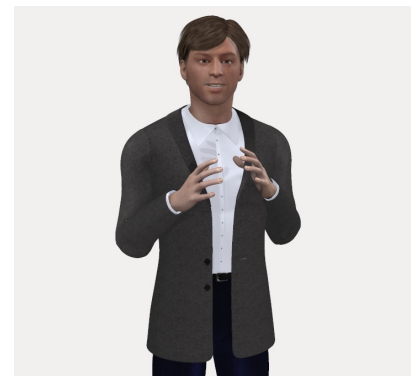




Nonverbal Communication of Anthropomorphism and its Effect on the Perception of Online Education Platforms



by

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Preface

In my spare time I like to learn new things, be it different languages, instruments or other skills. Browsing through the web, many different providers - profit and non-profit - offer their help. Even though these providers treat education as a product and rally for the attention of possible students and thus are part of a competitive market, most of them don't seem to be consequent enough to also use marketing tools to initiate more sells. When I look at marketing of other product types, I can observe a development and invention of tools, which should make a product more attractive and should persuade consumers into buying the product. Does this also work for education? Can education be treated the same way other consumer products are treated? Because, education is such a big part in our live, I wanted to tackle those questions.

I want to thank my supervisors Joyce Karreman and Anique Scheerder! Agreeing to work with me in a distant-supervision-relationship, took this thesis to the next level and provided a great framework for this thesis about online education. Your on- and offline feedback was insightful and helped my open my eyes.

A special thanks shall also go to my fiancé Christian Lenz. You supported me in so many ways. I could not have done it without you. You took the stress and gave me motivation when I needed it.

Last but not least, I want to thank my parents and my friends, who helped me brain storm, helped me see, when I couldn't see anymore.

Thank you!

Andrea Klein

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Abstract

Online learning platforms support the learning process in higher education. They can have positive and negative effects on the learning process (Bent, Bologna and Dzitac, 2014; Fryer, Bovee and Nakao, 2014). To increase the positive effect of such platforms, pedagogical agents are used (Schroeder and Adesope, 2012). These agents can also be used to follow marketing matters and become anthropomorphisms of brands. An anthropomorphism is the humanisation of non-living objects (Blanchard and McNinch, 2001). When using facial expressions and gestures the human resemblance is supported and they are perceived positively by users (King and Watt, 2013).

This thesis explored the effects of anthropomorphism and nonverbal communication on the perception of the learning platform and the used agent. The research followed a between subject 2 (gestures: present vs. absent) x 2 (facial expressions: present vs. absent) design. The German online education platform Lecturio was used to implement the agent. 179 participants answered took part in the study.

The results did not meet the expectations. Neither facial expressions (present vs. absent) nor gestures (present vs. absent) showed a significant effect. The same holds for the use of anthropomorphic agent vs. no anthropomorphic agent. However, the descriptive data showed that the use of gestures alone scored the lowest rating, indicating gestures alone create the least level of human resemblance.

The insight of this study suggests, that the field of anthropomorphism, following a marketing purpose in online education, needs to be explored further to find the most appropriate agent.

Keywords: anthropomorphism, online education, nonverbal communication, gestures, facial expressions

1. Introduction

You live and learn. Besides intuitive and motor learning processes, which can base on the principle of cause and effect - for example a hot stove can burn skin, thus one avoids to touch it - cognitive learning processes, which are implemented into an educational system, accompany us on our way. In the beginning, we attend different levels of school - preschool, primary school, middle school, high school. The study of subjects, such as languages and sciences build and contribute to the understanding of our environment and its inherent processes. When leaving school one has to decide for a field, in which one wants to learn and work in, resulting in the attendance to universities of (applied) sciences, vocational schools or further education institutions. This represents the higher and further education level. While the school syllabus follows guidelines, preset by state institutions or educational organisations, higher education demands to undergo a self reflection, to decide a subject or rather topic, they want to specialise in. The systemisation and the institutionalisation of education assigns it a selectional function, which determines whether a person is deemed adequate for the professional world. Due to this selection process, education is treated as a good, which is made scarce (Lippl, 2005). As it is typical for a free market economy, not only one provider exists, which offers educational content. Schools, institutions, universities, academies - state or private - rally for the students. Because of its relation to people's professions, higher and further education takes on an opportunity for providers to ingratiate themselves and their products to possible customers. These offered contents, which shall facilitate and support the learning process in higher education, are found on an offline and online level.

When looking at the existing research landscape, one can find a lot of research, taking a close look at the field of online studying and how this can be incorporated into higher and further education. Bent, Bologna and Dzitac (2014) for example examined the use of e-learning platforms in higher education and how this changed and increased the students' willingness to work harder at home. Another study looked at how the introduction of e-learning in language courses contributed to a decrease in motivation to participate in the learning process (Fryer, Bovee and Nakao, 2014). This shows two contradicting examples, how online learning can have a positive and negative effect. Measures have already been taken to enhance the performance of online learning platforms themselves and their effectiveness among and for users. Amongst other things, these measures are taken with the help of pedagogical agents (hereinafter referred to as "agent"), animated anthropomorphic characters. They can appear at several stages and can take on several roles

towards the user or rather student. They can for example be mentors, experts or motivators, who are meant to guide, educate and support during the learning process (Baylor, 2011). The role depends on the allocation of the agent within the online learning environment. Hence, a repositioning of the agent can change its role. When an agent is not located within the learning environment (for example guiding in-between tutorials), but is used to introduce the product or rather the brand, thus is found on the landing page of an online learning platform, the agent becomes the brand's anthropomorphism. This results in a change of the scientific perspective - from the educational point of view to the marketing point of view. This marketing point of view pays attention to the characteristic of education being dealt as a product, which can be traded. This is of significance to the competing providers, who aim to increase the number of customers.

The implementation of a human agent is a well known and popular tool in marketing (Lee, Sun, Chen and Jhu, 2015). It facilitates a social interaction between the user and the interface (Baylor and Kim, 2009). This interaction is seen as one amongst equals, due to the tendency of people to treat a computer as another human being (Waytz, Cacioppo and Epley, 2010). Further, it supports the process of attitude formation towards a brand (Riedl, Mohr, Kenning, Davis and Heekeren as cited in Lee et al., 2015). Thus, using an agent not only to enhance educational efficiency but to serve marketing matters is axiomatic.

With the decision of implementing an agent, the question about the level of animation arises amongst others. It was found, that the use of nonverbal communication (facial expressions and gestures) has a positive effect on the users perception of the agent and perceived to be helpful in certain learning processes (King and Watt, 2013; Baylor and Kim, 2009). The question arises if a similar positive effect can be observed when following marketing goals.

The relevance of this research addresses practical and scientific issues. For the practical realisation of marketing goals, it is beneficial to know, if an existing element - the pedagogical agent - can be used to attract more customers. Amongst other things, this can decrease invested timely and monetary assets, needed to create a new and effective marketing tool. The agent could be used in all stages of the software and support the achievement of varying goals. Additionally, the extent of used animation helps to create the most efficient version of the agent. The introduction of an element, which was majority used to enhance the education aspects, to the economic side targets a gap, which currently exists in the research landscape. Even though, education is treated as a product by society (Lippl, 2005), science did not address it in that way. The main research focused on the improvement of learning processes and linked factors (Heidig and Clarebout, 2011). However, to the knowledge of the author, no research paid attention to the marketing perspective.

Thus, this research takes a closer look at the marketing tool of an anthropomorphic agent and wants to find out, if the use of an anthropomorphism of an e-learning platform affects users or rather (possible) students. It also looks at the appearance of the agent itself, trying to achieve a close human resemblance, which caters the interaction process between human and computer. Therefore, the use of nonverbal communication is also included into this research. This results in the following research question:

What effect does anthropomorphism have on the perception of online learning platforms and how is this influenced by nonverbal communication?

The focus was on the online provided learning support, namely e-learning platforms, which offer higher education subjects. To apply and test the theoretical background and hypotheses, the German online learning platform Lecturio was the subject. To answer these questions a between subject 2 (gestures: present vs. absent) by 2 (facial expressions: present vs. absent) design was used. Also a pretest was carried out to find the optimal degree of anthropomorphism.

This thesis is structured as follows: At first, the theoretical background is presented to lay the groundwork for understanding the topic and clarify about already existing research findings. Second, the method is introduced, describing the pretest and the main test. Third, the results of the main test are evaluated. Fourth, the analysed data are discussed, limitations and suggestions for future research are presented. Last, a conclusion answers the research question and talks about practical implications of the findings.

2. Theoretical Framework

2.1 Online Education

When entering the higher and further education system at a company or university, not only the attendance to classes, lectures, and tutorials are of significance, but also the complementary work done by students themselves outside educational premise is of importance. Instruments, which can support the student preparation and revision of subject matter, are found on- and offline and are mixed by each student individually in regard to personal preference. The use of online services does not represent a fashionable or bizarre tool, which only caters the need of technological progress or entertainment in the educational area. According to Ellis, Ginns, and Piggott (2009, 303), "E-learning is being introduced as a fundamental part of the student learning experience in higher education" and is said to be the, "fastest growing sector in education" (Crampton, Ragusa, and Cavanagh, 2011, n.a.). Thus, many different companies - private or university - provide online support in various forms. Topic summaries and reviews, or video tutorials and interactive exams are meant to help and simplify the learning process of students and enhance not only grades but also the true and deep understanding of the matter.

Due to the growth of such online learning or distant learning platforms and the students' influenced perceptions of studying by oneself, the evaluation and standing of these distant-studying organisations have changed and became an accepted institution (Ellis et al., 2009). On the one hand, a study showed, that amongst other factors the attitude towards homework, and subject preparation was influenced positively by the offer of online education (Benta, Bologna, and Dzitac, 2014). On the other hand, another study by Fryer, Bovee and Nakao (2014) found that the use of an e-learning tool in language courses facilitated a decrease of motivation concerning the acquisition of foreign language skills.

While undergoing the process of studying with the facilitated support of a learning software, a special, yet well known interaction takes place. Based on findings, this interaction is a learner-interface interactivity. This interactivity is found to be "one of the key ways to capture affordances of e-learning to increase the learner's knowledge" (Ellis et al., 2009, 305). Further, not only the knowledge of course matters, but also the knowledge and the recognition of the software, or rather the brand is crucial. According to the social agent theory, the interaction between a human - user - and a computer, and further their relationship, is one amongst equals, due to the tendency of humans to treat computers as another human being (Waytz, Cacioppo and Epley, 2010). Hence, the

aforementioned relationship results in a social conversation scheme (Reeves and Nass, 1996; Schroeder and Adesope, 2012).

To facilitate this conversation and decrease a possible negative connotation, which the students might encounter while interacting with the online learning software or platform, a tool was introduced to increase the attitude and the positive experiences - pedagogical agents.

2.2 Pedagogical Agents and Anthropomorphism

Pedagogical agents. Pedagogical agents are also called educational agents and amongst other things can take on the form of implemented, artificial human agents in e-learning environments. These agents are “visible characters in multimedia learning environments designed to facilitate learning” (Schroeder and Adesope, 2012, 43) and managed to gain an inventory position (Veletsianos, 2010). They are a special kind of anthropomorphism. When looking at several studies, many different definitions of anthropomorphism can be seen. The most common one comprises all human dispositions and states of mind, which relate to nonhuman agents (Waytz et al., 2010; Blanchard and McNinch, 2001; Hart, Jones and Royne, 2013). The cognitive processes, which are given to a nonliving and nonhuman object play a significant role. Only having a humanlike figure but not behaving accordingly, does not attract the wanted attention of the customers (Demoulin et al., 2004; Haslam, Bain, Douge, Lee & Bastian, 2005). Their implementation offers two main advantages:

1. Pedagogical agents can be placed anywhere at anytime, whenever it is the most suitable and favourable.
2. Through customisation, pedagogical agents can present the optimal socially accepted version within a target group (Baylor, 2009).

The use of pedagogical agents in regard to test results and learning outcomes has been researched in many different facets. It was for example found, that pedagogical agents do support an active learning process (Moreno, 2005). This artificial human is useful in many ways, due to its changing roles, depending on where it is inserted within the educational platform. When being used to guide through the online learning environment and becomes a part of the online learning experience, the agent takes the role of a mentor for example (Baylor, 2011).

Conducted studies, which revolved around the topic of online education and/or the use of pedagogical agents, only looked on the educational point of view so far. The marketing point of view - for example attitude towards the online learning platform or provider itself, and the perceived quality of the product - has merely been explored, even though the importance of this

field was pointed out by studies, that showed how the approach and motivation towards learning is influenced by perceived context, content, and quality of an online learning platform (Ellis et al., 2009).

Anthropomorphism in marketing. Marketers use anthropomorphic agents to establish a relationship between the consumer and the product (Triantos, Plakoyiannaki, Outra, Petridis, 2015). They make use of the human tendency of people searching for familiar features in everything they look at (Hume, 1957). Further, anthropomorphism acts as an intellectual framework, which supports the categorisation process of unknown objects, thus increasing the confidence towards the product (Triantos et al., 2015). This also helps to facilitate the relationship and interaction between the human and the computer, which was introduced above. Furthermore it was found, that humans, who established a relationship to objects, by assigning human features, evaluated objects more positively, than people who did not (Epley, Akalis, Waytz, Cacioppo, 2008).

By making use of the advantage, stated by Baylor (2009), which allows pedagogical agents to be placed anywhere at anytime, the pedagogical agent can act as the brands anthropomorphism. When being placed onto the landing page, representing the online learning platform - the brand - itself or even more precise represents the platform and its characteristics to the environment, the agent accumulates familiar features, which consumers subconsciously look for and hence supports the bonding process between consumer and product. The significance of bringing anthropomorphism into online education is also supported by the findings of several researchers, who concluded the direct relevance of anthropomorphism within the human-computer interaction (Waytz et al., 2010). It is further said, “the presence of an agent adds value” (Moundridou and Virvou, 2002, 258).

Brand Attitude and Satisfaction. Mitchell and Olson (as cited in Low and Lamb, 2000) defined brand attitude to be the “consumers' overall evaluation of a brand - whether good or bad” (Low and Lamb, 2000, 352). Amongst other factors, it influences the consumers purchase behaviour and thus is of importance to marketing managers. Catering the importance of attitude, Rosenberg-Kima, Baylor et. al (2008) found for example, that the use of an anthropomorphic agent in an online learning platform supported the attempt to increase the users' attitude toward engineering. Another study by Moundridou and Virvou (2002) showed that an agent increases the attitude towards the task at hand, to acquire a certain knowledge. The first example shows an attitude increase regarding a course and the second example concerns the attitude towards a task within the learning process. Both, the course and the task, are part of the structure, which makes an online learning platform, thus it can be assumed, that this increase in attitude also holds for the

platform itself. Additionally, the satisfaction felt by the user poses another factor, which supports a positive perception of an agent and its online learning platform. Sung and Mayer (2012) found for example, that the satisfaction felt by the user, was higher, when viewing material including an agent, as opposed to material without an agent.

Perceived Quality. While undergoing a decision making process toward the purchase of a product, consumers can be influenced in their purchase intention. Dedeker (2016) found, that perceived product quality “has predictive relevance for purchase intent” (Dedeker, 2016, 550). It reflects the consumers perception of the products’ superiority and excellence (Low and Lamb, 2000). As Ellis et. al (2009) found, one of the important factors, which influences how learning and hence the providing learning platform is approached, is the perceived quality of the content and hence the product and brand. Ang, Bobrowicz et al. (2013) found, that the use of an anthropomorphic agent increased the perceived quality of the communication between the agent and the viewer, thus between the brand and the user.

Considering the above stated findings, the following hypothesis can be formulated:

H1: Using an anthropomorphic agent on the landing page of an online learning platform has an effect on brand attitude, the perceived quality and satisfaction in contrast to using no anthropomorphism.

2.3 Anthropomorphic Agent - Appearance.

When looking at existing anthropomorphisms, one can see a wide variety. Their design often seems indiscriminate. This lets the necessity arise to figure out, which aspects need to be considered during the creation process.

Research within the technical communication field has found visual elements being of importance concerning motivational and affective aspects in electronic education. Agents, who are perceived as attractive or as attractive and cool, are the most influencing ones regarding self-efficacy and motivation. However, existing stereotypes and prejudices need to be considered and can be used as advantage (Baylor and Kim, 2004). Thus, agent appearances need to be carefully designed regarding its task and target group. In addition, various studies showed, that multiple agents are preferred, if different tasks, such as motivating and consulting, need to be covered (Baylor, 2009).

Having analysed numerous studies, Heidig and Clarebout (2011) defined three main design levels, on which the creation of a pedagogical agent is based:

1. Global design level: The main question about the form of the character - human or non-human -, which can either involve movement or not, is addressed here. It was found, that amongst other variables, the global level does not seem to be of significant importance in terms of attractiveness of online education.
2. Medium design level: This level relates to technical, abstract aspects. Visual and auditory decisions have to be made. Visual ones concern the liveliness and realism of the character, the extend of animation, and the shown section of the agent. Auditory ones concern the kind of voice output, and the kind of speech. Further, general features of the agent are also defined here. Even though, many studies have been carried out, it is still not clear what features and their combination enhance likability or credibility of the agent and hence its environment.
3. Detail design level: As the name indicates, this level deals with the agents features more in detail. E.g. not only ethnicity and gender, but also age, weight, body type, clothing etc. need to be clarified. Further, the speech rate, volume, accentuation etc. are important. Again, these variables were tested in various studies.

The design levels are outlined in figure 1.

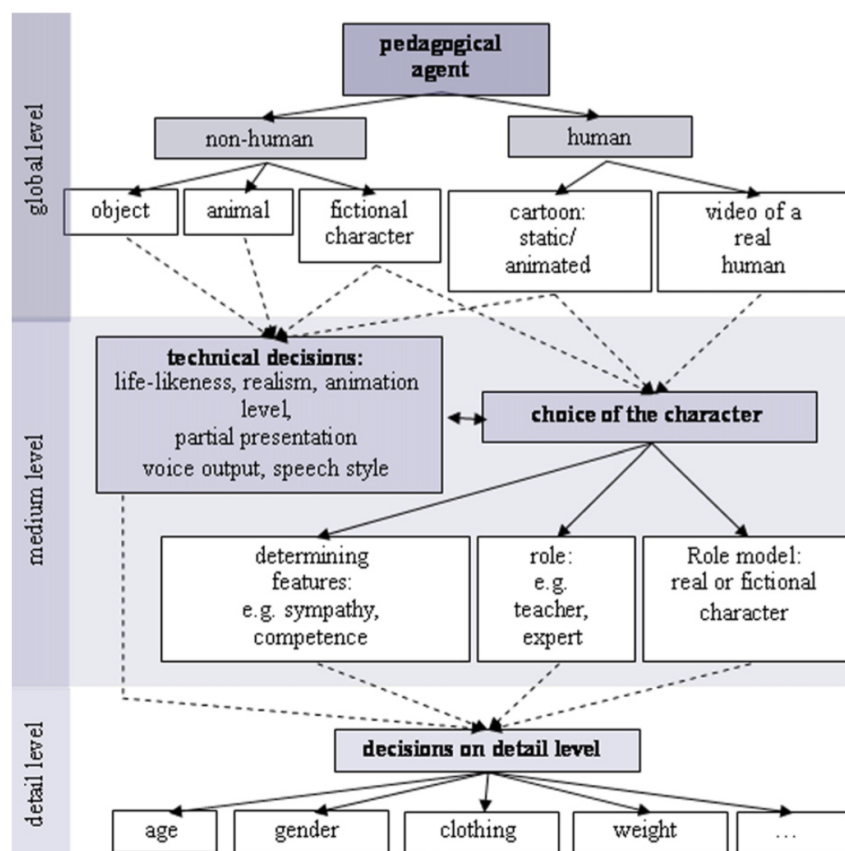


Figure 1. Design levels of pedagogical agents (Heidig and Clarebout, 2011)

A study by Nowak and Rauh (2006) found, that the more anthropomorphise - human-like - an agent is designed, the more credible it is believed and also the more satisfaction is felt by the user (King and Watt, 2013). Additionally, the agent is perceived to be more independent, capable of feelings, conscious experiences, and actions (Waytz et al., 2010). Thus, the aim should be to create an agent, whose human resemblance is as close to a living human being as possible. The above mentioned levels, can support the creation process of such a human-like agent.

2.4 Anthropomorphic Agent - Communication

Verbal communication. The above mentioned visual findings for pedagogical agents can be applied in anthropomorphism, too. Besides appearance, the delivery method of the conveyed message by the agent is also important. The delivery could be verbal and/or non-verbal, such as gestures, which support the verbal message. The verbal aspect can be transported in text or spoken form. It was found, that the spoken message has a higher motivational impact on learners, as the written form has. This is supported by the social presence theory, which lets the agent overtake a humanlike position within the interaction between the learner and technology. Hence, its impact on the person is a familiar one (Baylor, 2011). When it comes to the design of the spoken message - the voice - the following aspects need to be considered: volume, pitch, pitch range and speech rate (Nass and Brave, 2005). The usage of a human voice was found to be more preferable, than a computer generated voice (Baylor and Kim, 2009; Lusk and Atkinson, 2007; Wang, Johnson, Mayer, Rizzo, Shaw and Collins, 2008). Thus, the experiment will make use of an agent, talking with a human voice.

Nonverbal communication. After considering aspects about verbal communication, it is time to look further. According to Poyotos (as cited in Mandal, 2014) nonverbal communication can be classified into nonverbal-vocal communication (such as moans, groans or hums) and nonverbal-nonvocal communication. The nonverbal-nonvocal communication comprises a number of communicational acts, which not only include bodily movements, such as gestures or facial expressions. Other tools, such as fashion or objects used as status symbols, also help to communicate a certain message (Harrison as cited in Mandal, 2014). As it was mentioned earlier, an agent, which is the closest resemblance to a human being, elicits positive affective responses, the talking agents cannot only be presented static but also animated (Clark and Meyer, 2002). This animation includes gestures and facial expressions, which support the agents' visibility and conveyed message resembling a real-life human being (Baylor and Kim 2009). When thinking about a talking person, different combinations of bodily movements come to mind, which

commonly accompany speaking. These movements result in different kind of gestures, which seem to be used routinely (Goldin-Meadow, 1999). Those gestures can be categorised according to McNeill (as cited in Goldin-Meadow, 1999):

- ‘Iconic’ gestures support conveying semantic aspects within a story. An example is explaining the shape of an object and retracing its form in the air with ones hands.
- ‘Metaphoric’ gestures are more abstract than iconic gestures and do not represent mentioned objects or actions, but cater the underlying motivation to for example present something. The action to present something could be shown be the hands acting as if offering an object to the audience.
- ‘Beat’ gestures use the underlying rhythm of speech and pulse as if indicating musical time. These gestures can be flicks of hands or fingers for example and seem to be independent from its context.
- ‘Deictic’ gestures comprises pointing movements, which refer to locations in the conversational space. This can be for example someone showing where they can find a book in a shelf.

Facial expressions, which include “mouth, eye, and eyebrow movements” (Frechette and Moreno 2010, 62) also contribute to the realness of an agent.

When looking at the existing research environment regarding nonverbal communication, the use of nonverbal-nonvocal communication does not accumulate clear findings in the educational area. While some found, that nonverbal communication, especially gestures, distract students (Mousavi, Low, & Sweller, 1995), others pointed out the importance of their implementation, in regard to helping the users focus on the content of an educational platform (Baylor and Kim, 2009). Additionally, Baylor and Kim found evidence supporting the positive effect of facial expressions and gestures on learning and the perception of the agents’ persona. Especially the animation of facial expressions target the affective part of human cognition and thus influences the perception of the agents’ persona, which enhances the social interaction between the user and the agent. King and Watt (2013) stated, that the perception of the agent and effectiveness of communication is increased by the use of nonverbal communication elements. However, it was also found, that the exclusive use of facial expressions without gestures can have a negative, distracting effect (Frechette and Moreno 2010).

The findings, presented in this subchapter, regarding the communication of the agent, allow the following hypotheses:

H2: The use of nonverbal communication has a positive impact on the agent’s persona.

H3: The agent’s persona depends on the combination of facial expressions and gestures: The agent’s persona is more positive for an agent using both, facial expressions and gestures, as opposed to agents only using one of the nonverbal elements.

H4: An agent is perceived to be more helpful, when using gestures.

2.5 Research Design

The hypotheses, which were formulated in the grounds of the existing theoretical findings, collected in the chapters above, were tested by the following 2 x 2 between subject research design:

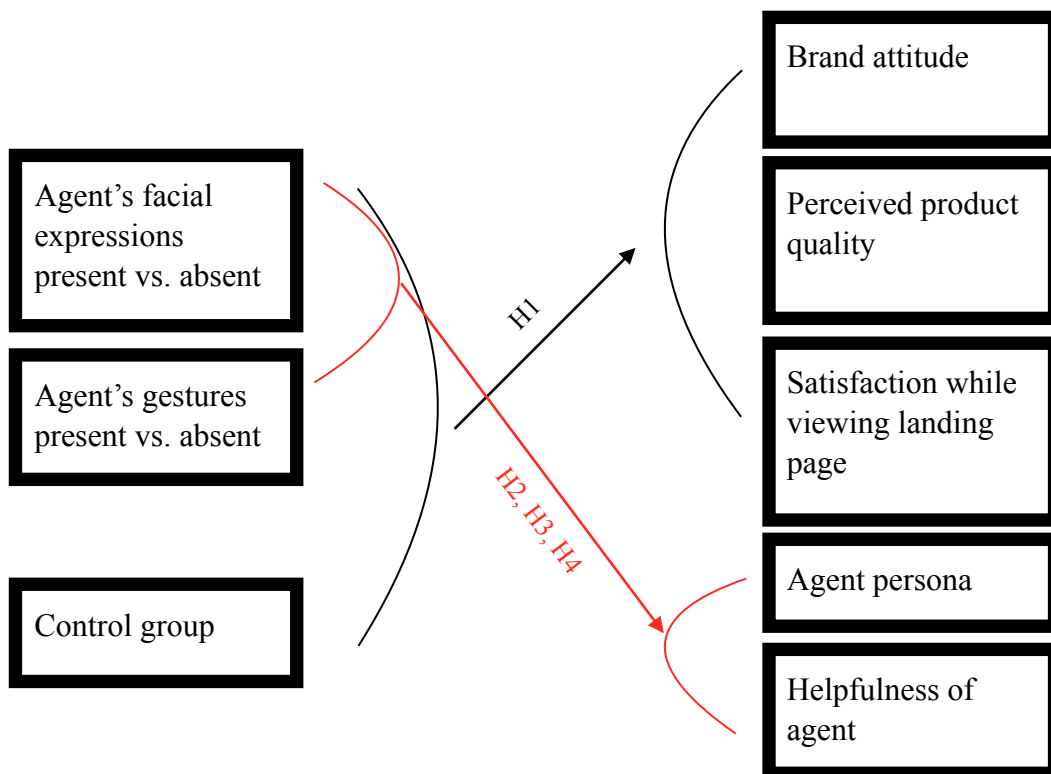


Figure 2. Research Design

3. Method

To follow the above shown research design in fig. 2, the landing page of an online learning platform needed to be used. The subjected platform was Lecturio. Lecturio is a German subject based online learning platform, which provides a large number of different subjects and course types. The offered objects and activities range from watching tutorials to getting summarised information, and doing practice tests. This classifies the activities into a mixture of acquiring knowledge, practice and application. Students only interact with the platform itself. The learning process for these students happens remotely after the teacher prepares and posts the learning objects online. Because the learning platform cannot only be reached via its homepage, but also via an app, the remote studying can happen at any place and with any device students choose. This classification of Lecturio follows a systematic put together by Lui, Lo and Yiu (2013).

3.1 Method of Pre-Test

Before the main study, which follows the previously stated design, can be carried out, a pretest needed to figure out the appearance of the used anthropomorphic agent. To create the most appropriate anthropomorphism of Lecturio, it was necessary to research users' expectations of the agent. In order to collect appropriate and usable data, a quantitative research tool - an online survey - was used, which asked about different items of the detailed design level, which was explained in chapter 2.2.3. The global level was set by the researcher herself. The anthropomorphism was decided to take on an animated human form, following several studies, which were carried out by Baylor, A. L. (2009, 2011) and Baylor, A. L., & Kim, S. (2008, 2009). The medium level, which decides about the choice of character and technical decisions, was not of the pre-test, as well. Because the agent is presented on the landing page and used as the anthropomorphism of the brand, the choice of character is already determined. Also the technical decision about the extent of animation is already covered by the different experimental groups, which assign facial features and gestures to the agent.

Participants. The participants were randomly sampled, by publishing the online survey in several groups of different platforms. Also friends and acquaintances were asked to answer the questionnaire and forward it to their contacts. In the end 93 participants started the questionnaire. 60 of them were female and 33 were male. This represents a ratio of 65% and 35% accordingly. The mean age of the participants was $M=24.48$ years ($SD=6.91$). The participants' ages ranged from 18 to 58. While ages 18 to 32 were part of the main distribution, a view other ages represented outliers.

More than 50% of the participants are or were part of the higher education level and 50% of the respondents have already come across further education programs. Thus, the majority of the participants belong to a potential target group of the brand - people possibly seeking for support in higher or further education.

Measurements. In order to figure out the outer appearance of the agent, the measurements followed the detailed design level (shown in fig. 3), introduced in the theoretical background. This results in the following measurements being gathered about the agent: gender, age, ethnicity, body type, size, eye colour, hair style and colour and clothes style. Additionally the participants were asked about the experience with further education.

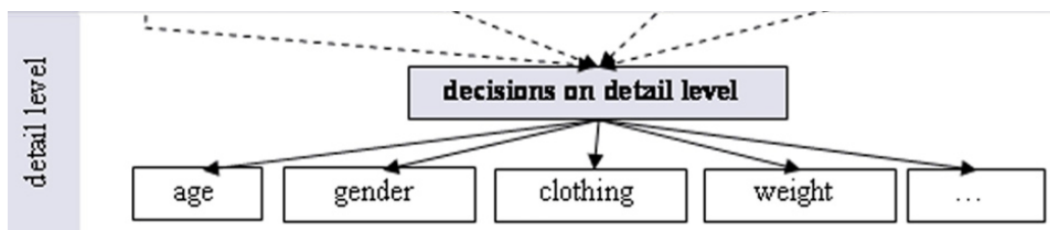


Figure 3. Detailed design level (Heidig and Clarebout, 2011)

Materials. Connected to the questions, a screenshot of the landing page of Lecturio was shown (seen in fig 4).

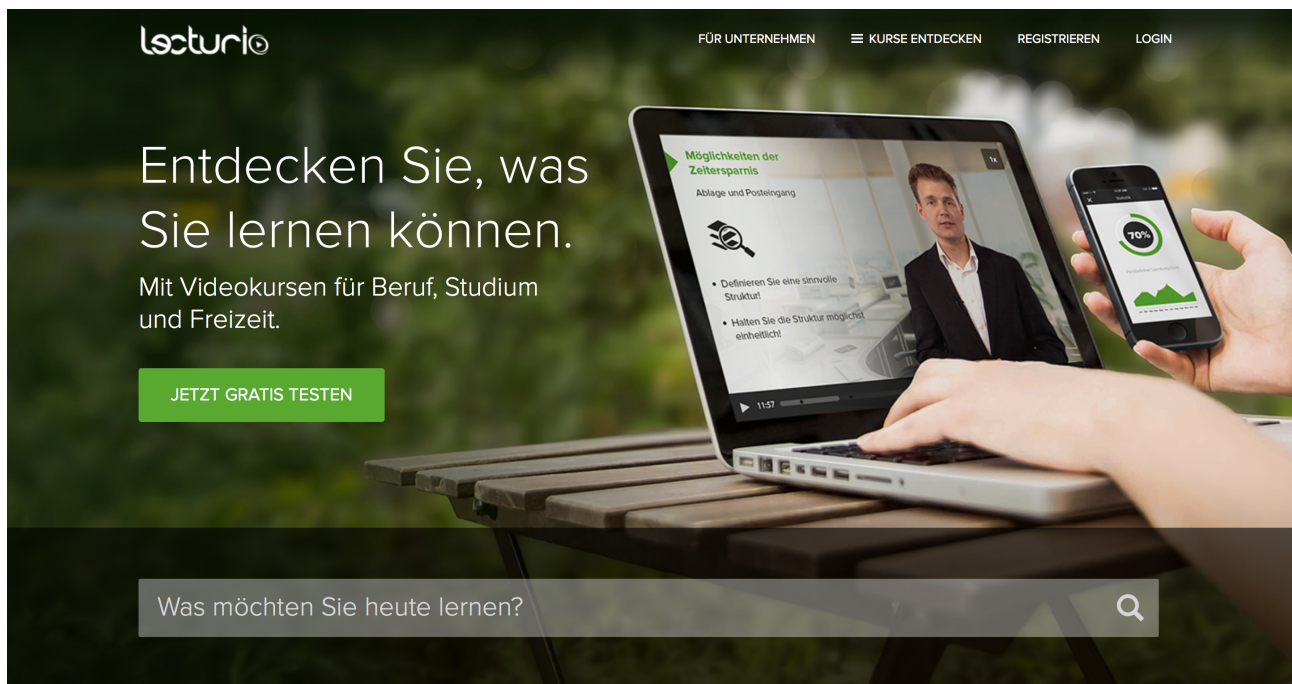


Figure 4. Landing page of Lecturio

Procedure. This online questionnaire was facilitated by the online software Qualtrics. In the beginning the respondents were asked a few demographic questions and their status regarding further education. Then a screenshot of Lecturio's landing page was shown. They were then asked to imagine the brand to be a person, which offers its service to the users. Keeping this in mind, the participants needed to answer the questions concerning the person Lecturio. The participants were given the chance to sign up for a possible follow-up test, which would be conducted, if the results led to different possible agent appearances. The participants were noted, that there is no right or wrong answer. Additionally, participants were asked to give demographic information. The complete pre-test questionnaire can be found in appendix A.

Results pre-test. For the simplicity of the analysis the anthropomorphism is thereafter referred to as "agent". Even though 93 people started the survey and answered the questions in the demographic block, only 75 finished the survey and answered the questions about the brand, as well.

Agents' demographics. With a majority (83%) the participants perceived Lecturio to be male. The average age of Lecturio is $M=36$ years ($SD=17.18$). A few outliers existed on either side of the main distribution. 59% imagined Lecturio to be Caucasian.

Agents' appearance. Now the section about the agent's appearance section is covered. The body type can be explained to be a mixture of ectomorph and mesomorph. A mixture of these two body forms will result in a person, who is not too thin or muscular. The average height of the collected suggestions is 181 cm. This shows that Lecturio is imagined to be a tall man. Now that the general body characteristics are defined the features of the face will be analysed. The first question was about the eye-colour. Here the majority of the participants (23%) chose the eyes to be brown. The hair of the agents was chosen to be short by 75% of the participants. The colour of the hair is imagined to be brown (60%). Further, the participants were asked about the structure of the hair and according to 63% of the participants it should be straight. The straight hair should have a business style according to the participants (55%). 71% said that Lecturio does not have a beard.

Agent's style. Concerning the clothing style of the agent the participants could choose between a business style, casual and elegant and comfortable. The answers of the respondents revolved around two styles. 47% went for business style and 48% went for casual and elegant. The business style shall look the following: The colour of the suit was imagined to be blue by 40% of the participants. The colour of the dress shirt is supposed to be white (66%). The casual style is a combination of three elements: jeans, blazer and dress shirt. The colour of the jeans was determined to be dark blue, because 50% of the respondents selected this choice. The colour of the blazer

cannot be as easily named. 22% chose dark blue, 22% chose dark grey and 28% chose black. The results for the dress shirt were clearer. 83% wanted the shirt to be white. Because the agent's clothing would be incomplete, if he would be barefoot, participants were also asked about shoes. The respondents could choose between sneakers, slippers and dress shoes. The shoe variation the participants thought would fit the best was the dress shoe variation (69%). The shoe colour would be black (59%).

Based on these results, the following styles would have been possible for the agent:

- Style No.1: Blue Business suit with a white dress shirt and black dress shoes.
- Style No. 2: Dark Blue Jeans, dark blue blazer, white dress shirt and black dress shoes.
- Style No. 3: Dark Blue Jeans, dark grey blazer, white dress shirt and black dress shoes.
- Style No. 4: Dark Blue Jeans, black blazer, white dress shirt and black dress shoes.

Because the agent's style was not clearly identified, a follow-up test was conducted. A prototype of the agent was designed, showing the agent in the four mentioned styles. Then, the participants, who signed up for the follow-up test, were asked which agent would be the best embodiment of Lecturio. 7 participants responded to the follow-up test and 6 participants considered style no. 4 to be the best fit.

Conclusion. Now that all results have been summarised and analysed appearance of the agent was set to be the following:

- The agent is male and is in his mid thirties.
- The agent is caucasian.
- The body type is a mixture of ectomorph and mesomorph. This means, that the agent will be lean and defined, not too muscular, as suggested by the participants.
- Lecturio's height is in the range of 180 cm to 190 cm and hence can be claimed to be tall.
- The agent has brown eyes.
- The agent has short, straight hair. Its colour is brown. Its style is casual and elegant. The agent does not have a beard.
- The agent's style is casual and elegant and is composed as follows: Dark Blue Jeans, dark grey blazer, white dress shirt and black dress shoes.

3.2 Method of Main Test

After having figured out the appearance of the agent, the main study was conducted. The study followed an in between subject 2 (gestures: present/absent) x 2 (facial expressions: present/

absent) design. Also a control group was used. Thus, participants were only exposed to one experimental condition. The participants were randomly assigned to the different experimental groups by “Qualtrics”. The final distribution among the different groups can be seen in table 1.

Table 1
Participant distribution among the different groups

Group	Number of Participants
Agent with gestures and facial expressions	38
Agent with gestures	32
Agent with facial expressions	33
Agent without gestures and facial expressions	29
Control (no Agent)	47
Total	179

Participants. For the main study, the participants were recruited in the same manner as they were for the pre-test. The participants were randomly sampled, by publishing the online survey in several groups of different platforms. Friends and acquaintances were also asked to answer the questionnaire and forward it to their contacts. The main study was started by 317 people. However, only 179 were completed and thus are eligible for evaluation. The characteristics of the participants were the following: Of the 179 participants, 120 were female and 59 were male. This represents 67% and 33% respectively. The age of the participants ranged from years 19 to 64 ($M=29.81$, $SD=9.27$). However, the main distribution, including 153 participants (85.47%) ranges from years 19 to 35. 26 outliers existed. Participants were further asked about their level of education. They could choose between a MSA (secondary school certificate), Fachabitur (vocational baccalaureate diploma), Abitur (high school certificate), training or apprenticeship, certificate at a university of applied sciences and certificate at a university. The majority (101 participants, 56.40%) received a degree at a university. The minority (3 participants, 1.70%) received a secondary school certificate. The demographic data for each group can be seen in table 2.

Table 2

Demographic Data for each group

	With gestures and facial expressions (N=38)	With gestures (N=32)	With facial expressions (N=33)	Without gestures and facial expressions (N=29)	Control group (N=47)
Gender					
female	24 (63.2%)	20 (62.5%)	26 (78.8%)	17 (58.6%)	33 (70.2%)
male	14 (36.8%)	12 (37.5%)	7 (21.2%)	12 (41.4%)	14 (29.8%)
Mean age	28.26	31.38	32.58	29.10	28.49
Level of education					
Secondary School	0	2 (6.3%)	1 (3.0%)	0	0
Vocational baccalaureate	1 (2.6%)	1 (3.1%)	1 (3.0%)	1 (3.4%)	1 (2.1%)
High School	7 (18.4%)	4 (12.5%)	7 (21.2%)	4 (3.8%)	7 (14.9%)
Apprenticeship	6 (15.8%)	6 (18.8%)	6 (18.2%)	2 (6.9%)	6 (12.8%)
Applied-Sciences	1 (2.6%)	4 (12.5%)	1 (3.0%)	6 (20.7%)	3 (6.4%)
University	23 (60.5%)	15 (46.9%)	17 (51.5%)	16 (55.2%)	30 (63.8%)

Materials. The materials or rather the stimuli, which were used, were the following:

1. A screenshot of the landing page of the online learning platform Lecturio (fig. 5).

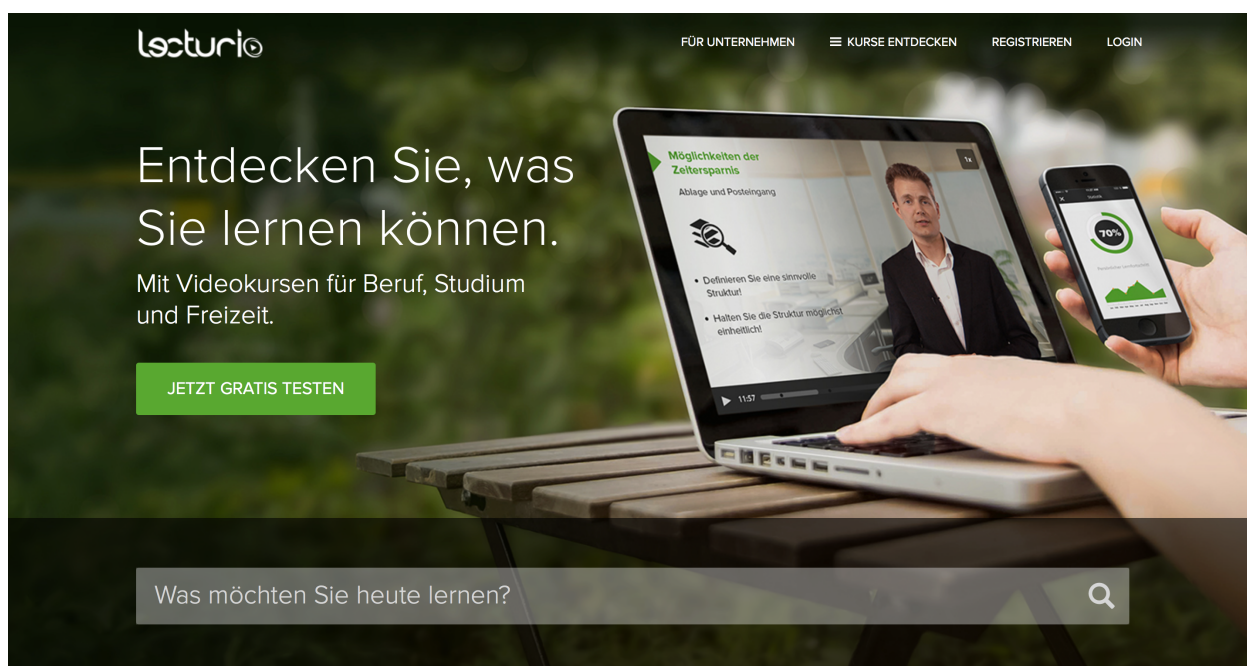


Figure 5. Landing page of Lecturio

The landing page was used as a background to create 10 second clips, in which the agent is talking to the viewer. To the control group, the landing page was shown on its own, without the agent. An example of the combination of the background and the agent can be seen in fig. 7.

2. An agent, which was created and designed following the findings from the pre-test (fig. 6). The anthropomorphism was created with the software Poser by the leading researcher of this thesis. The agent was equipped with a human voice, which allowed him to welcome the viewer.
3. The verbal communication was applied to the agents of all groups. This was a spoken message, which said the following: “Hallo und herzlich willkommen bei Lecturio. Egal was ansteht - Prüfungen, Weiterbildung oder Freizeit - wir unterstützen gerne. Sehen sie sich einfach bei uns um.” (Translation: Hello and welcome to Lecturio. No matter the occasion - exams, further education or hobbies - we offer our support. Have a look around.) On the other side the nonverbal communication elements (facial expressions and gestures) were inserted and/or left out to adjust the agent to the different participant groups. Facial expressions included lip, eye and head movements. Gestures included general body, arm and hand movements. As it was stated in the theoretical framework, gestures are often used routinely. Thus, a mixture of the different gesture were used in the animation process. The facial expressions were automatically animated, by using the voice synchronising function of Poser.



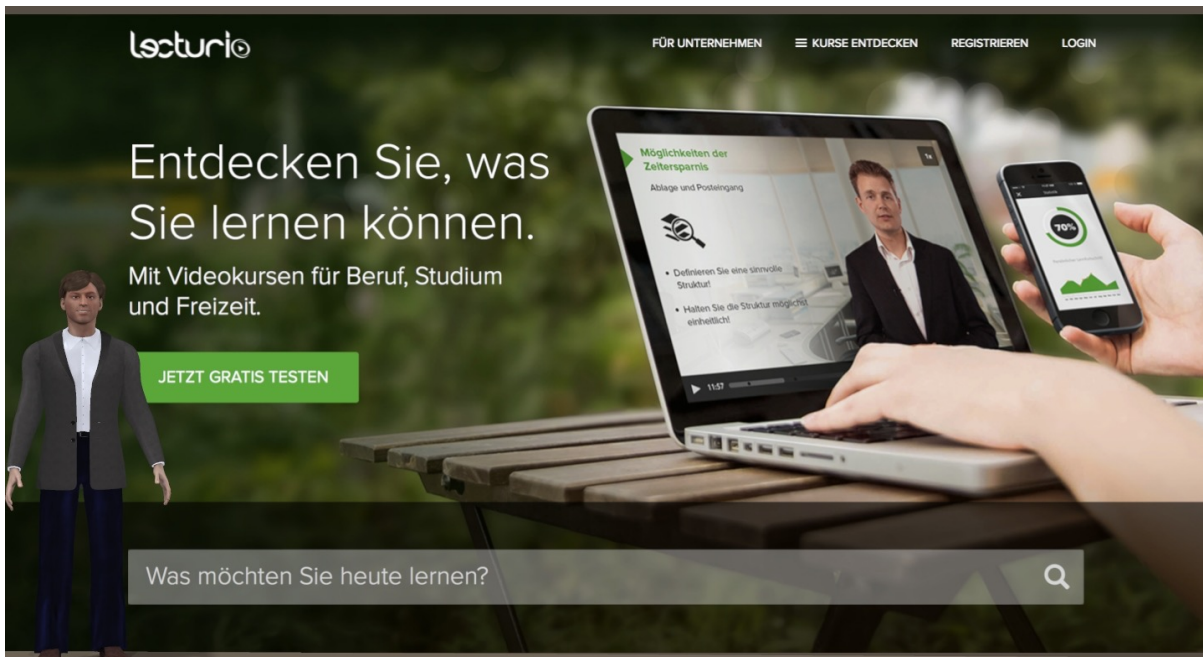


Figure 7. Combination of agent and landing page (starting position for every experimental group)

Procedure. The participants were asked to fill out an online survey, which was facilitated by the survey software Qualtrics. The questionnaire was divided into two sections. The first part educated the participants about the nature of this research and targeted the demographical area and background information, such as experience with further education and attitude toward education. After the demographic section had been answered, the participants were randomly assigned to one of the experimental groups or the control group by Qualtrics. In the beginning they were presented with either a picture or a video of the landing page of the online learning platform Lecturio, depending in which group they were in. After viewing the material, the next set of questions needed to be answered. The whole questionnaire can be found in appendix B.

Measurements. The questions in the second part of the questionnaire targeted the dependent variables. These variables had two different foci. The first focus was the brand as a whole. To get a better picture about the users perception of the brand, the variables attitude toward the brand, perceived quality and satisfaction were measured. The second focus paid attention to the agent. The variables credibility, human-resemblance, level of agent's engagement and helpfulness of nonverbal expressions collected these data. This chapter gives a quick overview about all used variables and their regarding scales.

Background data. These data were part of the demographical section. Because this main test revolved about an online learning platform, which offers support for people seeking further and higher education, the possible experiences or points of contact of the respondents with this topic,

were of interest. The respondents could answer this question with yes or no. Also the status of this education and the kind of education was subjected.

Additionally, the perception of education itself and therefore the attitude, the respondents have towards education, is an important background variable, which helps to understand the participants better. Attitude was measured with two tools. The first tool, the so called “PrEmo2”, introduced by Laurans, G., & Desmet, P. (2012), made the participants rate 14 different emotions to the extent of their application. These emotions were: Satisfaction, enthusiasm, pleasure, admiration, attraction, pride, hope, disgust, contempt, dissatisfaction, boredom, shame, fear, sadness. Half of the emotions had a positive connotation and half of the emotions had a negative one. To combine all scale items (emotions), all negative emotions were recoded. This reversed the rating scale and thus matched the participants’ rating scales for the positive and negative emotions.

Further, participants were asked to name two adjectives, which capture the nature of the topic education best, according to the respondents understanding. These adjectives were then rated by two independent coders.

Brand attitude. In order to get a general understanding of what participants think about the learning platform and its offer, they were asked to name two adjectives, which were coded as follows:

Three: - positive adjectives;

Two: - neutral adjectives;

One: - negative adjectives;

In order to guarantee the validity of the adjective coding two coders assessed the adjectives independently. This technique was already used in several other studies, by for example Kitsantas and Baylor (2001).

Additionally, the scale ‘attitude towards the product’ by Peracchio and Meyers-Levy (1994) was used. This scale is also based on the rating of adjective pairs. A 5-Point-Likert-Scale was used. An example is “appealing product vs. unappealing product”. The scales reliability is $\alpha = 0.91$.

Perceived product quality. Another important factor, which influences the perception of the brand is the perceived level of product quality of the product or rather the competence the education platform offers customers. Buchanan, Simmons and Bickert (1999) developed a scale called quality (product) scale. The reliability was given by the Cronbach’s Alpha, with $\alpha = 0.84$. It consists of eight items, which use a 5-Point-Likert-Scale (1=definitely does not apply to 5=definitely applies) for evaluation. One item is for example “This product is of high quality”.

Satisfaction. In order to measure the satisfaction felt by the participants when confronted with the landing page of Lecturio the satisfaction questionnaire sheet is used. This scale was used by Sung and Mayer (2012) for example. It proved to be reliable. The scale showed an $\alpha = 0.89$. This scale consisted of five items, such as “I enjoyed viewing the material” or “I felt good viewing the material”. The items were rated on a 5-Point-Likert-Scale (1=definitely does not apply to 5=definitely applies).

Credibility, human-like, engaging. In order to learn of the participants perceptions and thoughts about the variables credibility, human-like and engaging the well established Agent Persona Instrument (API) was used. This API was for example used by Baylor and Kim (2009). All three variables contained five items each. Credibility for example included “The agent was well informed” and “The agent was intelligent”. Its reliability was $\alpha = 0.89$. The level of human-likeness of the agent included items such as “The agent had a personality” and “The agent was human-like”. This scale’s reliability was also $\alpha = 0.89$. The last variable engaging used items like “The agent was expressive” and “The agent was motivating”. Also, this scale was reliable with a Cronbach’s Alphas of $\alpha = 0.85$. All scales used a 5-Point-Likert-Scale (1=definitely does not apply to 5=definitely applies).

Helpfulness of nonverbal expressions. The nonverbal communication elements - gestures and facial expressions - were not only examined in regard to their influence on a global level such as liking and perceived quality of the brand. These two elements were also examined for themselves and how they were directly perceived by people. A 5-Point-Likert-Scale (1=definitely does not apply to 5=definitely applies) was used. The items, which were used here, were already used in a study by Baylor and Kim (2009). The items were adapted for the current study and are as follows:

- (1) The agent’s **gestures** helped me to understand the information provided on the landing page.
- (2) The agent’s **gestures** helped me to pay more attention to the information provided in the landing page.
- (3) The agent’s **gestures** helped me to take in the landing page as a whole.
- (4) The agent’s **facial** expressions helped me to understand the information provided on the landing page.
- (5) The agent’s **facial** expressions helped me to pay more attention to the information provided in the landing page.
- (6) The agent’s **facial** expressions helped me to take in the landing page as a whole.

(7) The agent's **gestures and facial expressions** helped me to understand the information provided on the landing page.

(8) The agent's **gestures and facial expressions** helped me to pay more attention to the information provided in the landing page.

(9) The agent's **gestures and facial expressions** helped me to take in the landing page as a whole.

Because the items were adapted according to the individual groups, Cronbach's Alpha was calculated for each of them separately. The scale targeting only gestures had an $\alpha = 0.90$, the same holds for the scale targeting only facial expressions. The scale about the combination of these two elements reached an $\alpha = 0.88$.

4. Analysis

In order to analyse the above-mentioned measurements and to test the existing hypotheses, different statistical tests were carried out. This section gives a short overview of the used tests. The background data, which asked about the experience with further education and about attitude towards education, were summarised using descriptive statistics. A multivariate analysis of variance (MANOVA) was used, to identify a possible significant difference between the experimental groups and the control group for the different dependent variables attitude towards the brand, perceived quality and satisfaction during the viewing process. Attitude towards the brand was measured by two different tools. However, one tool could not be included into the above stated MANOVA, due to the nature of the tool. The number of assigned negative, neutral and positive adjectives were analysed with the help of the Chi-Square test. To check possible main or interaction effects of the factors gestures and facial expressions, a two way analysis of variances (two way ANOVA) was used. To compare the three different mean scores for the dependent variable helpfulness, a one way ANOVA was used.

5. Results

As already mentioned in the previous method section, participants faced two sections in this questionnaire. The first section was about demographical and background data, which are connected to the respondents. Whereas, the second section was about the brand and the agent. The analysis of the data followed the same categorisation. First, the background variables, which were not included into the introduction of the participants in the previous chapter, are presented. Then, the variables about brand and agent are evaluated.

5.1 Background Data

Experience with further education. It was asked, whether one has committed to higher education additionally to the main occupation, yet. 92 respondents confirmed this, while 87 respondents said, they did not. Of these 92 people, who already collected experiences in the area of higher education, 61 finished this higher education and 31 were still in the progress. This higher education happened in 21.7% of the cases online and 78.3% offline.

Attitude towards education. When rating the 14 different emotions, the mean result for attitude towards education was $M=4.00$ ($SD=0.57$), which shows that the general emotional trend is a rather positive one with 4 = more likely applies.

When the participants were asked to assign two adjectives, the following was found: In total 358 adjectives were coded. Many different adjectives were brought up. The adjectives which were named the most were “important” by 28 respondents, followed by the word “interesting” by 22 respondents. Both of these words have been coded as being positive by both coders. When taking a closer look at the other adjectives and their connotations, it shows the following: The combined ratings of the coders could reach scores between 1 and 3. Negative attitudes represented by 1, neutral attitudes by 2 and positive attitudes by 3. The results are presented in table 3.

Table 3

Frequencies of adjectives describing “education”

	Frequency	Percent	Cumulative Percent
negative	72	20.1	20.1
neutral	27	7.5	27.7
positive	259	72.3	100.0
Total	358	100.0	

The overall attitude towards the topic *education* was a positive one, since 259 participants, more than half of the respondents, assigned a positive adjective when thinking about “education”.

5.2 Dependent variables

Plain landing page vs. landing page with anthropomorphism. Before taking a closer look at the possible effects of nonverbal communication, a multivariate analysis of variances (MANOVA) was carried out to test the possible effect of anthropomorphism. The variables were: Attitude towards the brand, perceived quality of the brand and satisfaction. The Levene’s Test resulted in non-significant p-values ($p > .05$) for attitude and satisfaction, which supports the assumption of homogeneity of variances. However, the p-value for quality was slightly smaller than the significance level of $\alpha = .05$ ($p = .034$), thus violating the assumption. Because the MANOVA is said to be robust, the test was still carried out.

Table 4

MANOVA results, independent variable being type of group (N=179)

	SS	df	MS	F	p
Attitude	0.927	4	0.232	0.861	0.489
Quality	4.333	4	1.083	2.134	0.079
Satisfaction	4.908	4	1.227	1.965	0.102

In table 4 it can be seen, that all p-values are bigger than the significance level $\alpha=.05$, thus no statistically significant difference between the means of the experimental groups and the control group exists. Because no significant effects of the type of group on the dependent variables were found, no further post-hoc tests were conducted. Similarly, the two way ANOVAs for these dependent variables did not show any main or interaction effects for gestures and facial expressions.

Attitude towards the brand Lecturio. As introduced in the method section, attitude towards the brand was measured with the help of two different tools. This section targets the tool, which collected adjectives describing Lecturio, which were then coded by two independent coders. In order to see a possible difference between the distributions in the groups of the three different kinds of adjectives, a Chi-Square Test was conducted.

Table 5

*Cross tabulation group * adjectives describing Lecturio*

			Adjectives describing “Lecturio”			Total
			negative	neutral	positive	
Group	Facial and gestures group	Count	16	5	55	76
		Expected Count	14.2	3.8	58.0	76.0
	Gestures group	Count	16	4	44	64
		Expected Count	12.0	3.2	48.8	64.0
	Facial group	Count	15	2	49	66
		Expected Count	12.4	3.3	50.3	66.0
	None group	Count	7	4	47	58
		Expected Count	10.9	2.9	44.2	58.0
	Control	Count	13	3	78	94
		Expected Count	17.6	4.7	71.7	94.0
Total		Count	67	18	273	358
		Expected Count	67.0	18.0	273.0	358.0

The results of the cross tabulation are represented in table 5. It shows that most positive adjectives (78 adjectives) were assigned by participants of the control group. The highest number of negative adjectives accumulated for the facial and gestures group and the gestures group, both groups assigning 16 negative connotations to Lecturio. For the statistical inference, the following assumption had to hold: 20% or less of the cells should have an expected count less than 5. Unfortunately, this assumption was violated, with 5 cells (33.3%) showed an expected count less than 5. Therefore, the Pearson Chi-Square could not be used. Thus, the likelihood ratio was the point of reference. The results were the following: LR (8, N = 358) = 8.446, p = 0.391. Because $p > .05$, no statistical evidence exists supporting a significant relation between the groups and the assigned adjectives.

Nonverbal communication. After having looked at the variables concerning the brand, it is time to take a closer look at the agent itself. To find out how the agent’s persona was perceived by the respondents, the scales credibility, human resemblance and the agents degree of engagement were analysed. Because these variables only concern the agent, only the experimental groups were analysed, not the control group, due to the absence of an agent in their material.

Credibility. The means in table 6 show, that they are higher when the agent does not display gestures. The combination of no gestures and present facial expressions scored the highest mean ($M = 3.36$), more trending towards the “applies” side of the Likert-Scale, indicating that the participants perceived the agent the most credible in this condition. When the agent displayed gestures but no facial expressions, the mean ($M = 3.01$) was the lowest. This stands for a neutral position, neither tending to the “does not apply” side, nor tending to the “applies” side of the scale. Before the two-way analysis of variance was conducted, the Levene’s test tested the assumption of homogeneity of variances. The Levene’s $F = 2.35$, $p > .05$ showed, that the assumption of homogeneity was met. The two-way ANOVA did not yield a main effect for either gestures $F(1, 132) = 1.78$, $p > .05$ or facial expressions $F(1, 132) = 1.79$, $p > .05$. Additionally, no interaction effect existed.

Table 6

Descriptives for credibility

Gestures	Facial Expressions	M	SD	N
no	no	3.33	0.53	29
	yes	3.36	0.64	33
	Total	3.35	0.59	62
yes	no	3.01	0.86	32
	yes	3.33	0.88	38
	Total	3.19	0.88	70
Total	no	3.16	0.73	61
	yes	3.35	0.77	71
	Total	3.26	0.76	132

Human-like. The next scale looked at the human resemblance of the agent. Even though the pre-test established the look of the agent, the agents appearance and behaviour might have influenced the perception of the human resemblance.

As it can be seen in table 7, this variable is the first, which accumulates all means under the midpoint of 3.00. This shows an overall trend of the participants, thinking, the scale items for human-likeness do more likely not apply. The group with the lowest mean was again the group displaying gestures but no facial expressions ($M = 2.19$). The group reaching the highest mean was the one showing a static agent (no gestures and no facial expressions, $M = 2.94$). Which indicates,

that the participants, who faced the agent with only gestures thought human resemblance applies the least of all groups. While the agent, that does not use nonverbal-nonvocal communication has nearly been scored a 3.00, which stands for “perhaps applies”. The Levene’s $F = 2.48$, $p > .05$ showed, that the assumption of homogeneity was met. When looking at the two way ANOVA test for the two nonverbal communication elements, facial expressions and elements, a main effect was found for the gestures $F(1, 132) = 6.44$, $p < .05$, indicating that the average perceived human resemblance was significantly higher when gestures are not present ($M = 2.67$, $SD = 0.77$) than when gestures were present ($M = 2.31$, $SD = 0.98$). On the other hand no significant main effect was found for facial expressions $F(1, 132) = 0.83$, $p > .05$. However, an interaction effect between gestures and facial expressions was significant $F(1, 132) = 5.43$, $p < .05$, showing that a much bigger difference for the impact of facial expressions could be observed, when gestures were absent.

Table 7

Descriptives for human-like

Gestures	Facial Expressions	M	SD	N
no	no	2.94	0.67	29
	yes	2.44	0.79	33
	Total	2.67	0.77	62
yes	no	2.19	0.93	32
	yes	2.41	1.02	38
	Total	2.31	0.98	70
Total	no	2.55	0.89	61
	yes	2.43	0.91	71
	Total	2.48	0.90	132

Engaging. The last scale, which looked at the agent as a whole, was the agent’s level of engagement. The group means in table 8 show, that the condition, which neither shows gestures nor facial expressions accumulated the highest mean score of $M = 3.01$, while the condition using gestures but not facial expressions (gestures group) reached the lowest mean of $M = 2.58$. While the group without gestures and facial expressions represented the position, that participants thought, the agent was perhaps engaging, the other groups indicated the respondents thought the scale items more likely did not apply to the agent and thus the agent was seen to be more likely not engaging. The two way ANOVA did not reveal any main or interaction effects.

Table 8

Descriptives for engaging

Gestures	Facial Expressions	M	SD	N
no	no	3.01	0.60	29
	yes	2.78	0.79	33
	Total	2.89	0.71	62
yes	no	2.58	0.82	32
	yes	2.87	1.02	38
	Total	2.74	0.94	70
Total	no	2.79	0.75	61
	yes	2.83	0.92	71
	Total	2.81	0.84	132

Helpfulness of nonverbal communication. The last dependent variable, measured the level of perceived helpfulness of nonverbal communication. Participants of the three different experimental groups, who were assigned animated agents (facial and gestures, gestures, facial), were subjected to this scale. A one way ANOVA was conducted to compare the three mean scores indicating the helpfulness of the nonverbal communication. The descriptive results for the three groups are presented in table 9.

All group means are under the rating midpoint of 3.00. Which means, that all groups perceived the nonverbal elements as rather not helpful. The group, which perceived their nonverbal communication element the least helpful was the gestures group with a mean of $M = 2.34$. The group with the highest mean of $M = 2.62$ was the gestures and facial group. Before conducting the one way analysis of variance, the Levene's test was used to test the assumption of homogeneity of variances. The Levene's $F = 1.05$, $p > .05$ showed, that the assumption of homogeneity was met. The one way ANOVA showed, that there was no significant difference between the group means $F(2,103) = 0.76$, $p > .05$. Thus, the level of perceived helpfulness did not differ significantly between the three different experimental groups, which were presented with an agent, who used either facial expressions, or gestures, or both.

Table 9

Mean and standard deviation for helpfulness

Group	M	SD	N
Agent with gestures and facial expressions	2.62	1.00	38
Agent with gestures	2.34	1.10	32
Agent with facial expressions	2.36	0.96	33
Total	2.46	1.02	103

6. Discussion

The research of this thesis followed two different goals. The first goal was to support the claim that the existence of an anthropomorphic agent on the landing page of an online learning platform can serve marketing matters and increases the attitude toward the brand, the perceived quality and the satisfaction felt while being confronted with a provider of online education. The second goal was to research possible effects of nonverbal communication on the perception of the anthropomorphic agent. Nonverbal communication was composed of two elements - facial expressions and gestures. The agents persona - credibility, human-like and engaging - and the helpfulness of the nonverbal communication were subjected.

After the data have been analysed in terms of their statistical significance, this chapter uses the results to develop interpretations and answer the hypotheses, which were developed in the chapter of the theoretical framework. Further, limitations, which arose during the main test and its analysis are dealt with. Following the found limitations, suggestions for further research and practical implications are recorded.

6.1 Plain Landingpage vs. Landingpage with Anthropomorphism

When using an anthropomorphic agent, marketers want to establish a basis between the consumers and the brand or product (Triantos, Plakoyiannaki, Outra, Petridis, 2015). According to theory, anthropomorphism shall act as a tool to build a connection to the possible consumer and especially in the online environment to strengthen the human-computer interaction (Waytz et al., 2010). However, the results did not show a statistically significant difference between the control group (no agent) and the experimental groups (with agent). Neither attitude, nor perceived product quality, nor satisfaction, changed significantly. Thus, H1 is not supported. This contradicts the existing theoretical findings, which confirm the importance of anthropomorphism in online marketing.

The results imply, that the presence of an anthropomorphism is not as important to users, as some existing theory might suggest. In fact, the participants in the control group, scored the highest mean scores for all three dependent variables. This could be explained by the composition between the landing page and the agent. The presence of an agent, standing in the bottom left corner of the landing page, might not be recognised as easily in combination with the background and prominent information present on the landing page.

Another factor, which might have influenced the perception of the implemented agent, was the presence of another human image on the landing page. Participants in the experimental groups could have been confused, which person is talking to them and which person is the one to look at.

6.2 Nonverbal communication

The second part of the research focused on the nonverbal communication elements, which were used by the anthropomorphism, to communicate an introductory message. No statistical evidence was found, which could have supported the hypotheses. Thus, all hypotheses had to be rejected.

Even though, no statistical evidence was found to support any of the hypotheses, a main effect was found for gestures, concerning the human resemblance of the agent. Gestures seem to have a negative effect on human-likeness. When gestures were used, participants scored the agent to be the least human-like. Moreover, an interaction effect of gestures and facial expressions offered a significant effect, when gestures were absent, while facial expression were present. Thus, the agent was perceived to look more like a human being, when only showing facial expressions, as opposed to using both - gestures and facial expressions. However, it still needs to be said, that all groups evaluated the agent to more likely not resemble a human being. This result is in line with the existing research field, which already found, that nonverbal communication can have a nurturing or a distracting effect (Baylor & Kim, 2009). The low human resemblance of the agent could have influenced the rating of the other dependent variables. As it is stated by Nowak and Rauh (2006), the higher the level of human resemblance - anthropomorphism - is, the more positive the effect is. It could be that the agent did not reach the necessary level of human resemblance.

For credibility, the mean scores of all groups imply, even though the participants did not neglect the credibility of the agent, they felt, credibility of the agent only perhaps applied, showing their indifference. When looking at engaging, another interesting result can be observed. The agent, which scored the highest mean was the agent without nonverbal communication (static agent), only talking to the participants. In other words, the agent doing the least, engaged the most. This agent also scored the highest mean for human resemblance ($M=2.94$). It could be inferred, that it is preferred that an agent is doing less, but being more human-like, instead of doing more, but distracting the viewer.

Even though no statistical significant finding exists, it could be observed, that the participant group, who viewed the landing page with an agent using gestures only, scored the lowest means for every dependent variable. This might imply, that the absence of facial expressions, even though

hearing a voice, might disrupt the process of creating something known and familiar. Thus, the interaction between user and interface cannot develop into a communication amongst equals, which might reduce the effect of the agent and its nonverbal communication.

The groups, who viewed an agent, which either used facial expressions or gestures or both, rated the regarding nonverbal communication in terms of its helpfulness. Again, no significant difference was found between the three groups. All participants groups considered the used nonverbal communication more likely not helpful. This might be caused by the design of the nonverbal communication. The distinct movements, which were used to show the nonverbal communication, might have not fulfilled the demands of the participants. This tendency was already formulated by Nowak and Rauh (2006), stating that the use of realistic agents creates a high expectation level within the viewer. If this expectation is not met the user experiences disappointment.

6.3 Limitations and suggestions for further research

After all the data have been tested and evaluated, its time to think about limitations of this study and what can be inferred for future research.

The first limitation posed the fact, that the agent was designed by the researcher, without having any prior knowledge about the topic of 3D animation. The creation process followed a learning by doing scheme. Many external sources and tutorials were used to understand the functioning of the software and the steps, which needed to be taken to for example style the agent, synchronise the verbal message with facial movements or implement arm and hand movements. The results for the variable human-like was very low ($M = 2.94$ and lower) for all the experimental groups. The highest mean was scored for the agent, who was presented an agent without any movements. This indicates, that the agent itself was perceived as perhaps human, but as soon as movements were added, this perception of human resemblance decreased. For future research, the task of the agent's animation should be given to a professional 3D-animation artist. The knowledge and skill of the artist, would help to create an agents, which could score higher in terms of human resemblance and thus could also influence other dependent variables.

The second limitation was the variety of the used gestures. For the majority of variables, the experimental group, watching an agent only using gestures, scored the lowest mean values. As introduced in method section, different kinds of gestures are often used routinely. When observing a human being while talking, it different kinds of gestures can be observed. While trying to create an agent, which is as human-like as possible, this natural combination of the different gesture

categories was used to animate the agent. This approach contrasts for example Baylor's and Kim's (2009) approach, only focusing on deictic gestures by Baylor and Kim, 2009. Even though the intention was driven by existing theory, which stated a human-like agent to be more helpful in creating a successful human-computer interaction, measured should have been taken, to test which combination of gestures would be perceived to resemble the human gestures the most.

The third limitation were technical difficulties, which prevented participants to view the embedded videos. This could have been due to a bad internet connection, or the device used to take part in the survey. People who could not view the material were automatically forwarded to the end of the survey. To solve the problem of the high dropout rate the size of the embedded videos were reduced. Depending in the device, which was used to answer the questionnaire, the video was too small, to make the nonverbal elements - especially facial expressions - distinctly visible. In future research another solution for the embedding of the video material needs to be found. Maybe it is better to only enter a link, which leads to a video streaming portal such as youtube or vimeo. It also might be considered to tell the participants, that they should only attempt to answer the questionnaire, while at a stationary computer with a big screen. Also the internet connection should be of good quality. It would be better if the participants are not using mobile data from their smart phones, but optic fibre based connections with a secure high speed state volume. To take this a step further, one could even think about providing a computer and internet connection in a university room, to ensure those variables.

The fourth limitation is the presence of another human - more precisely male - image on the used landing page. The participants could be confused, which of the two, the agent or the image, the source of the verbal message was. Especially for the group with the non-moving agent it could have been hard to depict and thus could have influenced the perception of the platform and the agent. Also the positioning of the agent could have been a disadvantage. The researcher received feedback from two participants, who finished the study. They pointed out that the visibility and the recognition of the agent was difficult, due to its size and its position in the bottom left corner. In further research, it should be made sure, that the agent can be easily pointed out and that no competition for attention is happening with another, similar image.

This research used the existing tool of human pedagogical agents, who can take up many different roles in the context of online education. However, when considering anthropomorphism as the marketing tool to increase attitude, perceived quality and so on, thus to attract possible customers or rather students, one should also look at anthropomorphisms taking other forms. By definition anthropomorphism is the disposition of all human states of mind, to nonhuman agents

(Waytz et al., 2010; Blanchard and McNinch, 2001; Hart, Jones and Royne, 2013). Moreover, the presentation of a human agent can create user expectations, which might lead to disappointment, when not met. To avoid the disappointment arousal, the kind artificial human agent might be changed. When presenting the animation of an agent, which is designed as natural as possible, for example taking into consideration skin texture or hair, flaws in movements for example might have a result in more disappointment, than if an agent is still as human as possible, but being presented in a more artificial style, as for example in a comic style. Future research should have a closer look at how different design styles of human agents might be affected by possible flaws.

7. Conclusion and Implications

This available research looked at the effect of anthropomorphism on the perception of online learning platforms and how this is influenced by the addition of nonverbal communication. Based on the preceding data and their analysis, the presence or absence of an anthropomorphic agent, does not have a significant effect. Also the use of the nonverbal elements of facial expressions and gestures and their respective presence or absence did not show a significant effect. This was not inline with the expectations, based on the existing theory, which would have supported a positive effect when using anthropomorphism and nonverbal communication.

Inferring from this research, it is difficult to give advise regarding the implementation of anthropomorphic agents in practice. Even though not significant, the descriptive data showed, that when using an anthropomorphic agent and only providing gestures, for the communication between agent and user, the lowest effect was reached. Thus, the mere presence of an agent can be enough to increase the platforms effect on the user. However, the design of the agent must happen with great attention to detail, always aiming for the most human-like, natural form possible.

Future research should establish, the extent of animation needed to achieve a high score in human resemblance. Once it is clear how much animation is needed, for the agent to be accepted as a human agent, who is able to connect and interact with the user, its impact on its environment might be more benefiting.

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9. Appendix A

Questionnaire pre-test

Titel: A detailed appearance study of an anthropomorphism

Q1.1 Liebe/r StudienteilnehmerInnen, die nachfolgende Umfrage wird im Rahmen einer wissenschaftlichen Masterarbeit durchgeführt. Die Masterarbeit ist Teil des Masterprogrammes an der University of Twente der Verhaltenswissenschaftlichen Fakultät des Kurses Kommunikationswissenschaft - Marketing und Kommunikation.

Deine Teilnahme an dieser Umfrage ist freiwillig und geschieht aus Deinem eigenen Antrieb. Alle Angaben, die im Rahmen dieser Umfrage gesammelt werden, werden anonym erhoben und behandelt und gelten ausschliesslich zur Verarbeitung im Rahmen dieser Masterarbeit.

Bei weiteren Fragen zu Umfrage kannst Du mich gerne per Mail kontaktieren:

Andrea Klein

a.v.e.klein@student.utwente.nl

- Ich habe den oben stehenden Text gelesen und bin damit einverstanden, dass meine Angaben im Rahmen der Masterarbeit ausgewertet werden. (1)
- Ich möchte NICHT, dass meine Angaben im Rahmen der Massarbeit ausgewertet werden. (Die Umfrage wird beendet) (0)

If Ich möchte NICHT, dass mein... Is Selected, Then Skip To End of Survey

Q2.1 Bitte beantworte ein paar Fragen zu Dir selbst.

Q2.2 Was ist Dein Geschlecht?

- weiblich (1)
- männlich (2)

Q2.3 Wie alt bis Du?

Q2.4 Was ist der höchste Bildungsgrad (dieser muss noch nicht abgeschlossen sein)?

- Mittlerer Schulabschluss (1)
- Fachabitur (2)
- Abitur (3)
- Berufsausbildung (4)
- Fachhochschulabschluss (5)
- Hochschulabschluss (6)
- Anderer Abschluss (0) _____

Q2.5 Wie ist der aktuelle Berufsstand?

- Vollzeit (1)
- Teilzeit (1)
- Arbeitssuchend (1)
- Student (2)
- Anderer Berufsstand (0) _____

Q2.6 Hast Du Dich bereits einmal für eine Weiterbildung (jeglicher Art) neben Deiner hauptsächlichen Tätigkeit entschieden?

- Ja (1)
- Nein (2)

If Nein Is Selected, Then Skip To End of Block

Q2.7 Welcher Status ist bezüglich dieser Weiterbildung zutreffend?

- Die Weiterbildung ist bereits abgeschlossen. (1)
- Die Weiterbildung ist noch nicht abgeschlossen. (2)

Q2.8 Erfolgt(e) die Weiterbildung mit Hilfe von Online-Anbietern?

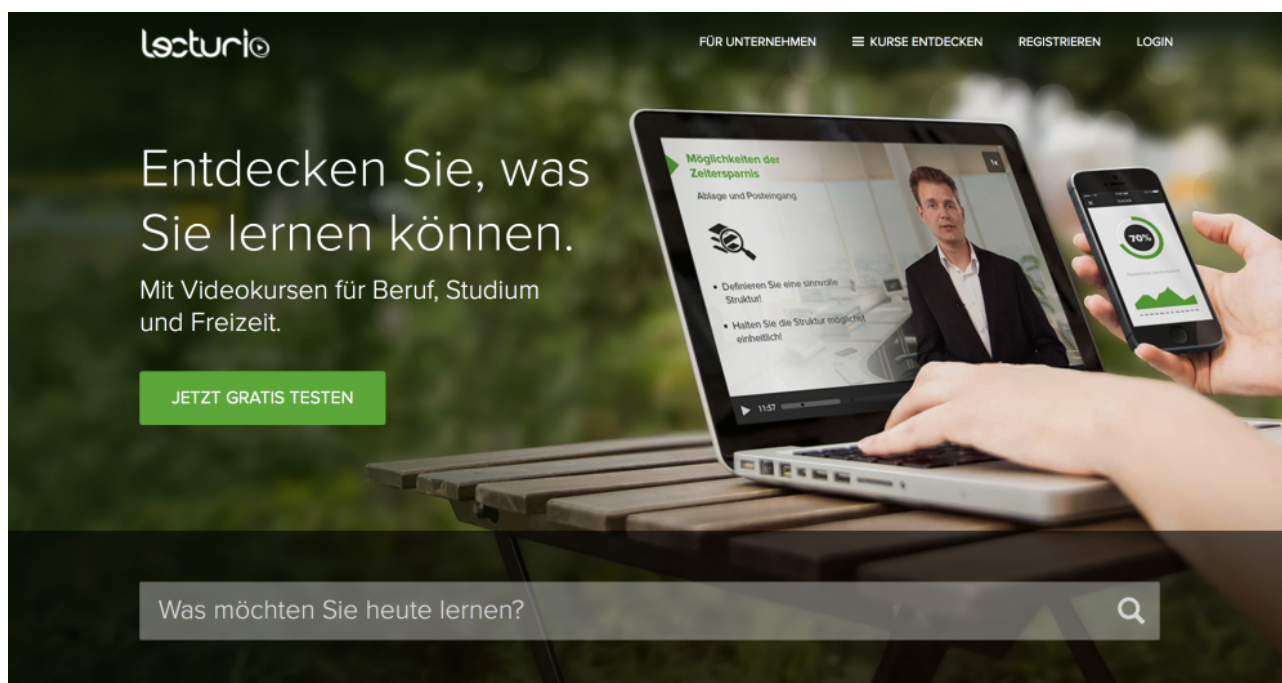
- Ja (1)
- Nein (2)

Answer If Erfolgt(e) die Weiterbildung mit Hilfe von Online-Anbietern? Ja Is Selected

Q2.9 Wie ist der Name des Online-Anbieters?

Q3.1 Liebe/r StudienteilnehmerIn, vielen Dank, dass Du Dir ein paar Minuten Zeit nimmst, um einige Fragen zum Thema Charakterisierung von Online-Bildung zu beantworten. Gegenstand der Befragung ist die Lernplattform Lecturio.de. Bitte sieh Dir die Informationen zu Lecturio.de, die in den nächsten Bildern zusammengefasst sind, genau an. Anhand dieser Informationen und dem Layout stelle Dir Lecturio.de als Person vor, welche ihr ganz eigenes Aussehen hat. Behalte dies im Kopf und beantworte bitte die unterstehenden Fragen. Beantworte die Fragen möglichst spontan. Es gibt keine falschen Antworten. Vielen Dank und viel Spaß!

Q4.1



Q4.2

Weiterbilden – wo und wann Sie wollen.
Unsere Themen im Überblick:



Q4.3

Effektiv und flexibel lernen

Unverbindlich registrieren und sofort beginnen.

[JETZT GRATIS TESTEN](#)

Überall verfügbar

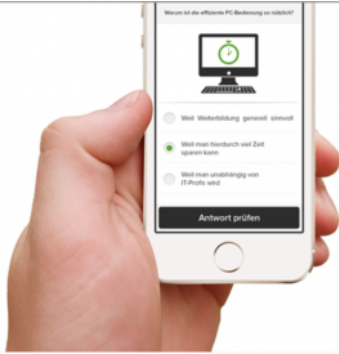
Lecturio können Sie am PC, Tablet und auf dem Smartphone nutzen. Mit der Offline-Funktion auch ohne Internetverbindung im Zug oder im Flugzeug.



"Durch das Pendeln sitze ich jeden Tag im Zug. Mit der Offline-Funktion kann ich mich jetzt kontinuierlich weiterbilden. Perfekt!"
Manuela (32), Sales Managerin



Q4.4



Garantierter Lernerfolg

Aufgepasst! Dank interaktiver Quizfragen wissen Sie stets, wo Sie stehen. So erreichen Sie Ihre Ziele noch schneller.



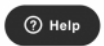
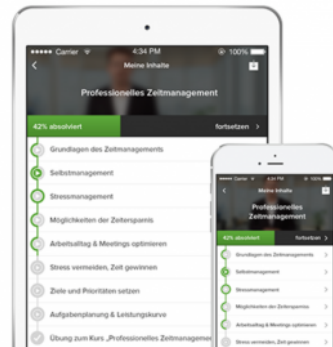
"Besonders gefallen mir die Fragen. Besser als Quizduell, und ich mache sogar noch etwas für meine Karriere."
Alexander (28), Marketing Manager

Eigenes Lerntempo

Unsere Experten sind immer für Sie da und wiederholen den Lernstoff, sooft Sie wollen. 365 Tage im Jahr und gerne auch in 2-facher Geschwindigkeit.



"Die Möglichkeit, den Vortrag in Zeitraffer anzuschauen, ist genial: Zeit gespart und durch die hohe Geschwindigkeit volle Konzentration :)"
Marcel (25), Medizinstudent



Q4.5

Erreichen Sie Ihre Ziele

Unverbindlich registrieren und sofort beginnen.

JETZT GRATIS TESTEN

Unsere Flatrates

Ihre Jura-Flatrate

Diverse Dozenten
★★★★★ (3910)
99,99 € mtl.

Ihre Medizin-Flatrate

Diverse Dozenten
★★★★★ (1350)
99,99 € mtl.

Ihre Software-Flatrate

Diverse Dozenten
★★★★★ (80)
29,99 € mtl.

Auf der Überholspur - Ihre Karriere-Flatrate

Diverse Dozenten
★★★★★ (95)
99,99 € mtl.

Q4.6

Zertifikatskurse

<p>Basiszertifikat für Projektmanagement (GPM) Rend Windus ★★★★☆ (7) 69,99 € mtl.</p>	<p>Six Sigma Green Belt Helling und Storch ★★★★☆ (1) 179,99 € mtl.</p>	<p>Six Sigma Black Belt Helling und Storch ★★★★☆ (1) 289,99 € mtl.</p>	<p>Six Sigma White Belt Helling und Storch ★★★★☆ (1) 2,90 € mtl.</p>
<p>Zertifizierter Finanzbuchhalter (Steuer-Fachschule Dr. Endriss) Dr. Gerd Hesel ★★★★☆ (5) 109,59 € mtl.</p>	<p>Bilanzbuchhalter (Steuer-Fachschule Dr. Endriss) Diverse Dozenten ★★★★☆ (7) 195,00 € mtl.</p>	<p>Geprüfte/r Betriebswirt/in Fernstudium Guide ★★★★☆ (39) 79,99 € mtl.</p>	<p>PRINCE2® Practitioner inkl. Prüfung Experten ★★★★☆ (1) 64,99 € mtl.</p>

Q4.7

<p>1. Staatsexamen Komplettkurs Bohnen Montag Rohde, Juristische ★★★★☆ (2367) 79,99 € mtl.</p>	<p>2. Staatsexamen Komplettkurs Bohnen Montag Rohde, Juristische ★★★★☆ (1360) 54,99 € mtl.</p>	<p>Physikum Komplettkurs Diverse Dozenten ★★★★☆ (690) 89,99 € mtl.</p>	<p>Hammerexamen Komplettkurs Diverse Dozenten ★★★★☆ (592) 89,99 € mtl.</p>
<p>Medizin-Repetitorien für das Physikum, Hammerexamen und Refresher Dr. med. Steffen-Boris Wirth (1) ★★★★☆ (434) 39,99 € mtl.</p>	<p>Hellpraktiker für Psychotherapie Christine Krokauer ★★★★☆ (2) 89,99 € mtl.</p>	<p>Hellpraktiker-Ausbildung: UNI-MED-HP me-at-kom GmbH ★★★★☆ (495) 99,99 € mtl.</p>	<p>Bilanzbuchhalter (Steuer-Fachschule Dr. Endriss) Diverse Dozenten ★★★★☆ (7) 195,00 € mtl.</p>
<p>Notfallsanitäter Mark Winkelmann</p>	<p>Speed Reading Zach Davis</p>	<p>GMAT-Training GMAT-Test.de</p>	<p>Excel Online Training - Master Class Diverse Dozenten</p>

Help

Q5.1 Welchen Eindruck hast du von Lecturio.de? Wäre Lecturio.de eine Person, wie würdest du Sie beschreiben? Wie sieht Lecturio.de aus? Hat er oder sie bestimmte hervorstechende Merkmale? Wie kann man das Verhalten beschreiben? Besteht vielleicht sogar ein Spleen? Bitte gib alles an, dass Dir zu Lecturio.de als Person einfällt.

Q6.1 Welches Geschlecht hat Lecturio.de?

- männlich (1)
- weiblich (2)
- kann ich mir nicht vorstellen (0)

Q6.2 Wie alt ist Lecturio.de?

Q6.3 Zu welcher Ethnie gehört Lecturio.de?

- kaukasisch (1)
- asiatisch (2)
- afrika-stämmig (3)
- Andere Ethnie (4) _____
- kann ich mir nicht vorstellen (0)

Q6.4 Welcher Körpertyp passt zu Lecturio.de?

- Mesomorph (definiert, muskulös) (1)
- Endomorph (dick, Tendenz zum Übergewicht) (2)
- Ectomorph (sehr schlank, dünn) (3)
- Anderer Körpertyp (4) _____
- kann ich mir nicht vorstellen (0)

Q6.5 Wie groß ist Lecturio.de? (Größe in cm)

Q7.1 Welche Augenfarbe hat Lecturio.de?

- Dunkelbraun (1)
- Braun (2)
- Blau (3)
- Hellblau (4)
- Grün (5)
- Blau-Grün (6)
- Blau-Grau (7)
- Grün-Grau (8)
- Andere Farbe (9) _____
- kann ich mir nicht vorstellen (0)

Q7.2 Wie lang sind die Haare?

- keine Haare (1)
- sehr kurze Haare (2)
- kurze Haare (3)
- lange Haare (4)
- sehr lange Haare (5)
- Andere Länge (6) _____
- kann ich mir nicht vorstellen (0)

Q7.3 Welche Farbe haben die Haare?

- Blond (1)
- Rot (2)
- Braun (3)
- Schwarz (4)
- Andere Farbe (5) _____
- kann ich mir nicht vorstellen (0)

Q7.4 Wie ist die Struktur der Haare?

- glatt (1)
- wellig (2)
- lockig (3)
- afro (4)
- Andere Struktur (6) _____
- kann ich mir nicht vorstellen (0)

Q7.5 Wie sind die Haare frisiert?

- Businessmäßig (1)
- Lässig, locker (bei Männern) (2)
- locker und offen (bei Frauen) (3)
- locker und zusammengebunden (bei Frauen) (4)
- Andere Frisur (5) _____
- kann ich mir nicht vorstellen (0)

Answer If Welches Geschlecht hat Lecturio.de? männlich Is Selected

Q7.6 Hat Lecturio.de einen Bart?

- Ja (1)
- Nein (2)
- kann ich mir nicht vorstellen (0)

Answer If Hat Lecturio.de einen Bart? Ja Is Selected

Q7.7 Welche Art von Bart trägt Lecturio.de?

- Dreitagebart (1)
- Vollbart (2)
- Schnauzer (3)
- Ziegenbart (4)
- Anderer Bart (5) _____
- kann ich mir nicht vorstellen (0)

Q8.1 Welcher Kleidungsstil ist zutreffend?

- Business (Anzug und Krawatte bei Mann, Hosenanzug bei Frau) (1)
- Business (Kostüm bei Frau) (2)
- sportlich elegant (Jeans, Hemd und Sakko bei Mann; Jeans, Bluse und Blazer bei Frau) (3)
- gemütlich (Jogginganzug) (4)
- Anderer Kleidungsstil (5) _____
- kann ich mir nicht vorstellen (0)

Q12.1 Welche Farbe hat der Jogginganzug?

- Blau (1)
- Grau (2)
- Schwarz (3)
- Andere Farbe (4) _____
- Kann ich mir nicht vorstellen (0)

Q13.1 Welche Farbe hat die Jeans?

- Blau (1)
- Dunkelblau (2)
- Grau (3)
- Dunkelgrau (4)
- Schwarz (5)
- Andere Farbe (6) _____
- Kann ich mir nicht vorstellen (0)

Q13.2 Welche Farbe hat das Sakko bzw. der Blazer?

- Dunkelblau (1)
- Hellgrau (2)
- Dunkelgrau (3)
- Schwarz (4)
- Andere Farbe (5) _____
- Kann ich mir nicht vorstellen (0)

Q13.3 Welche Farbe hat das Hemd bzw. die Bluse?

- Weiß (1)
- Blau (2)
- Andere Farbe (3) _____
- Kann ich mir nicht vorstellen (0)

Q14.1 Welche Farbe hat das Kostüm?

- Dunkelblau (1)
- Braun (2)
- Dunkelgrau (3)
- Schwarz (4)
- Andere Farbe (5) _____
- Kann ich mir nicht vorstellen (0)

Q15.1 Welche Farbe hat der Anzug bzw. Hosenanzug?

- Dunkelblau (1)
- Hellgrau (2)
- Dunkelgrau (3)
- Schwarz (4)
- Andere Farbe (5) _____
- kann ich mir nicht vorstellen (0)

Q15.2 Welche Farbe hat das Hemd bzw. die Bluse?

Weiß (1)

Blau (2)

Andere Farbe (3) _____

Kann ich mir nicht vorstellen (0)

Q9.1 Welche Schuhe trägt Lecturio.de?

Turnschuhe (1)

Slipper (bei Mann) (2)

Lederschuhe zum schnüren (bei Mann) (3)

Ballerinas (bei Frau) (4)

Pumps (bei Frau) (5)

Andere Schuhe (6) _____

kann ich mir nicht vorstellen (0)

Q9.2 Welche Farbe haben die Schuhe?

Blau (1)

Grau (2)

Schwarz (3)

Andere Farbe (4) _____

Kann ich mir nicht vorstellen (0)

Q10.1 Fallen Dir noch weitere Anmerkungen zu Lecturio.de als Person ein? Bitte teile mir Deine Gedanken mit.

Q11.1 Die Antworten zu den oben gestellten Fragen werden ausgewertet und in zwei bis drei verschiedenen 3D Animationen angewandt. In einer Folgestudie soll dann herausgefunden werden, welche der Animationen Lecturio.de letztendlich am besten repräsentiert. Du hast die Möglichkeit Teil dieser Folgestudie zu werden. Deine Teilnahme an der Folgestudie ist freiwillig. Wenn du Teil dieser Folgestudie sein möchtest, dann fülle bitte die unten stehenden Kontaktinformationen aus. Deine Kontaktinformationen werden nur im Rahmen der Folgestudio genutzt. Sobald die Folgestudio beendet ist, werden diese gelöscht. Die Daten werden anonym und vertraulich behandelt.

Email-Adresse (4)

10. Appendix B

A link: nonverbal communication + education liking

Q1.1 Liebe/r StudienteilnehmerIn, die nachfolgende Umfrage wird im Rahmen einer wissenschaftlichen Masterarbeit durchgeführt. Die Masterarbeit ist Teil des Masterprogrammes an der University of Twente der Verhaltenswissenschaftlichen Fakultät des Kurses Kommunikationswissenschaft - Marketing und Kommunikation.

Deine Teilnahme an dieser Umfrage ist freiwillig und geschieht aus Deinem eigenen Antrieb. Alle Angaben, die im Rahmen dieser Umfrage gesammelt werden, werden anonym erhoben und behandelt und gelten ausschliesslich zur Verarbeitung im Rahmen dieser Masterarbeit.

Bei weiteren Fragen zur Umfrage kannst Du mich gerne per Mail kontaktieren:

Andrea Klein

a.v.e.klein@student.utwente.nl

- Ich habe den oben stehenden Text gelesen und bin damit einverstanden, dass meine Angaben im Rahmen der Masterarbeit ausgewertet werden. (1)
- Ich möchte NICHT, dass meine Angaben im Rahmen der Masterarbeit ausgewertet werden. (0)

If Ich möchte NICHT, dass mein... Is Selected, Then Skip To End of Survey

Q2.1 Liebe/r StudienteilnehmerIn,

vielen Dank, dass Du Dir ein paar Minuten Zeit nimmst, um ein paar Fragen zum Thema Nonverbale Kommunikation von Anthropomorphisierungen im Rahmen von Online-Bildung zu beantworten.

Gegenstand der Befragung ist die Lernplattform Lecturio.de. Bitte sieh Dir die Informationen zu Lecturio.de, die in den nächsten Bildern zusammengefasst sind, genau an. Anhand dieser Informationen beantworte bitte die folgenden Fragen. Bitte beachte, dass es keine richtigen oder falschen Antworten gibt. Bevor die Fragen zu Lecturio.de direkt gestellt werden, beantworte bitte in paar Fragen zu dir. Diese werden, wie bereits erwähnt, vertraulich behandelt und dienen der statistischen Vollständigkeit.

Vielen Dank und viel Spaß!

Q3.1 Was ist Dein Geschlecht?

- weiblich (1)
- männlich (2)

Q3.2 Wie alt bis Du?

Q3.3 Was ist dein höchster Bildungsgrad (dieser muss noch nicht abgeschlossen sein)?

- Mittlerer Schulabschluss (1)
- Fachabitur (2)
- Abitur (3)
- Berufsausbildung (4)
- Fachhochschulabschluss (5)
- Hochschulabschluss (6)

Q3.4 Wie ist der aktuelle Berufstand?

- Vollzeit (1)
- Teilzeit (1)
- Arbeitslos (1)
- Student (2)

Q3.5 Hast Du Dich bereits einmal für eine Weiterbildung (jeglicher Art) neben Deiner hauptsächlichen Tätigkeit entschieden?

- Ja (1)
- Nein (2)

If Nein Is Selected, Then Skip To End of Block

Q3.6 Welcher Status ist bezüglich dieser Weiterbildung zutreffend?

- Die Weiterbildung ist bereits abgeschlossen. (1)
- Die Weiterbildung ist noch nicht abgeschlossen. (2)

Q3.7 Erfolgt(e) die Weiterbildung mit Hilfe von Online-Anbietern?

- Ja (1)
- Nein (2)

Answer If Erfolgt(e) die Weiterbildung mit Hilfe von Online-Anbietern? Ja Is Selected

Q3.8 Wie ist der Name des Online-Anbieters?

Q4.1 Welche Gefühle treffen zu, wenn Du an das Thema Bildung denkst?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Zufriedenheit (1)					
Begeisterung (2)					
Freude (3)					
Bewunderung (4)					
Anziehung (5)					
Stolz (6)					
Hoffnung (7)					
Abscheu (8)					
Geringschätzung (9)					
Unzufriedenheit (10)					
Langeweile (11)					
Scham (12)					
Furcht (13)					
Traurigkeit (14)					

Q4.2 Welche zwei Adjektive beschreiben das Thema Bildung?

- Adjektiv 1 (1)
- Adjektiv 2 (2)

Q57 Bitte sieh Dir folgenden die Informationen zu Lecturio.de an und beantworte die zugehörigen Fragen.

Q5.2 Bitte schau dir das folgende Video an (gegebenenfalls musst du ein paar Sekunden warten, bis das Video geladen ist)

no facial no gesture

- Ich habe mir die Informationen zu Lecturio.de angesehen. (1)
- Ich konnte das Video nicht ansehen. (2)

If Ich konnte das Video nicht ... Is Selected, Then Skip To End of Survey

Q36 Bitte sieh Dir folgenden die Informationen zu Lecturio.de an und beantworte die zugehörigen Fragen.

Q30 Bitte schau dir das folgende Video an (gegebenenfalls musst du ein paar Sekunden warten, bis das Video geladen ist)

Gestures

- Ich habe mir die Informationen zu Lecturio.de angesehen. (1)
- Ich konnte das Video nicht ansehen. (2)

If Ich konnte das Video nicht ... Is Selected, Then Skip To End of Survey

Q37 Bitte sieh Dir folgenden die Informationen zu Lecturio.de an und beantworte die zugehörigen Fragen.

Q38 Bitte schau dir das folgende Video an (gegebenenfalls musst du ein paar Sekunden warten, bis das Video geladen ist)

facial

- Ich habe mir die Informationen zu Lecturio.de angesehen. (1)
- Ich konnte das Video nicht ansehen. (2)

If Ich konnte das Video nicht ... Is Selected, Then Skip To End of Survey

Q44 Bitte sieh Dir folgenden die Informationen zu Lecturio.de an und beantworte die zugehörigen Fragen.

Q45 Bitte schau dir das folgende Video an (gegebenenfalls musst du ein paar Sekunden warten, bis das Video geladen ist)

facial and gestures

- Ich habe mir die Informationen zu Lecturio.de angesehen. (1)
- Ich konnte das Video nicht ansehen. (2)

If Ich konnte das Video nicht ... Is Selected, Then Skip To End of Survey

Q51 Bitte sieh Dir folgenden die Informationen zu Lecturio.de an und beantworte die zugehörigen Fragen.

Q52 Bitte schau dir die folgende Homepage an.

No agent

- Ich habe mir die Informationen zu Lecturio.de angesehen. (1)

Q6.1 Welche zwei Adjektive beschreiben die gerade gesehene Lernplattform?

Adjektiv 1 (1)

Adjektiv 2 (2)

Q6.2 Was hältst Du von dem Produkt, dass Du gerade gesehen hast?

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)
zweitklassiges Produkt:außergewöhnliches Produkt (1)					
sehr geringe Qualität:sehr hohe Qualität (2)					
von sehr geringem Wert:von sehr hohem Wert (3)					
langweilig:aufregend (4)					
nicht lohnenswert:sehr lohnenswert (5)					
unattraktiv:attraktiv (6)					
gewöhnlich:einzigartig (7)					
gelingen:nicht gelungen (8)					
unfreundlich:freundlich (9)					
kalt:warm (10)					
ehrlich:unehrlich (11)					
angespannt:entspannt (12)					
hart:weich (13)					
offen gegenüber Veränderung:traditionell (14)					
streng:sanft (15)					
lästig:angenehm (16)					
ernst:lebhaft (17)					
schwer:leicht (18)					
unordentlich:ordentlich (19)					
forsch:zurückhaltend (20)					
Langweilig:Interessant (21)					
starr:flexibel (22)					
rau:glatt (23)					

Q7.1 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Dieses Produkt ist von hoher Qualität. (1)					
Dieses Produkt sieht nicht attraktiv aus. (2)					
Ich möchte dieses Produkt nicht testen. (3)					
Wenn ich dieses Produkt nutze, erwarte ich relevante und kompetente Inhalte. (4)					
Es handelt sich um ein herausragendes Produkt. (5)					
Dieses Produkt sieht professionell aus. (6)					

Q8.1 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Ich habe es genossen, das Material von Lecturio.de zu sichten. (1)					
Ich habe mich gut gefühlt, das Material von Lecturio.de zu sichten. (2)					
Ich finde das Produkt besser als ein vergleichbares Produkt, dass ich bereits genutzt habe. (6)					
Ich würde das Produkt in der Zukunft nutzen. (4)					
Ich würde das Produkt weiterempfehlen. (5)					

Q9.1 Die folgenden Fragen beziehen sich auf den animierten Mann, den Sie im Video gesehen haben. Dieser wird nachstehend auch "Agent" genannt.

Q9.2 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Der Agent ist gut informiert. (1)					
Der Agent ist intelligent. (2)					
Der Agent ist nützlich. (3)					
Der Agent ist hilfreich. (4)					
Der Agent ist lehrmäßig. (5)					

Q10.1 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Der Agent hatte eine Persönlichkeit. (1)					
Die Gefühle des Agenten waren natürlich. (2)					
Der Agent war menschenähnlich. (3)					
Die Bewegungen des Agenten waren natürlich. (4)					
Der Agent zeigte Emotionen. (5)					

Q11.1 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Der Agent war ausdrucksstark. (1)					
Der Agent war enthusiastisch. (2)					
Der Agent war unterhaltend. (3)					
Der Agent war motivierend. (4)					
Der Agent war freundlich. (5)					

Q12.1 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Die Gestik des Agenten half mir, die Informationen der Lecturio.de Landingpage besser zu verstehen. (1)					
Die Gestik des Agenten half mir, auf die Informationen auf der Lecturio.de Landingpage mehr zu achten. (2)					
Die Gestik des Agenten half mir, die Lecturio.de Landingpage als ganzes wahrzunehmen. (3)					

Q59 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Die Mimik des Agenten half mir, die Informationen der Lecturio.de Landingpage besser zu verstehen. (1)					
Die Mimik des Agenten half mir, auf die Informationen auf der Lecturio.de Landingpage mehr zu achten. (2)					
Die Mimik des Agenten half mir, die Lecturio.de Landingpage als ganzes wahrzunehmen. (3)					

Q60 Welche Aussagen treffen zu?

	definitiv nicht zutreffend (1)	eher nicht zutreffend (2)	vielleicht (3)	eher zutreffend (4)	definitiv zutreffend (5)
Die Kombination von Mimik und Gestik des Agenten half mir, die Informationen der Lecturio.de Landingpage besser zu verstehen. (1)					
Die Kombination von Mimik und Gestik des Agenten half mir, auf die Informationen auf der Lecturio.de Landingpage mehr zu achten. (2)					
Die Kombination von Mimik und Gestik des Agenten half mir, die Lecturio.de Landingpage als ganzes wahrzunehmen. (3)					