

THE VOLVO AVATAR CONCEPT

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ABSTRACT

Automobiles are mass-production results, yet people have the need to make this everyday use product personal. There is a trend towards personalisation for cars, and manufacturers aim to involve the customers in the design of their car, giving them the feeling the car fits the personal needs and wants of individuals. Ambitious goals are set to deliver customizable and flexible features to facilitate these needs. One place where users can grasp the range of features available is in the online car configurator. The avatar concept strives to develop a new way of exploring features in a car configurator based on personal interests, giving the customer the chance to create their personal car. The project is as a collaboration with Volvo Car Corporation focused around their tagline “Designed around you”. This article investigates the process of developing the idea, related work, methods used and the motivations behind the concept.

KEYWORDS

Interaction Design, Volvo Car Corporation, Car Configurator, Personalisation, Gamification, Human-Centered Design, User-Centered Design, Activity-Centered Design, Avatar, Customization.

1. INTRODUCTION

“Designed around you” is the tagline of the challenge Volvo Car Corporation gave students at the master’s program in Interaction Design and Technologies. The challenge was formulated around, “Understanding people’s needs and desires, and find a way to support the users in their daily life in order to create a driving experience beyond their expectations.” Further, the challenge was to create an idea based on the tagline connected to the subject of personalisation. The report will cover the design process of framing personalisation as a concept and applying the theory of it when developing an idea applicable to be implemented by Volvo.

The concept of personalisation is wide and can be described in a range of ways. This provides numerous angles to which one can approach the task of creating something feasible for Volvo. As the project group consisted of interaction designers, and the course where this task had been given was especially focused on Human-Centered Design (HCD),

the first task was to investigate how Human-Centered approaches could offer more personal experiences.

The first thought was to look into the sales process. This is when buyers of Volvo Cars make most choices, some they can continue to customize later, while some are chosen only once. As the task was about supporting daily life and activities, driving experience and more, looking into the sales process had the disadvantage that the experience would be brief and not continue after the purchase was over. However this didn’t discourage exploration because personalisation isn’t only present in use of the actual car, there are processes taking place before the car is bought as well.

One early aspect of the sales process that requires true user involvement is the car configurator. It lets users customize a car model of choice to create a representative suggestion of something they might buy. With the rise of a personalisation trend in the car industry, demands are upped with users wanting mass-produced products to feel tailored to their needs and wants. Car configurators put all responsibility on users to find their preferred features, knowing which ones are available and which are suitable to opt for. With small enhancements they might be able to guide users instead of them finding their own way, creating a solution that is not only fun to use, but also educative.

With the introduction of digital displays in various places in modern cars, earlier physical buttons and knobs are replaced with touch surfaces that host new buttons and knobs made completely of software. This opens up an endlessly large space for variation and personalisation ready for users to explore. While the screen will be present in next generations of Volvo cars starting 2015, aspects of them could also make their way into every persons mobile phone and laptop, allowing users to explore them even if they wouldn’t yet own a Volvo. Allowing this interaction with software could be a future incentive to buying a new Volvo.

The concept developed is called “The Volvo Avatar Concept” and is a suggested expansion of today’s car configurator. The concept should encourage the customer to explore features of the car in new and fun ways, to transform the current car configurator into tomorrow’s car

experience. To put the user and his or hers experience in the center, we introduced the avatar, a representation of you as the user of the car throughout the whole configuration process. This is a Human-Centered approach where the main focus always is on the user's needs, wants and desires.

2. RELATED WORK

This chapter investigates the today's existing car configurator and look at how to use gamification as inspiration when developing a car experience.

2.1 THE CAR CONFIGURATOR

To investigate how to enhance a car configurator, one must first evaluate the configurators already present. Car configurators exist online and are easy to reach. Configurators belonging to most large car brands were investigated briefly, and Volvo's own more thoroughly. They share a lot of their functions and features with each other. Also, they share a common starting- and ending point. The user start by selecting a suitable car model and adapts it to his or her liking browsing through all features available in lists and tables. When finished the configurator ends with a summary of selected features and several options on how to go about with the finished configuration. Among the more common options are contacting a dealer to receive an offer; storing the configuration and/or printing it, and sharing the configuration on social medias.

Configurators also share the same perspective. They are car-centric and have similarities with a conveyor belt manufacturing process. Added features are presented in their most generic representation and additional information is found in popup windows, images and sometimes video clips.

Insights gained during this investigation was that configurators focus on the car, not the person thinking about buying the car. They give mainly a generic perspective on features and focus primarily on visual aspects of the car design. Configurators are car stylists suitable to users that have looks on top of their priority list. They do however present relevant information around the car regarding finance and other types of information that cannot be applied onto physical aspects of the car, hence they are placed in the periphery of the interface. Configurators explain cars using car terms, a few example are horsepower, torque, cylinder volume and more. These relate to measurable technical data about an engine and users need to learn these in order to make up their minds about how powerful it is, and relating it to how much power they actually need. Instead, the power output of an engine could additionally be explained in terms related to user needs, based on earlier questions regarding packing, family size, mileage and/or pulling caravans.

There is room for enhancements regarding several aspects of a car configurator that might simplify users way of understanding it. Firstly, a change of perspective from

“relevant to everyone” to “relevant for me”, might be more suitable if the aim of configuring a car is to adapt it to the needs of a single buyer. Another enhancement would be to make information about selectable features more intriguing and informative. As explained above, car-centric terms are informative to those who understand them while not being as close to users perception of them when driving, here a connection to users own mindsets about how they see the car could bridge gaps in understanding.

2.2 VIEWING OTHER CAR PERSPECTIVES

Having seen how cars are being presented in configurators, another investigation undertaken was to see how they were being presented in other contexts, and whether those perspectives could enhance informative and aesthetic aspects if placed in a configurator. A probable reason for diverse representations of cars in various contexts are that aims and priority of what is important to show differ between contexts. As configurators presumably wants to be as informative as possible, finding perspectives from other contexts that manages to be highly informative are interesting to investigate.

Racing video games is one context where cars are presented in various ways. While some are far from realistic, focus in this investigation was on games trying to present cars as realistically as possible. Games like Forza Motorsport [1] and Gran Turismo [2] aren't only driving simulators trying to be realistic on road and track, they also house large backstage garage-like areas where players can view cars further. Some also allow for customisation, although mostly regarding aesthetic aspects. Reconfiguring cars in video games is not unlike doing the same in car configurators on manufacturers websites. Insights gathered from this investigation are that some video games spend more time constructing realistic models of cars for users to view, than car companies do themselves. While their aim might differ, the models they create and the settings they are presented in, manages to deliver an immersive experience in 3D that triumphs configurator images in terms of graphics ways to view them.

3. THEORY

Apart from doing user test and visiting showroom, this study is influenced by scientific papers. They were used to frame the concept of personalisation and its relevance regarding cars. Papers were also read to investigate how to present perspectives that were informative and educational.

3.1 PERSONALISATION

Personalisation can be seen as a process for the individual relevance's and created to fill the need of being unique [3]. Weight has been put on making objects and systems more personal in all industries, not the least within IT. Now a days you can personalise everything from your phone-cover to the design and color of your shoes and clothes [4]. This kind of personalisation creates a feeling of satisfaction and

possibility to explore options. How well personalisation of a product is received is dependent on how well users experience the product or service. Based on this, personalisation could be defined as an experience [5].

Keefe looks at personalisation from an educative perspective which fits the purpose of this project well. Several key aspects were found that relates to the kind approach this project is aiming for. One is that learners/users experience success and satisfaction when learning with methods that reduce cognitive difficulty, this relates to the aim of presenting information in a way that is easily percept for end users. This means presenting the car from users perspective, not the car perspective. It could also extend to use of certain language and/or introducing activities where users easily can relate to themselves and their interactions with cars. Another aspect mentioned by Keefe is to use interactive learning environments to encourage creativity and enhance learning. Finally he states that the entire learning experience should be child-centered, this as he is talking about education. In this project it translates to the system being human-centered [5].

Further, another aim to create a personalised system is to make it more relevant to users [3]. This view is supported by Kim who extends that relevant data, which forms the basis of system adaptation, is extracted from users beforehand [6]. The user need to be actively engaged in the system and provide information for it to be able to adapt. The approach used is called explicit adaptation, it means that it is user-initiated as described by Normark [7, p. 35]. Suitable adaptations in a car configurator need not to be exclusive, instead it would be more appropriate if they were presented as recommendations based on user input. The personalised aspect of the system is highly relevant since it relates to the task given by the client.

3.2 GAMIFICATION

To create a personalised experience and facilitate user engagement in an activity, the gamification area was investigated. Gamification can be said to be a process for making real activities more into a game, or making a process more game-like. By using gamification the gap between the academic and practical world decreases. It is optional for users to view a gamified process as a game or not. Within the game you as a player decides what to do and where to go next. One of the aims of making something into a game is to create a more immersive experience and allow users great liberties when it comes to freedom of choice [8].

If looking at the narrative of the process, the opposite of a gamified approach is a linear process that users should traverse in a specific order. While a car configurator could be placed anywhere between the gamified approach and linear one, the configurator investigated in this paper advocates a placement closer to gamification.

3.2 TARGET GROUP

Our target group is a well educated individual with a modern mindset who cares about environmental issues and imposes high demands on that the car should have the right equipment and features according to its usage. Our target group consists of people who want to be involved in equipping of the car, but on the other hand have limited amount of time or interest of cars in general to do so.

4. METHOD

In this chapter a number of design approaches will be presented, our design process, which methods used, how knowledge was gained about the subject and lastly, how to think when looking at design from the user's perspective.

4.1 OVERVIEW OF THE DESIGN APPROACHES

As for any design process, creating a usable solution to a determined design challenge can be achieved with various methods from a user-, human-, or activity-centered approaches. UCD focuses on the user as "a person who will use the system for performing tasks" [9]. Finding out about this person's needs and desires is essential, which implies involving the potential users throughout the whole process, for instance, with the help of Participatory Design [9].

HCD takes a small step back to consider human beings in general. Their basic as well as specific behaviors and needs can be detected by observing attentively what people do in order to gain a good understanding of the user's environment [7]. Communication with the people to design for, for instance in form of interviews or focus groups, is another important element. Zhang and Dong sum up the Human-Centered approach as follows: put the humans in the center, understand them holistically, collaborate and involve the people in the design process with the aim to make things "useful, usable and desirable for people" [10].

When introducing Activity Centered Design (ACD), the focus shifts from "understanding your users as people" to "understanding them as participants in activities" [11]. The designer investigates how, why and with the support of what tools people perform certain activities with. The aim then is to enable those activities with the product or system to be designed.

It is important to note that all three approaches are rather interwoven than totally isolated perspectives. Activities can't be designed without knowing who would perform them, and when observing people you also observe their activities. Each of the approaches serve different purposes and can therefore be used in combination within a design process.

4.2 OUR DESIGN PROCESS

This project started out with a visit to a showroom for Volvo Cars in order to get familiar with the topic. Exploring the cars first-hand helped to get to know what features already exist and to bring all team members up to

date with current technologies. Additionally, it was important to experience the process of buying a car, emphasizing with the users the personalised design would possibly be for. Furthermore, literature researched dealt with different views on personalisation in general as well as current developments of technology and personalisation within cars. With the gained background knowledge extensive brainstorming sessions were held. The most efficient and effective method turned out to be when everyone of the group would sit quiet for some minutes, thinking alone, writing every thought on a post-it and then present it to the others. The ideas ranged from adaptations like hooks and storage in the interior of the car, to ambient changes in light and sound to fit to people's different moods. Those ideas were listed in a shared document where each group member could write comments and ratings for each idea. In the subsequent group discussion several ideas were dismissed and the remaining ones were analyzed to see whether they were feasible or covering the aspect of personalisation. This concluded in the first important decision. It was agreed to investigate an idea on how to combine people's concern about the environment with the thought of personalisation within their car. Yet, after developing this to a certain level, the feedback of the client suggested to dismiss this concept. In order to cover the requirements and expectations this suggestion was followed. After that the view on personalisation was adapted and a new design process was initiated.

The iteration of the ideation phase was helpful to redefine the view on personalisation and to consider all different aspects of it. Furthermore, it pushed to take a step back and look into the insights of the very beginning in the showroom. Keeping the gained knowledge in mind, following discussions mainly focused on the process of buying a new car which could be divided into three stages. Those stages were roughly defined as before, during and after. While the during phase concerned the actual sales process in the showroom, the after phase covered everything after having bought the car. The before phase was defined to focus on how to encourage people to go and buy a new car, and making them aware of its features. While all of the stages could have been interesting in regard of personalisation, the process of encouraging people seemed especially promising to be further developed.

A prominent tool and possible first step to get to know everything about a new car, prospects can seek out the car configurator to get the most complete presentation of the car they're interested in. The choice was made to look further into this tool. As an obvious next step, the current car configurator was analyzed along with brief looks at configurators of other brands. This research phase included finding out what features it contains, how it works and what could be improved. While taking the car-centric view of the current configuration into account, the aim was to switch the focus to more respond to human's feelings and to put the user in the center.

Taking in the user's perspective, early discussions dealt with how to add the human touch by introducing the avatar. Different looks and feels of this representation were considered and in this stage potential users were involved in the form of a questionnaire that was distributed online. It included the question of what look people would prefer for the avatar. Three different images of visualizations of humans were shown to them to choose from. One showed a character from The Sims game, the second showed a crash test dummy-like figure and the third image was a quite simplified 3D model of a person without human details. In addition, questions were posed to find out what perspective of the avatar was preferred, first-person- or third-person perspective, and what kind of interactions the avatar should perform. Considering the feedback from users and inspirations found online helped to make sketches suggesting the look of the avatar. Variations of those sketches later defined the overall look of the concept art.



Figure 1: Three different images of visualizations of humans.

Later in the process, the actual use of the product and the possible activities that would be performed were highlighted. Following the suggestion of [11] that the user cannot be seen separated from the activities and tools, the approach slightly shifted towards activity centered design. Interactions that the avatar should help the user with were discussed, also keeping in mind the results of the survey.

A schematic, similar to a user journey, was sketched, showing all the parts of the configurator including elements from the current one and elements that were added, like the creation of the avatar and the interactive scenarios. With this, an overview was given describing what configuring a car could look like. It also gave insights on the details of the several steps, as well as how they could build on each other and their relations. Furthermore, it made it possible to divide the tasks in the group, each being able to focus one of the parts developing it further.

5. RESULT

The concept developed could be seen as a new configurator 2.0, a configurator that encourage the customer to explore features of the car in a new and fun way. As mentioned, we introduced the avatar, a reflection of the customer in order to make the car configuration into a personal experience and add the dimension of user involvement. The user test conducted aimed to get an impression about the customer's opinion on this new feature.

5.1 USER TEST

Around 30 people answered the questions that were handed out. As for the first question regarding which Avatar they would prefer, almost 40% of them preferred the second image showing a neutral figure. The remaining percent were almost equally distributed on the first and third image as well as to the answer "none of them". The questions regarding preferred perspective was answered with "first-person perspective" by 8 users and "third-person perspective" by 21 users. The last question asked for what features users would like the Avatar to display. Answers here ranged from "things that you usually do not need to do, fix the engine?" to interactions with the electronic features of the car but also "how to fix a car". As this question was very open, it was interpreted in various ways by the different users. So some imagined situations when the Avatar would be present in the real car, assisting them with certain tasks or giving advice. Since this was not the aim of the concept, some answers did not give valid results. For the concept development it was still tried to keep this general user feedback in mind. Below the different parts of the concept are presented in more detail.

5.2 CONFIGURATOR

The new version should work fine together with the existing car configurator system. The findings made in this study suggest that future configurators need to improve the interaction with the user. The user should be able to interact with more things displaying the use of things, not only their look. This would lesser the need of long explanations that users might not read, and up the experience of how things work. The experience of use shouldn't end when the user is done configuring their car, scenarios could add another dimension of use and further explain features that aren't easily grasped by just seeing them, they might not be visible at all except when the car is placed in the right situation.



Figure 2: The today's' existing car configurator.

5.3 A REPRESENTATION OF YOU

The journey starts by creating your personal avatar. Hereby the aim is not to make the avatar look like a human, with details like face and clothes, but focus only on relevant information that actually is related to the use of the car. The creation should be simple and quick, only three relevant steps were identified. The first step is about adapting the size of the avatar to your size, so when trying out features you will see how it relates to your body measurement. Also, your family is important to think of when configuring a car. In case you have three kids, you might need a big car. The last step is about personal interests, a context where the choice of car and features affect the convenience of life. If you like listening to music you want a good music system; if you like skiing, you probably need a car that has enough space for the equipment or one that has the option of adding roof-rails.

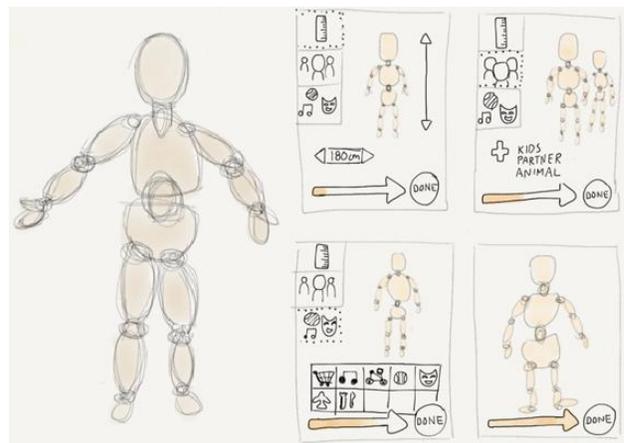


Figure 3: A representation of the Avatar and the creation of it.

5.4 PERSONAL RECOMMENDATIONS

Rather than choosing features completely by yourself, the new car configurator will give you personal recommendations based on data gathered from the creation of your avatar. The configurator will suggest car model; features and settings. Users can select to add recommended features by default or just have the configurator highlight them. In cases where several suitable options contradict one another or cannot be chosen together, then they are still highlighted. Users will still have total freedom of choice.

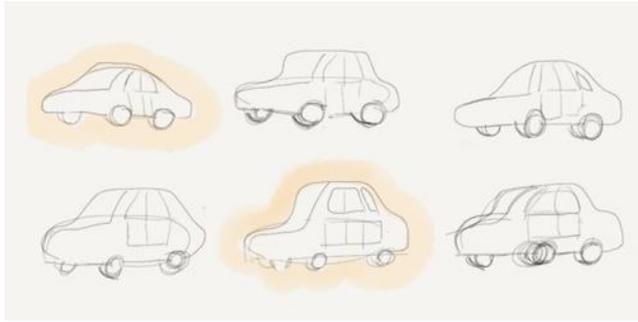


Figure 4: Two highlight recommendations based on your avatar.

5.5 INTERACT WITH FEATURES

One of the added features in the configurator is the enhanced way of viewing the car. Using the mouse, finger or track pad depending device, users can pan and zoom, hover over parts of the car they're interested in and get more detailed information about them. This gives a dual way of finding and customizing the car, either users change features by selecting them directly on the car, or they find the feature in the lists and tables located in the edges of the interface, just like in the current configurator. Some features doesn't have an obvious physical placement on the car, such as park-assist systems, they will only be present in the tables.

If users want to have a look inside of the car, they can make the avatar do so by clicking on the door handle. The avatar will open the door and step inside. The perspectives can be controlled the same way as from the outside and the avatar will act to user commands. For example, your avatar can help you to try out the mirrors, adjust the steering wheel or find out how to change the seats. If you adapted the size of the avatar in the beginning, you will then see the effect of changing the seats in relation to your height. This way, you can simulate this to get a feeling of use from the other side of the computer screen.

The new infotainment system in the center also has a large potential when it comes to trying out interactions as well as customization, so why not use it? If you as the user want to turn on the radio, make the avatar do so and you will hear the radio play. Instead of only looking at the static interface you now can use it through the hands of your avatar. Play with it, make personal settings and save them. One

advantage is, that you could actually bring those personal settings into a real car when taking it for a test drive.

5.6 INTERACTIVE SCENARIOS

Whereas the current car configurator end with a summary screen, this one encourages further exploration, exploration that connects to reality. They are meant to educate users on more advanced systems that cannot be explained through an image or a few sentences of text. They should also be more informative using some of the insights gathered in earlier research. The first one is called 'Pack the trunk'. In the scenario users will use common objects and fit them into the trunk of their selected Volvo model. Using real objects gives a better reference to how large the trunk actually is compared to only displaying measurements. Users can easily fold the rear seats as well to make use of the full loading capacity of their car. Items loaded in the car could very well be ones based on personal settings made during avatar creation.

The second scenario is about letting the user understand how the car handles parking situations. Getting to try out for themselves gives insight to how the system works and might diminish any potential trust issues users have towards the system. These scenarios are of course a way to further market systems. Even if a user didn't opt for park-assist during configuration, they get second chance of doing so when investigating scenarios. This could help Volvo to sell higher spec cars.

5.7 SAFETY SYSTEMS

Volvo has an abundance of safety systems. Their use and purpose is more important than being stylish or adding comfort. Educating users about these is important for the same reasons as for park-assist, it builds trust between car and driver. Systems that are created to interfere in driving will raise the question on when and how they do it. There is a balance between them being intrusive and ineffective, and being able to test them can rid users of their uncertainty.

If appropriate, the car configurator could include a safety test with the purpose to display the cars passive safety systems. The moment of impact could be displayed from several views, interior and exterior. The purpose would be to display how the car is acting to keep driver and potential passengers safe during a crash situation. As the configurator prefers a human-centered perspective, the avatar would display the human body reacting to the impact. Volvo are the best in business when it comes to safety and this demonstration hopes to honestly and truly describe one of the most important aspects of the car to the user. Safety systems are also typical examples of systems that users cannot perceive through text and image as well as with interactive scenarios.

Scenarios that display many of these systems are available on Volvo's website, but they are not included in the configurator. The suggestion of adding these isn't as much

an addition as it is a transferral of information from one place on the web to another, and a new way of displaying this information in a way more immersive, interactive and hopefully more understandable to the user.

6. DISCUSSION

In theory this project should have been a project running for eight weeks but in reality it was closer to four weeks. This, because in this business a working hour is counted in pure money, which makes it important to work in the right direction and on the right things, especially as a consultant. So, after the mid-term presentation our partner felt that our idea was not strong enough for their customers. This gave us two options, either continue working with the current project knowing that it could be in the wrong direction, or start over. We wanted to create the best result, therefore we went for option two, restart the project. Thinking about the project this is not ideal, however we learned a lot about the importance of create value for the customer and client, and then you have to take action in situations like this.

Since we claim to have partly taken a User-Centered approach, it seems legit to criticize the low extent of user tests. Furthermore, our results were quite even, not pointing in one direction or the other which therefore was not very helpful to make design decisions based on users' opinions. The not so high number of participants and the fact that possibly the majority of them had interaction design background more or less, it wasn't the perfect precondition to get a broad opinion of the population. To get more valuable feedback and insights from users, a more elaborated questionnaire as well as several interviews would have been needed. Interviews would have helped to ask the users more detailed questions in order to find out about their personal needs and requirements in the context of car configuration. It would also have avoided the fact that some participants of the survey misunderstood one of the questions. Furthermore Participatory Design, especially in regard of the look and feel of the avatar and the new configurator, would have been helpful. Together with us the designers, users could have designed the avatar in a way they would feel comfortable seeing it as a representation of themselves. Unfortunately, the lack of time due to changing the idea after a progressed stage was one factor that had a strong influence here.

When presented, our concept to Volvo Car Corporation a lot of positive feedback was given about our human-centered approach. Comments were: "good approach to put the user in the center" and "good to create a humanistic experience". On the concept itself the Volvo jury were more critical and said that: "the idea of having an avatar is old", and that a risk with too good interaction could be that "the user would think: give me the reality instead". Lastly they commented that this could be something for the sales department. However, they seemed to really like our idea in the way we have chosen to present cool features in the car.

Thus, they were not sure about if our avatar needs to take a such big part in the evolution of the configurator.

The question was raised during the design phase whether the avatar needed to be there at all. As written above, during the presentation Volvo raised this question as well. As the user is sitting by their computer or using a mobile device they are, in another sense, part of the experience as well. Is it then no need to include a personalisation of them inside the configurator? The avatar's present has its pros and cons. On the positive side is the avatar creation. We concluded that while people aren't very keen on inputting information about themselves when it is presented like a survey, they are more keen to input information getting instant feedback in form of an avatar/themselves adapting to that information in front of their eyes. That is the difference between inputting information using gamification and inputting information in the style of a web survey. We have the experience that people usually don't like the latter way of submitting information. Another positive aspect of using the avatar is that lets users see how him/they are affected by any alteration made to the car. While some alterations doesn't benefit from avatar involvement, there are also some that do. Lastly the avatar could potentially add actuators to the configurator. Since it is a humanoid it could potentially speak, or hear audial input and react to it. Text in popup windows could be read out loud in a more interesting way than just reading them oneself.

Using the avatar also presents drawbacks. One is potential delays between user input and feedback because of avatar animations and transitions. Instead of having the avatar opening a door after user input, delaying the action slightly, the door could open instantly by clicking the mouse at the door handle. This would be quicker and more time efficient. The avatar however, wouldn't react to all alterations on the car. If users changed the exterior color it would more or less just stand there, rendering it useless in those cases. Having it react to everything would be much too gimmicky and potentially annoying for users, because the avatar's reaction wouldn't contain any real value.

The avatar creation process creates associations to video games, this can be both good and bad. Those who like it will find their input beneficial later in the configuration process. Those that doesn't like the avatar creation will lose the benefits of the inbuilt adaptation. The configurator could easily ask the same questions without the avatar, but it would look much like the disliked web surveys that flood the internet. Yet, the avatar makes an interesting proposition as the main focus point in next generations car configurator because of the possibilities it presents, and it is better include it initially and later take it away if it doesn't fit, than not having presented these possibilities at all.

7. CONCLUSION

The goal with our project has been to create a concept that should encourage the customer to explore features in the car in new and fun ways, to transform the current car configurator into tomorrow's car experience. To put the user and his or hers experience in the center, we introduced the avatar, a representation of you as the user of the car throughout the whole configuration process.

This is meant to be a suggestion of how an enhanced car could look and feel, a configurator that uses the insight found during analysis and applied to strengthen the experience of use, making it more interactive and informative. Some features presented are taken from elsewhere and introduced as new features in the context of car configuration. Other features were found during analysis of car media and car websites and assessed to fit nicely inside a configurator, hence suggested to be moved inside. The result became something that delivers more than today's current configurators.

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