and is identified as one's behavior that is performed because of external demands, such as rewards or constraints.

However, previous studies showed that integrated regulation does not perform well when testing among children (Sebire et al., 2013). This is because integrated regulation is an advanced form of motivation about sense of self and broader life goals, which is difficult for children to answer. Therefore, integrated regulation will not be used in the current study.

Moreover, past research showed that among children in relation to physical activity a form of rewards and punishments appeared to be important (Kohl & Hobbs, 1998), which is in line with external regulation. In addition, a study conducted by Foley et al. (2011) showed that when children were monitored during their play their activity increased. Moreover, as mentioned before, social acceptance is of high importance within this age group, which is in line with introjected regulation. Based on this, the following hypotheses are proposed:

H5a: Identified regulation is positively related to the intention the actively participate in volleyball.

H5b: Introjected regulation is positively related to the intention the actively participate in volleyball.

H5c: External regulation is positively related to the intention the actively participate in volleyball

2.4 Engagement levels in Marketing Communication Tools

As mentioned before, Funk et al. (2016) argues that the *input phase*, which are the external factors including marketing activities, can influence the *internal processing phase,* which are the previously mentioned factor of TPB and SDT. Funk et al. (2016) states that marketing activities are related to the marketing mix (the P's). It has been argued that 'promotion' is the key factor of the marketing mix (e.g. Mullin, Hardy, & Sutton, 2014). In addition, according to Da Silva and Las Casas (2020) promotion is a crucial and vital part of the sports experience.

According to Mullin, Hardy, and Sutton (2014) promotion is related to communication tools as the role of promotion is to inform and persuade the consumer. Therefore, in the current study, the *input phase* consists of marketing communication tools and is of crucial importance. Marketing communication tools are a set of varied platforms assigned to communicate with the target audience and are great way to generate awareness among the targeted audience. In addition, marketing communication tools have been widely used to increase sport participation (e.g. Ian, 2011) and Sladek (2013) states that it plays an key role when it comes to increasing memberships.

There are several marketing communication tools that are effective in persuading one's behavior. However, it is important to take the target audience into account when finding the right marketing communication tools. Within the current study the target audience is Dutch children aged between 8 and 12 years old, also known as tweens. Tweens has been a widely used term in marketing research and is based on being 'in-be-tween' childhood and teen-hood (Siegel, Coffey, & Livingston, 2004). The tween age has been defined as wide as 8 to 14 years old but researchers even argue that tweens is a state of mind rather than an age (Siegel et al., 2014). As the current study is conducted in association with the Nevobo and the preferred age group is 8 to 12 years old, this age group will be used in the current study. As mentioned before, for this age group engagement is a vital aspect within marketing (Grover, 2019). Usually engagement refers to social media behavior but in the current study it is a feature of the marketing communication technology. Therefore, the marketing communication tools were based on several levels of engagement, with the control group not receiving any level of engagement, while virtual reality is seen as the highest level of engagement.

2.4.1 Volleyball bus

In order to determine which marketing communication tools would be relevant to test, within the capacity of the Nevobo, a meeting was set with the communication manager and side-events manager of the Nevobo. During this meeting several promotional tools were discussed and we came to the conclusion that the so-called volleyball bus is seen as the most relevant tool to analyze within the current study. The volleyball bus consists of inflatable volleyball equipment that are used to introduce children to volleyball while at the same time they can participate in volleyball related activities and test their skills. This bus is used to promote volleyball and can be requested by schools and clubs but is also used as a side-event during big events. Grover (2019) states that for children it is important that they enjoy themselves and have fun playing Therefore, the volleyball bus is seen as a perfect fit as children can experience what it is like to play volleyball by having fun and playing with other children. Therefore, this will be one of the marketing communication tools that will be tested and the following hypothesis is formulated:

> *H6a: The exposure to the volleyball bus results in higher scores on attitude, social norms PBC, and motivations as compared to no exposure to engagement elements.*

2.4.2 Volleyball bus and challenge

Research conducted by Foley et al. (2011) showed that if children were monitored during their play the activity increased. Therefore, it was decided to add a challenge. Within the volleyball bus, one of the inflatables measures how hard you can hit the ball. Therefore, this inflatable is seen as a relevant tool to add a challenge in terms of ranking. The harder you hit the ball, the higher you will rank. By adding a challenge to the volleyball bus the engagement level will increase as well. Based on the reviewed literature, the following hypothesis is proposed:

> *H6b: The exposure to the combined effect of the volleyball bus and challenge results in higher scores on attitude, socials norms, PBC and motivations as compared to the exposure to solely the volleyball bus.*

2.4.3 Interactive games

At the moment the volleyball bus only contains of the inflatables but the Nevobo wants to expand the equipment and thus the next two tools will be analyzed to see if it would be relevant to add these to the bus.

In general, research has shown that interactive games can help to stimulate sports participation. Gao et al. (2012) conducted research on the impact of an interactive dance game on children's physical activity. They tested among 126 children aged between 9 to 11 years old

and results showed that the children who participated in the interactive dance game had a positive effect on the children's physical ability. It effectively increased the children's physical activity participation. In addition, they also found out that it had a positive effect on the child's self-efficacy. This is interesting for the current study as self-efficacy is a resource of PBC. Interactive games can also help engage the children better (Grover, 2019). Therefore, within the current study, an interactive wall where children can play interactive games related to volleyball will be tested and the following hypothesis is proposed:

> *H6c: The exposure to the combined effect of the volleyball bus and interactive wall results in higher scores on attitude, socials norms, PBC and motivations as compared to the exposure to the combined effect of the volleyball bus and challenge.*

2.4.4 Virtual Reality

With the highly interactive, physical-virtual connections a new customer experience arose and the arrival of Virtual Reality (VR) technology is forming new environments where physical and virtual objects are integrated at various levels (Flavian, Ibáñez Sánchez, & Orús, 2018). One of those levels includes the usage of VR interventions on physical activity (e.g. Kivelä, Alavesa, Visuri, & Ojala, 2019; Ng, Ma, Ho, Ip, & Fu, 2019). Ng et al. (2019) research included 1,184 healthy participants to investigate the effectiveness of exercise-based VR training. It was concluded that there was a large effect size of the VR intervention on one's physical activity level. In addition, Kivelä et al. (2019) tested a VR game on 17 people to see whether the game encourage them to exercise. Participants said that playing the game was fun and sometimes challenging and above average stated that the VR game encouraged them to exercise. As virtual reality is highly interactive, this is considered to have the highest level of engagement with the current study. Therefore, a VR volleyball game will be tested as well and the following hypothesis is proposed:

> *H6d: The exposure to the combined effect of the volleyball bus and VR volleyball game results in higher scores on attitude, socials norms, PBC, and motivations as compared to the exposure to the combined effect of the volleyball bus and interactive wall.*

2.5 Behavioral intention

Within this study, the final stage will be behavioral intention. According to Ajzen (1991) "intentions are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" (p. 181). In other words, the stronger one's intention is toward a certain behavior, the more likely one will perform this behavior. In the case of the relationship intention-behavior on exercise behavior, the significance of the effects between this relationship is large (e.g. Downs & Hausenblas, 2005). The previous factors mentioned above (attitude, injunctive norm, descriptive norm, self-efficacy, peer acceptance, intrinsic motivation, introjected regulation, identified regulation, and external regulation) are predictors of the intention to actively participate in volleyball. Therefore, within the current study, behavioral intention to actively participate in volleyball will be the final stage.

2.6 Conceptual research model

Based on the reviewed literature and proposed hypotheses, the following research model has been developed:

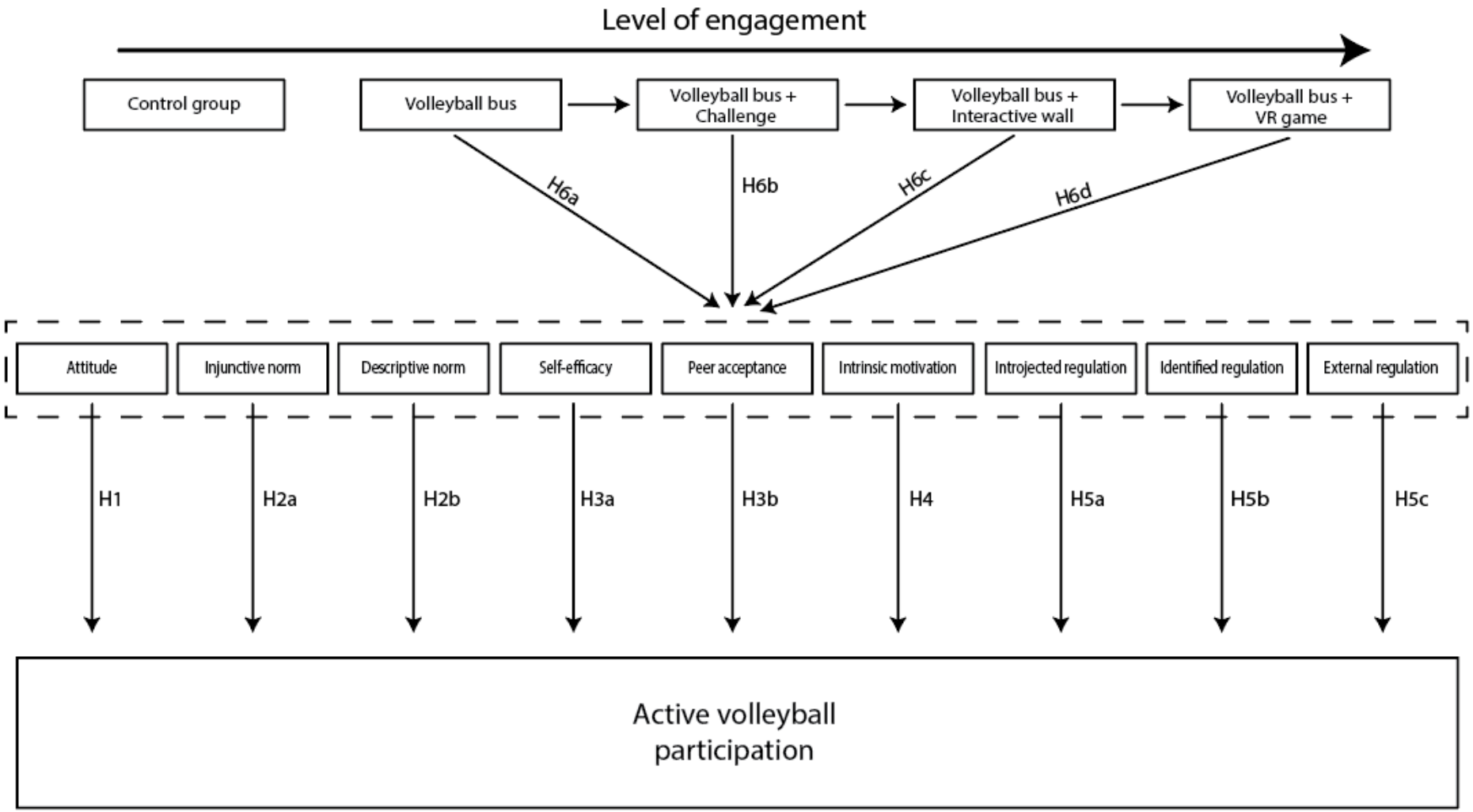


Fig. 2. Conceptual research model

3. Research Methodology

In this chapter the research design will be described in detail. First, further insights on the research design itself will be given, followed by the procedure, the research participants and measures.

3.1 Research Design

For the current study, a quasi-experimental design is used to examine the effects the psychological factors (attitude, injunctive norm, descriptive norm, self-efficacy, peer acceptance, intrinsic motivation, introjected regulation, identified regulation, and external regulation) have on active volleyball participation and the influence of engagement level in marketing communication tools on the psychological factors.

Within the current study, a quantitative approach allows to explore differences between the four different videos (volleyball bus, volleyball bus + challenge, volleyball bus + interactive wall, and volleyball bus + VR game) in order to check whether a high level of engagement has more effect on the psychological factors than no or lower level of engagement. In addition, it allows to detect a relationship between the psychological factors and the dependent variable (active volleyball participation).

First of all, it was desired to let the children use the volleyball bus in real life to really experience what it is like to play volleyball. Unfortunately, due to Covid-19 it was not possible to do this as elementary schools have been closed for quite some time and when they reopen they will not allow outside visitors. However, ideally visiting elementary schools would have been preferred, because it would allow the children to actually use the inflatables and games the volleyball bus has to offer. As this was not possible an alternative had to be chosen. As the government also advised to work from home and only travel when needed, it was decided to conduct research online through a web-based survey.

In addition, an online survey reduces the change of social desirability bias as no other respondents nor the researcher itself is present (Saunders et al., 2009). As the target audience is highly influenced by others (e.g. Allen, 2003) and it is of importance that the respondent answers the questions truthfully and is not influenced by anyone else, an online survey was seen as a good alternative.

The online survey will be set up as an experiment consisting of five different groups.

- Control group will not receive any marketing communication tool but will only answer questions regarding the psychological factors and intention. By adding a control group that is not influenced by any level of engagement the effect of each marketing communication tool can be analyzed.
- Group 1 will watch a video of the volleyball bus first, then this will be followed by the same questionnaire the control group received.
- Group 2 will also watch the video of the volleyball bus first followed by a challenge and then the group will receive the questionnaire.
- Group 3 will watch a video of the volleyball bus including an interactive wall with interactive volleyball games first, then this will be followed by the questionnaire.
- Group 4 will watch a video of the volleyball bus including a VR volleyball game first, then this will be followed by the questionnaire.

3.2 Procedure

First, the four different videos to express the different kinds of engagement levels were created. The videos were tested among peers of the author herself to indicate whether the videos indeed show different engagement levels. During the pre-test it turned out that the VR game was indeed seen as the highest level of engagement and the volleyball bus as the lowest level of engagement.

After the first version of the survey was created, a pre-test took place with one elementary school teacher, one former elementary school teacher and one person who works at a daycare. All these people are specialist in the field of working with children and therefore they were considered to be a reliable source to test the survey. They checked if the language was suitable for children aged between 8 to 12 years old and gave general feedback concerning the survey. All three were very helpful, especially in translating the survey to the language of the children. For example, "*What is your gender?"* was changed to "*Are you a boy or girl?"* or to measure attitude an additional question was added namely "*Volleyball seems cool to me."*. This type of language is used by children, which is known by the three specialist and therefore the pre-test was considered to be successful. After the feedback was received and the survey was amended, the survey was uploaded with the online tool Qualtrics. The final survey can be found in Appendix A.

First, the distribution of the survey took place through colleagues at the Nevobo, an elementary school teacher and a senior elementary school advisor. However, it was seen that

due to Covid-19 many schools were busy with catching up on work and focusing on making it through the year. Therefore, it was decided to also distribute the survey through personal social media accounts (Facebook and Instagram) and through the researcher's LinkedIn page.

First, all participants had to read an informed consent, which informed the participant about the purpose of the study and their rights and it also mentioned that this research was approved by the BMS ethics committee. Furthermore, it was mentioned that participating in this study is completely voluntarily and anonymous, no personal information will be recorded nor distributed. Also, it was stated that the survey was asking about one's opinion and is not a test. In addition, the participant was always allowed to refuse to participate in this study or withdraw from the survey at any time. As the target audience is underaged it was of utmost important that the parents/caretakers were informed about the research as well. Therefore, an informed consent was sent to the parents explaining the research and assure them of the confidentiality and anonymity of the research (see Appendix B). After the informed consent, the survey started with a few demographic questions. Next, the participant had to watch a video (except for the control group, they started with the survey immediately). After watching the video, the participant had to give his/her opinion about several items on a five-point pictorial Likert scale. Lastly, each participant was thanked for their participation.

3.3 Research participants

Children aged between the age of 8 and 12 years old were chosen as the target audience. In addition, it was important that the participant is Dutch but besides that there were no other restrictions.

In total 306 children participated in the current study. However, 251 respondents were used for further analysis as 53 respondents did not complete the survey and two participants did not agree with the informed consent. The mean age of the participants is 10 (SD = 1.23). About half of the participants were girl (N = 134, 53.4% girls) and 46.6% were boys (N = 117). Most of the participants live in the Northern part of the Netherlands (N = 183, 72.9%), followed by Central (N = 57, 22.7%) and South (N = 11, 4.4%). In addition, most of the participants like to play sports (N = 236, 94%), some were not sure (N = 12, 4.8%) and only a small percentage dislikes playing sports (N = 3, 1.2%). Soccer is the most played sport (N = 63, 25.1%), followed by gymnastics (N = 25, 10%), dancing (N = 18, 7.2%) and volleyball (N = 15, 6%). When looking at the different groups, the control group has the most respondents (N = 75), volleyball

bus (N = 48), challenge (N = 45), interactive wall (N = 38), and VR game (N = 45). An overview of the complete demographics and the differences between the groups can be found in Table 1.

Table 1

Sample's characteristics

	Control Group (N=75)		**Volleyball bus** (N=48)		**Challenge** (N=45)		**Interactive wall** (N=38)		**VR game** (N=45)		**Total** (N=251)	
Characteristic	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Age	10.19	1.281	9.85	1.185	10.02	1.138	10.18	1.291	10.18	1.211	10.09	1.225
	N	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***
Age												
8	12	16.0	7	14.6	6	13.3	5	13.2	6	13.3	36	14.3
9	8	10.7	12	25.0	7	15.6	6	15.8	6	13.3	39	15.5
10	20	36.7	14	29.2	15	33.3	11	28.9	12	26.7	72	28.7
11	24	32.0	11	22.9	14	31.1	9	23.7	16	35.6	74	29.5
12	11	14.7	4	8.3	3	6.7	7	18.4	5	11.1	30	12.0
Gender												
Boy	31	41.3	16	33.3	22	48.9	22	57.9	26	57.8	117	46.6
Girl	44	58.7	32	66.7	23	51.1	16	42.1	19	42.2	134	53.4
Group												
5	20	26.7	17	35.4	7	15.6	7	18.4	7	15.6	58	23.1
6	21	28.0	5	10.4	9	20.0	9	23.7	8	17.8	52	20.7
7	22	29.3	18	37.5	20	44.4	11	28.9	19	42.2	90	35.9
8	12	16.0	8	16.7	9	20.0	11	28.9	11	24.4	51	20.3
Living												
North	75	100	28	58.3	25	55.6	26	68.4	29	64.4	183	72.9
Central	-	-	17	35.4	16	35.6	11	28.9	13	28.9	57	22.7
South	-	-	3	6.3	4	8.9	1	2.6	3	6.7	11	4.4
Likes playing sports												
Strongly disagree	-	-	-	-	-	-	-	-	-	-	-	-
Disagree	2	2.7	-	-	1	2.2	-	-	-	-	3	1.2
Not sure	3	4.0	2	4.2	1	2.2	5	13.2	1	2.2	12	4.8
Agree	19	25.3	11	22.9	11	24.4	9	23.7	17	37.8	67	26.7
Strongly agree	51	68.0	35	72.9	32	71.1	24	63.2	27	60.0	169	67.3
Sports played												
Soccer	17	22.7	10	20.8	10	22.2	9	23.7	17	37.8	63	25.1
Gymnastics	11	14.7	6	12.5	5	11.1	2	5.3	1	2.2	25	10.0
Dancing	9	12.0	4	8.3	1	2.2	4	10.5	-	-	18	7.2
Volleyball	4	5.3	4	8.3	2	4.4	2	5.3	3	6.7	15	6.0
No sport	5	6.7	2	4.2	1	2.2	3	7.9	3	6.7	14	5.6
Hockey	10	13.3	-	-	-	-	1	2.6	2	4.4	13	5.2
Tennis	1	1.3	6	12.5	3	6.7	1	2..6	2	4.4	13	5.2
Horseback riding	5	6.7	3	6.3	-	-	2	5.3	-	-	10	4.0
Swimming	4	5.3	-	-	1	2.2	2	5.3	1	2.2	8	3.2
Basketball	4	5.3	1	2.1	1	2.2	1	2.6	-	-	7	2.8
Other… (i.e. taekwondo, kickboxing, judo)	5	6.7	12	25.0	21	46.7	11	28.9	16	35.6	65	25.9

3.4 Measures

The current study used self-reported measures through an online survey based on pictorial Likert scale. Past research employing TPB and SDT has used a five-point (e.g. Ajzen, 1991) or seven-point (e.g. Martin & McCaughtry, 2008) Likert scale, which are numbered and generally labeled. However, it is important to take the target audience into account, i.e. their ability, comprehension level, and style (Davison, McLaughlin, & Giles, 2016). Therefore, for the current study, it was considered that a full completion of the questionnaire would be stimulated by using a pictorial rating Likert scale (Davison et al., 2016; Hall, Hume, & Tazzyman, 2016; Mellor & Moore, 2014). Pictorial Likert scales have been used on various aspects of children's beliefs, attitudes, and feelings with little criticism toward their validity (Mellor & Moore, 2014). The pictorial rating scale used for the current study can be found in Figure 3.

Fig. 3. Pictorial rating scale

The survey started with background demographic variables such as 'age' and 'gender'. This is important for the research to get a picture of the research sample. The remaining questions were about each construct representing the conceptual model, which will be explained further in the next part.

3.4.1 Attitude

The construct of attitude was measured through three items, which were created based on Martin, Oliver, and McCaughtry (2007), including "*Volleyball seems fun to me"*. The reliability of this construct was high with a Cronbach's alpha of .92. An overview of all items used for each construct including the Cronbach's alpha can be found in Table 2.

3.4.2 Injunctive norms

Injunctive norms were measured with four items, which were derived from Hashim, Jawis, Wahat, and Grove (2014), including "*I think my friends think I should try to play volleyball"*. The reliability of this construct was good with a Cronbach's alpha of .88.

3.4.3 Descriptive norms

As with injunctive norms, descriptive norms were also measured with four items obtained from Hashim et al. (2014), including "*I think my friends are enthusiastic about volleyball and if my friends are enthusiastic then so am I"*. Descriptive norms also shown a high level of reliability with a Cronbach's alpha of .92.

3.4.4 Self-efficacy

Self-efficacy is the first construct of perceived behavioral control and is measured with two items, which were derived from Hay (1992) and Chase (2001), including "*I think I can play volleyball"*. The reliability of the construct is good with a Cronbach's alpha of .78.

3.4.5 Peer acceptance

Peer acceptance is the second construct of perceived behavioral control and is measured with two items as well, which were obtained from Gao et al. (2012), including "*I would like to play volleyball even if my friends won't join me"*. Peer acceptance shows a high level of reliability with a Cronbach's alpha of 0.93.

3.4.6 Intrinsic motivation

Intrinsic motivation is the first construct of motivation and is measured with two items, which were derived from Sebire et al. (2013), including "*I would like to play volleyball"*. The reliability of this construct is good with a Cronbach's alpha of .89.

3.4.7 Identified motivation

As with intrinsic, identified motivation is also measured with two items derived from Sebire et al. (2013), including "*I believe playing volleyball is important"*. The Cronbach alpha on this construct is .81, which shows this measure is reliable.

3.4.8 Introjected motivation

As the same with the other motivations, introjected is measured with two items obtained from Sebire et al. (2013), including "*I believe I should play volleyball"*. The reliability of this construct is acceptable with a Cronbach's alpha of .78.

3.4.9 External motivation

External motivation, unlike the others, was measured with three items, which were obtained from McCullagh et al. (1993) and Sebire et al. (2013). The Cronbach's alpha with all three items was relatively low (α = .61). Hence only two items (*"I think that other people would want me to play volleyball"* and "*I think that if I don't play volleyball other people would not be happy with me"*) will be used for further analysis, with a Cronbach's alpha of .67.

3.4.10 Intention

Intention was measured with four items obtained from Hashim et al. (2014), including "*I want to play volleyball".* The reliability of this construct was high with a Cronbach's alpha of .90.

Table 2

Items per construct

Constructs	**Cronbach's α**	**Source**
Attitude Volleyball seems fun to me. Volleyball seems cool to me. Volleyball seems interesting to me.	**α = .92**	Modified from Martin, Oliver, and McCaughtry (2007)
Injunctive norm I think that my friends think I should try to play volleyball. I think that my parents think that I should try to play volleyball. I think that my classmates think that I should try to play volleyball. I think that my teacher thinks that I should try to play volleyball.	**α = .88**	Modified from Hashim, Jawis, Wahat, and Grove (2014)
Descriptive norm I think my parents are enthusiastic about volleyball and if my parents are enthusiastic then so am I. I think my friends are enthusiastic about volleyball and if my friends are enthusiastic then so am I. I think my classmates are enthusiastic about volleyball and if my classmates are enthusiastic then so am I. I think my teacher is enthusiastic about volleyball and if my teacher is enthusiastic then so am I.	**α = .92**	Modified from Hashim et al. (2014)

Table 2 Continued

Constructs	Cronbach's α	Source
Self-efficacy I think I can also play volleyball. I think I would want to try to play volleyball even though I am not sure if I am good at it.	**α = .78**	Modified from Hay (1992) and Chase (2001)
Peer acceptance I would like to play volleyball even if my friends won't join me. I would like to play volleyball even if my classmates won't join me.	**α = .93**	Modified from Gao, Huang, Liu, and Xiong (2012)
Intrinsic motivation I think volleyball is fun. I would like to play volleyball.	**α = .89**	Modified from Sebire, Jago, Fox, Edwards, and Thompson (2013)
Identified motivation I think that volleyball is important. I see the benefits of playing volleyball.	**α = .81**	Modified from Sebire et al. (2013)
Introjected motivation I think that I should start playing volleyball. I want to show other people how good I am.	**α = .78**	Modified from Sebire et al. (2013)
External motivation I think that other people would want me to play volleyball. I think that if I don't play volleyball other people would not be happy with me.	**α = .67**	Modified from Sebire et al. (2013)
Intention I would like to play volleyball with my friends on the schoolyard. I would like to try and play volleyball sometime. I would sign up at a volleyball club. I want to play volleyball.	**α = .90**	Modified from Hashim et al. (2014)

4. Results

In this chapter the results of the research study will be described in detail. Therefore, the conceptual model will be tested and the different marketing communication tools will be compared.

4.1 Correlation analysis

In order to know whether there is a linear relationship between the different variables, a correlation analysis was conducted. In addition, the correlation coefficient gives insights into the strength and direction of these relationships. The correlation analysis can be found in Table 3.

The analysis shows that all independent variables have a significant positive relationship with the dependent variable intention. The correlation between intrinsic motivation and intention is the strongest with $r = .828$, $n = 251$, $p < .01$. In addition, it can be seen that there is a strong correlation between intrinsic motivation and attitude ($r = .810$, $n = 251$, $p < .01$) and intrinsic motivation and self-efficacy ($r = .781$, $n = 251$, $p < .01$).

Table 3

Mean, Standard deviation and correlation analysis Spearman's rho

Variable		*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1	Attitude	2.99	1.124	1									
2	Injunctive norm	2.56	1.072	.637**	1								
3	Descriptive norm	2.90	1.059	.618**	.527**	1							
4	Self-efficacy	2.98	1.147	.682**	.677**	.499**	1						
5	Peer acceptance	2.52	1.285	.698**	.526**	.478**	.622**	1					
6	Intrinsic motivation	2.87	1.230	.810**	.686**	.626**	.781**	.674**	1				
7	Identified motivation	2.46	1.097	.649**	.654**	.545**	.642**	.555**	.735**	1			
8	Introjected motivation	2.47	1.271	.518**	.683**	.443**	.645**	.490**	.686**	.645**	1		
9	External motivation	1.84	.940	.485**	.489**	.451**	.377**	.501**	.483**	.566**	.491**	1	
10	Intention	2.68	1.170	.734**	.724**	.599 **	.717**	.669**	.828**	.730**	.711**	.534**	1

Note. N = 251. **p<.01

4.2 Model testing

Based on the outcomes of the correlation analysis, it can be assumed that a linear relationship between the dependent variable (intention) and the independent variables attitude, injunctive norm, descriptive norm, self-efficacy, peer acceptance, intrinsic motivation, identified motivation, introjected motivation and external motivation exists. In order to test the hypotheses that each individual independent variable can account for a significant proportion of the variance in the intention to participate in volleyball, a multiple regression analysis (MRA) was employed.

As can be seen in Table 4, the independent variables accounted for a significant 77% of the variance, $R^2 = .77$, F (9, 241) = 93.81, $p < .001$. In addition, out of the nine independent variables, five turned out to be of significant influence on intention. Injunctive norms (ß = .17, $p = .002$), peer acceptance (ß = .12, $p = .006$), intrinsic motivation (ß = .28, $p < .001$), identified motivation (ß = .15, $p = .006$), and introjected (ß = .14, $p = .002$) are all significant.

Table 4

Regression analysis

	Adj. R²	*F-value*	*df1*	*df2*	*Sig.*
Step 1	.770	93.813	9	241	< .0001

Regression coefficients

	ß	**t-value**	**Sig.**
Model 1			
All attitude	.067	1.093	.275
All injunctive	.167	3.093	.002**
All descriptive	.067	1.459	.146
All self-efficacy	.044	.806	.421
All peer acceptance	.119	2.780	.006**
All intrinsic	.281	4.244	.000**
All identified	.150	2.774	.006**
All introjected	.139	3.137	.002**
All external	.017	.336	.737

Note. N=251, **p< .01

Outcome variable: Intention active volleyball participation

4.3 Analysis of variance

A one-way between groups analysis of variance was used to investigate the impact the different marketing communication tools had on the factors that influence one's behavior.

First, the mean scores and standard deviation scores of each condition were examined. Followed by the inspection of skewness, kurtosis and Shapiro-Wilk statistics to indicate normality. This shows that the distribution for all variables is significantly different from normal (all p's < .05, also see Appendix C). As suggested by Field (2013), histograms were plotted to determine if the items were normally distributed. Unfortunately, for some items this was still not the case. In addition, the Levene's test shows that the homogeneity of injunctive norms $F(4,246) = 2.57$, $p = .039$, peer acceptance $F(4,246) = 4.26$, $p = .002$, and external motivation $F(4,246) = 3.73$, $p = .006$ is violated (Appendix D). Therefore, instead of the ANOVA a Welch's F will be used (Field, 2013).

As can be seen in Table 5, the Welch's F showed that injunctive norm, self-efficacy, peer acceptance, introjected motivation, external motivation and intention were significantly influenced by the type of video.

Table 5

Welch's F test

Variable	*F*	df 1	df 2	Sig.
Attitude	1.654	4	112.847	.166
Injunctive norm	5.235	4	112.963	.001
Descriptive norm	.729	4	112.337	.574
Self-efficacy	3.226	4	111.514	.015
Peer acceptance	3.488	4	110.956	.010
Intrinsic motivation	1.986	4	113.436	.101
Identified motivation	1.999	4	110.970	.100
Introjected motivation	10.352	4	112.220	.000
External motivation	2.474	4	108.445	.049
Intention	3.778	4	112.627	.006

4.4 Post hoc analysis (Tukey)

A post hoc analysis based on Tukey was conducted on the control group, volleyball bus, challenge, interactive wall and VR game in order to compare the differences. The pos hoc test was only done on the variables that were statistically significant according to the Welch's F (see Table 3).

4.4.1 Injunctive norm

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that the control group (*M* = 2.97, *SD* = 1.00) had significantly higher injunctive norm scores than the challenge (*M* = 2.42, *SD* = 0.88), interactive wall (*M* = 2.15, *SD* = 1.04), and VR game (*M* = 2.36, *SD* = 0.99). However, there was no significant difference between injunctive norm scores of the control group and the volleyball bus (*M* = 2.58, *SD* = 1.26). In addition, the videos did not differ significantly from one another.

4.4.2 Self-efficacy

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that the control group (*M* = 3.21, *SD* = 1.02) had significantly higher self-efficacy scores than interactive wall (*M* = 2.47, *SD* = 1.14). However, there was no significant difference between self-efficacy scores of the control group and volleyball bus (*M* = 3.17, *SD* = 1.20), challenge (*M* = 2.86, *SD* = 1.12), and VR game (*M* = 2.94, *SD* = 1.21).

In addition, post hoc analyses with Tukey's HSD (using an α of .05) revealed that the volleyball bus (*M* = 3.17, *SD* = 1.20) had significantly higher self-efficacy scores than interactive wall (*M* = 2.47, *SD* = 1.14). The other videos did not differ significantly from one another.

4.4.3 Peer acceptance

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that the control group (*M* = 2.23, *SD* = 1.09) had significantly lower peer acceptance scores than volleyball bus (*M* = 3.00, *SD* = 1.46). However, there was no significant difference between peer acceptance scores of the control group and challenge (*M* = 2.48, *SD* = 1.19), interactive wall (*M* = 2.21, *SD* = 1.22), and VR game (*M* = 2.80, *SD* = 1.37).

In addition, post hoc analyses with Tukey's HSD (using an α of .05) revealed that the volleyball bus (*M* = 3.00, *SD* = 1.46) had significantly higher peer acceptance scores than interactive wall (*M* = 2.21, *SD* = 1.22). The other videos did not differ significantly from one another.

4.4.4 Introjected motivation

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that the control group (M = 2.97, SD = 1.00) had significantly higher introjected motivation scores of all groups: volleyball bus (M = 2.31, SD = 1.33), challenge (M = 2.12, SD = 1.01), interactive wall (M = 1.92, SD = 1.19), and VR game (M = 2.34, SD = 1.34). In addition, the videos did not differ significantly from one another.

4.4.5 External motivation

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that the there is no significant difference between external motivation scores of the control group (M = 1.62, SD = 0.72) and all the other groups: volleyball bus (M = 2.03, SD = 1.08), challenge (M = 1.76, SD = 0.71), interactive wall (M = 1.86, SD = 1.03), and VR game (M = 2.10, SD = 1.15). In addition, the videos also did not differ significantly from one another.

4.4.6 Intention

Post hoc analyses with Tukey's HSD (using an α of .05) revealed that the control group (M = 2.99, SD = 1.07) had significantly higher intention scores than interactive wall (M = 2.24, SD = 1.07). However, there was no significant difference between intention scores of the control group and volleyball bus (M = 2.80, SD = 1.30), challenge (M = 2.45, SD = 1.00), and VR game (M = 2.61, SD = 1.29). In addition, the videos did not differ significantly from one another.

In general it can be seen that most variables have a negative score, a score below 3 (Table 6). An interesting finding is that attitude shows a higher score (above average) on volleyball bus, challenge, and VR game compared to the control group but was not significant. Whereas external motivation scores really low on all the different groups. Furthermore, self-efficacy has an above average score on the control group and volleyball bus, while peer acceptance is the only one with a high score on volleyball bus and is also significantly higher than the control group.

Table 6

One-Way ANOVA for Mean Scores and Tukey HSD post hoc test

	Control Group (*N*=75)		**Volleyball bus** (*N*=48)		**Challenge** (*N*=45)		**Interactive wall** (*N*=38)		**VR game** (*N*=45)	
Variable	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**
Attitude	2.95	1.09	3.14	1.21	3.08	1.06	2.59	1.14	3.14	1.10
Injunctive norm	2.97^{a}	1.00	2.58^{b}	1.26	2.42^{a}	0.88	2.15^{a}	1.04	2.36^{a}	0.99
Descriptive norm	2.91	1.05	2.79	0.98	2.98	0.94	2.72	1.25	3.08	1.11
Self-efficacy	3.21^{a}	1.02	3.17^{b}	1.20	2.86^{c}	1.12	2.47^{ab}	1.14	2.94^{e}	1.21
Peer acceptance	2.23^{a}	1.09	3.00^{ab}	1.46	2.48^{c}	1.19	2.21^{bd}	1.22	2.80^{e}	1.37
Intrinsic motivation	3.07	1.20	2.90	1.30	2.89	1.10	2.42	1.12	2.87	1.35
Identified motivation	2.63	0.97	2.43	1.10	2.29	1.05	2.12	1.14	2.66	1.25
Introjected motivation	3.15^{a}	1.11	2.31^{a}	1.33	2.12^{a}	1.01	1.92^{a}	1.19	2.34^{a}	1.34
External motivation	1.62^{a}	0.72	2.03^{b}	1.08	1.76^{c}	0.71	1.86^{d}	1.03	2.10^{e}	1.15
Intention	2.99^{a}	1.07	2.80^{b}	1.30	2.46^{c}	1.00	2.24^{a}	1.07	2.61^{e}	1.29

Note. Measurement scale: 5-point Likert scale. Means within rows sharing a common subscript (a, a, a, a, a) are significant different at $p < .05$. Means within rows not sharing a common subscript (a, b, c, d, e) are not significantly different at $p < .05$. Based on Tukey post hoc test.

4.5 Overview of the hypotheses

The results in this chapter show which hypotheses are supported and which are rejected. A summary of the results of the hypotheses testing section can be found below in Table 7.

Table 7

Overview of the hypotheses

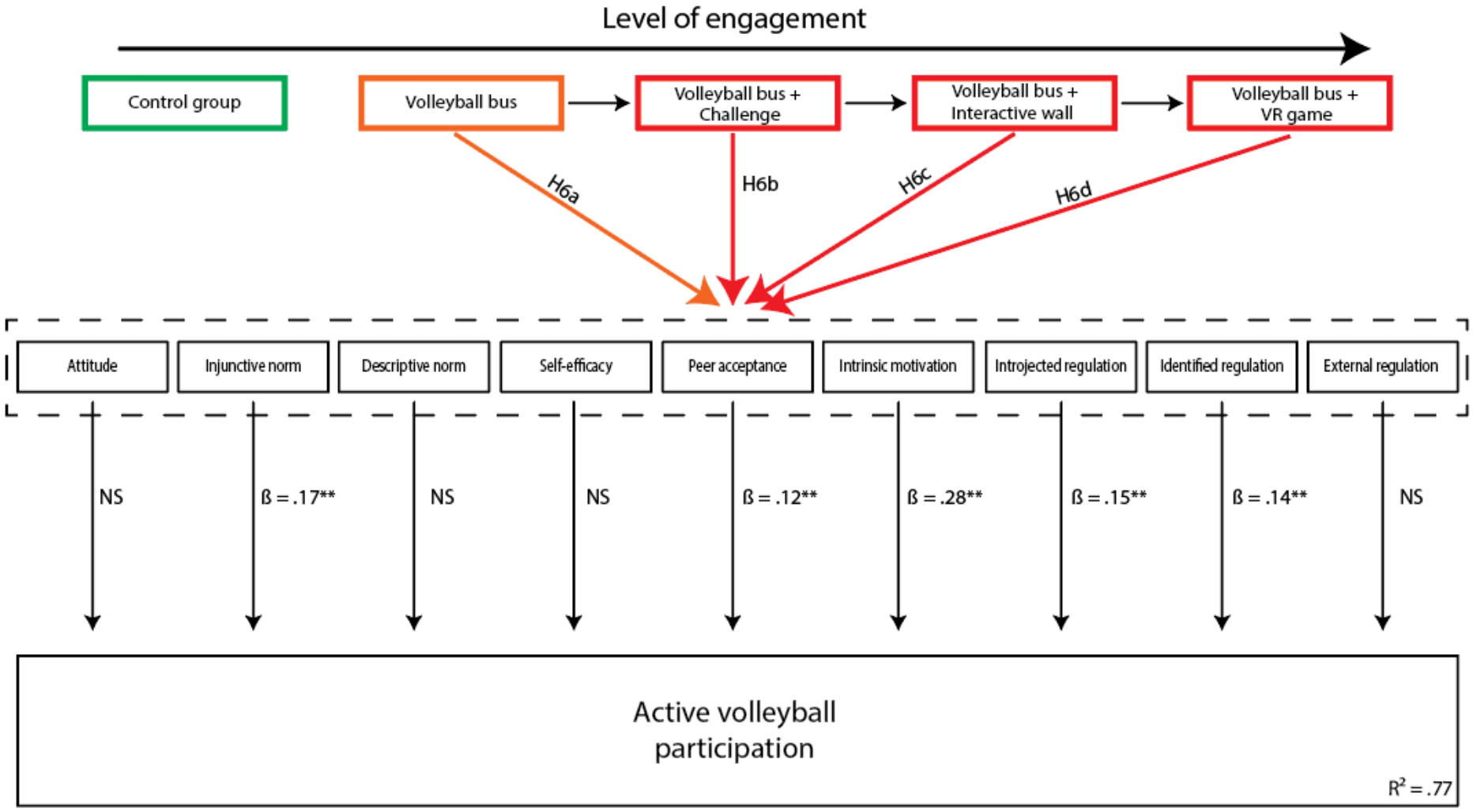
Hypothesis	**Result**	**Remarks**
H1: A positive attitude toward active volleyball participation is positively related to the intention to actively participate in volleyball.	Rejected	Not significant related
H2a: Injunctive norm is positively related to the intention to actively participate in volleyball.	**Supported**	
H2b: Descriptive norm is positively related to the intention to actively participate in volleyball.	Rejected	Not significant related
H3a: Self-efficacy is positively related to the intention to actively participate in volleyball.	Rejected	Not significant related
H3b: Peer acceptance is positively related to the intention to actively participate in volleyball.	**Supported**	
H4: Intrinsic motivation is positively related to the intention the actively participate in volleyball.	**Supported**	

Table 7 Continued

Hypothesis	Result	Remarks
H5a: Identified regulation is positively related to the intention the actively participate in volleyball.	**Supported**	
H5b: Introjected regulation is positively related to the intention the actively participate in volleyball.	**Supported**	
H5c: External regulation is positively related to the intention the actively participate in volleyball.	Rejected	Not significant related
H6a: The exposure to the volleyball bus results in higher scores on attitude, social norms PBC, and motivations as compared to no exposure to engagement elements.	Partly rejected	Higher scores on peer acceptance compared to control group and higher scores on self-efficacy and peer acceptance compared to the interactive wall.
H6b: The exposure to the combined effect of the volleyball bus and challenge results in higher scores on attitude, socials norms, PBC and motivations as compared to the exposure to solely the volleyball bus.	Rejected	No greater effect
H6c: The exposure to the combined effect of the volleyball bus and interactive wall results in higher scores on attitude, socials norms, PBC and motivations as compared to the exposure to the combined effect of the volleyball bus and challenge.	Rejected	No greater effect
H6d: The exposure to the combined effect of the volleyball bus and VR volleyball game results in higher scores on attitude, socials norms, PBC, and motivations as compared to the exposure to the combined effect of the volleyball bus and interactive wall.	Rejected	No greater effect

*4.6 **Relational** model*

To close this chapter, a relational model will be presented. This model will display the results of the analysis based on the conceptual research model, which was presented in the theoretical framework.



Notes. Green = control group and has the most influences on the psychological factors, orange = partly rejected (the volleyball bus scored significantly higher on peer acceptance in comparison to the control group and higher on self-efficacy and peer acceptance compared to the interactive wall), and red = rejected.

Fig. 4. Relational model

5. Discussion

The current study investigated the impact of different levels of engagement in marketing communication tools on several psychological factors such as attitude, social norms, PBC, and motivations. In this chapter, the results of Chapter 4 will be discussed by comparing it to previous research, providing limitations and ideas for future research and reviewing theoretical and practical implications.

5.1 Discussion of the results

5.1.1 Psychological factors

The current study examined the role of the psychological factors in predicting the intention to actively participate in volleyball. Overall, the model explained 77% of the variance in the intention to actively play volleyball, which is substantial. As a result, injunctive norm, peer acceptance, intrinsic motivation, introjected regulation, and identified regulation were significant predictors of the intention to actively participate in volleyball, while attitude, descriptive norm, self-efficacy and external motivation were not significant.

In contrast to the findings of this study, several researchers state that peer influence is of great influence in active sport participation among children (e.g. Allen, 2003; Craggs et al., 2011) and thus injunctive as well as descriptive norm should be of significant influence on active volleyball participation. However, the current study showed that of the two only injunctive norm is of significant influence. Previous research showed that social reasons are of great influence when it comes to children and sport participation (Allen, 2003) and thus both injunctive and descriptive norms were considered relevant. However, results showed that only injunctive norm has a significant influence on active volleyball participation. Due to the fact that children were watching a movie instead of actually participating in volleyball related activities, one did not experience nor see significant others play volleyball. Therefore, the participant did not actually see other people performing this behavior, which made it difficult to answer the questions related to descriptive norm.

Past research claims that PBC is, next to attitude, a strong predictor of behavioral intention (e.g. Downs & Hausenblas, 2005; McEachen et al., 2011). For the current study, results showed a significant relationship between peer acceptance and the intention to actively participate in volleyball. This means that if their peers would not like to actively play volleyball, one is also less likely to actually play volleyball, even if he/she wants to play volleyball. An interesting fact is that descriptive norm did not have a significant influence while peer acceptance does.

However, peer acceptance is seen as a constraint rather than a norm, as peer acceptance focuses on the fact that one wants to play volleyball but as peers do not play he/she will not play either. While descriptive norm does not focus on the fact that one really wants to play but focusses on if others play than I will play as well. In addition, descriptive norm the participants were also asked about family and teachers, while with peer acceptance the focus lied on friends and classmates. Therefore, it can be stated that indeed peers have a greater influence on children than family and teachers have.

In addition, previous research claimed that motivations play a role in understanding why one would participate in physical activity (Dilsad et al., 2020; Kondric et al., 2013; Sebire et al., 2013). Therefore, both intrinsic and extrinsic motivations were analyzed in the current study. As a result, intrinsic motivation had a positive impact on the intention to actively participate in volleyball. This means that one is acting out of his/her own interest and enjoyment. It can be argued that intrinsic motivation and attitude are more or less related to each other as attitude is one's perception toward actively playing volleyball and intrinsic also refers to motivation that comes from the inside. However, results showed no significant relationship between attitude and the intention to actively participate in volleyball.

In addition, extrinsic motivations were examined distinguished into three types: identified, introjected, and external regulation. The results provide support for the positive influences identified and introjected regulation have on the intention to actively participate in volleyball. Introjected regulation is described as one's behavior that is carried out to achieve social recognition, a pressuring voice. As injunctive norm and peer acceptance were both significant, it is understandable that introjected regulation also showed significant influences on the behavioral intention. In addition, identified regulations is about personally valuing the benefits of actively playing volleyball. He/she has personally identified with the importance of the behavior.

Last, the overall scores of the survey were relatively low. In general, most factors scored below average, meaning they disagreed with the statements asked. Only a few factors scored a three or a bit higher but none of the questions had an average of 'agree' or 'strongly agree'. However, volleyball is seen as a team sport and due to Covid-19 children were not allowed to participate in any team sport. Therefore, this can be considered a reason why the scores were so low as they knew they will not be able to play anyways. In addition, the videos that were showed might be considered outdated and lack engagement, which resulted in not getting

children enthusiastic about volleyball and thus resulting in low scores. Moreover, all questions were related to volleyball and not sport in general. Lots of children already play a different sport and might not be interested in switching. Furthermore, the survey can be considered odd to fill in for children that already play volleyball.

5.1.2 Effects of engagement levels in marketing communication tools

Previous research suggested that higher levels of engagement will have a greater influence on the psychological factors (Grover, 2019). However, the group that received zero engagement (control group) scored significantly higher on almost all variables compared to the treatment groups. As mentioned in the method section, the control group had more participants than the treatment group and all the participants of the control group live in the Northern part of the Netherlands. This may have had an effect on the accuracy of the control group compared to the treatment groups. In addition, it can also be argued that the tested marketing communication tools did not sufficiently measure the different level of engagement. As the participant had to watch a video, he or she was not able to experience the tool in real life, which could have affected the feeling of actual engagement.

However, some effects of engagement levels in marketing communication tools were found. The exposure to the volleyball bus resulted into significantly higher scores on peer acceptance as compared to the control group. In comparison to the control group, the volleyball bus showed a video of what it is like to play volleyball. When the participants perceived this as fun, he/she might be triggered into playing volleyball even though their friends or classmates do not want to.

In addition, the exposure to the volleyball bus resulted into significantly higher scores on both self-efficacy and peer acceptance in comparison to the combination of the volleyball bus and interactive wall. This is interesting as the exposure toward the interactive wall is considered to have a higher level of engagement and thus, according to the hypotheses, should have a higher score. The interactive wall showed several volleyball games that can be played on a digital wall, while the volleyball bus only showed children playing volleyball together. Therefore, the interactive wall can be perceived as more challenging as children have to hit targets to get points. The participant might feel the pressure that he/she needs to perform well, resulting in a lower level of self-efficacy.

Furthermore, no significant results were found between the other treatment groups. In general, results provide no support for higher level of engagement in marketing communication tools, with the exception of peer acceptance on the volleyball bus.

5.2 Limitations and future research

Even though the current study has offered several insights into the relationship between the psychological factors and the intention to actively participate in volleyball, several limitations need to be considered when interpreting the results and giving incentives for future studies related to this topic.

First, it is important to mention that the current study was carried out during Covid-19 times. Therefore, it was not possible to actually visit elementary schools to get children to participate in the current study. Originally, it was desired to visit several elementary schools and let the children participate in real life activities and then afterwards handout a survey. However, due to the strict rules to regulate Covid-19, during the first period of this research schools were closed and afterwards it was not allowed to visit any of the elementary schools as an outsider. Therefore, it was impossible to carry out the research in real life and thus it was necessary to conduct a different approach. The new approach consisted of four different video's that contain different levels of engagement. However, the results showed that this had barely any effect. Therefore, for future research it is recommended to visit elementary schools and let children participate in real life activities, so they can actually experience what it is like to actively play volleyball and create an emotional connection.

In addition, a limitation of the current study is that the sample sizes were unequal. As described in the method section the five different groups (control group, volleyball bus, challenge, interactive wall and virtual reality game) were not equally distributed. Previous research states that the statistical power of a hypothesis test that compares groups is the highest when group have equal sample sizes (Grace-Martin, 2020), therefore these unequal sample sizes may have affected the results.

Moreover, it was not possible to put the control group within the randomizations of the other groups as the questions were formulated differently. The same questions were asked, however, as the control group did not receive a video that they had to watch and thus the questions were not based on watching the video before answering the questions. This made it impossible to add the control group to the randomization and thus it was chosen to send the survey of the control group to one school. It was recommended to find a school that is

considered a good representation of all school in the Netherlands taking into account location, religion, size, etc. This, however, turned out to be more challenging than expected as due to Covid-19 it was hard to find schools who would participate in the current study. Eventually, the control group consist of a school located in the middle of the Netherlands, but is considered to be a religious school. This is interesting as many researchers claims that there is a relationship between sport and religion (Parker & Watson, 2014; Schultz & Sheffer, 2015) and thus would be interesting for future research.

In addition, a lot of the participants in the control group do not already play volleyball or another sport and therefore this can be the reason the control group had a more positive influence toward actively participating in volleyball. Therefore for future research it is recommended to have a control group that is less biased.

The current study had an interesting target audience with children aged between 8 to 12 years old. Previous researchers argued that research with children is possibly different form research with adults, especially when it comes to validity and reliability (Punch, 2002). The most common assumption is that children do not fill out the survey truthfully (Punch, 2002). This might also have been the case during the current study and therefore results might be affected. A way to avoid this is by gaining trust of the child and invest to form a relationship (Punch, 2002). As the survey was distributed online, there was no relationship at all between the researcher and the children. Therefore, for future research it is recommended to spend time with the children, in which case the child would get to know the researchers and might feel more comfortable.

In general, findings showed that children were highly influenced by their peers. As most of the surveys were filled out in the classroom surrounded by classmates, participants might be (unconsciously) influenced by their peers. Therefore, this must be taken into account while interpreting the results.

5.3 Theoretical implications

The current study contributes to the understanding of actively volleyball participation among children and the effect of engagement in marketing communication tools by combining various variables that predict sport participation, which are influenced by several levels of engagement. Past research on understanding sport participation included both predictors of TPB and SDT. For instance, McEachen et al. (2011) conducted a meta-analysis to predict exercise related behavior. The researcher focused on TPB variables and stated that attitude and PBC were the

largest predictors on adult population. In addition, another research on exercise behavior among children found out that peer support has a positive association with physical activity (Craggs et al., 2011). Besides, Dilasd et al. (2020) showed that motivation plays an important role in sport participation. Therefore, all these psychological factors were combined and tested in a model. However, results showed that not all variables were considered of significant influence on active volleyball participation. Especially, attitude had no significant effect, which is in contrast with previous research that showed that attitude was the one of the largest predictors. In addition, injunctive norm was considered significant while descriptive norm was not. The current study also showed no support on self-efficacy and external regulation. It can be argued that research among children is challenging and therefore more research is needed in order to strengthen the foundation of these findings.

Furthermore, level of engagement in marketing communication tools were tested. Funk et al. (2016) states that it is possible to influence the psychological factors of SDT and TPB with marketing activities. Previous research has shown that engagement is an important aspect when it comes to children and marketing (Grover, 2019). The current study focused on the level of engagement within the marketing tools. First, a video of the volleyball bus was added and considered low level of engagement. Second, as rewards are seen as a relevant motivator to participate in a sport, a challenge was added to the volleyball bus, and considered to have a higher level of engagement. In addition, research has shown that interactive games can help to stimulate sports participation (Gao et al., 2012) and thus an interactive wall was added increasing the level of engagement. Lastly, research showed that virtual reality (VR) games increase physical ability (Kivelä et al., 2019). As virtual reality is highly interactive, this is considered to have the highest level of engagement within the current study. However, in the current study level of engagement was tested through videos rather than real life experience. Therefore, results did not show support for higher level of engagement on attitude, injunctive norm, descriptive norm, peer self-efficacy, intrinsic motivation, introjected regulation, identified regulation and external regulation and only a slight improvement on peer acceptance when low level of engagement was introduced. Therefore, it is suggested to do more research on the level of engagement in real life activities.

5.4 Practical implications

Next to the theoretical implications, the current study also provides several practical implications for the Nevobo. First, implications for the several psychological factors that influenced the intention to actively participate in volleyball will be analyzed followed by the marketing communications tools.

5.4.1 Psychological factors

There were several psychological factors that were significant predictors of active volleyball participation among children, namely injunctive norm, peer acceptance, intrinsic motivation, introjected regulation, and identified regulation. Therefore, it is important to take these variables into account when creating marketing campaigns. In general, when creating marketing campaigns to attract children (8-12 years old) to come and play volleyball, it is important to take into account that peers have a great influence on the targeted audience but that it also should be fun and personally matter. There are several ways marketers can use this in their marketing strategy.

In Dutch elementary schools children have to give a show and tell (in Dutch: spreekbeurt) in front of the whole class. During this show and tell children get to talk about a topic they introduced themselves. This can be about their pet or certain hobby they have, but also about a sport. Therefore, this is a great way to let a peer talk to other peers about volleyball. As children are influenced by peers this is a great way to get them excited about volleyball. If a classmate does his/her show and tell about volleyball, one can express his/her excitement onto other classmates. The Nevobo can help by putting together information one can use for his/her show and tell but as mentioned before it is also important that children will experience playing volleyball in real life. Therefore, it is recommended when a child ask for information for the show and tell, the Nevobo is able to work together with the local volleyball club in order to see whether they can also do a small introduction to volleyball where the children can actually experience what it is like to play volleyball in real life.

In addition, Nevobo should work together with local volleyball clubs to host ‘friends day’. This means that children who are already playing volleyball at the local club can bring their friend to practice so they can try it out. By doing this, one gets to experience volleyball in real life together with his/her best friend.

Moreover, the Nevobo could work together with local volleyball clubs and elementary schools to create school based volleyball programs. All elementary schools need to give

physical education to their children. Therefore, this is a great way to get acquainted with volleyball together with their classmates. When working together with the local volleyball club the program would be professional and can lead to actual membership. This can also be organized in combination with the so-called school volleyball tournament. Every Dutch elementary school participates in this tournament where the schools play volleyball games against each other.

Children aged 8 through 12 years hold birthday parties where they invite (most of) their classmates. In the Netherlands it is common to have some sort of activity during this party. Therefore, it is recommended to offer small volleyball clinics for birthday parties. This can also be set up with the local volleyball club. Additionally, together with the local volleyball club it can also be arranged to come and watch ladies 1 or men 1 play and make a fun day out of it. Besides arranging this for birthday parties, this can also be arranged for the so-called teacher's day (in Dutch: meester en juffendag). Every Dutch elementary school has a teacher day where they celebrate all the birthdays of the teachers together on the same day. While celebrating this the teachers/school always arranges something fun the children can do.

Moreover, the target audience is highly active on TikTok (Newcom, 2021) and thus this social media platform is seen as a great advantage for marketing activities. As TikTok is all about trends and challenges, it would be recommended to create your own challenge that is related to volleyball. By doing this children get acquainted with volleyball through a platform they love to use and where other peers are active as well.

Lastly, it is important that children have fun and watch other people having fun while playing volleyball. Therefore, it is also recommended to visit schools with the volleyball bus so they can participate in real life volleyball activities and experience what that is like. For example, one can work together with the local volleyball club that the whole class can come and watch Ladies 1 or Men 1 (from the local volleyball club) play or give them a discount on tickets for the national team.

5.4.2 Engagement levels in marketing communication tools

Results showed that the used marketing communication tools, the videos, barely had any effect. The group that received zero engagement was significantly higher on almost all variables compared to the other groups. Only the volleyball bus was significantly higher than the control group on peer acceptance and on both self-efficacy and peer acceptance in comparison to the interactive wall. It can be argued that the videos are considered outdated, especially looking at

the twenty first century technology. Children are more and more active on social media and the age group 8 to 12 years old are especially active on TikTok (Newcom, 2021). Therefore, creating content that is relevant to post on TikTok such as trends or challenges will probably have a greater impact.

In addition, the videos in general do not create the level of engagement it should have. As mentioned before, due to Covid-19 videos were chosen instead of real life activities. However, this could have affected the engagement level of the video, as for instance the children were not able to experience what it is like to use the inflatables or interactive wall in real life. Additionally, if one experiences this in real life, one creates an emotional connection, which is now lacking due to watching videos. If children were already actively busy with volleyball related activities, they probably would have a different experience than through watching a video. Therefore, it can be concluded that just showing videos are not enough and it is recommended to let children actually participate in real life volleyball activities.

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Appendices

Appendix A-1: Survey

Hallo,

Bedankt dat jij de tijd neemt om deze vragenlijst in te vullen.
Bij de vragenlijst gaat het om jouw mening (het is geen toets). Het gaat dus niet om goede of foute antwoorden. Ook kun je op elk moment vrijwillig stoppen met het invullen van de enquête.

Je deelname aan dit onderzoek is volledig anoniem.

Veel plezier!

Ik wil de vragenlijst invullen:

- ◯ Ja
- ◯ Nee

Hoe oud ben je?

- ◯ 8 jaar
- ◯ 9 jaar
- ◯ 10 jaar
- ◯ 11 jaar
- ◯ 12 jaar

Ben je een jongen of meisje?

- ◯ Jongen

- ◯ Meisje

In welke groep zit je?

- ◯ Groep 5
- ◯ Groep 6
- ◯ Groep 7
- ◯ Groep 8

In welke regio in Nederland woon je?

- ◯ Noord
- ◯ Midden
- ◯ Zuid

Beantwoord de volgende vraag

					
Vind je het leuk om te sporten?	◯	◯	◯	◯	◯

Welke sport speel je?

- ◯ Volleybal
- ◯ Voetbal
- ◯ Turnen
- ◯ Zwemmen
- ◯ Tennis
- ◯ Basketbal
- ◯ Geen sport
- ◯ Anders, namelijk:

Bekijk eerst het filmpje, daarna ga je vragen beantwoorden. Al deze vragen gaan over dit filmpje.

Bekijk eerst het filmpje, daarna ga je vragen beantwoorden. Al deze vragen gaan over dit filmpje.

Bekijk eerst het filmpje, daarna ga je vragen beantwoorden. Al deze vragen gaan over dit filmpje.

Bekijk eerst het filmpje, daarna ga je vragen beantwoorden. Al deze vragen gaan over dit filmpje.

NA HET ZIEN VAN HET FILMPJE...

lijkt volleyballen mij leuk.	○	○	○	○	○
lijkt volleyballen mij gaaf.	○	○	○	○	○
lijkt volleyballen mij interessant.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

denk ik dat mijn vriendjes/vriendinnetjes vinden dat ik moet proberen te gaan volleyballen.	○	○	○	○	○
denk ik dat mijn ouders vinden dat ik moet proberen te gaan volleyballen.	○	○	○	○	○
denk ik dat mijn klasgenootjes vinden dat ik moet proberen te gaan volleyballen.	○	○	○	○	○
denk ik dat mijn juf/meester vindt dat ik moet proberen te gaan volleyballen.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

denk ik dat mijn ouders enthousiast zijn en als mijn ouders enthousiast zijn dan ben ik dat ook.	○	○	○	○	○
denk ik dat mijn vriendjes/vriendinnetjes enthousiast zijn en als mijn vriendjes/vriendinnetjes enthousiast zijn ben ik dat ook.	○	○	○	○	○
denk ik dat mijn klasgenootjes enthousiast zijn en als mijn klasgenootjes enthousiast zijn ben ik dat ook.	○	○	○	○	○
denk ik dat mijn juf/meester enthousiast is en als mijn juf/meester enthousiast is ben ik dat ook.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
denk ik dat ik ook kan volleyballen.	○	○	○	○	○
denk ik dat ik zou willen volleyballen ook al weet ik niet of ik het kan.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
zou ik het leuk vinden om te volleyballen ook al doen mijn vriendjes/vriendinnetjes niet mee.	○	○	○	○	○
zou ik het leuk vinden om te volleyballen ook al doen mijn klasgenootjes niet mee.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
denk ik dat volleybal leuk is.	○	○	○	○	○
zou ik graag willen volleyballen.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
vind ik volleyballen belangrijk.	○	○	○	○	○
zie ik welke voordelen volleyballen heeft.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
vind ik dat ik moet gaan volleyballen.	○	○	○	○	○
wil ik aan andere mensen laten zien hoe goed ik ben.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
denk ik dat andere mensen willen dat ik ga volleyballen.	○	○	○	○	○
denk ik dat als ik niet volleybal anderen mensen niet blij met mij zijn.	○	○	○	○	○
denk ik dat ik van andere kinderen kan winnen.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
zou ik graag met mijn vriendjes/vriendinnetjes op het schoolplein willen volleyballen.	○	○	○	○	○
zou ik graag een keer volleybal willen proberen.	○	○	○	○	○
zou ik mij aanmelden bij een volleybalvereniging.	○	○	○	○	○
zou ik gaan volleyballen.	○	○	○	○	○

NA HET ZIEN VAN HET FILMPJE...

					
zou ik graag een wedstrijdje doen wie het hardste tegen een bal kan slaan met mijn klasgenoten.	○	○	○	○	○
zou ik graag een wedstrijdje doen wie het hardste tegen een bal kan slaan met andere kinderen in Nederland.	○	○	○	○	○
zou ik graag een foto van mijzelf willen wanneer ik een coole actie maakt.	○	○	○	○	○

Beantwoord de volgende vragen

					
Ik zou het leuk vinden om een e-mail te ontvangen over de uitslag van een volleybalspel waaraan ik heb meegedaan.	○	○	○	○	○
Ik zou het leuk vinden om een e-mail te ontvangen met een foto van mijzelf in actie.	○	○	○	○	○
Ik zou het leuk vinden om een e-mail te ontvangen met een leuke actie om naar een volleybalwedstrijd te kunnen.	○	○	○	○	○
Ik zou het leuk vinden om een e-mail te ontvangen met tips over volleyballen.	○	○	○	○	○
Ik mag/kan een emailadres doorgeven voor de bovenstaande acties.	○	○	○	○	○
Ik weet waar ik bij mij in de buurt kan volleyballen.	○	○	○	○	○

Appendix A-2: Survey control group

Hallo,

Bedankt dat jij de tijd neemt om deze vragenlijst in te vullen.
Bij de vragenlijst gaat het om jouw mening (het is geen toets). Het gaat dus niet om goede of foute antwoorden. Ook kun je op elk moment vrijwillig stoppen met het invullen van de enquête.

Je deelname aan dit onderzoek is volledig anoniem.

Veel plezier!

Ik wil de vragenlijst invullen:

- ◯ Ja
- ◯ Nee

Hoe oud ben je?

- ◯ 8 jaar
- ◯ 9 jaar
- ◯ 10 jaar
- ◯ 11 jaar
- ◯ 12 jaar

Ben je een jongen of meisje?

- ◯ Jongen

- ◯ Meisje

In welke groep zit je?

- ◯ Groep 5
- ◯ Groep 6
- ◯ Groep 7
- ◯ Groep 8

In welke regio in Nederland woon je?

- ◯ Noord
- ◯ Midden
- ◯ Zuid

Beantwoord de volgende vraag

					
Vind je het leuk om te sporten?	◯	◯	◯	◯	◯

Welke sport speel je?

- ◯ Volleybal
- ◯ Voetbal
- ◯ Zwemmen
- ◯ Paardrijden
- ◯ Turnen
- ◯ Tennis
- ◯ Basketbal
- ◯ Geen sport
- ◯ Anders, namelijk: _____

Beantwoord de volgende vragen

Het lijkt mij leuk om te volleyballen.	○	○	○	○	○
Het lijkt mij gaaf om te volleyballen.	○	○	○	○	○
Het lijkt mij interessant om te volleyballen.	○	○	○	○	○

Beantwoord de volgende vragen

Mijn vriendjes/vriendinnetjes hebben het wel eens over volleybal gehad.	○	○	○	○	○
Mijn ouders hebben het wel eens over volleybal gehad.	○	○	○	○	○
Mijn klasgenootjes hebben het wel eens over volleybal gehad.	○	○	○	○	○
Mijn juf/meester heeft het wel eens over volleybal gehad.	○	○	○	○	○

Beantwoord de volgende vragen

Als mijn vriendjes/vriendinnetjes volleyballen, zou ik ook willen volleyballen.	○	○	○	○	○
Als mijn ouders volleyballen, zou ik ook willen volleyballen.	○	○	○	○	○
Als mijn klasgenootjes volleyballen, zou ik ook willen volleyballen.	○	○	○	○	○
Als mijn juf/meester volleybalt, zou ik ook willen volleyballen.	○	○	○	○	○

Beantwoord de volgende vragen

					
Ik denk dat ik goed kan volleyballen.	○	○	○	○	○
Ik zou willen volleyballen ook als ik niet weet of ik het kan.	○	○	○	○	○

Beantwoord de volgende vragen

					
Ik zou het leuk vinden om te volleyballen ook al doen mijn vriendjes/vriendinnetjes niet mee.	○	○	○	○	○
Ik zou het leuk vinden om te volleyballen ook al doen mijn klasgenootjes niet mee.	○	○	○	○	○

Ik zou willen volleyballen omdat...

					
volleyballen mij leuk lijkt.	○	○	○	○	○
ik graag kennis wil maken met volleybal.	○	○	○	○	○

Ik zou willen volleyballen omdat...

					
ik volleyballen belangrijk vind.	○	○	○	○	○
ik de voordelen van volleyballen waardeer.	○	○	○	○	○

Ik zou willen volleyballen omdat...

					
als ik niet beweeg voel ik me slecht.	○	○	○	○	○
ik andere mensen wil laten zien hoe goed ik ben.	○	○	○	○	○

Ik zou willen volleyballen omdat...

					
andere mensen zouden willen dat ik ga volleyballen.	○	○	○	○	○
als ik niet volleybal dat andere mensen niet blij met mij zijn.	○	○	○	○	○
ik van andere kinderen kan winnen.	○	○	○	○	○

Beantwoord de volgende vragen

					
Ik zou graag met mijn vriendjes/vriendinnetjes op het schoolplein willen volleyballen.	○	○	○	○	○
Ik zou graag een keer volleybal willen proberen.	○	○	○	○	○
Ik zou mij willen aanmelden bij een volleybalvereniging.	○	○	○	○	○
Ik zou graag willen volleyballen.	○	○	○	○	○

Beantwoord de volgende vragen

					
Ik zou graag een wedstrijdje doen wie het hardste tegen een bal kan slaan met mijn klasgenoten.	○	○	○	○	○
Ik zou graag een wedstrijdje doen wie het hardste tegen een bal kan slaan met andere kinderen in Nederland.	○	○	○	○	○
Ik zou graag een foto van mijzelf willen wanneer ik een mooie actie maakt.	○	○	○	○	○

Beantwoord de volgende vragen

					
Ik zou het leuk vinden om een e-mail te ontvangen over de uitslag van een volleybalspel waaraan ik heb meegedaan.	○	○	○	○	○
Ik zou het leuk vinden om een e-mail te ontvangen met een foto van mijzelf in actie.	○	○	○	○	○
Ik zou het leuk vinden om een e-mail te ontvangen met een leuke actie om naar een volleybalwedstrijd te kunnen.	○	○	○	○	○
Ik zou het leuk vinden om een e-mail te ontvangen met tips over volleyballen.	○	○	○	○	○
Ik mag/kan een emailadres doorgeven voor de bovenstaande acties.	○	○	○	○	○
Ik weet waar ik bij mij in de buurt kan volleyballen.	○	○	○	○	○

Appendix B: Informed consent

Beste ouders/verzorgers,

Mijn naam is Jette Blokhuis en ik ben student aan de Universiteit van Twente. In samenwerking met de universiteit en de Nevobo (Nederlandse Volleybalbond) doe ik onderzoek naar kinderen en sport (in het bijzonder volleybal). Deze vragen zullen door middel van een online enquête worden afgenomen. Het gaat hierbij om de mening van uw zoon/dochter en er zijn dus geen goede of foute antwoorden, er is geen sprake van een toets.

Het onderzoek is beoordeeld en goedgekeurd door de ethische commissie van de Universiteit van Twente. De privacy van uw zoon/dochter is en blijft maximaal beschermd. Om de privacy van uw zoon/dochter te beschermen is de deelname aan dit onderzoek volledige anoniem. Er wordt op geen enkele wijze vertrouwelijke informatie van of over uw zoon/dochter gepubliceerd.

Deelname aan dit onderzoek is geheel vrijwillig. Uw zoon/dochter kan te allen tijde stoppen, zonder opgaaf van redenen. Dit betekent dat als u voorafgaand aan (of tijdens) het onderzoek besluit om af te zien van deelname aan dit onderzoek, dat dit op geen enkele wijze gevolgen voor u of uw zoon/dochter zal hebben.

U kunt de enquête ook samen met uw zoon/dochter invullen, zodat u weet wat er gevraagd wordt. U zult dan zien dat aan het begin van de enquête ook toestemming wordt gevraagd voor deelname aan dit onderzoek.

Mocht u vragen hebben dan kunt u altijd contact met mij opnemen.

Hartelijk dank voor uw medewerking!

Jette Blokhuis
j.blokhuis@student.utwente.nl

Appendix C: Shapiro-Wilk test

Shapiro-Wilk (tests of normality)

	Statistic	df	Sig.
All attitude	.957	251	.000
All injunctive	.956	251	.000
All descriptive	.962	251	.000
All self-efficacy	.950	251	.000
All peer acceptance	.897	251	.000
All intrinsic	.939	251	.000
All identified	.930	251	.000
All introjected	.902	251	.000
All external	.819	251	.000
All intention	.948	251	.000

Appendix D: Levene's test

Test of Homogeneity of Variances based on Median

	Levene Statistic	df1	df2	Sig.
All attitude	.308	4	246	.872
All injunctive	2.570	4	246	.039
All descriptive	1.064	4	246	.375
All self-efficacy	1.492	4	246	.205
All peer acceptance	4.257	4	246	.002
All intrinsic	1.047	4	246	.383
All identified	1.719	4	246	.146
All introjected	1.266	4	246	.284
All external	3.731	4	246	.006
All intention	2.268	4	246	.063