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Cultural Design Compass: Who Do You Design For?

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Abstract. The cultural background of our users and its impact on using technology as well as the cultural background of the developers and its influence on design decisions, is often not considered in research. This paper demonstrates how to self-assess previously derived design recommendations regarding cultural preferences and how to discover potential for improvement. Therefore, 52 design recommendations for large public displays were assigned to cultural dimensions of Hofstede. They were derived by our research group within the last 4 years. As a result, a cultural design compass was developed, visualizing the distribution of design recommendations across the cultural dimensions and indicating areas of focus (e.g. high uncertainty avoidance). The distribution of design recommendations among the cultural dimensions almost completely coincide with Hofstede's cultural dimension indices for the German culture, showing that there is a high chance to subconsciously derive design recommendations based on our own cultural imprint. In addition, the compass can be used to incorporate cultural indices of other user groups and nationalities to identify design aspects that need improvement. Consequently, without having in mind that cultural preferences and differences exist, the design may not fit users with different cultural backgrounds. The cultural design compass should support future research within human-computer- interaction to design more precisely for a particular user group, to better classify design recommendations, and to verify whether they match the required users' cultural preferences.

Introduction

Culture is an important aspect, not only when it comes to the usage of technological artifacts but also during its design phase. As stated in research, which covers the user interface designers' collaboration with (Solanki and Heimgärtner, 2013) and understanding for users (Heimgärtner et al., 2011), we should be more aware of the impact culture can have on the design decisions we make as it could lead to subconsciously inappropriate design which may affect usability. Even in our research group, the aspect of culture and its impact has not been actively considered when analyzing design for large public displays and deriving recommendations. Due to that, I developed the cultural design compass as visualization for self-assessing design decisions. For this purpose, I analyzed our 52 design recommendations for large public displays to identify whether we designed for users from the same nation (Germany) or others. With this result, we can identify improvement potentials, when we want to design for another user group as design recommendations that may be suitable for our environment here, may be challenging or disrupting other user groups with other divergent cultural backgrounds. For this reason, it is important to consider the subconscious cultural aspects that influence our decisions. Consequently, we should identify whether and how our design must adapt to our user groups' cultures already in design phase. Therefore, this paper will focus on the research questions "How can we review our design decisions in terms of cultural preferences and ensure that the cultural preferences of our user group are taken into account?"

Firstly, the related work section presents existing research for intercultural usability, cultural design, and cultural dimensions. Secondly, the methodology describes the development of the cultural design compass, before it is presented and analyzed. Finally, a short conclusion and outlook is provided.

Related Work

This section begins with a summary of related work for intercultural usability and cultural designs. The second part introduces cultural dimensions and describes the concept of Hofstede, which are fundamental for this work, in detail.

Intercultural Usability and Cultural Design

Many research can be found describing the influence of culture on how people **use** technology. For example, looking at research for (inter)cultural usability of digital artifacts, many findings were reported regarding web design (Alexander et al., 2017; Barber and Badre, 1998; Beck, 2010; Salgado et al., 2016) and desktop applications (Santoso and Schrepp, 2019). More insights have been identified for the intercultural usability of mobile applications by Walsh et al. (2010), grid computing applications by Rusu et al. (2010), automotive interfaces by

Heimgärtner et al. (2017), and even whether Google standardized symbols increase intercultural usability for a bakery dough sheeter by Papageorgiou et al. (2020).

Furthermore, there are research results concerning the consideration of culture in the design process, which also tries to take into account the influence of the designer's culture on the design. Reinecke and Bernstein (2013) proposes an adaptive web interface for cultural diverse users by considering cultural preferences according to Hofstede's cultural dimensions. Another analysis of university websites regarding cultural preferences for organizational and graphical design has been reported by Callahan (2005). Moreover, Lachner et al. (2018) describes a culturally sensitive Q&A website design. Marcus and Gould (2000) conducted an extensive analysis of websites' cultural design, by analyzing websites elements of different countries and matching them with aspects of Hofstede's cultural dimensions (Hofstede, 1984; Hofstede et al., 2010). The result is a summary of culture influenced user interface aspects for each cultural dimension. Most of this work use Hofstede's cultural dimensions to integrate the cultural aspect into the design process. In addition, this research provides insights about how culture influences the designers' decisions and how researchers try to consider cultural preferences. Nevertheless, a hands-on tool and visualization for self-assessing the own design decisions has not been in the focus of many. The cultural sensitive user interface aspects reported by Marcus and Gould (2000) and their allocation to cultural dimensions for website elements were used as a guide to assign our own 52 design recommendations to the dimensions.

Cultural Dimensions

Looking for a definition of "culture" is a great challenge as many scientists of various field are discussing this term. For this work, the definition by UNESCO is used: "UNESCO defines culture as the set of distinctive spiritual, material, intellectual and emotional features of society or a social group, that encompasses, not only art and literature, but lifestyles, ways of living together, value systems, traditions and beliefs." (UNESCO, 2001)

For a better understanding of cultural aspects, dimensions of cultures can be identified. A cultural dimension is defined as: "an aspect of a culture that can be measured relative to other cultures." (Hofstede et al., 2010, p. 10) Many researchers have identified such cultural dimension, e.g. Hall (1977) or Trompenaars and Hampden-Turner (2008) as well as Hofstede (1984). Hofstede's dimensions are criticized by many. Dimitrov (2014) analyses the framework by Hofstede regarding its application and criticism. He provides an overview of the criticized aspects regarding the cultural dimensions, e.g. the methodological perspective, "national culture" as construct, etc. Though, he also identifies that the cultural dimensions are very popular in academic research, also regarding the analysis of information systems and its design. Therefore, Hofstede's cultural dimensions are used for the categorization of design recommendations of this work. Hofstede has derived his cultural dimensions based on a study with IBM

between 1967 and 1973 (Hofstede, 1984, p. 41). The aim was to learn more about the attitude and values of the employees by two survey iterations. In sum, 116,000 answered questionnaires from 72 countries in 20 languages were collected. Hofstede derived the first four dimensions based on this study: Power distance, individualism, masculinity, and uncertainty avoidance. In the 1980s, the fifth dimension “long-term orientation” was derived in cooperation with Michael Harris Bond of the Chinese University of Hong Kong who conducted a “Chinese Value Survey” (The Chinese Culture Connection, 1987) and encountered this dimension during his study. The last dimension “indulgence” was discovered in cooperation with Michael Minkov, who conducted a World Value Survey, and was finally added to the cultural dimensions of Hofstede (Hofstede et al., 2010, p. 44).

The following section describes Hofstede’s dimensions and their indices and meanings for Germany (Hofstede Insights, 2021):

- **Power Distance:** How does the culture cope with inequalities? Which means, “the extent to which the less powerful members of institutions and organisations within a country expect and accept that power is distributed unequally.” (Hofstede Insights, 2021) Germany has a value of 35 in this dimension which indicates a low power distance culture. Equality, collaborative and direct communication is essential in work and private life while control is not appreciated.
- **Individualism vs. Collectivism:** This dimension describes the degree of interdependence between society members. It is based on their self-image and whether they focus either on “I” or “We”. In individualistic cultures, such as Germany with an individualism score of 67, people are focused more on themselves and their direct family (parents-child relationships rather than uncles and aunts). In contrast, people in collectivism cultures belong to and take care of a group and hereby receive loyalty in exchange.
- **Masculinity vs. Femininity:** This dimension is about the motivation of the society in question: Want to be the best (masculine) or love what you do (feminine). A high value in this dimension describes a masculine culture. This means, that a society is driven by competition, performance, and success based on a value system that is already established in school. On the contrary, in feminine cultures people are more caring for others and the quality of life, which is an indicator for success for them. Germany with a masculinity score of 66 is a rather masculine society as achievements are highly important. Already in school children at the age of ten are separated in different school types. When working, people derive their self-esteem from their work tasks, they are expected to be resolute and persistent and flaunt their status by material things (e.g. cars, watches, technical devices).
- **Uncertainty Avoidance:** This dimension is about how cultures deal with unfamiliar and equivocal situations, especially regarding the future. With an uncertainty avoidance index of 65, Germany has a high score. People strongly prefer deductive methods for thinking, presenting, and planning and they avoid uncertainties whenever possible.

- Long-Term vs. Short-Term Orientation: Short term oriented cultures (low index) focus on traditions and norms whereas they are skeptical of societal change. Long-term oriented cultures (high index) are pragmatic and foster modern education and changes that prepare for the future. Germany is a long-term oriented culture with a score of 83. Distinct signals for this value are pragmatic orientation, their belief in the truth depending on situation, context, and time, and their fast adaptation of traditions to new conditions. Moreover, they are persistent in achieving results, thrifty, and tend to save and invest their money.
- Indulgence vs. Restraint: This dimension is about how strongly people regulate their cravings and impulses by dint of how they grew up. A relatively strong control is “Restraint”, in contrary, a relatively weak control is “Indulgence”. A high score in this dimension indicates an indulgent culture, a low score a restrained one. Germany is a restrained culture with a score of 40. This means, Germans tend to be pessimistic and cynical. Moreover, they do not attach much value to leisure time as well as gratification of their cravings. Social norms restrain actions, evidently, they feel uncomfortable when indulging themselves.

Understanding a culture regarding Hofstede’s dimensions, needs taking into account that a low or high score does not indicate whether a dimension is more or less important or better or worse. It rather describes the preference of a culture within this dimension. Furthermore, it is important to consider that those indices are supposed to be used for comparing nations’ cultural preferences.

Methodology

The overall objective is to provide a tool for researchers and designers for the review of their own designs which enables them to examine where they have been influenced subconsciously by their own culture and whether the design decisions match with the cultural preferences of the users cultures. Therefore, I have developed the cultural design compass which allows us to classify and visualize the design recommendations in different cultural dimensions and compare them with Hofstede’s culture indices for a specific or multiple nations.

I firstly summarized all design recommendations that were derived by our research group (Lippert, 2020; Lösch, 2020; Nutsi, 2018; Ott, 2018) for the design of large public displays which resulted in 52 recommendations. Secondly, based on the cultural sensitive user interface aspects identified by Marcus and Gould (2000), I assigned each design recommendation to the respective cultural dimension and corresponding degree (low or high) (Table I). Finally, I visualized the result as the “cultural design compass” by contrasting the design recommendations assignment with the cultural dimension indices for Germany, which is described in the next section.

Cultural Design Compass

The cultural design compass (Figure 1) consists of Hofstede’s cultural dimensions (Hofstede, 1984; Hofstede et al., 2010), which are evenly distributed in a circle. The cultural dimension indices for Germany are displayed as radial line within the circle, with 0 in the middle and 100 on the circle line. The recommendations are then positioned within the dimensions: Design recommendations for a high expression of the cultural dimension are situated on the outer, design recommendations for a low expression can be found on the inner area.

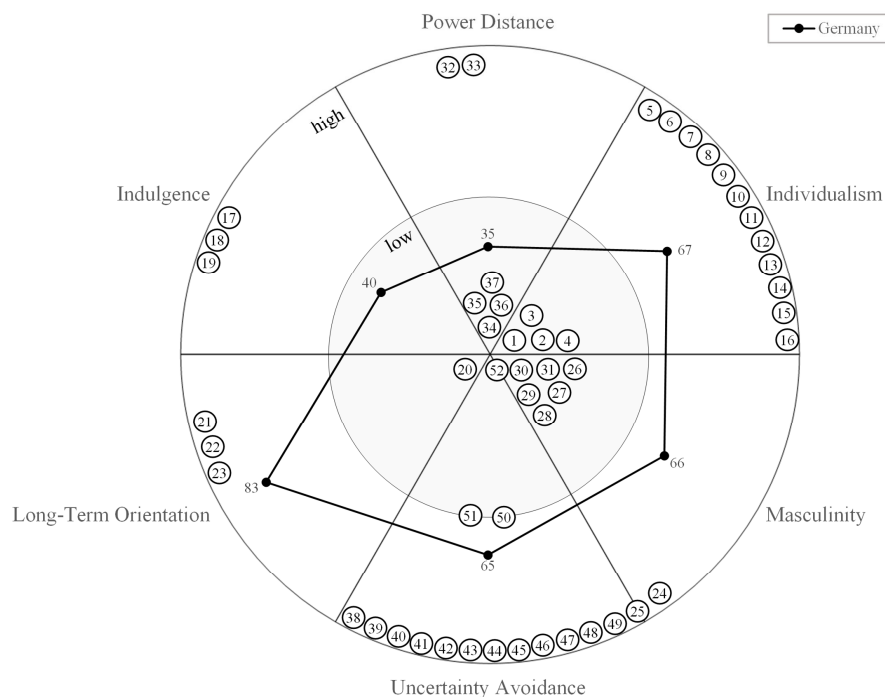


Figure 1. The cultural design compass with design recommendations in the respective cultural dimension classified into “low” (inner circle) and “high” and the dimensions indices for Germany. Further details about the design recommendations can be found in the appendix A.

The cultural dimension indices for Germany are in sum: Low for power distance and indulgence. High for individualism, masculinity, uncertainty avoidance, and long-term orientation. The distribution of the 52 design recommendations indicate that we derived them for the following cultural dimension degrees: Low power distance and masculinity (femininity). High individualism, uncertainty avoidance, long-term orientation, and indulgence.

Contrasting the distribution of design recommendations with the cultural dimension indices for Germany (Figure 1), it emerges that in most cases we have derived design recommendations according to our expression of the cultural dimensions. The recommendations that do not correspond to our culture dimensions indices are for “masculinity” and “indulgence”. This is probably due

to the research goals we are pursuing: To motivate users to interact with large public displays (Lösch et al., 2017), having fun while interacting with the large public display (Fietkau, 2019), and to share information that is interesting for the user group but not actively sought after on large public displays (information radiators) (Koch et al., 2017; Lippert and Koch, 2022). In addition, it must now be verified whether the result of the other cultural dimensions is also influenced by the research objectives. Looking at the “power distance” dimension, Germany is a low power distance nation and the design recommendations suggest to lower barriers of access for a large public display and consequently, to enable equal access abilities for everyone. This result may also be influenced from the research goal, to enable access and increase large public displays’ use. The dimension “individualism vs. collectivism” has clearly more design recommendations for individualism and Germany is an individualistic nation with an index of 67. The design recommendations in this dimension mainly pursued the research goal of enabling and fostering interaction of multiple users (Nutsi, 2018). The design recommendations for fostering multi-user interactions focused mainly on individualistic elements, e.g. DR09: “Users should be able to control the display of personal data on a large wall display and sensitive data should not be requested.” This indicates subconscious design decisions because in other nations multi-user interactions with large public displays may be encouraged by more collectivist design aspects, e.g. they may find it pleasing sharing personal sensitive data. The design recommendations belonging to the “uncertainty avoidance” dimension mainly have the goal of preventing users from failure, getting lost in the application, and embarrassment in public. Germany has a very high uncertainty avoidance index of 65 and, in general, technology should prevent users from having those issues. Nevertheless, other nations with a low uncertainty avoidance index may prefer a more unstructured and exploratory design. Also embarrassment due to usage failures is not an issue to everyone, especially not for low uncertainty avoidance cultures. The last dimension “long-term vs. short-term orientation” shows that the design recommendations of our research group represent a long-term oriented culture. The research goal of those design recommendations is to ensure user attention and update the content of the large public display. Furthermore, this dimension indicates that other cultures may prefer other designs for this goals, e.g. more frequently updated content or new features all at once.

Consequently, this result shows that we have subconsciously designed in most design dimensions for our own cultural preferences without taking into account others. There are two possible consequences: The first is to improve the current design by analyzing the deviations or lack of design decisions regarding cultural preferences (in our case this would concern the dimensions masculinity and indulgence). The second is to include the perspective of other cultural preferences, when designing for another user group. For example, if we design a large public display for an Austrian university, we should include the Austrian cultural dimension indices (Figure 2). This would allow a comparison between our cultural indices and emphasize where we need to improve our design for Austrian users.

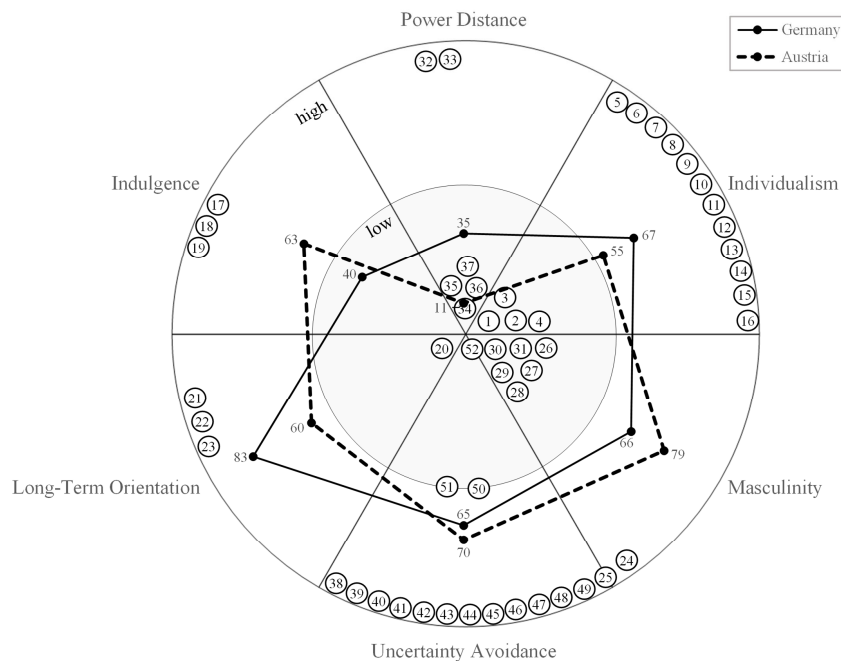


Figure 2. An example of how to include a comparison of different nationalities into the cultural design compass. The cultural design compass with design recommendations in the respective cultural dimension and the dimensions indices for Germany as well as Austria.

Using the compass, researchers and designers may be able to review existing designs and answer the following questions for improvement purposes:

- For which cultural dimensions is our design suitable?
- Is the design suitable for our user groups' culture(s)?
- Does our culture match with our users' culture?
- Have we subconsciously oriented the technology's design on our cultural imprint and does it suit the user group's culture?

In best case scenarios, cultural preferences are already considered during the design phase. Therefore, I propose to consider additionally the following aspects:

1. **Get to know the users culture:** Identify the cultural background of the users, who will use the technology in the end. (Using the Hofstede cultural dimensions, nationalities can be used for orientation.)
2. **Identify cultural preferences:** Inform yourself about cultural preferences of the users by identifying the indices for the cultural dimensions of Hofstede. (If the users are intercultural, take into account several indices and address various degrees of cultural dimensions where differences occur.)
3. **Consider cultural design aspects:** Take into account cultural preferences when designing technological artifacts.

4. **Validate the cultural orientation of your design:** Categorize your design aspects and decisions into the cultural design compass and compare the result with the cultural dimension indices. Have you designed for the user? Which aspects need improvement regarding cultural preferences?

Conclusion

This analysis assigns 52 design recommendations for large public displays of our research group to the cultural dimensions of Hofstede. The self-assessment shows that in most cases we may have subconsciously designed for users with the same cultural background. Visualizing the result as a cultural design compass enables a hands on overview for which cultures we have designed our artifacts. Comparing the result with the user groups' cultures we can identify whether our design decisions match or where we should reconsider and further improve our design. This paper should motivate other researchers and user interface designers to review their work and support them on how to self-assess and include a consideration of cultural preferences and differences. The cultural design compass can be improved by providing more details about how to assign the own design decisions to the cultural dimensions. As the assignment of design recommendations to cultural dimensions is prone to bias, it can be improved by involving multiple, context-neutral people or even an artificial intelligence in the classification process. However, it needs to be mentioned, that the compass cannot cover individual preferences in general but rather provides an overview what designers and researchers could take into account when designing for users with other cultural background and whether they have designed for the right user groups. Furthermore, adding multiple national indices as radial lines to the compass may lead to lack of clarity. For future research, this approach will be used to derive design recommendations and improve the current large public display design for intercultural user groups with the focus on using the display as socio-technical device to train the individual's intercultural competence.

A Appendix: Design Recommendations and their Assignment to Cultural Dimensions

The following table displays the design recommendations from our research group and their assignment to the respective cultural dimension with either high or low expression. Each recommendation contains a letter at the end depending on the author of the original source:

- **a:** Lösch (2020)
- **b:** Nutsi (2018)
- **c:** Ott (2018)
- **d:** Lippert (2020)

#	Cultural Dimension	High/Low	Design Recommendation (DR)
DR01	Individualism VS Collectivism	Low	When choosing the input modality, consider the phase in the interaction process in which it will be used. (a)
DR02	Individualism VS Collectivism	Low	Attach the visual stimuli to a virtual representation of the user to address and support each user individually in the multi-user scenario. (a)
DR03	Individualism VS Collectivism	Low	The socio-technical integration of the various devices is established on the one hand via the common context of use and on the other hand via the technical integration of the underlying IT systems. When designing a large-screen application, care should be taken from the initial stages to ensure that the additional user interfaces fit synergistically into the interspace and complement the interface portfolio of collaborative knowledge processes with specific semi-public use cases instead of cannibalizing existing systems. (c)
DR04	Individualism VS Collectivism	Low	A multi-user large wall display application should offer multiple independent entry points. (b)
DR05	Individualism VS Collectivism	High	Avoid repetition in the sequential use of visual stimuli and allow the user to discover something new about the application with each new stimulus. (a)
DR06	Individualism VS Collectivism	High	Interactions of one user should not have an unintended disruptive influence on the interactions of others. (b)
DR07	Individualism VS Collectivism	High	Deployment in highly exposed locations should be avoided. Ideal are places where people often pass by and wait. (b)
DR08	Individualism VS Collectivism	High	To ensure a Minimum Viable Information Space, an opt-out process may be preferable to an opt-in by social actors. (c)
DR09	Individualism VS Collectivism	High	Users should be able to control the display of personal data on a large wall display and sensitive data should not be requested. (b)

#	Cultural Dimension	High / Low	Design Recommendation (DR)
DR10	Individualism VS Collectivism	High	Visual differentiation strategy: When there are several users, it is no longer possible for new actors to differentiate which system interaction was caused by which actor. To avoid this, [...] the visualization of the respective personal territory as a "user zone" can help (cf. Section 4.4.5). In multi-user scenarios, system interactions of the actors [...] can be distinguished by different colors of the [...] chronologically generated user zones [...]. (c)
DR11	Individualism VS Collectivism	High	Personal workspaces should be flexible in both their placement and size by the user. (b)
DR12	Individualism VS Collectivism	High	The entry paradigm of the avatar effect should be considered to make individually relevant content easily accessible. (c)
DR13	Individualism VS Collectivism	High	Viewers and users of a large wall display application take on different roles, each with different requirements. The application should specifically support these roles. (b)
DR14	Individualism VS Collectivism	High	In a multi-user application, modal elements should be avoided. (b)
DR15	Individualism VS Collectivism	High	Content should be able to be copied or shared with other users. (b)
DR16	Individualism VS Collectivism	High	The use of sounds, output on loudspeakers, is suitable for joint exploration on the large wall display, but not for focused, individual work. A volume adapted to the environment must be selected. (b)
DR17	Indulgence VS Restraint	High	Make the overlap of the application's focus and nimbus with the path of passersby as large as possible, so that interactive stimuli are visible for as long as possible in their periphery by passersby. (a)
DR18	Indulgence VS Restraint	High	Keep the difference between the focus and the nimbus of the installation as small as possible, so that interactive stimuli are already visible when passersby first look at the display. (a)
DR19	Indulgence VS Restraint	High	Playful elements that allow relevant information to be "discovered" by chance should be considered conceptually. (c)

#	Cultural Dimension	High / Low	Design Recommendation (DR)
DR20	Long-Term Orientation	Low	The data integration from the source systems should be designed in such a way that new InfoRep are visible as immediately as possible. (c)
DR21	Long-Term Orientation	High	New features should not be rolled out all at once, but in small packages on a regular basis to promote the curiosity effect. (c)
DR22	Long-Term Orientation	High	Ensure user attention before presenting stimuli with information content that changes over time. (a)
DR23	Long-Term Orientation	High	In semi-public permanent use, regular cleaning cycles for touchscreens should be scheduled, if necessary several times a day. (c)
DR24	Masculinity VS Femininity	High	Reasonable deployment locations should be designed so that the context of use integrates energetically with other activities. (c)
DR25	Masculinity VS Femininity / UA	High	Feedback must be immediate and it must be clear which user triggered feedback. It also serves awareness in multi-user interactions and should convey who controls which part of the application at what time. (b)
DR26	Masculinity VS Femininity	Low	Guide the user with the help of impulsive stimuli when a hurdle to be overcome is particularly large, and otherwise allow free exploration of the application based on permanently available informative stimuli. (a)
DR27	Masculinity VS Femininity	Low	Use physical stimuli to expand the focus and nimbus of the installation and break down barriers. (a)
DR28	Masculinity VS Femininity	Low	For successful multi-user interaction, directly interacting users should have awareness information displayed regarding the activities of others in their workspace. (b)
DR29	Masculinity VS Femininity	Low	To ensure that content can be read from a distance even when it is obscured, a dynamic text display is recommended. Here, the text should be moved horizontally across the screen at a display rate of 100 to 115wpm. (b)
DR30	Masculinity VS Femininity	Low	Textual content of a large wall display application should be displayed in different font sizes, adapted to the distances of the local situation. (c)
DR31	Masculinity VS Femininity	Low	Use the moment of attention after a user interaction to present visual stimuli in a highly perceptible way. (a)

#	Cultural Dimension	High / Low	Design Recommendation (DR)
DR32	Power Distance	High	Choose the screen size to fit both the intended number of users and the type of interaction. For simultaneous interaction of at least two people, the wall screen should have a minimum size of 65". (b)
DR33	Power Distance	High	There should be sufficient free space in front of and next to the large wall display. (b)
DR34	Power Distance	Low	Structurally fixed barriers must be considered when choosing an installation site due to the inability to influence the system design. (c)
DR35	Power Distance	Low	Interior architectural barriers, on the other hand, can usually be actively co-designed in the course of the deployment of a large wall display, e.g. in order to deliberately shade certain areas or to set up "comfort spaces" for "protected" observations by spectators. In order to [...] create a digital-virtual participation opportunity in collaborative knowledge processes, the addition of a Distributed Display Environment (DDE) to the setting can make sense. (c)
DR36	Power Distance	Low	Artificial pathway barriers should be avoided as much as possible within the perceptual zone, unless they serve to channel the flow of users, such as deliberately "leading" them laterally into the active zone, because they can interfere with enticement. (c)
DR37	Power Distance	Low	To avoid coverage by other users, content should be partially displayed above head height. (b)
DR38	Uncertainty Avoidance	High	Display and clearly clarify linkage of objects and positioning within the information structure. (d)
DR39	Uncertainty Avoidance	High	Automatic cleanup, restrictions, and a customizable level of detail help maintain the clarity of a multi-user application. (b)
DR40	Uncertainty Avoidance	High	User influence on the displayed particularity and scaling of the current level of detail. (d)
DR41	Uncertainty Avoidance	High	Combination of detail and distance displays: [...] the system interaction of an actor to the detail display should not negatively affect the distance perception and consequently the peripheral information supply of other actors. (c)
DR42	Uncertainty Avoidance	High	Control functionalities should be freely positionable, either multiple or duplicable. Controls with global effect are an exception. (b)

#	Cultural Dimension	High / Low	Design Recommendation (DR)
DR43	Uncertainty Avoidance	High	InfoRep should be designed generically, but including the content context and with particle type specific components as preview. (c)
DR44	Uncertainty Avoidance	High	Enable individual assessment and classification by displaying context and environmental variables. (d)
DR45	Uncertainty Avoidance	High	Additionally complement objects' visualization by proactive and interaction-independent representations. (d)
DR46	Uncertainty Avoidance	High	Objects' representation with current or virtual content relevance for the potential user of the system. (d)
DR47	Uncertainty Avoidance	High	Test cases should be designed to emulate real user behavior, such as first-use feature testing. (c)
DR48	Uncertainty Avoidance	High	The application should be intuitively controllable and convey that the risk for social embarrassment is low. (b)
DR49	Uncertainty Avoidance	High	The large wall display application should be intuitive to use, and advanced functionalities should be discoverable step by step. Observing other users should also provide interaction possibilities. (b)
DR50	Uncertainty Avoidance	High/Low	Based on the level of awareness and complexity of an interaction opportunity in the context of the application, decide how much support users need to execute it. (a)
DR51	Uncertainty Avoidance	High/Low	Use stimuli sequentially to address the different hurdles in the exploration process one at a time. (a)
DR52	Uncertainty Avoidance / MAS	Low	Various strategies exist for preventing conflicts. However, it is advisable not to exclude all possible sources of conflict in an application, since conflicts can trigger positive effects (e.g., communication, awareness). (b)

Table I: Overview of Design Recommendations of Large Public Displays assigned to Cultural Dimensions.

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