2015•2016
FACULTY OF BUSINESS ECONOMICS
*Master of Management*

# Master's thesis

## Co-creation and learning styles: holy grail or fail? An explorative study

to assess whether a relationship between co-creation and learning styles exists.

Supervisor :
Prof. dr. Alexandra STREUKENS

Kimberly Van Spaendonk

*Thesis presented in fulfillment of the requirements for the degree of Master of Management*

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## PREFASE

When I started looking for a subject to write my master thesis on last year I had a hard time. I wanted to combine my previous studies – educational sciences – with my current ones in a way. I already knew that co-creation was a subject that really sounded interesting to me. So I had some direction, but it was only in my first meeting with my promotor, prof. Sandra Streukens, that we started talking about linking this to learning styles. This immediately triggered my interest and so the topic for my master dissertation was born. It was a hard year since then and now, but I learned a lot from it, so it was worth it.

While writing my master dissertation, there are several people I could count on all the time and I definitely want to thank. Firstly, I want to thank my promotor, prof. Sandra Streukens. She really helped me in refining my topic and also was always available to provide feedback and support.

Secondly, I want to thank my family and friends for enduring my nagging for a second time. You all had to go through this the first time I had to write a thesis, but still everybody kept on supporting me with encouraging words, so thanks! With a special thanks to my parents and sisters, who were there when I couldn't see the forest for its trees.

Lastly I want to thank everyone who filled in my survey and in this way, hopefully, help me graduate.

Enjoy the reading! ☺

## ABSTRACT

Co-creation is hot. Customers want to be involved in the product-development process and no longer just be users. An example of co-creation is the flavour competition of Lay's where customers can invent new flavours. So interacting and co-creating with customers is important in creating a competitive advantage, this needs to be done in an effective way. In this master dissertation it's examined whether a relationship exists between someone's preferred learning style and co-creative environments. A learning style explains how people learn, for example via images or via text. A co-creative environment is the place where co-creation takes place. Lay's used a website for their competition. Next to the existence of a relationship between learning styles and co-creative environments, this study also looks at when these two are matched whether this has a positive influence on the co-creation experience. This is tested via a questionnaire that 135 people completed. Two hypothesis are discussed. The first one looks at the link between learning styles and co-creative environments. The second one focusses on the relation between learning style based co-creative environments and the co-creation experience. The results, analysed via ANOVA and paired t-tests, show that neither of the hypotheses can be confirmed. So based on the results found there isn't a relation between learning styles and co-creative environments or the co-creation experience. So when developing co-creative environments it's better to look at other factors and not take into account someone's learning style. The results also showed that forums should be avoided.

**OVERVIEW**

## LIST WITH TABLES AND FIGURES

### Tables

**Figures**

# 1. INTRODUCTION AND PROBLEM DEFINITION

## 1.1 Introduction

*"Co-creation is much more work than writing somewhere in a hidden corner and then publishing your content. However, the benefits outweigh the costs." – Alexander Osterwalder*

This master's dissertation concentrates on a trending topic in marketing: co-creation. More specifically it's researched if a relationship between learning styles and co-creative environments exists. Co-creative environments are of big importance in the co-creation process and might be able to increase the co-creation experience (Orcik & Anisic, 2014). The topics of co-creation, learning styles, co-creative environments and customer experience will be discussed in the first part. This leads to a conceptual model with two hypotheses. In the end, the results will either deny or confirm this conceptual model.

## 1.2 Problem definition

Competing in a global market is getting more and more difficult, the only avenue for survival seems to be the creation of long lasting competitive advantages and the way there seems to be by focusing on the customer. Customers have more choices of products nowadays, but still don't seem to be satisfied (Gentile, Spiller, & Noci, 2007; Prahalad & Ramaswamy, 2004). Consumers want to interact and co-create value (Prahalad & Ramaswamy, 2004). In other words, they want to be involved in the product-development process and be heard by companies. An example of co-creation is Lay's, they organised a competition that let their customers come up with new flavours of chips. The benefits of engaging customers in for example product development are increasingly visible (Nambisan & Nambisan, 2008).

Also in in the way marketing is viewed there has been a shift. The focus used to be on the exchange of "goods" or tangible resources. Over time this focus has shifted to services and intangible resources like the co-creation of value, this is called a service-dominant logic (Vargo & Lusch, 2004). When focusing on services it's important to know what customers value. So it's important to engage customers in

the creation of products and services to deliver them the services they want and need (Verleye, 2015). Still very little is known about how customers engage in co-creation (Payne, Storbacka, & Frow, 2008). To engage in co-creation it's important that customers are motivated, have the necessary skills and knowledge and that the co-creative environment is adapted to the participating customers (Hibbert, Winklhofer, & Temerak, 2012; Verleye, 2015). But so far, the focus in most co-creation research has been on firms and the benefits they get out of it (Verleye, 2015).

Even though the focus has been on firms, customers are a crucial element. An important challenge in the co-creation research has been to measure in what extent customers can be creative and what tools and processes enable an effective co-creation (Martini, Massa, & Testa, 2014). Better customer experiences are a key principle in co-creation. When people put effort in an activity they expect certain benefits in return. The customer experience depends on how these benefits are met (Verleye, 2015). For example if you would put a lot of time and effort in coming up a new flavour of chips for Lay's, you might want a monetary reward or recognition in return. So it's important to think how positive customer experiences can be created while designing a co-creative environment. These experiences are influenced by two elements: the customer readiness and the characteristics of the co-creative environment (Verleye, 2015). The co-creative environment is the place where co-creation takes place. Lay's for example used a website where people could submit new chips flavours or vote for their favourite ones.

A learning style-based co-creative environment can be the solution here. Learning styles describe individual differences in how people learn and how they choose among several learning modes (A. Y. Kolb & Kolb, 2005). For example, put very black and white, it might be possible that some people learn by looking at images and other people learn by reading a text.

This research is set up to look for a relationship between the customer experience and a learning style based co-creative environment. More specifically following research questions will be tested.

**Does a learning style-based co-creative environment improve the co-creation experience of customers?**

To test this, a quantitative research will be set up. A survey will be conducted to answer this research question.

The results of this, somewhat explorative, study will help to gain insight in the (non-) existence of a link between learning styles and co-creative environments and help managers to develop more effective co-creative environments. These environments are from greater relevance nowadays because of the growing focus on customers and their need to interact and co-create (Gentile et al., 2007; Prahalad & Rannaswanny, 2004). It's also an important tool in motivating customers and making sure they have the necessary skills and knowledge, an important aspect of co-creation (Hibbert et al., 2012; Verleye, 2015).

# 2. LITERATURE REVIEW

## 2.1 Co-creation and the co-creative environment

### *2.1.1 Co-creation*

Customers can no longer be seen as passive value takers. This is obvious when you're looking at social rating sites (e.g. Trip Advisor) where people aren't afraid of sharing their opinion (Tyler, 2010; Zwass, 2010). Customers nowadays play a variety of roles, "including designer, manufacturer, chooser, order processor, negotiator, payer, consumer/user, quality controller, maintainer, repairer, and disposer" (Hibbert et al., 2012, p. 248). The co-create value.

Co-creation can be defined as "the creation of value by consumers" (Zwass, 2010, p. 11). The value of a product or service is not created by the supplier only, but by the consumer and supplier (See-To & Ho, 2014). It are joint actions, takes place during direct interactions and creates value for one or more parties (Grönroos, 2012). It involves "customer engagement in creation of offerings through ideation, design and development" (Verleye, 2015, p. 322). So customers help in generating new ideas, designing their own and testing new offerings (Verleye, 2015). Value co-creation includes four elements. First, there needs to be an active participation of at least two 'actors'. Second, by integrating resources mutually beneficial value must be created. Third, the actors need to be willing to interact, co-create and provide feedback. Lastly, there need to be several forms of collaboration (Frow, Payne, & Storbacka, 2011; Kumar et al., 2010). So to let customers become co-creators, relations between supplier and customers need to be created through interaction and dialogue (Payne et al., 2008; See-To & Ho, 2014).

Co-creation fits with the idea of service-dominant (S-D) logic. "Central to service-dominant (S-D) logic is the proposition that the customer becomes a co-creator of value" (Payne et al., 2008, p. 83). The S-D logic states that services shouldn't be seen as some form of exchange, rather they should be seen as a common factor in exchange. A product is provided to a consumer and it's the consumer who creates the value by using the product. S-D logic also highlights that value-creation is not

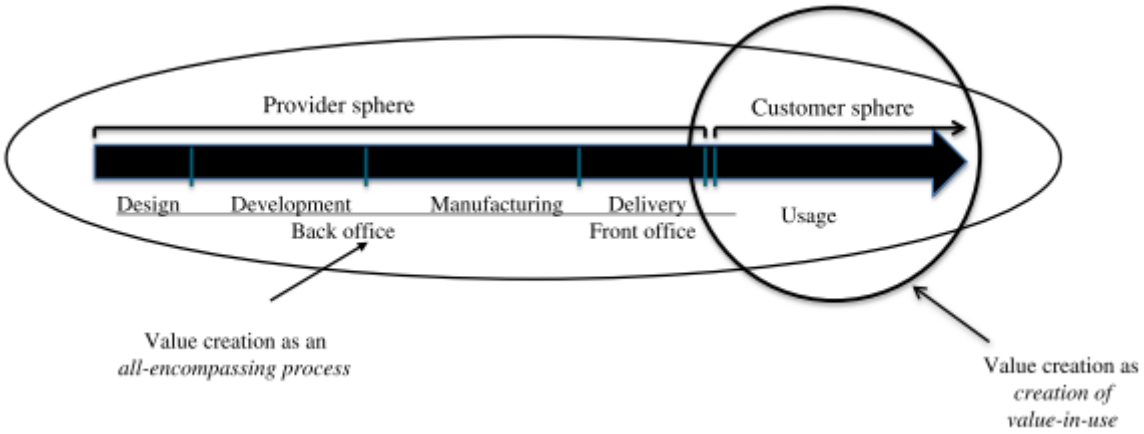
happening while a product is manufactured, but rather when a product or service is consumed or used (Payne et al., 2008; See-To & Ho, 2014).

But how is value created? To get further into this question it's important to define the concept value.

"Value for customers means that after they have been assisted by a self-service process (cooking a meal or withdrawing cash from an ATM) or a full-service process (eating out at a restaurant or withdrawing cash over the counter in a bank) they are or feel better off than before" (Grönroos, 2008, p. 303).

So value is something that is different for everyone and created individually: it can be meeting with friends because you could drive there or it might be just having the car. This means that value is created in a very individual way. It also doesn't always happen consciously (Grönroos, 2011). Grönroos (2011) uses the term value-in-use. Because value creation doesn't always happen in a conscious way. So value-creation isn't an all-compassing process: design, development, manufacturing and delivery aren't automatically part of value-creation. Only under certain circumstances, when customers are involved in these activities, they can become part of value creation (Grönroos, 2011). Figure 2.1 shows this process. Standard, creation of value-in-use takes place when a customer gets a product or services and uses it. The design, development, manufacturing and delivery enable this value, but don't create it. Only when customers are actively involved in these processes, value creation can be seen as an all-encompassing process where value is created by both provider and user (Grönroos, 2011). When value creation is an all-encompassing process, co-creation can take place.

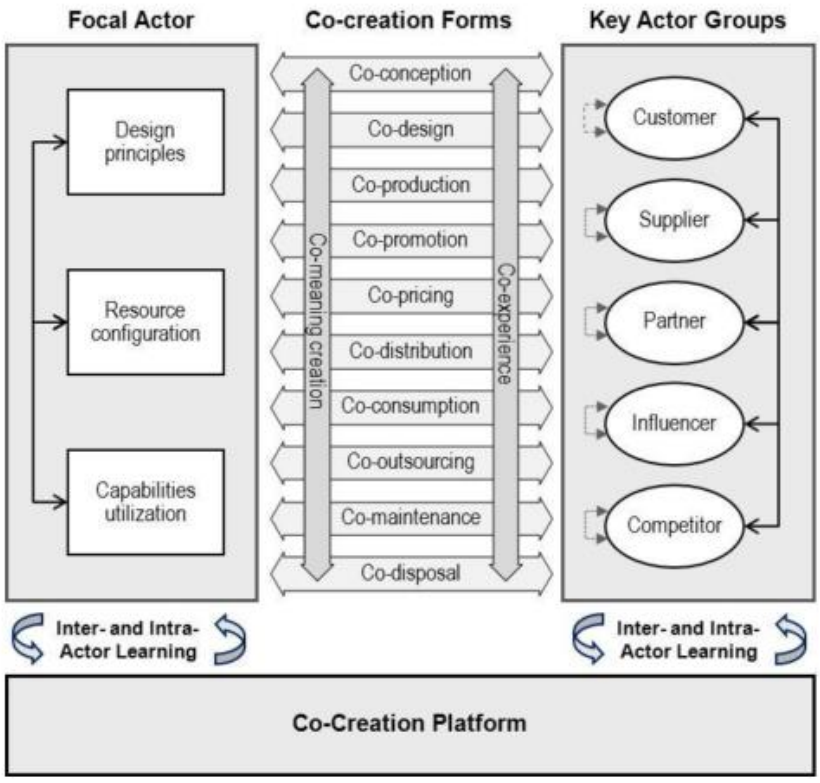
Figure 2.1:
*Value creation as the customer's creation of value-in-use or as an all-encompassing process including provider and customer activities (Grönroos, 2011, p. 283)*




The benefits of co-creation are large. There is a better product quality, a higher customer satisfaction and a lower market entry risk for the because of a better customer orientation. Customers also benefit from a higher personalization and loyalty is encouraged by giving consumers the capability to share and create content, this improves the relationship with your customers (Perkins & Fenech, 2014; Thorsten, DeFillippi, & Samson, 2013).

Co-creation is not a synonym of co-production as figure 2.2 shows. It can take place in several stages or outside of the product development process. Also many different actors can be involved (Frow et al., 2011; Frow & Payne, 2007).

Figure 2.2:
*Conceptual Framework for Co-creation Design (Frow et al., 2011, p. 4)*




The left and right part of the conceptual framework in figure 2.2 show the focal actors and key actor groups involved in the co-creation process. The focal actor represents the firm that wants to co-create and its business model. The key actor groups are the different parties that can be involved in the co-creation process. Also co-creation between these actors, without the focal actor, is possible (Frow et al., 2011). In this research the focus will be on the co-creation between customers and the focal actor (firm).

Figure 2.2 also shows different co-creation forms, these should not be seen as standalone forms, they might be overlapping. A description of the different forms can be found in table 2.1. Each form of co-creation equals an opportunity to create superior value. To decide which form of co-creation that should be used, it's important to look at the goals and context (Frow et al., 2011).

Table 2.1:
*A typology of forms of co-creation (Frow et al., p. 3, 2011)*

| | |
|---|---|
| **Co-conception** | **Two or more actors collaborate on product concept innovation**<br><br>***E.g. "My Starbucks Idea" - Starbucks asks customers what kind of new drink they would like to see in the stores.*** |
| **Co-design** | Two or more actors share their respective design perspectives<br><br>*E.g. Sherwin Williams designed and developed a new airplane paint in collaboration with Boeing* |
| **Co-production** | Two or more actors jointly produce all, or a part, of an offering<br><br>*E.g. when customers buy furniture of Ikea, they have to do part of the assembly themselves* |
| **Co-promotion** | Two or more actors collaborate on promotional activities<br><br>*E.g. a Facebook competition were you have to share a certain post to win* |
| **Co-pricing** | Two or more actors decide and/or reflect on price together<br><br>*E.g. 'pay what you want' music downloads* |
| **Co-distribution** | Two or more actors collaborate to distribute goods and services for end-use consumption<br><br>*E.g. P&G* |
| **Co-consumption** | Collaboration during usage, where consumers enhance their own consumption experiences<br><br>*E.g. when travelling you don't always follow a prewritten program of a traveller agency, you add activities that improve your vacation for you* |

| | |
|---|---|
| **Co-maintenance** | Two or more actors share the maintenance service of a core product<br><br>*E.g. inhabitants of cities can report badly maintained parks or broken benches* |
| **Co-outsourcing** | Two or more actors collaborate in outsourced solutions<br><br>*E.g. www.elance.com* |
| **Co-disposal** | Two or more actors collaborate in disposal tasks |

### *2.1.2 Co-creative environment*

A last important element of co-creation, as can be seen in figure 2.2, is that there needs to be a focus on learning. The conceptual framework includes this by mentioning inter- and intra-actor learning. To enhance this learning, an environment of trust and commitment is important (Frow et al., 2011). This is where the co-creative environment comes in.

Co-creation can happen in many ways, for example table 2.1 already shows many different options (Frow et al., 2011; Orcik & Anisic, 2014). Firms benefit from using a range of co-creation activities, rather than focusing on just one (Thorsten et al., 2013). Because of information and communication technologies, especially the internet, firms can set up many different forms and consumers are also more able to engage in the innovation process (Kohler, Fueller, Matzler, & Stieger, 2011). Companies need to decide on what the best tools and approaches are to reach customers (Thorsten et al., 2013).

To avoid making this discussion to extensive only the, for this research, relevant co-creative environments will be discussed: consumer reviews, idea competitions, forums and virtual worlds. The environments were selected based on their overlap with the learning styles that will be discussed in 2.3.

**A. Consumer reviews**

Consumers have the ability to share information via a variety of networks, for example via writing reviews. By sharing their views, these customers are becoming

involved in the development of products and services, because this information can be used by companies in the development processes (Perkins & Fenech, 2014). One example of this is the YouTube community where people upload videos giving their opinions about products. Often channels with a large number of subscribers also have a large crowd-based power (Perkins & Fenech, 2014). Another example is hotel chains that sends you a mail to write a review after your stay.

**B. Idea competitions**

An idea competition entails that customers can send in ideas for new products or changes to products. A simple example of this is the Lay's competition to come up with new flavours.

**C. Forums**

Forums allow companies and customers to interact. For example crackberry.com is a forum where people talk about all their issues (and solutions) with Blackberry problems. This can give a lot of useful information to developers.

**D. Virtual worlds**

Lastly virtual worlds stimulate co-creation by allowing users to create content. Virtual worlds, "the most prominent example being Second Life (SL), are computer-generated physical spaces, represented graphically in 3D that can be experienced by many users, or so-called avatars, at once" (Kohler et al., 2011, p. 774). They allow a real-time, media-rich and highly interactive collaboration and the tools in these world allow participants to develop everything they can imagine. For example Aloft, a hotel company, created a virtual prototype of their hotel and let users in Second Life evaluate it (Kohler et al., 2011).

## 2.2 Customer learning

How customers experience a supplier and their products comes from a combination of cognitions, emotions and behaviour during the customer-supplier relationship. This relationship and how it's experienced leads to customer learning. This can be by remembering a brand, grabbing a customer's attention, or letting customers take a certain stand related to a brand (Payne et al., 2008).

Suppliers have to provide interactions and encounters that help customers use their resources. Many firms have developed learning resources for customers either via traditional media, like seminars or advertising, or via new media, like blogs and forums (Hibbert et al., 2012).

These learning resources should help customers in using products or services and create value. Customers decide for themselves what they do with information they get (Hibbert et al., 2012). They can be seen as self-regulated learners who create value (for) themselves. So firms, suppliers and customers work together in creating value: firms create value by their offering, suppliers by offering the good or service and customers determine value when they consume a good or service (Hibbert et al., 2012; Payne et al., 2008).

So it's the firm's role to be a facilitator, supporter and collaborator in customer value creation by providing the right resources (Hibbert et al., 2012). The co-creative environment can be seen as a resource that a firm needs to provide. So customers are enabled and supported to contribute in product development and empowered and challenged to come up with ideas and solutions (Hibbert et al., 2012; Orcik & Anisic, 2014).

## 2.3 Learning styles

When learning, one size does not fit all. To get the best results in every situation, individual differences need to be taken into account (Valcke, 2007). One of these individual differences are learning styles. "Learning styles can be defined as unique manners in which learners begin to concentrate on, process, absorb, and retain new and difficult information. They are distinctive individual patterns of learning, which vary from person to person" (Klašnja-Milićević, Vesin, Ivanović, & Budimac, 2011, p. 879). In the literature there is discussion about the stability of these learning styles, because people can adapt to different situations if needed. For example when you are in a room filled with other people you will learn in silence even though you might prefer to do this out loud (Valcke, 2007). But it's possible to say that mainly the observable behaviour changes, the behaviour that comes from a certain learning style can change. For example someone who is really focused on details and learns in a perfectionistic way, will order his or her papers very strictly in a work or study

environment. But at home, when it's about the order in the fridge, they will be more flexible because the fridge is used by the whole family (Valcke, 2007).

Kolb's learning style model is one of the widest accepted and most influential and received a lot of empirical support (Manolis, Burns, Assudani, & Chinta, 2013; Valcke, 2007). Kolb and Kolb (2005) describe four basic learning styles, each consisting of two learning modes. The learning modes can be defined as followed:

1. *Concrete experiences (feeling)*: this mode types learners who prefer feeling over thinking. In problem solving, the will rather take an artistic intuitive approach, rather than a scientific approach.
2. *Reflective observation (watching):* this mode types individuals who want to understand the meaning of ideas. They prefer to reflect and observe a situation rather than to act on it.
3. *Abstract conceptualization (thinking):* this mode types individuals who base themselves on cognitive skills, by logical investigations of ideas and concepts rather than basing themselves on intuition.
4. *Active experimentation (doing)*: individuals who use this mode prefer doing over observing (Richmond & Cummings, 2005).

These four modes can be seen as part of a process or a learning cycle, where the learner touches all four bases: experiencing, reflecting, thinking and acting (A. Y. Kolb & Kolb, 2005). Depending on which phase of this learning cycle individuals prefer to use four learning styles can be found. Kolb and Kolb (2005) describe these learning styles as follows:

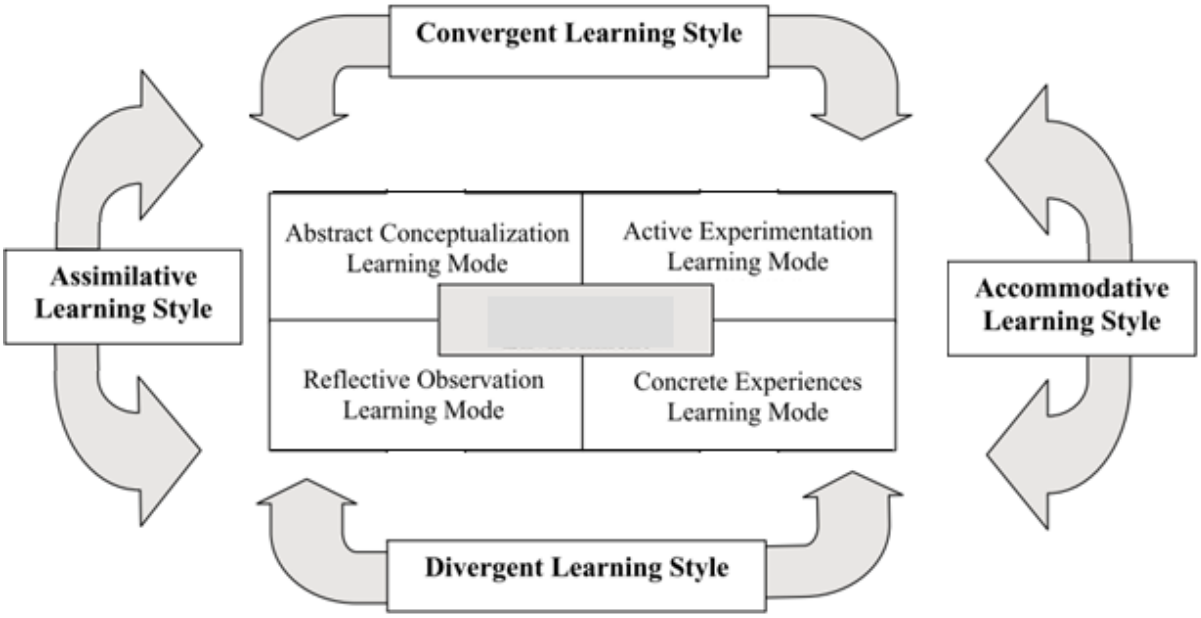
1. *Diverging*: someone with this learning style uses the concrete experience and reflective observation modes. They learn primarily through reflecting and feeling. They are best at viewing concrete situations from many different points of view, this can be really useful in "brainstorming" sessions. They also have a broad cultural interest and like gathering information. They prefer to work in groups, listen with an open mind and receive personalized feedback.
2. *Assimilating*: these persons prefer abstract conceptualization and reflective observation. They learn primarily through reflecting and thinking. They are the best in understanding a wide range of information and putting this in a

logical form. They are interested in abstract concepts and less in people. They will focus on the logical soundness of a theory and less on the practical application. When learning, they prefer readings, lectures, analytical models and they like to have time to think this through.

3. *Converging*: People with this learning style prefer abstract conceptualization and active experimentation. They learn primarily through thinking and acting. Opposite to people with an assimilating learning style, they are best at finding practical uses for theories and ideas. They like to deal with technical tasks and problems, less with social and interpersonal issues. When learning they prefer to experiment with new ideas, simulations, laboratory assignments and practical applications.
4. *Accommodating*: People with an accommodating learning style prefer concrete experiences and active experimentation. They learn primarily through acting and feeling. They have the ability of learning from a situation while doing it. They are likely to trust their "gut" instead of logical analysis. They rely on other people for information, not on technical analysis. When learning they prefer to work together with others, set goals, do field work and test out different approaches.

The learning styles and modes can be combined in a conceptual schematic model that can be found in figure 2.3 (Richmond & Cummings, 2005). As can be seen in this conceptual schematic model, the convergent learning style can be seen as the opposite of the divergent learning style and the assimilative learning style as the opposite of the accommodative learning style and vice versa.

Figure 2.3:
*Conceptual Schematic of Kolb's Learning Styles and Modes (Adapted from Richmond & Cummings, 2005, p. 49)*




These learning styles can be assessed with the Learning Style Inventory (LSI) (D. A. Kolb, 1999).

## 2.4 Customer experience

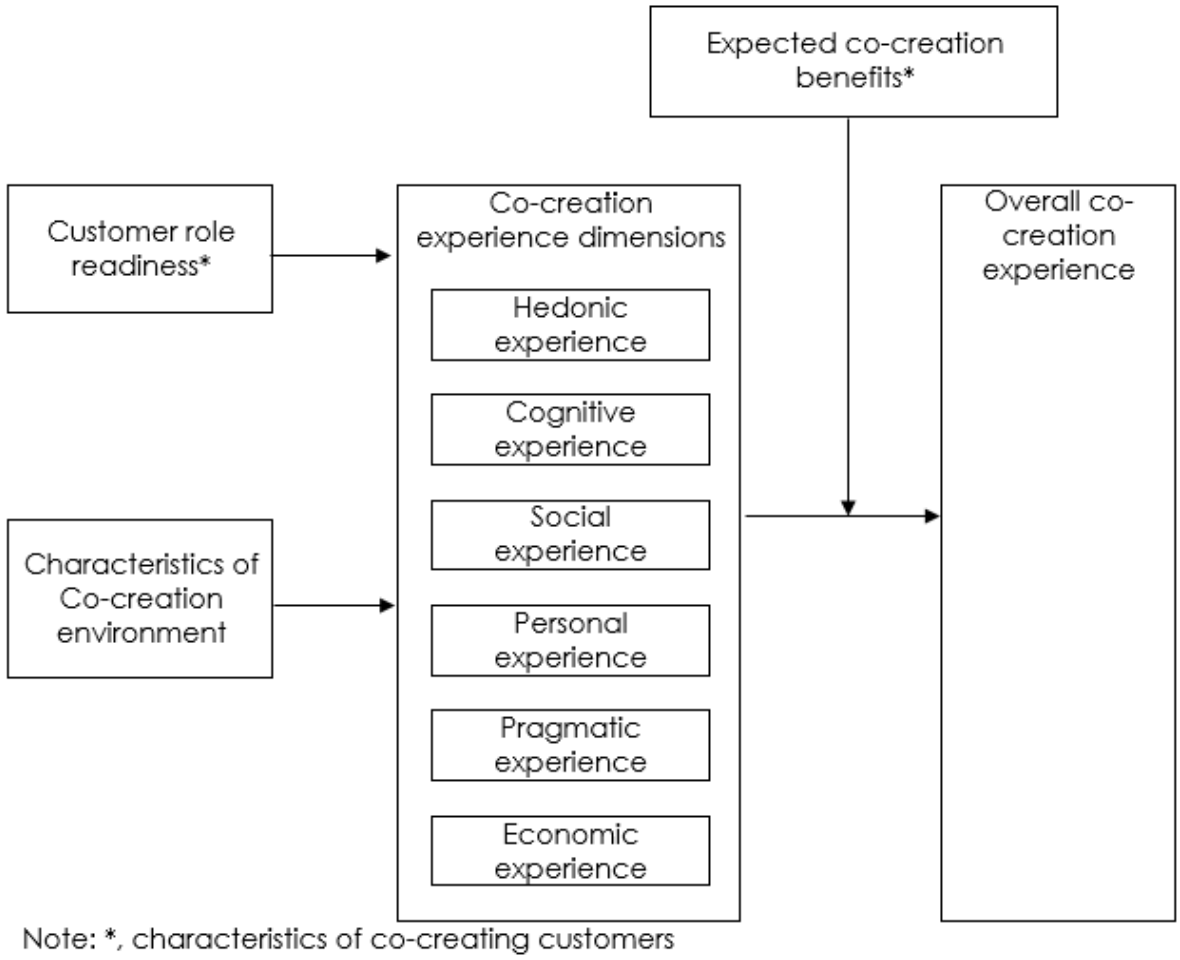
Customer experience is an important element in co-creation, it will decide how customers evaluate the overall co-creation experience. So it can be used to measure the effectiveness of the co-creation experience. Customer experience can be defined as follows:

"The Customer Experience originates from a set of interactions between a customer and a product, a company, or part of its organization, which provoke a reaction. This experience is strictly personal and implies the customer's involvement at different levels (rational, emotional, sensorial physical and spiritual)" (Gentile et al., 2007, p. 397).

The customer experience is holistic in two ways. First, it involves the customer's cognitive, affective, emotional, social and physical responses. Not all of these responses can be controlled directly by the retailer. Second, it also entails the total experience from searching to purchasing, from consuming to the after-sales

experience (Verhoef et al., 2009). It is related to how customers will react to a certain offering, how they experience a company's offering plays an increasing important role in that offering's success (Gentile et al., 2007).

Figure 2.4:
*Theoretical Framework for Customer co-creation experience - Adapted from Verleye (2015, p. 323)*




When customers co-create they expect certain benefits in return. According to the social exchange theory, you are motivated by the expected returns to put effort in an activity (Blau, 2004). According to Verleye (2015) there are six types of co-creation benefits that need to be met to have a positive co-creation experience.

- Hedonic benefits: having a fun experience
- Cognitive benefits: gain new knowledge and skills
- Social benefits: have the opportunity to connect with other people
- Personal benefits: acquiring a better status or recognition

- Pragmatic benefits: finding solutions that fit better with personal needs
- Economic benefits: getting a compensation for the invested effort

These benefits are personal, different people will expect different benefits. So they are not equally important for everyone (Verleye, 2015). Verleye (2015) argues that the "co-creation experience depends on the degree in which the expected co-creation benefits are met" (Verleye, 2015, p. 324). So the overall co-creation experience for customers is guided by six co-creation experience dimensions:

- Hedonic experience: getting hedonic benefits in return for co-creation
- Cognitive experience: getting cognitive benefits in return for co-creation
- Social experience: getting social benefits in return for co-creation
- Personal experience: getting personal benefits in return for co-creation
- Pragmatic experience: getting pragmatic benefits in return for co-creation
- Economic experience: getting economic benefits in return for co-creation

The research of Verleye (2015) found that especially the hedonic, cognitive, social and personal experience have a positive effect on the overall co-creation experience. But it highly depends on the benefits somebody expects to get in return.

A third and fourth element in the theoretical framework in figure 2.4, next to the expected co-creation benefits and the co-creation experience dimensions, are the characteristics of co-creating customers and of the co-creative environment. Verleye (2015) found that these characteristics affect the overall customer experience.

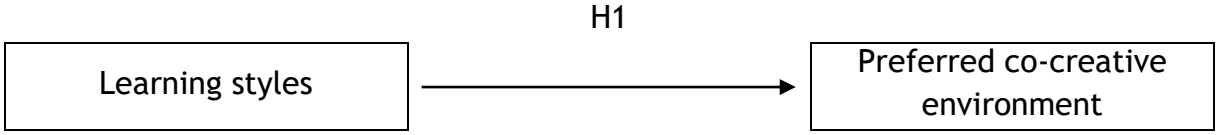
The characteristics of the co-creating customers are taken into account by looking at a person's learning style (see 2.3). The co-creative environment is also discussed above (see 2.1.2).

## 3. CONCEPTUAL MODEL

The conceptual framework gives leads to the conceptual models in figure 3.1 and figure 3.2.

Firstly, it is argued that the learning style will determine which co-creative environment somebody would prefer. So here the learning style is the independent variable and the preferred co-creative environment is the dependent variable.

Figure 3.1:
*Conceptual model hypothesis 1*




In other words, depending on someone's learning style, they will choose a different co-creative environment.

To research if there is a relation between learning styles and co-creative environments. They need to be linked to each other. So each co-creative environment needs to fit with a learning style. Table 3.1 shows the learning style characteristics that can be found in the corresponding co-creative environments.

Table 3.1:
*Learning styles and corresponding co-creative environments*

| **Learning style** | | **Co-creative environment** |
|---|---|---|
| Convergent | Likes solving problems and making decisions<br>Prefers technical tasks over social contact<br>Prefer to experiment with new ideas, simulations, practical applications | Idea competitions |
| Accommodative | Learns from "hands-on" experience<br>Act on intuition, less on logical reasoning<br>Rely on others for information<br>Like group work | Virtual worlds |
| Divergent | Different points of view<br>Generate wide range of ideas<br>Gather info<br>Prefer working in group | Forum |
| Assimilative | Abstract ideas and concepts<br>Less interested in people<br>Needs time to think<br>Prefers lectures, readings | Writing a consumer review |

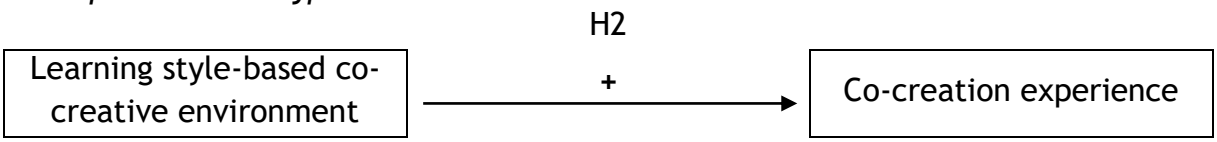
This gives following hypothesis:

*H1: A person's preferred learning style will influence the co-creative environment he/she prefers.*

> *H1A: Someone with a divergent learning style will prefer forums more than people with other learning styles*
>
> *H1B: Someone with an accommodative learning style will prefer participating in virtual worlds more than people with other learning styles*
>
> *H1C: Someone with an assimilative learning style will prefer writing a consumer review more than people with other learning styles*

*H1D: Someone with a convergent learning style will prefer idea competitions more than people with other learning styles*

Figure 3.2:
*Conceptual model hypothesis 2*




Second, it is argued that a learning style-based co-creative environment will have a positive impact on the co-creation experience. The characteristics of the co-creative environment influence the co-creation experience dimensions, who in their turn influence the overall co-creation experience (Verleye, 2015). So if the co-creative environment is better fitted with someone's preferred leaning style, they should have a higher customer experience because this better suits them. So here, the co-creative environment is the independent variable and the co-creation experience the dependent variable. This gives following hypothesis:

*H2: A learning style based co-creative environment will have a higher positive influence on the co-creation experience than the opposite learning style based co-creative environment.*

# 4. METHODOLOGY

## 4.1 Design

To test hypotheses 1 and 2 a survey was conducted. To develop the survey two existing questionnaires, the learning style inventory (D. A. Kolb, 1999) and customer experience questionnaire (Verleye, 2015), were used. Using two existing questionnaires helps to make sure that the items are reliable, because the questionnaires were tested before.

The survey consisted out of four parts and can be found in appendix 1. The first part measures the preferred learning style with the learning style inventory (LSI) of Kolb (see 4.3.1). The second part measures which of the different co-creative environment someone prefers. This was done using a Likert scale (see 4.3.2). The third part measures the co-creation experience of two different co-creative environments: one that fitted best with a person's learning style and the opposite co-creative environment to that learning style (see 4.3.3). And lastly some questions about the demographics were asked.

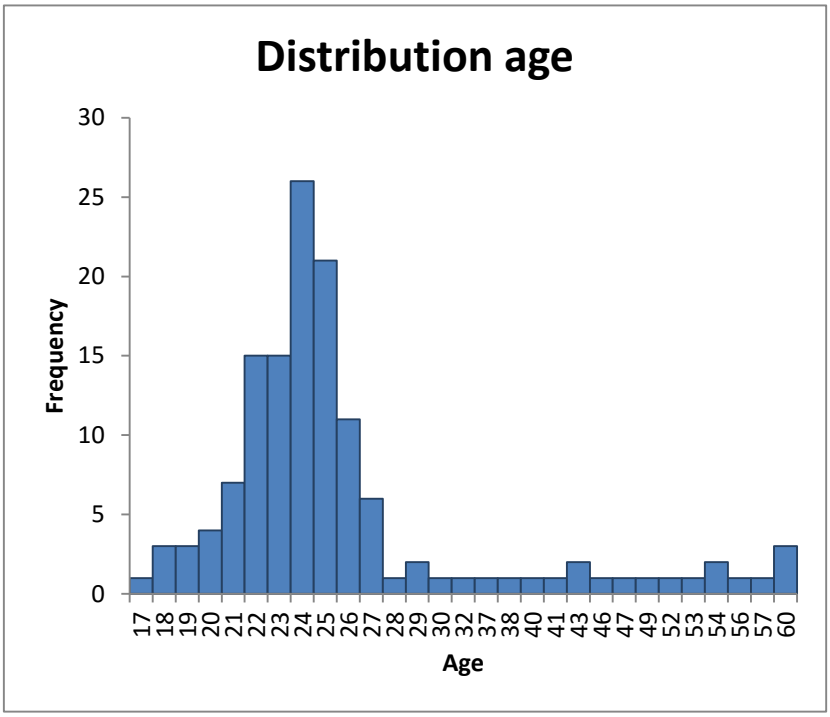
## 4.2 Participants

To collect participants the survey was distributed via Facebook, it was shared on the researcher's Facebook wall and different Facebook friends were contacted via Facebook messenger to fill in the survey. So convenience sampling was used because of its low cost, low time consumption and it gave easy access to sampling units. There are two major limits of this sampling technique, the selection bias and it is not representative.

A total of 167 people filled in the survey. 22 responses were deleted because they didn't complete the survey. So this left us with 145 respondents. Of this 145 respondents 10 couldn't be used, because they didn't have a clear learning style. They had an equal score on two learning modes, this wasn't taken into account into the survey flow, so they didn't get any questions about the customer experience. This left us with 135 respondents we could use. The full SPSS output can be found in appendix 2, part 1.

The average age of the respondents is 27.15. The mean and the mode are both 24. This difference between the average and the mean and mode can be explained by looking at the distribution in figure 4.1. The majority of the respondents are between 18 and 24 years old. The average age is pulled up because of some respondents with a higher age.

Figure 4.1:
*Age histogram*




Next to the age, respondents were also asked what their highest obtained degree and their current job was. The distribution of these can be found in figure 4.2 and 4.3. Most of the respondents are still student and have already obtained a bachelor's degree.

Figure 4.2:
*Highest degree histogram*

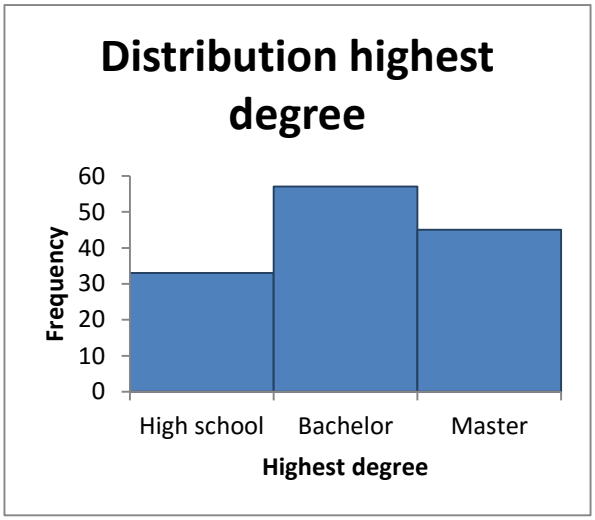



Figure 4.3:
*Jobs histogram*

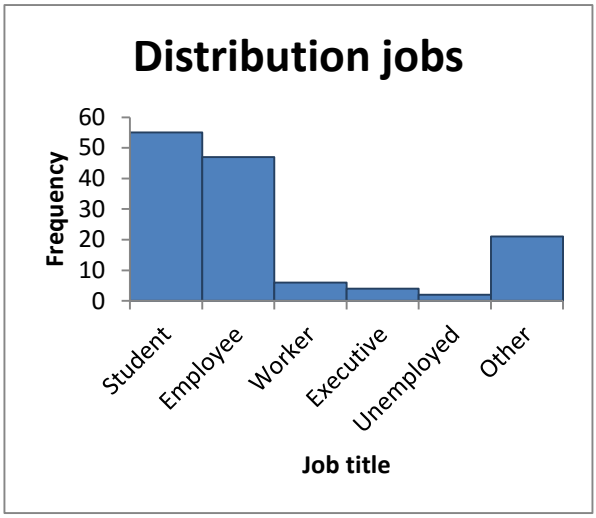



Table 4.1 and table 4.2 give an overview of the sex of the respondents and the distribution of the learning styles.

Table 4.1:
*Sex of respondents*

| | **Number of respondents** |
|---|---|
| Men | 60 |
| Women | 75 |

Table 4.2:
*Distribution of learning styles*

| | **Number of respondents** |
|---|---|
| Divergent | 10 |
| Convergent | 56 |
| Assimilative | 53 |
| Accommodative | 16 |

## 4.3 Measuring instruments

The entire survey, and the related measuring instruments, can be found in appendix 1.

### *4.3.1 Learning Style Inventory (LSI) Kolb*

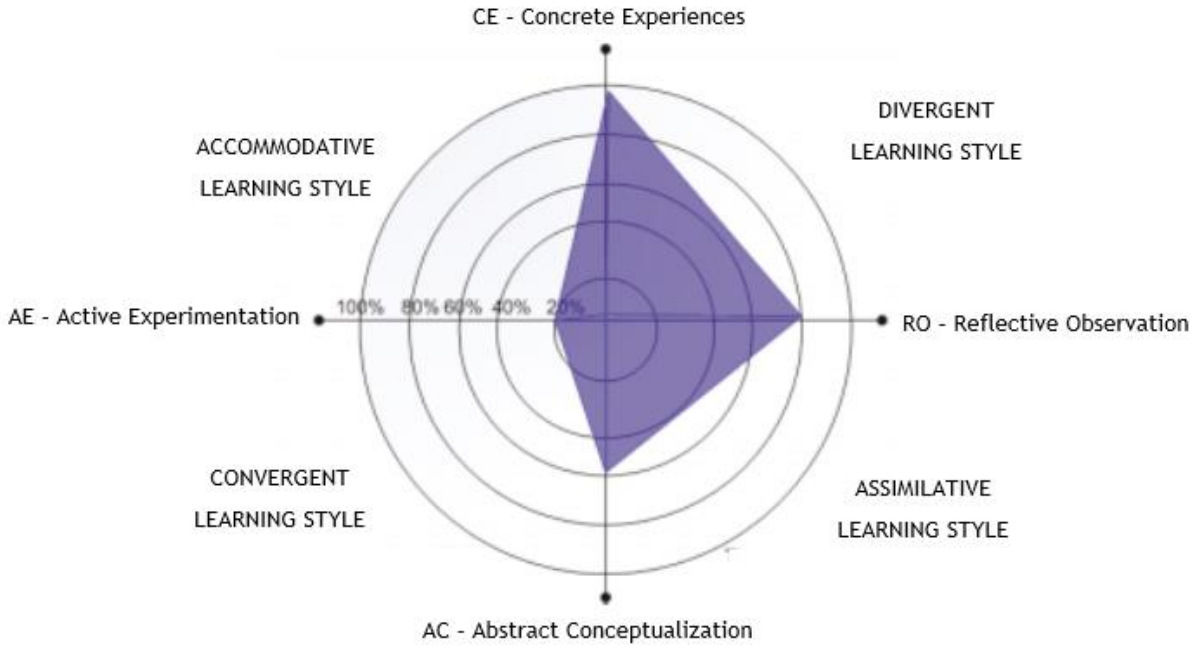
To measure the preferred learning style of the participants, a Dutch translation of the Learning Style Inventory (LSI) of Kolb was used. Which can be found in appendix 1, part 1. This test consists of twelve beginning sentences that give a description about learning. Each sentence has four possible ends that somebody has to rank from 1 to 4 (1 = this is how I study most, 4 = this is how I study least). Each possible end represents one of the learning modes. For example

*When I learn…*

- *… I get involved*
- *… I like to observe*
- *… I evaluate things*
- *… I like to be active*

At the end the sum of the scores is made and shown graphically. An example is shown in figure 4.4. This way it becomes clear which mode in the learning process somebody prefers and which learning style is dominant. In figure 4.4 the person prefers concrete experience and reflective observation and so has a preference for a divergent learning style (Valcke, 2007).

Figure 4.4:
*Graphical representation of someone's learning style (Adapted from Valcke (2007, p. 460))*




The test still has some weaknesses, that limits its use and need to be considered (Manolis et al., 2013). First, there are some questions about the validity of the test because the results are based on self-assessment. Second, the reliability is under discussion. The test doesn't give an explicit learning context that students need to keep in mind while filling in the test. So when people do the test twice, but have a different learning context in mind, this can lead to different results. Third, the test had low predictive power. Lastly the test is not an instrument to assign a fixed learning style to someone. This has never been the intention of Kolb, the test was intended to make people conscience of their learning process and preference (Manolis et al., 2013; Valcke, 2007). To deal with this critique, people were asked to answer this keeping their preferred way of processing information in mind.

### *4.3.2 Preferred co-creative environment*

To measure which co-creative environment the respondents preferred. A scenario was given to explain the four different co-creative environments. The scenario can be found in appendix 1, part 2. This was done using a fictive hotel chain, the "Park Hotel", that wants to build a new hotel. After reading the scenario the respondents

were asked to rate the different co-creative environments according to preference on a separate Likert scale for each. The questions asked can be seen in table 4.3.

Table 4.3:
*Items to measure the preferred co-creative environment*

| **Questions** |
|---|
| I think working via virtual worlds is attractive |
| I think working forums is attractive |
| I think writing a consumer review is attractive |
| I think participating in an idea competition is attractive |

### *4.3.3 Co-creation experience*

To measure the co-creation experience, a Dutch translation, made by the author, of the multidimensional customer experience scale (1 (strongly disagree) to 7 (strongly agree) scale) of Verleye (2015) was used. “This scale reflects the degree to which customers actually get hedonic, cognitive, social, personal, pragmatic, and economic benefits in return for co-creation” (Verleye, 2015, p. 327). To measure the overall co-creation experience a seven-point differential scale is included (Verleye, 2015). The multidimensional customer experience scale can be seen in table 4.4, the Dutch translation can be found in appendix 1, part 3.

Table 4.4:
*Co-creation experience scale (Verleye, 2015)*

| Scale | Items |
|---|---|
| Hedonic experience | It was a nice experience |
| | It was fun |
| | I enjoyed it |
| Cognitive experience | I can improve my skills |
| | I gain new knowledge/expertise |
| | I can test my capabilities |
| | It allows me to keep up with new ideas and innovations |
| | It enables me to come up with new ideas |
| Social/personal experience | The interaction was pleasant |
| | I am able to connect with other people |
| | I can make others aware of my knowledge and ideas |
| | I can make a good impression on other people |
| | I meet with others with whom I share similar interests |
| Overall experience | Dissatisfactory – satisfactory |
| | Negative – positive |
| | Poor – excellent |
| | Disappointing – delightful |

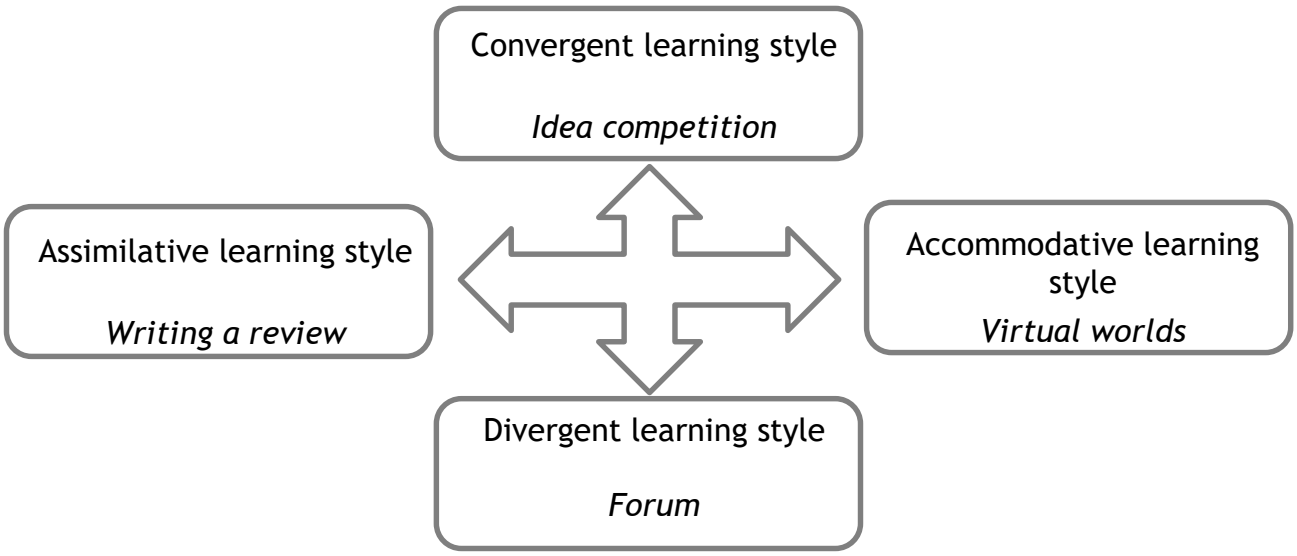
To measure the different experiences, the mean of the items was used. To get an idea of the total co-creation experience the mean of the different scales was used.

Each respondents had to rate the co-creation experience of two co-creative environments, chosen depending on their learning styles.

The questions in the LSI measure someone's preference for a certain learning mode in the learning process. The two learning modes that had the highest score will determine the learning style someone has. For example, as can be seen in figure 2.3, people who score highest on the abstract conceptualization and active experimentation learning mode will have a convergent learning style.

So to measure if the preference for the compatible co-creative environment will be higher than the opposite one a person had to answer questions about the compatible and opposite co-creative environments. As can be seen in figure 4.5, when a person prefers a convergent learning style for example, he/she will have to answer questions about the idea competition (compatible) and the forum (opposite).

Figure 4.5:
*The four learning styles and their assumed preferred co-creative environment (in italics)*




## 4.4 Data analysis

To analyse if a person's preference for a certain co-creative environment depends on someone's preferred learning style (hypothesis 1(A-D)), a One-Way ANOVA was conducted. The test variable here was the preference for a certain co-creative environment. To compare the different groups a grouping variable – learning styles - was created (1: divergent, 2: convergent, 3: assimilative, 4: accommodative). This variable was used to split the data file and see if people with a certain learning style had a higher preference for a specific co-creative environment.

To measure if a learning style based co-creative environment has a better positive influence on the co-creation experience than the opposite learning style based co-creative environment (hypothesis 2) a paired t-test was conducted. The test variable here was the co-creation experience of the preferred learning style based co-creative environment compared to the opposite one. In the initial analysis there was no split per learning style, but an extra analysis was done with the same grouping variable as in hypothesis one.

All the quantitative data was analysed using the statistical software SPSS™ (version 23). A confidence level of 95% was used to interpret the data.

### *4.4.1 Descriptive statistics*

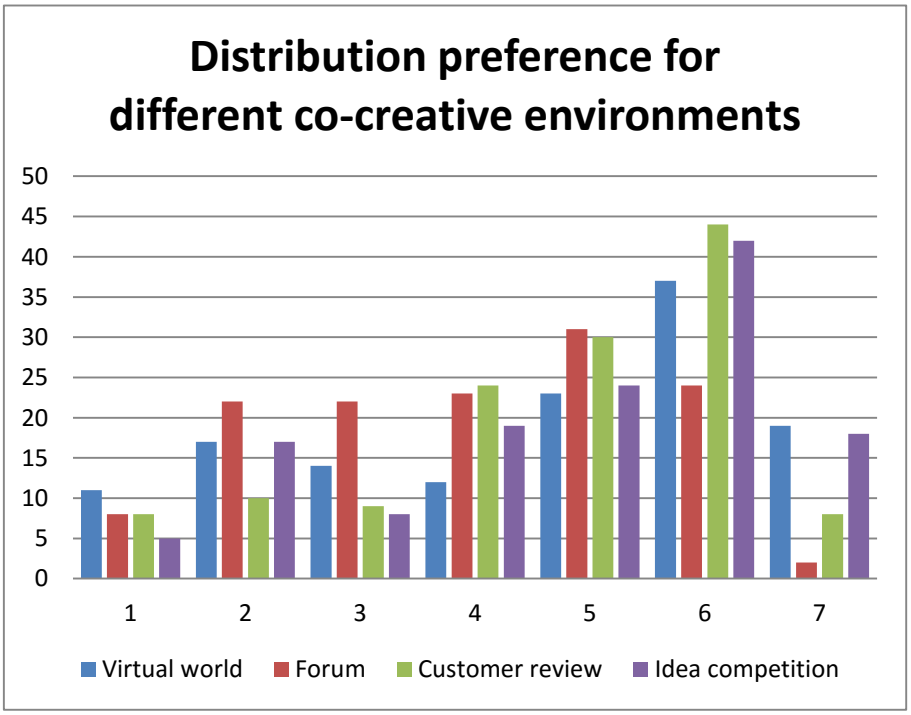
The descriptive statistics of the, for this research, most important variables will be discussed here. The full SPSS output can be found in appendix 2, part 2. The first group of important variables are the preferences for certain co-creative environments.

Table 4.5 gives an overview of the average preferences and figure 4.6 gives an overview of how the scores are distributed. The respondents' preference was measured using a Likert scale answering if they would find working in a certain environment attractive (see table 4.3). When answering 1 respondents didn't disagree at all, when answering 7 they agreed completely.

Table 4.5:
*Average preferences for the different co-creative environments*

| Variable | Mean |
|---|---|
| Preference for virtual worlds | 4.55 |
| Preference for forums | 3.96 |
| Preference for customer reviews | 4.67 |
| Preference for idea competitions | 4.79 |

Figure 4.6:
*Distribution of the preference for the different co-creative environments*



The second group of, for this research, important variables were the co-creation experience dimensions. The averages are shown in table 4.6 and table 4.7.

Table 4.6:
*Average scores on the different compatible co-creation experience dimensions*

| Variable | Mean |
|---|---|
| Compatible hedonic experience | 4.0642 |
| Compatible cognitive experience | 4.3407 |
| Compatible social experience | 3.8978 |
| Compatible overall experience | 4.3370 |
| Total compatible co-creation experience | 4.1599 |

Table 4.7:
*Average scores on the different opposite co-creation experience dimensions*

| Variable | Mean |
|---|---|
| Opposite hedonic experience | 3.9556 |
| Opposite cognitive experience | 4.0963 |
| Opposite social experience | 4.1526 |
| Opposite overall experience | 4.1000 |
| Total opposite co-creation experience | 4.0761 |

So far the discussion of the descriptive statistics. Next the results of a unidimensionality and reliability analysis will be discussed. These analyses were done for two reasons. First to test whether the translation of the questionnaire didn't change what was measured in it. So all the constructs were still valid. Secondly, Verleye (2015) also integrates a pragmatic experience, this was left out in this research, but these analyses were done to see whether the overall result still measures the total co-creation experience.

### *4.4.2 Unidimensionality*

Unidimensionality is "the extent to which the scale measures one underlying factor or construct" (Field, 2009, p. 675). According to Leroi-Werelds, Streukens, Brady and Swinnen (2014) the unidimensionality can be determined by following the procedure of Sahmer, Hanafi and Qannari (2006). This procedure states that, when a factor analysis can be conducted, the first eigenvalue needs to be bigger than 1 and the second needs to be smaller than 1. This was tested for the hedonic, cognitive, social/personal and overall customer experience for both the compatible and

opposite learning style-based co-creative environment. De results can be found in table 4.8 and table 4.9. The original SPSS-output can be found in appendix 3.

Table 4.8:
*First and second eigenvalues of the items of the four compatible constructs*

| Variable | First eigenvalue | Second eigenvalue |
|---|---|---|
| Hedonic experience | 2.643 | 0.228 |
| Cognitive experience | 3.446 | 0.625 |
| Social/personal experience | 3.271 | 0.816 |
| Overall experience | 3.324 | 0.285 |

Table 4.9:
*First and second eigenvalues of the items of the four opposite constructs*

| Variable | First eigenvalue | Second eigenvalue |
|---|---|---|
| Hedonic experience | 2.640 | 0.197 |
| Cognitive experience | 3.339 | 0.813 |
| Social/personal experience | 3.183 | 0.729 |
| Overall experience | 3.229 | 0.320 |

Looking at table 4.8 and table 4.9 it can be concluded that for all the constructs the conditions of unidimensionality are met. So all these variables will be used in further analyses.

### *4.4.3 Reliability*

Reliability is "based on the idea that individual items (or sets of items) should produce results consistent with the overall questionnaire" (Field, 2009, p. 674). All the variables should measure the same construct and so have a high correlation with the other variables (Field, 2009). To measure the reliability of a sets of items the Cronbach's $\alpha$ can be used. According to Field (2009) the literature mentions that Cronbach's $\alpha$ needs to be higher than 0.7 or 0.8, depending on which source you use, values lower indicate an unreliable scale. The results of this analysis can be found in table 4.10 and the full SPPSS output can be found in appendix 4. As table 4.10 shows even when using the highest cut-off point of 0.8 all our scales are reliable.

Table 4.10:
*Cronbach's $\alpha$ per variable*

| **Variable** | **Cronbach's $\alpha$** |
|---|---|
| Compatible hedonic experience | 0.932 |
| Compatible cognitive experience | 0.886 |
| Compatible social/personal experience | 0.867 |
| Compatible overall experience | 0.932 |
| Opposite hedonic experience | 0.931 |
| Opposite cognitive experience | 0.875 |
| Opposite social/personal experience | 0.857 |
| Opposite overall experience | 0.920 |

The scales mentioned in table 4.10 should also measure the total co-creation experience of customers. To test this, the Cronbach's $\alpha$ was also measured from the constructs to see if they indeed measure the total co-creation experience. Table 4.11 shows that this is the case for both the opposite and compatible total co-creation experience. The full SPPSS output can be found in appendix 4.

Table 4.11:
*Cronbach's $\alpha$ total construct*

| **Variable** | **Cronbach's $\alpha$** |
|---|---|
| Total compatible co-creation experience | 0.849 |
| Total opposite co-creation experience | 0.845 |

## 5. RESULTS

**Hypothesis 1: A person's preferred learning style will influence the co-creative environment he/she prefers.**

The results of the One-Way ANOVA show that there is no significant difference between the groups. The SPSS output can be found in appendix 5. Table 5.1 gives an overview of the average preference for a certain co-creative environment per learning style.

Table 5.1:
*Average preference score per co-creative environment for every learning style and overall*

| Preference for… / Learning Style | Virtual world | Forum | Writing a consumer review | Idea competition |
|---|---|---|---|---|
| **Divergent** | 3.56 | 4.70 | 5.10 | 4.40 |
| **Accommodative** | 4.20 | 3.60 | 4.67 | 5.44 |
| **Assimilative** | 4.74 | 3.88 | 4.79 | 4.71 |
| **Convergent** | 4.63 | 4.00 | 4.47 | 5.00 |
| **Overall** | 4.55 | 3.96 | 4.67 | 4.79 |

*H1A: Someone with a divergent learning style will prefer forums more than people with other learning styles*

Divergent learners have the highest preference for forums (M=4.70). But this preference for forums is not significant different for people with different learning styles ($F(3,128)=1.044$, $p=.376$).

*H1B: Someone with an accommodative learning style will prefer participating in virtual worlds more than people with other learning styles*

The preference for virtual worlds is not significant different for people with different learning styles ($F(3,129)=1.179$, $p=.321$).

*H1C: Someone with an assimilative learning style will prefer writing a consumer review more than people with other learning styles*

The preference for writing a consumer review is not significant different for people with different learning styles ($F(3,129)=.615$, $p=.607$).

*H1D: Someone with a convergent learning style will prefer idea competitions more than people with other learning styles*

The preference for idea competitions is not significant different for people with different learning styles ($F(3,129)=0.971$, $p=.409$).

So, hypothesis 1 needs to be rejected. A person's learning style does not have a significant influence on the co-creative environment he/she prefers.

Because no significant differences were found per learning style, a paired t-test was conducted to test whether any co-creative environments scored better than others. Table 5.2 gives an overview of the differences in means (A-B) between the environments. The significant differences are shown with an asterisk (*).

Table 5.2:
*Differences (A-B) between mean preferences for co-creative environments*

| A \ B | Virtual world | Forum | Writing a consumer review | Idea competition |
|---|---|---|---|---|
| **Virtual worlds** | 0 | 0.618* | -0.083 | -0.214 |
| **Forum** | -0.618* | 0 | -0.697* | -0.826* |
| **Writing a consumer review** | 0.083 | 0.697* | 0 | -0.129 |
| **Idea competition** | 0.214 | 0.826* | 0.129 | 0 |

As table 5.2 shows, a forum scores significantly lower than the other co-creative environments (forum, writing a consumer review, idea competition; $t(130)=-3.177$ ,$p=.002$; $t(131)=-4.239$ ,$p<.001$; $t(131)=-3.808$ ,$p<.001$). There are no significant differences between the preferences for other co-creative environments. The full SPSS output can be found in appendix 6.

**Hypothesis 2: A learning style based co-creative environment will have a higher positive influence on the co-creation experience than the opposite learning style based co-creative environment.**

A learning style based co-creative environment does not have a significant higher total co-creation experience, but one of the co-creation experience elements is significant higher. This significant difference is shown with an asterisk (*) in table 5.3.

Table 5.3:
*Average scores for the compatible and opposite learning style based co-creative environments*

| Variable | Compatible learning style based co-creative environment (A) *M* | Opposite learning style based co-creative environment (B) *M* | *A-B* | *p* |
|---|---|---|---|---|
| Hedonic experience | 4.0642 | 3.9556 | 0.1086 | 0.3025 |
| Cognitive experience* | 4.3407 | 4.0963 | 0.2444 | 0.0230 |
| Social/personal experience | 3.8978 | 4.1526 | -0.2548 | 0.0285 |
| Overall experience | 4.3370 | 4.1000 | 0.2370 | 0.0535 |
| Total co-creation experience | 4.1599 | 4.0761 | 0.0838 | 0.2535 |

As table 5.3 shows the cognitive experience is significant higher for the compatible learning style based co-creative environment than for the opposite one ($t(134)=2.012$, $p=.0230$). The social/personal experience is also significant ($t(134)=-1.920$ $p=.0285$), but the score for the compatible learning style based co-creative environment is not significant higher, but lower than then opposite one.

Because there was no equal distribution of the learning styles and so some of the co-creative environments were more represented than others (e.g. looking at the distribution of the learning styles in table 4.2, it's clear that the idea competition is much more represented as a compatible co-creative environment (convergent learners) than forums (divergent learners)) a paired t-test was repeated per learning style to see whether these results differ per learning style. The full SPSS output can be found in appendix 7. Table 5.4 and table 5.5 give an overview of the results. The significant results are shown with an asterisk (*).

The hedonic experience of forums is significantly lower than the hedonic experience of idea competitions for both divergent ($t(8)=-2.648$, $p=.027$) and convergent learners ($t(55)=4.147$, $p<.001$). Convergent learners also have a higher overall

experience ($t$(55)=2.830, $p$=.006) and total co-creation experience ($t$(55)=2.469, $p$=.017).

For assimilative and accommodative learners there are less differences. For accommodative learners there are no significant differences between there compatible (virtual worlds) and opposite (writing a review) learning style based co-creative environment. For assimilative learners there is one significant difference, the hedonic experience for their opposite learning style based co-creative environment (virtual worlds) is significantly higher ($t$(52)=-2.390, $p$=.021).

Comparing this second analysis to the original one it is surprising to see that the significant differences have moved. Whereas in general there is a significant difference for the cognitive and social/personal experience, per learning style this shifts to a significant difference in the hedonic, overall and total co-creation experience.

Table 5.4:
*Average scores for the compatible and opposite learning style based co-creative environments for divergent and convergent learning styles*

| Variable | Divergent learning style | | | | Convergent learning style | | | |
|---|---|---|---|---|---|---|---|---|
| | Compatible - Forum (A) | Opposite – Idea competition (B) | A-B | p | Compatible – Idea competition (C) | Opposite - Forum (D) | C-D | p |
| Hedonic experience** | 3.8333 | 4.9667 | -1.1334 | .027 | 4.4881 | 3.3512 | 1.1369 | .000 |
| Cognitive experience | 4.5400 | 4.4800 | 0.0600 | .883 | 4.6893 | 4.3321 | 0.3572 | .052 |
| Social/ personal experience | 4.4400 | 4.1600 | 0.2800 | .322 | 3.9893 | 4.3821 | -0.3928 | .057 |
| Overall experience* | 4.2000 | 4.5500 | -0.3500 | .246 | 4.5313 | 3.9821 | 0.5492 | .006 |
| Total co-creation experience* | 4.2533 | 4.5392 | -0.2859 | .342 | 4.4245 | 4.0119 | 0.4126 | .017 |

Table 5.5:
*Average scores for the compatible and opposite learning style based co-creative environments for assimilative and accommodative learning styles*

| Variable | Assimilative learning style | | | | Accommodative learning style | | | |
|---|---|---|---|---|---|---|---|---|
| | Compatible - Review (A) | Opposite – virtual world (B) | A-B | p | Compatible – virtual world (C) | Opposite - Review (D) | C-D | p |
| Hedonic experience* | 3.5597 | 4.3774 | -0.8177 | .021 | 4.3958 | 4.0417 | 0.3541 | .594 |
| Cognitive experience | 3.8981 | 3.8151 | 0.0830 | .691 | 4.4625 | 3.9625 | 0.5000 | .188 |
| Social/ personal experience | 3.6377 | 4.0038 | -0.3661 | .120 | 4.1000 | 3.8375 | 0.2625 | .467 |
| Overall experience | 4.1557 | 4.1132 | 0.0425 | .879 | 4.3438 | 4.1875 | 0.1563 | .712 |
| Total co-creation experience | 3.8128 | 4.0774 | -0.2646 | .253 | 4.3255 | 4.0073 | 0.3182 | .417 |

# 6. DISCUSSION

## 6.1 Interpretation of the results

The first hypothesis stated that persons with different learning styles would prefer different co-creative environments. This cannot be confirmed in this research. People don't seem to prefer the co-creative environment that fits with their learning style. Three possible explanations can be given for this results.

First, learning styles focus mainly on the processing of new information. "Learning styles can be defined as unique manners in which learners begin to concentrate on, process, absorb, and retain *new and difficult information*" (Klašnja-Milićević et al., 2011, p. 879). When customers are co-creating, they aren't dealing with new information, but with their own experience and what they value. Because of this difference it's possible there is no link between the two.

Second, central to co-creation is value creation. As a company you want to deliver value to a customer and as a customer you want to get value out of the co-creation (Frow et al., 2011; Kumar et al., 2010). Value creation is something that happens unconsciously (Grönroos, 2011). This is different for learning; the learning process often happens more consciously. Especially when people are asked how they prefer to learn, they will think of conscious ways of learning. So two different processes lie on the base of co-creation and learning.

A last possibility is the low size of some of the groups. As can be seen in table 4.2, there isn't an equal distribution of the learning styles. This unequal distribution can be on the basis of not finding significant results.

A surprising result is that forums have a lower preference score compared to virtual worlds, writing a consumer review and idea competitions. It's possible that customers link forums to a cognitive and information overload, a low information quality and perceive forums as hard to use and a difficult form of communicating (Bishop, Giles, & Bryant, 2005; Santosa, Wei, & Chan, 2005). When visiting forums people hope to find valuable information but this is often not the case. There are spammers on forums, people don't get an answer on the question they asked and some comments on forums are offending (Santosa et al., 2005). Because of this image people have, it might be that they prefer it less.

The second hypothesis focussed on the co-creation experience of customers. It was hypothesised that if a co-creative environment was adapted to someone's learning style the co-creation experience would be higher compared to the opposite co-creative environment. This hypothesis also needs to be rejected. Only the cognitive experience was significantly higher. Surprisingly, the social/personal experience was even significantly lower for the compatible learning environment. There were no significant differences in the other items - hedonic experience, overall experience - and the total co-creation experience.

So several conclusions can be made here. The cognitive experience is the only one that is significantly higher for the compatible learning style based co-creative environment than for the opposite one. A possible explanation for this is that the cognitive experience is the one that fits most closely with learning styles. The cognitive experience focusses mainly on gaining new knowledge and skills (Verleye, 2015). This is closely related to learning styles because learning styles is about the processing of information to develop knowledge and skills (Valcke, 2007).

A first surprising result is that the social/personal experience was significantly lower. When looking at the data, it's clear that the majority of the participants (80%) had an assimilative or convergent learning style. It was hypothesised that they would prefer to write a review or participating in an idea competition, respectively. Both these co-creative environments are low in participation with others. The social/personal experience focusses mainly on this, it's about having the opportunity to connect with other people (Verleye, 2015). The opposite co-creative environments for assimilative and convergent learners were forums and virtual worlds, both have a much higher opportunity to connect with other people. This could explain the lower score for the compatible environments.

A second surprising element is the lack of significant differences in hedonic, overall and total co-creation experience. Two possible reasons can be given for this. First, learning styles and co-creative environments do not link because of the differences in learning (new vs. existing knowledge and conscious vs. unconscious learning), like explained above. Or second, the co-creative environments were chosen badly by the researcher and because of this the respondents didn't prefer one environment over the other.

Some of these results were also found per learning style. There were no significant differences in a lot of the items and in the total co-creation experience. There are two exceptions. First there are significant differences in the hedonic experience for divergent, convergent and assimilative learners. Second, convergent learners also have some significant differences on several items next to the hedonic experience: overall experience and total co-creation experience.

The hedonic experience was significantly different between the compatible and opposite learning style based co-creative environment for divergent and convergent learners. The hedonic experience focussed on the fun of the experience and how much people would enjoy it (Verleye, 2015). Like for hypothesis one, a general trend was that forums scored significantly lower on hedonic experience compared to idea competitions, both for divergent and convergent learners. Probably again because of the negative associations people make with forums (e.g. Bishop et al., 2005; Santosa et al., 2005), like explained above. This can be why people see forums as less fun.

People with an assimilative learning style also rated the hedonic experience significantly lower for their compatible learning style based co-creative environment, writing a review, than for the opposite environment, participating in virtual worlds. A possible explanation here is that virtual worlds can be seen as a game, they are an extension of the gaming world (Balkin, 2004). So it can be assumed that people would find games, or something related to them, as more fun, and thus having a higher hedonic experience, than writing a text.

Lastly, convergent learners gave a significant higher score for the overall and total co-creation experience of their compatible learning style based co-creative environment, idea competitions, compared to the opposite one, forums. Again, this result might be explained by the negative associations people have for forums instead of being learning style specific.

## 6.2 Strengths and limitations

Several strengths and limitations can be given. First the strengths will be discussed and second the limitations.

A first strength is that this is an explorative research that gives some insights in the possible link between learning styles and co-creation. An area that hasn't been explored until now in the scientific literature.

A second strength is the connection that was made between two different research areas: educational sciences and marketing.

A third strength is the focus on the different co-creative environments. Orcik and Anisic (2014) stress the importance of an adequate co-creative environment that enables and supports customers to make a contribution. To the knowledge of the researcher of this paper there is no article available that lists possible co-creative environments and their (dis)advantages. Even though the number of co-creative environments discussed here is small, it's a beginning.

A fourth strength is the use of validated questionnaires in the survey. When possible it's always best to use validated scales (Boynton & Greenhalgh, 2004). Both the LSI (D. A. Kolb, 1999) and the co-creation experience questionnaire (Verleye, 2015) were previously tested and validated.

A fifth strength is the extensive unidimensionality and reliability analysis. This makes it possible to state that the used co-creation experience questionnaire measures what it says to measure.

A last strength is the use of quantitative data in this study. Quantitative data allows you to study a larger number of respondents and a greater objectivity than qualitative research and to do profound statistical analyses (De Graauw, n.d.).

A first limitation is the learning style measurement. Several critiques have already been given on the Learning Style Inventory (LSI) of Kolb. One of the biggest critiques is that adapting the education completely to someone's learning style is not a good idea. People need to be able to deal with different learning methods and styles in different situations (Valcke, 2007). This was not an issue in this research, because it was about creating an environment where people like to work in. So it was not about adapting a teaching method to them, but making it easy and comfortable for people. Another critique on the learning styles is that the original four learning styles of Kolb aren't sufficient and that there are five more (A. Y. Kolb & Kolb, 2005). For the ease of the investigation, these five new ones weren't taken into account.

A second limitation is the limited discussion of co-creative environments. There are much more possible co-creative environments, but because it would have

brought the discussion too far, they were left out here. The link between co-creative environments was also based on the characteristics of certain learning styles and of the co-creative environments. So it's possible that there are co-creative environments that have a better fit.

A third limitation is the small sample, based on convenience sampling. Especially because of the unequal distribution of the learning styles. But because of time constraints it wasn't possible to extend the sample.

### 6.3 Recommendations for future research

Several recommendations can be given for future research.

From the previously discussed limitations, some methodological recommendations can be done. Firstly, the research can be repeated with a larger sample, especially with a more equal distribution of the learning styles.

Second, more co-creative environments can be integrated in future research and they can be assigned to learning styles in a less arbitrary way. For example an initial qualitative research can be done to see which co-creative environments people with a certain learning style prefer.

In future research several new areas can also be explored. First, the results show that there is no link between learning styles and co-creative environments. Several possible explanations were given why this could be the case. Future research can look at the specific reasons for this.

Second, the results found here showed that people prefer forums the least as co-creative environments. Future research can be done to find out what the reasons are for this low preference and maybe how companies can deal with these.

Third, the results show that adapting co-creative environments to someone's learning style doesn't have an effect on the co-creation experience. Future research can look at factors that do have an influence on the co-creation experience.

Fourth, it is possible that some co-creative environments are preferred more in general. Four were discussed in this study, but in the questionnaire people only were asked about two (their compatible and opposite one), future research can look if there is a general preference for one co-creative environment and if some co-

creative environments have a general positive influence on the co-creation experience.

Lastly, in research, there can be a larger focus on co-creative environments. One of the strengths of this research is the overview of several co-creative environments. This overview is still very limited and future research can put together a more extensive one.

## 6.4 Recommendations for practice

Next to the recommendations for future research, some recommendations for practice can be made.

First, managers should avoid working with forums. Forums scored much lower on preference and the co-creation experience scales than the other co-creative environments. So when managers want to co-create with their customers they should opt for other co-creative environments. Based on the results found here, managers shouldn't take into account someone's learning style in designing a co-creative environment. Because this doesn't have a positive effect on the co-creation experience. So other factors, like the costs, the possibilities, the unicity… rather than learning styles could be taken into account when deciding on a co-creative environment to use.

Another point of attention for managers is the cognitive experience. Here, the learning style has a significant influence. People have a better cognitive experience when the co-creative environment is adapted to their learning style. A way to meet this is by offering different options of co-creation.

Lastly to have a higher social/personal experience people want to work together. A higher social/personal experience probably comes from virtual worlds or forums. So when the social contact is of importance. Idea competitions and writing reviews should be avoided. Forums also have a higher social contact, but should be avoided for other reasons as discussed above.

## 7. CONCLUSION

This research started from the central research question if a learning style based co-creative environment would improve the co-creation experience of customers? Co-creation is of growing importance in different areas in the business environment. Because customers are no longer just clients, they are also designers, developers, quality controllers and much more.

Out of this central research question, two hypotheses were formed. The first hypothesis was about the link between learning styles and co-creative environments. Based on the current results it can be concluded that there is no relationship between learning styles and co-creation.

The second hypothesis focused more on the co-creation experience. Again, based on the current results it can be stated that a learning style based co-creative environment doesn't have a positive impact on the co-creation experience in general. Only the cognitive experience is significantly higher for a learning style based co-creative environment. Possibly because this is closely linked to learning styles.

The current research also knows some strengths and limitations. The strengths are the explorative nature of this research, the link between two different research areas, the focus on different co-creative environments, the use of validated questionnaires, the extensive unidimensionality and reliability analyses and the use of quantitative data. Next to this, there were also some limitations: there is some critique on the used learning style measurement instrument, there was a limited discussion of co-creative environments and a small, convenience based sample, was used.

The above limitations can be taken into account in future research, to confirm or dismiss the presented results. Next to this, future research can explore several new areas like what the specific reasons are for why there is no link between learning styles and co-creation, why forums are less preferred and what can be done to improve the experience of them, what factors do have a positive influence on the co-creation experience and which co-creative environments people have a higher preference for.

When managers want to set up co-creation in practice, they should avoid working with forums, offer different co-creation options to increase the cognitive experience and if they want to achieve a high social/personal experience, virtual worlds are recommended.

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## APPENDICES: OVERVIEW

## APPENDIX 1: SURVEY

Beste deelnemer,

Eerst en vooral heel hard bedankt om aan deze vragenlijst, in het kader van mijn masterproef, deel te nemen.

Vandaag de dag willen ondernemingen steeds nauwer samenwerken met klanten. Dit kan op allerlei manieren. Denk bijvoorbeeld aan de wedstrijd waarin Lay's  klanten uitdaagt om nieuwe chipssmaken voor te stellen of het schrijven van productreviews op bol.com.

In mijn masterproef wil ik onderzoeken of de manier waarop klanten het liefst samenwerken met een onderneming afhangt van de manier waarop klanten het liefst informatie verwerken.

Om deze vraag te kunnen beantwoorden bestaat dit onderzoek uit de volgende onderdelen. Allereerst krijgt u een stel vragen die betrekking hebben op de manier waarop u het best informatie verwerkt (ook wel leren genoemd). Vervolgens krijgt u een korte situatieschets te lezen waarover ik enkele vragen stel over wat u zou doen in een dergelijke situatie. Tot slot stellen we nog enkele algemene vragen.

De vragenlijst zal ongeveer 10 minuten duren, er zijn geen juiste of foute antwoorden en alles zal volledig anoniem behandeld worden. Het is enkel belangrijk dat u uw eigen, persoonlijke mening geeft.

Veel succes met invullen.

Kimberly :)

## 1.1 Part 1: LSI Kolb

***Via welke manier verwerk jij/leer jij het liefst nieuwe informatie?***

Hieronder staan 12 vragen met elk 4 antwoordmogelijkheden. Van deze antwoordmogelijkheden dien je aan te geven in welke volgorde zij voor je het meest van toepassing zijn. Dit kun je doen door een cijfer, variërend van 1 (meest van toepassing) tot 4 (minst van toepassing) te selecteren bij de verschillende antwoordmogelijkheden. Dus, als je vindt dat een bepaald antwoord het best je manier van leren/informatie verwerken beschrijft, dan duid je het cijfer 1 aan. Het antwoord dat het minst je manier van leren/informatie verwerken beschrijft, geef je weer door het cijfer 4 aan te duiden. Je moet in elke vraag telkens de getallen 1, 2, 3 & 4 aanduiden. En per vraag kan elke antwoordmogelijkheid maar één keer aangeduid worden. Bijvoorbeeld,


In dit voorbeeld eet ik het minst graag tomaten (4) en spruiten (3). Pizza eet ik heel graag (1) en spaghetti vind ik ook wel lekker (2). Nu is het de bedoeling dat jij zo de volgende vragen invult met betrekking tot leren.

Als ik leer...

| | wil ik op mijn gevoel afgaan | wil ik kijken en luisteren | wil ik nadenken over ideeën | wil ik dingen doen |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Ik leer het beste wanneer ik...

| | op mijn intuïtie afga | luister en oplet | vertrouw op logisch denken | iets gedaan moet krijgen |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Wanneer ik bezig ben met leren...

| | heb ik sterke emoties en reacties | ben ik rustig en gereserveerd | wil ik dingen beredeneren | ben ik verantwoordelijk |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Ik leer door...

| | te voelen | te kijken | te denken | te doen |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Als ik leer...

| | sta ik open voor nieuwe ervaringen | bekijk ik alle kanten van de zaak | wil ik dingen dieper analyseren | probeer ik dingen uit |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Wanneer ik leer...

| | ben ik gevoelig | ben ik beschouwend | denk ik logisch na | ben ik actief |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Ik leer het beste van...

| | persoonlijke relaties | observeren | rationele theorieën | uitproberen en oefenen |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Als ik leer...

| | voel ik me persoonlijk betrokken | denk ik goed na voor iets te doen | houd ik van theoretiseren | wil ik resultaten zien |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Ik leer het beste wanneer ik...

| | vertrouw op wat ik voel | vertrouw op wat ik zie en hoor | vertrouw op mijn ideeën | ideeën zelf kan uitproberen |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Wanneer ik leer...

| | gedraag ik mij zeer open | gedraag ik mij gereserveerd | gedraag ik mij rationeel | voel ik mij verantwoordelijk |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Als ik leer...

| | ben ik zeer betrokken | houd ik ervan om te observeren | houd ik ervan om te evalueren | wil ik actief bezig zijn |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

Ik leer het beste wanneer ik...

| | open sta voor nieuwe inzichten | voorzichtig ben | ideeën kan analyseren | praktisch te werk ga |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

## 1.2 Part 2: Co-creative environment

Op de volgende pagina geven we een korte situatieschets. We vragen u deze aandachtig door te lezen en vervolgens de vragen te beantwoorden. Ook hier geldt weer dat er geen goede en foute antwoorden zijn.

Om duidelijk te maken wat we met de verschillende omgevingen bedoelen, gaan we het Park Hotel, een fictieve hotelketen, als voorbeeld gebruiken.

Tijdens de paasvakantie ben je met twee vrienden op citytrip geweest naar Brugge. Via een speciale actie hebben jullie gelogeerd in het "Park Hotel", een vier sterren hotel. Na het uitchecken krijgen jullie een speciale folder mee waarin je leest dat het Park Hotel nog een hotel wilt bouwen in Hasselt. Om goed aan de wensen van hun doelgroep te voldoen nodigen ze hun gasten uit om hier over mee te denken. Via een speciale website kan je je input geven op volgende manieren:

Virtuele werelden

Een virtuele wereld is een online wereld waarin je je beweegt als avatar, kan chatten met anderen en doen waar je zin in hebt. In deze wereld kan je eigenlijk gewoon doen waar je zin in hebt. In deze virtuele wereld heeft Park Hotel een online hotel gebouwd waar je kan gaan slapen. Je kan er feedback geven, maar ook zaken direct aanpassen. Op het einde zal het Park Hotel één gratis verblijf weggeven aan één van de deelnemers.

Forums

Op een forum kan je je mening geven over de verschillende aspecten van het Park Hotel. Hierbij is er veel interactie met andere gasten op het forum. Je kan dus samen overleggen en bespreken wat beter kan bij het Park Hotel of wat je heel goed vindt. Op het einde wordt een gratis verblijf in één van de Park Hotels weggegeven aan één van de deelnemers.

Een review schrijven

Op de website heb je de mogelijkheid om een review te schrijven over het Park Hotel. Hier kan je je mening geven over verschillende aspecten van het Park Hotel en je kan ook gewoon scores geven. Bij het schrijven van een review is er geen interactie met andere gasten van het hotel. Door het schrijven van een review maak je kans op een verblijf in één van de Park Hotels.

Een idee wedstrijd

In een idee wedstrijd kan jij ideeën indienen en hiermee een verblijf in een Park Hotel naar keuze winnen. Een idee wedstrijd kan bijvoorbeeld gaan over welke nieuwigheden het Park Hotel zou moeten integreren in hun nieuwe hotel. Als je een idee hebt kan je dit opsturen. Het beste idee wint een verblijf in één van de Park Hotels.

In welke mate ga jij akkoord met volgende uitspraken?

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| Ik vind werken via een virtuele wereld aantrekkelijk | | | | | | | |
| Ik vind werken via een forum aantrekkelijk | | | | | | | |
| Ik vind het schrijven van een review aantrekkelijk | | | | | | | |
| Ik vind het deelnemen aan een idee wedstrijd aantrekkelijk | | | | | | | |

## 1.3 Part 3: Co-creation experience

### *1. Divergent learning style*

***Forum***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over FORUMS

*Ter opfrissing: Op een forum kan je je mening geven over de verschillende aspecten van het Park Hotel. Hierbij is er veel interactie met andere gasten op het forum. Je kan dus samen overleggen en bespreken wat beter kan bij het Park Hotel of wat je heel goed vindt. Op het einde wordt een gratis verblijf in één van de Park Hotels weggegeven aan één van de deelnemers.*

Participeren op het Park Hotel forum...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Participeren op het Park Hotel forum...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Participeren op het Park Hotel forum...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het participeren op het Park Hotel forum beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

***Idee wedstrijd***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over EEN IDEE WEDSTRIJD

*Ter opfrissing: In een idee wedstrijd kan jij ideeën indienen en hiermee een verblijf in een Park Hotel naar keuze winnen. Een idee wedstrijd kan bijvoorbeeld gaan over welke nieuwigheden het Park Hotel zou moeten integreren in hun nieuwe hotel. Als je een idee hebt kan je dit opsturen. Het beste idee wint een verblijf in één van de Park Hotels.*

Deelnemen aan een Park Hotel idee wedstrijd...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Deelnemen aan een Park Hotel idee wedstrijd...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Deelnemen aan een Park Hotel idee wedstrijd...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het deelnemen aan een Park Hotel idee wedstrijd beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

## *2. Assimilative learning style*

***Virtuele wereld***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over VIRTUELE WERELDEN

*Ter opfrissing: Een virtuele wereld is een online wereld waarin je je beweegt als avatar, kan chatten met anderen en doen waar je zin in hebt. In deze wereld kan je eigenlijk gewoon doen waar je zin in hebt. In deze virtuele wereld heeft Park Hotel een online hotel gebouwd waar je kan gaan slapen. Je kan er feedback geven, maar ook zaken direct aanpassen. Op het einde zal het Park Hotel één gratis verblijf weggeven aan één van de deelnemers.*

Rondlopen en deelnemen in de Park Hotel virtuele wereld...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Rondlopen en deelnemen in de Park Hotel virtuele wereld...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Rondlopen en deelnemen in de Park Hotel virtuele wereld...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het rondlopen en deelnemen in de Park Hotel virtuele wereld beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

***Een review schrijven***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over HET SCHRIJVEN VAN EEN REVIEW

*Ter opfrissing: Op de website heb je de mogelijkheid om een review te schrijven over het Park Hotel. Hier kan je je mening geven over verschillende aspecten van het Park Hotel en je kan ook gewoon scores geven. Bij het schrijven van een review is er geen interactie met andere gasten van het hotel. Door het schrijven van een review maak je kans op een verblijf in één van de Park Hotels.*

Het schrijven van een review over het Park Hotel...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Het schrijven van een review over het Park Hotel...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Het schrijven van een review over het Park Hotel...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het schrijven van een review over het Park Hotel beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

### *3. Convergent learning style*

***Forum***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over FORUMS

*Ter opfrissing: Op een forum kan je je mening geven over de verschillende aspecten van het Park Hotel. Hierbij is er veel interactie met andere gasten op het forum. Je kan dus samen overleggen en bespreken wat beter kan bij het Park Hotel of wat je heel goed vindt. Op het einde wordt een gratis verblijf in één van de Park Hotels weggegeven aan één van de deelnemers.*

Participeren op het Park Hotel forum...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Participeren op het Park Hotel forum...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Participeren op het Park Hotel forum...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het participeren op het Park Hotel forum beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

***Idee wedstrijd***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over EEN IDEE WEDSTRIJD

*Ter opfrissing: In een idee wedstrijd kan jij ideeën indienen en hiermee een verblijf in een Park Hotel naar keuze winnen. Een idee wedstrijd kan bijvoorbeeld gaan over welke nieuwigheden het Park Hotel zou moeten integreren in hun nieuwe hotel. Als je een idee hebt kan je dit opsturen. Het beste idee wint een verblijf in één van de Park Hotels.*

Deelnemen aan een Park Hotel idee wedstrijd...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Deelnemen aan een Park Hotel idee wedstrijd...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Deelnemen aan een Park Hotel idee wedstrijd...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het deelnemen aan een Park Hotel idee wedstrijd beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

### *4. Accommodative learning style*

***Virtuele wereld***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over VIRTUELE WERELDEN

*Ter opfrissing: Een virtuele wereld is een online wereld waarin je je beweegt als avatar, kan chatten met anderen en doen waar je zin in hebt. In deze wereld kan je eigenlijk gewoon doen waar je zin in hebt. In deze virtuele wereld heeft Park Hotel een online hotel gebouwd waar je kan gaan slapen. Je kan er feedback geven, maar ook zaken direct aanpassen. Op het einde zal het Park Hotel één gratis verblijf weggeven aan één van de deelnemers.*

Rondlopen en deelnemen in de Park Hotel virtuele wereld...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Rondlopen en deelnemen in de Park Hotel virtuele wereld...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Rondlopen en deelnemen in de Park Hotel virtuele wereld...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het rondlopen en deelnemen in de Park Hotel virtuele wereld beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

***Een review schrijven***

Geef hieronder aan in welke mate je akkoord gaat met volgende uitspraken over HET SCHRIJVEN VAN EEN REVIEW

*Ter opfrissing: Op de website heb je de mogelijkheid om een review te schrijven over het Park Hotel. Hier kan je je mening geven over verschillende aspecten van het Park Hotel en je kan ook gewoon scores geven. Bij het schrijven van een review is er geen interactie met andere gasten van het hotel. Door het schrijven van een review maak je kans op een verblijf in één van de Park Hotels.*

Het schrijven van een review over het Park Hotel...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou ik leuk vinden | | | | | | | |
| zou iets zijn waarvan ik geniet | | | | | | | |
| zou ik een leuke ervaring vinden | | | | | | | |

Het schrijven van een review over het Park Hotel...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou mijn vaardigheden verbeteren | | | | | | | |
| zou mij helpen mijn kennis uit te breiden | | | | | | | |
| zou mij helpen mijn vaardigheden te testen | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën en innovaties bij te houden | | | | | | | |
| zou mij de mogelijkheid geven om nieuwe ideeën te bedenken | | | | | | | |

Het schrijven van een review over het Park Hotel...

| | Helemaal niet akkoord | Niet akkoord | Een beetje niet | Neutraal | Een beetje akkoord | Akkoord | Helemaal akkoord |
|---|---|---|---|---|---|---|---|
| zou leiden tot een aangename interactie | | | | | | | |
| zou mij de kans geven om verbinding te maken met andere mensen | | | | | | | |
| zou mij de kans geven om anderen bewust te maken van mijn kennis en ideeën | | | | | | | |
| zou mij toelaten een goede indruk te maken op anderen | | | | | | | |
| geeft mij de kans mensen met dezelfde interesses als mij te leren kennen | | | | | | | |

Hoe zou jij het schrijven van een review over het Park Hotel beoordelen?

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Onbevredigend | | | | | | | | Bevredigend |
| Negatief | | | | | | | | Positief |
| Ontoereikend | | | | | | | | Uitstekend |
| Teleurstellend | | | | | | | | Verheugend |

## 1.4 Part 4: Demographics

***Demografische gegevens***

Wat is jouw geslacht?
- Man
- Vrouw

Wat is jouw leeftijd? …

Wat is jouw hoogst behaalde diploma?
- Geen
- Middelbare school
- Bachelor
- Master
- Doctoraat

Wat is jouw huidige beroep?
- Student
- Bediende
- Arbeider
- Kaderlid
- Werkloos
- Andere _____

## APPENDIX 2: DESCRIPTIVE STATISTICS IN SPSS

### 2.1 Part 1: Participants

Table 2.1:

*Frequency distribution age*

**AGE**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 17,00 | 1 | ,7 | ,7 | ,7 |
| | 18,00 | 3 | 2,2 | 2,2 | 3,0 |
| | 19,00 | 3 | 2,2 | 2,2 | 5,2 |
| | 20,00 | 4 | 3,0 | 3,0 | 8,1 |
| | 21,00 | 7 | 5,2 | 5,2 | 13,3 |
| | 22,00 | 15 | 11,1 | 11,1 | 24,4 |
| | 23,00 | 15 | 11,1 | 11,1 | 35,6 |
| | 24,00 | 26 | 19,3 | 19,3 | 54,8 |
| | 25,00 | 21 | 15,6 | 15,6 | 70,4 |
| | 26,00 | 11 | 8,1 | 8,1 | 78,5 |
| | 27,00 | 6 | 4,4 | 4,4 | 83,0 |
| | 28,00 | 1 | ,7 | ,7 | 83,7 |
| | 29,00 | 2 | 1,5 | 1,5 | 85,2 |
| | 30,00 | 1 | ,7 | ,7 | 85,9 |
| | 32,00 | 1 | ,7 | ,7 | 86,7 |
| | 37,00 | 1 | ,7 | ,7 | 87,4 |
| | 38,00 | 1 | ,7 | ,7 | 88,1 |
| | 40,00 | 1 | ,7 | ,7 | 88,9 |
| | 41,00 | 1 | ,7 | ,7 | 89,6 |
| | 43,00 | 2 | 1,5 | 1,5 | 91,1 |
| | 46,00 | 1 | ,7 | ,7 | 91,9 |
| | 47,00 | 1 | ,7 | ,7 | 92,6 |
| | 49,00 | 1 | ,7 | ,7 | 93,3 |
| | 52,00 | 1 | ,7 | ,7 | 94,1 |
| | 53,00 | 1 | ,7 | ,7 | 94,8 |
| | 54,00 | 2 | 1,5 | 1,5 | 96,3 |
| | 56,00 | 1 | ,7 | ,7 | 97,0 |
| | 57,00 | 1 | ,7 | ,7 | 97,8 |
| | 60,00 | 3 | 2,2 | 2,2 | 100,0 |
| | Total | 135 | 100,0 | 100,0 | |

Table 2.2:

*Frequency distribution highest degree*

**STUDY**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Middelbare school | 33 | 24,4 | 24,4 | 24,4 |
| | Bachelor | 57 | 42,2 | 42,2 | 66,7 |
| | Master | 45 | 33,3 | 33,3 | 100,0 |
| | Total | 135 | 100,0 | 100,0 | |

Table 2.3:

*Frequency distribution job*

**JOB**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Student | 55 | 40,7 | 40,7 | 40,7 |
| | Bediende | 47 | 34,8 | 34,8 | 75,6 |
| | Arbeider | 6 | 4,4 | 4,4 | 80,0 |
| | Kaderlid | 4 | 3,0 | 3,0 | 83,0 |
| | Werkloos | 2 | 1,5 | 1,5 | 84,4 |
| | Andere | 21 | 15,6 | 15,6 | 100,0 |
| | Total | 135 | 100,0 | 100,0 | |

Table 2.4:

*Frequency distribution sex*

**SEX**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Man | 60 | 44,4 | 44,4 | 44,4 |
| | Vrouw | 75 | 55,6 | 55,6 | 100,0 |
| | Total | 135 | 100,0 | 100,0 | |

Table 2.5:

*Frequency distribution learning style*

**LEARNING_STYLE**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Divergent | 10 | 7,4 | 7,4 | 7,4 |
| | Convergent | 56 | 41,5 | 41,5 | 48,9 |
| | Assimilative | 53 | 39,3 | 39,3 | 88,1 |
| | Accommodative | 16 | 11,9 | 11,9 | 100,0 |
| | Total | 135 | 100,0 | 100,0 | |

Table 2.6:

*Descriptive statistics age*

**Statistics**

AGE

| | | |
|---|---|---|
| N | Valid | 135 |
| | Missing | 0 |
| Mean | | 27,1481 |
| Median | | 24,0000 |
| Mode | | 24,00 |

## 2.2 Part 2: Descriptive statistics important variables

Table 2.7:

*Descriptive statistics important variables*

**Statistics**

| | | PREF_VW | PREF_FOR | PREF_REV | PREF_IDEA | COMP_HED | COMP_COG |
|---|---|---|---|---|---|---|---|
| N | Valid | 133 | 132 | 133 | 133 | 135 | 135 |
| | Missing | 2 | 3 | 2 | 2 | 0 | 0 |
| Mean | | 4,55 | 3,96 | 4,67 | 4,79 | 4,0642 | 4,3407 |
| Median | | 5,00 | 4,00 | 5,00 | 5,00 | 4,0000 | 4,4000 |
| Mode | | 6 | 5 | 6 | 6 | 6,00 | 4,40 |

a. Multiple modes exist. The smallest value is shown

| COMP_SOC | COMP_EXP | COMP_OVERALL | OPP_HED | OPP_COG | OPP_SOC | OPP_EXP | OPP_OVERALL |
|---|---|---|---|---|---|---|---|
| 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3,8978 | 4,3370 | 4,1599 | 3,9556 | 4,0963 | 4,1526 | 4,1000 | 4,0761 |
| 4,0000 | 4,2500 | 4,0458 | 4,3333 | 4,2000 | 4,2000 | 4,0000 | 4,2292 |
| 2,80[a] | 4,00 | 3,25[a] | 2,00 | 4,00 | 4,00 | 4,00 | 4,00 |

Table 2.8:

*Frequency distribution preference virtual world*

**PREF_VW**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Helemaal niet akkoord | 11 | 8,1 | 8,3 | 8,3 |
| | Niet akkoord | 17 | 12,6 | 12,8 | 21,1 |
| | Een beetje niet akkoord | 14 | 10,4 | 10,5 | 31,6 |
| | Neutraal | 12 | 8,9 | 9,0 | 40,6 |
| | Een beetje akkoord | 23 | 17,0 | 17,3 | 57,9 |
| | Akkoord | 37 | 27,4 | 27,8 | 85,7 |
| | Helemaal akkoord | 19 | 14,1 | 14,3 | 100,0 |
| | Total | 133 | 98,5 | 100,0 | |
| Missing | System | 2 | 1,5 | | |
| Total | | 135 | 100,0 | | |

Table 2.9:

*Frequency distribution preference forum*

**PREF_FOR**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Helemaal niet akkoord | 8 | 5,9 | 6,1 | 6,1 |
| | Niet akkoord | 22 | 16,3 | 16,7 | 22,7 |
| | Een beetje niet akkoord | 22 | 16,3 | 16,7 | 39,4 |
| | Neutraal | 23 | 17,0 | 17,4 | 56,8 |
| | Een beetje akkoord | 31 | 23,0 | 23,5 | 80,3 |
| | Akkoord | 24 | 17,8 | 18,2 | 98,5 |
| | Helemaal akkoord | 2 | 1,5 | 1,5 | 100,0 |
| | Total | 132 | 97,8 | 100,0 | |
| Missing | System | 3 | 2,2 | | |
| Total | | 135 | 100,0 | | |

Table 2.10:

*Frequency distribution preference review*

**PREF_REV**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Helemaal niet akkoord | 8 | 5,9 | 6,0 | 6,0 |
| | Niet akkoord | 10 | 7,4 | 7,5 | 13,5 |
| | Een beetje niet akkoord | 9 | 6,7 | 6,8 | 20,3 |
| | Neutraal | 24 | 17,8 | 18,0 | 38,3 |
| | Een beetje akkoord | 30 | 22,2 | 22,6 | 60,9 |
| | Akkoord | 44 | 32,6 | 33,1 | 94,0 |
| | Helemaal akkoord | 8 | 5,9 | 6,0 | 100,0 |
| | Total | 133 | 98,5 | 100,0 | |
| Missing | System | 2 | 1,5 | | |
| Total | | 135 | 100,0 | | |

Table 2.11:

*Frequency distribution preference idea competition*

**PREF_IDEA**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Helemaal niet akkoord | 5 | 3,7 | 3,8 | 3,8 |
| | Niet akkoord | 17 | 12,6 | 12,8 | 16,5 |
| | Een beetje niet akkoord | 8 | 5,9 | 6,0 | 22,6 |
| | Neutraal | 19 | 14,1 | 14,3 | 36,8 |
| | Een beetje akkoord | 24 | 17,8 | 18,0 | 54,9 |
| | Akkoord | 42 | 31,1 | 31,6 | 86,5 |
| | Helemaal akkoord | 18 | 13,3 | 13,5 | 100,0 |
| | Total | 133 | 98,5 | 100,0 | |
| Missing | System | 2 | 1,5 | | |
| Total | | 135 | 100,0 | | |

## APPENDIX 3: UNIDIMENSIONALITY ANALYSIS IN SPSS

Table 3.1:

*Unidimensionality of compatible hedonic experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2,643 | 88,088 | 88,088 | 2,643 | 88,088 | 88,088 |
| 2 | ,228 | 7,584 | 95,672 | | | |
| 3 | ,130 | 4,328 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.2:

*Unidimensionality of compatible cognitive experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,446 | 68,916 | 68,916 | 3,446 | 68,916 | 68,916 |
| 2 | ,625 | 12,508 | 81,424 | | | |
| 3 | ,381 | 7,627 | 89,051 | | | |
| 4 | ,303 | 6,070 | 95,120 | | | |
| 5 | ,244 | 4,880 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.3:

*Unidimensionality of compatible social/personal experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,271 | 65,412 | 65,412 | 3,271 | 65,412 | 65,412 |
| 2 | ,816 | 16,329 | 81,741 | | | |
| 3 | ,417 | 8,342 | 90,083 | | | |
| 4 | ,294 | 5,888 | 95,971 | | | |
| 5 | ,201 | 4,029 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.4:

*Unidimensionality of compatible overall experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,324 | 83,092 | 83,092 | 3,324 | 83,092 | 83,092 |
| 2 | ,285 | 7,133 | 90,225 | | | |
| 3 | ,227 | 5,665 | 95,890 | | | |
| 4 | ,164 | 4,110 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.5:

*Unidimensionality of opposite hedonic experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2,640 | 88,008 | 88,008 | 2,640 | 88,008 | 88,008 |
| 2 | ,197 | 6,566 | 94,573 | | | |
| 3 | ,163 | 5,427 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.6:

*Unidimensionality of opposite cognitive experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,339 | 66,781 | 66,781 | 3,339 | 66,781 | 66,781 |
| 2 | ,813 | 16,252 | 83,033 | | | |
| 3 | ,376 | 7,529 | 90,562 | | | |
| 4 | ,263 | 5,265 | 95,827 | | | |
| 5 | ,209 | 4,173 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.7:

*Unidimensionality of opposite social/personal experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,183 | 63,651 | 63,651 | 3,183 | 63,651 | 63,651 |
| 2 | ,729 | 14,584 | 78,235 | | | |
| 3 | ,501 | 10,022 | 88,257 | | | |
| 4 | ,348 | 6,956 | 95,213 | | | |
| 5 | ,239 | 4,787 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

Table 3.8:

*Unidimensionality of opposite overall experience*

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3,229 | 80,734 | 80,734 | 3,229 | 80,734 | 80,734 |
| 2 | ,320 | 7,996 | 88,730 | | | |
| 3 | ,275 | 6,864 | 95,594 | | | |
| 4 | ,176 | 4,406 | 100,000 | | | |

Extraction Method: Principal Component Analysis.

## APPENDIX 4: ANALYSIS OF THE RELIABILITY IN SPSS

Table 4.1:

*Cronbach's $\alpha$ of the variable compatible hedonic experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,932 | ,932 | 3 |

Table 4.2:

*Cronbach's $\alpha$ of the variable compatible cognitive experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,886 | ,887 | 5 |

Table 4.3:

*Cronbach's $\alpha$ of the variable compatible social/personal experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,867 | ,867 | 5 |

Table 4.4:

*Cronbach's $\alpha$ of the variable compatible overall experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,932 | ,932 | 4 |

Table 4.5:

*Cronbach's $\alpha$ of the variable opposite hedonic experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,931 | ,932 | 3 |

Table 4.6:

*Cronbach's $\alpha$ of the variable opposite cognitive experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,875 | ,875 | 5 |

Table 4.7:

*Cronbach's $\alpha$ of the variable opposite social/personal experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,857 | ,856 | 5 |

Table 4.8:

*Cronbach's $\alpha$ of the variable opposite overall experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,920 | ,920 | 4 |

Table 4.9:

*Cronbach's $\alpha$ of the variable compatible overall co-creation experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,849 | ,853 | 4 |

Table 4.10:

*Cronbach's $\alpha$ of the variable opposite overall co-creation experience*

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,845 | ,851 | 4 |

## APPENDIX 5: ONE-WAY ANOVA

Table 5.1:

*One Way ANOVA*

**ANOVA**

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| PREF_VW | Between Groups | 12,883 | 3 | 4,294 | 1,179 | ,321 |
| | Within Groups | 470,049 | 129 | 3,644 | | |
| | Total | 482,932 | 132 | | | |
| PREF_FOR | Between Groups | 7,803 | 3 | 2,601 | 1,044 | ,376 |
| | Within Groups | 319,008 | 128 | 2,492 | | |
| | Total | 326,811 | 131 | | | |
| PREF_REV | Between Groups | 4,784 | 3 | 1,595 | ,615 | ,607 |
| | Within Groups | 334,659 | 129 | 2,594 | | |
| | Total | 339,444 | 132 | | | |
| PREF_IDEA | Between Groups | 8,658 | 3 | 2,886 | ,971 | ,409 |
| | Within Groups | 383,447 | 129 | 2,972 | | |
| | Total | 392,105 | 132 | | | |

## APPENDIX 6: DIFFERENCES IN PREFERENCE CO-CREATIVE ENVIRONMENTS

Table 6.1:

*Paired t-test preference for virtual worlds vs. the others*

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | PREF_VW - PREF_FOR | ,618 | 2,227 | ,195 | ,233 | 1,003 | 3,177 | 130 | ,002 |
| Pair 2 | PREF_VW - PREF_REV | -,083 | 2,639 | ,230 | -,538 | ,371 | -,363 | 131 | ,717 |
| Pair 3 | PREF_VW - PREF_IDEA | -,214 | 2,478 | ,216 | -,642 | ,215 | -,987 | 130 | ,325 |

Table 6.2:

*Paired t-test preference for forums vs. the others*

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | PREF_FOR - PREF_VW | -,618 | 2,227 | ,195 | -1,003 | -,233 | -3,177 | 130 | ,002 |
| Pair 2 | PREF_FOR - PREF_REV | -,697 | 1,865 | ,162 | -1,018 | -,376 | -4,293 | 131 | ,000 |
| Pair 3 | PREF_FOR - PREF_IDEA | -,826 | 2,491 | ,217 | -1,255 | -,397 | -3,808 | 131 | ,000 |

Table 6.3:

*Paired t-test preference for writing reviews vs. the others*

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | PREF_REV - PREF_VW | ,083 | 2,639 | ,230 | -,371 | ,538 | ,363 | 131 | ,717 |
| Pair 2 | PREF_REV - PREF_FOR | ,697 | 1,865 | ,162 | ,376 | 1,018 | 4,293 | 131 | ,000 |
| Pair 3 | PREF_REV - PREF_IDEA | -,129 | 2,316 | ,202 | -,528 | ,270 | -,639 | 131 | ,524 |

Table 6.4:

*Paired t-test preference for idea competitions vs. the others*

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | PREF_IDEA - PREF_VW | ,214 | 2,478 | ,216 | -,215 | ,642 | ,987 | 130 | ,325 |
| Pair 2 | PREF_IDEA - PREF_FOR | ,826 | 2,491 | ,217 | ,397 | 1,255 | 3,808 | 131 | ,000 |
| Pair 3 | PREF_IDEA - PREF_REV | ,129 | 2,316 | ,202 | -,270 | ,528 | ,639 | 131 | ,524 |

## APPENDIX 7: PAIRED T-TEST PER LEARNING STYLE

**Paired Samples Test**

| LEARNING_STYLE | | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | | | Lower | Upper | | | |
| Divergent | Pair 1 | COMP_HED - OPP_HED | -1,13333 | 1,35355 | ,42803 | -2,10160 | -,16506 | -2,648 | 9 | ,027 |
| | Pair 2 | COMP_COG - OPP_COG | ,06000 | 1,25450 | ,39671 | -,83742 | ,95742 | ,151 | 9 | ,883 |
| | Pair 3 | COMP_SOC - OPP_SOC | ,28000 | ,84433 | ,26700 | -,32400 | ,88400 | 1,049 | 9 | ,322 |
| | Pair 4 | COMP_EXP - OPP_EXP | -,35000 | ,89132 | ,28186 | -,98761 | ,28761 | -1,242 | 9 | ,246 |
| | Pair 5 | COMP_OVERALL - OPP_OVERALL | -,28583 | ,90083 | ,28487 | -,93025 | ,35858 | -1,003 | 9 | ,342 |
| Convergent | Pair 1 | COMP_HED - OPP_HED | 1,13690 | 2,05163 | ,27416 | ,58747 | 1,68634 | 4,147 | 55 | ,000 |
| | Pair 2 | COMP_COG - OPP_COG | ,35714 | 1,34392 | ,17959 | -,00276 | ,71705 | 1,989 | 55 | ,052 |
| | Pair 3 | COMP_SOC - OPP_SOC | -,39286 | 1,51260 | ,20213 | -,79793 | ,01222 | -1,944 | 55 | ,057 |
| | Pair 4 | COMP_EXP - OPP_EXP | ,54911 | 1,45182 | ,19401 | ,16031 | ,93791 | 2,830 | 55 | ,006 |
| | Pair 5 | COMP_OVERALL - OPP_OVERALL | ,41257 | 1,25068 | ,16713 | ,07764 | ,74751 | 2,469 | 55 | ,017 |
| Assimilative | Pair 1 | COMP_HED - OPP_HED | -,81761 | 2,49064 | ,34212 | -1,50411 | -,13111 | -2,390 | 52 | ,021 |
| | Pair 2 | COMP_COG - OPP_COG | ,08302 | 1,50968 | ,20737 | -,33310 | ,49914 | ,400 | 52 | ,691 |
| | Pair 3 | COMP_SOC - OPP_SOC | -,36604 | 1,68602 | ,23159 | -,83076 | ,09869 | -1,581 | 52 | ,120 |
| | Pair 4 | COMP_EXP - OPP_EXP | ,04245 | 2,01362 | ,27659 | -,51257 | ,59747 | ,153 | 52 | ,879 |
| | Pair 5 | COMP_OVERALL - OPP_OVERALL | -,26454 | 1,66593 | ,22883 | -,72373 | ,19464 | -1,156 | 52 | ,253 |
| Accommodative | Pair 1 | COMP_HED - OPP_HED | ,35417 | 2,60048 | ,65012 | -1,03153 | 1,73987 | ,545 | 15 | ,594 |
| | Pair 2 | COMP_COG - OPP_COG | ,50000 | 1,44960 | ,36240 | -,27244 | 1,27244 | 1,380 | 15 | ,188 |
| | Pair 3 | COMP_SOC - OPP_SOC | ,26250 | 1,40801 | ,35200 | -,48778 | 1,01278 | ,746 | 15 | ,467 |
| | Pair 4 | COMP_EXP - OPP_EXP | ,15625 | 1,66051 | ,41513 | -,72857 | 1,04107 | ,376 | 15 | ,712 |
| | Pair 5 | COMP_OVERALL - OPP_OVERALL | ,31823 | 1,52522 | ,38130 | -,49450 | 1,13096 | ,835 | 15 | ,417 |

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Ik/wij verlenen het wereldwijde auteursrecht voor de ingediende eindverhandeling:
**Co-creation and learning styles: holy grail or fail? An explorative study to assess whether a relationship between co-creation and learning styles exists.**

Richting: **Master of Management-International Marketing Strategy**
Jaar: **2016**

in alle mogelijke mediaformaten, - bestaande en in de toekomst te ontwikkelen - , aan de Universiteit Hasselt.

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**Van Spaendonk, Kimberly**

Datum: **28/05/2016**