Knowing what Learners Like – Developing a Cultural Sensitive Peer Assessment Process in MOOCs

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Abstract. MOOCs attract learners from various cultural backgrounds with differing educational beliefs and learning preferences. Research has long acknowledged that culture has an impact on the adoption and use of information technology. Cultural differences can cause conflicts, especially when learners provide each other with feedback during the peer assessment process. With this paper, we use a design science approach to create a cultural sensitive peer assessment process in MOOCs. Based on Hofstede's cultural dimension theory we derive design elements and evaluate them in a qualitative and comparative study with Swiss and Chinese students. Our results show that different cultures prefer different designs. Consequently, our key contribution is the practical elaboration of design elements, which can be integrated in MOOCs to provide a better learning experience. Further, we contribute to cross-cultural theory by using an existing framework and adapting it to a new and relevant phenomenon: MOOCs.

Keywords: Massive Open Online Courses, design science research, culture sensitive peer assessment procedure, Hofstede's cultural dimension theory

1   Introduction

The number of university enrollments is growing worldwide. This development results from two main reasons: First, the globalization leads to an opening of the formal education system and an increasing participation of people from all over the world, including developing countries. Second, as technology is changing in unpredictable ways, people are forced to constantly pick up new skills to meet the changing demands of the global job markets [1]. Many routine-job specific tasks can already be substituted by machines, leading to an increasing demand for higher education and "foundational skills", which computers find harder to learn, like creativity, problem solving and empathy. The increasing demand for higher education as well as the changing demands of the global job markets present severe challenges for universities. Curriculums are rigid, non-modular and changes are expensive and associated with institutional obstacles. Due to the changing needs and requirements of the educational system, a promising alternative and a game changer how we perceive

and experience education has evolved: the so-called Massive Open Online Courses (MOOCs). MOOCs provide mostly free educational opportunities in terms of open access online courses to a massive number of learners [2]. In contrast to formal education, learners can choose courses based on their specific needs and create a modular and flexible learning experience. The additional benefits of accessibility and low costs lead to massive participation rates, in some cases over 250,000 learners per course. This leads to immense scalability challenges, especially as MOOCs do not only impart factual knowledge but also encourage learners to apply higher order thinking skills. For this purpose, peer assessments are widely used. This procedure is promising as it not only overcomes the scalability challenges in a MOOC but also improves the learning experience for MOOC participants due to the dual role responsibility of learner and assessor [3]. However, research has long acknowledged that cultural differences can inhibit the successful use of information technology and its acceptance [4]. Especially the case of peer assessment in MOOCs, which directly connects learners from various cultural backgrounds, is challenging as learners have different culturally embedded learning preferences and educational beliefs, which might affect the acceptance of peer feedback. For example, in China it is common to only receive feedback, and in particular criticism, from higher ranking people. In Switzerland there is more interdependence between less and more powerful people.

To provide a better quality learning experience for all learners, instructional designers of MOOCs are required to cautious study the learning and design preferences of different cultures to deliver culturally sensitive instructions for the peer assessment process. Accordingly, in our research, we try to answer the following research question:

> *How should peer assessment in MOOCs be designed to enhance the*
> *learning experience by considering cultural differences among learners?*

To do so, this study follows a design science research (DSR) methodology [6]. After reviewing existing theory and research about MOOCs, web-based peer assessments and the cultural dimension theory of Hofstede [5] we build a problem formulation. We then use the requirements from scientific literature to derive objectives for our solution. Based on the objectives, we develop design elements for a cultural adapted peer assessment. In a next step, we empirically evaluate these design elements through a qualitative and comparative study in the form of semi-structures interviews with Swiss and Chinese students. Accordingly, this study has practical as well as theoretical contributions. First, our key contribution is the practical elaboration of cultural sensitive design elements, which can be used by instructional designers of MOOCs to enhance the peer assessment procedure. Second, we contribute to the existing theory of cross-cultural research by adapting an existing framework to the specific case of peer assessments in MOOCs.

2 Theoretical Background

2.1 Massive Open Online Courses (MOOCs)

In order to operate with a concrete idea of what MOOCs are, it is helpful to discuss the concerned term in advance. Since the occurrence of MOOCs is a relatively new phenomenon there is no commonly accepted definition. However as stated already in the term MOOC, most definitions share four main characteristics:

MASSIV(LY): the capacity of a MOOC expands to large number of learners. While most courses have some hundred enrolled participants some courses reached over 150,000 registrations. [7]

OPEN: MOOCs can be accessed by anyone with an Internet connection. They provide a learning experience to a vast number of learners around the globe regardless of their location, age, income, ideology and level of education, without any requirements, or courses fees to access high quality education [2].

ONLINE: Courses are readily accessible via Internet connection. However, in some variations of MOOCs, so called blended MOOCs, learners have the possibility to face-to-face meetings, on top of the online interaction [7].

COURSES: MOOCs provide a coherent learning sequence with integrated learning material and formative assessment [8]. They are provided by international institutes of informal as well as formal education [9].

The current literature categorized MOOCs based on their underlying learning theories. Two main types are existent: "cMOOCs" and "xMOOCs". Connectivist MOOCs (cMOOCs) put a strong emphasis on communication between the participants. They promote self-organized learning trough networked learning environments and social learning processes. The teacher's role is limited and knowledge is created through interaction between learners. In Extension MOOCs (xMOOCs) learning objectives are pre-defined and courses resemble traditional courses whereas teachers share their knowledge through lectures [10][11].

2.2 Peer Assessments in MOOCs

In general, peer assessment is defined as an arrangement in which individuals consider the amount, level, value, worth, quality or success of the products or outcomes of learning of peers of similar status [12]. The case of peer assessments in MOOCs involves some unique challenges. First, the issue of scale. The peer assessment procedures need to be scalable to class sizes of tens or hundreds of thousands learners, allocate a balanced workload across the participants and provide reliable and accurate assessment. For every submitted assignment there is a pool of thousands of potential assessors. The logistics of linking reviewers and assignments involves technical as well as instructional challenges. To increase the reliability of ratings different probabilistic models of peer assessment are currently tested. Involving statistical models in the allocation process of peer assessments provide a certain compensation for grader idiosyncrasies [13]. Second, there is no instructor mediation, supervision or guidance. Peer assessments can be a learning process in

itself as seeing a learner's work from the perspective of an assessor can be an effective instructive experience. However, the dual role responsibility of being a learner and assessor might bring up multiple challenges for the MOOC participants. Further, without supervision, MOOC participants might feel a lack of obligation to assess their peers effectively. Effective assessment involves reliability – giving accurate and error-free feedback to a learner's work – and has to be clearly articulated [14]. Third, the audience of learners in MOOCs is international. Peer assessors have different native languages, cultures and worldviews [15]. Depending on their culture, learners have differing educational beliefs, which affect their preferences regarding giving as well as receiving feedback.

2.3   Hofstede's Cultural Dimension Theory

Although other researchers have made substantial contributions to the understanding of the concept of culture, Hofstede's framework is the most influential of cultural classifications. Hofestede [5] was able to identify 'majority preferences' which result of the way children are brought up in a society and condensed them in five dimensions: (1) Power Distance, (2) Individualism vs. Collectivism, (3) Masculinity vs. Femininity, (4) Uncertainty Avoidance and (5) Long Term Orientation.

Power Distance describes the extent to which members of a society accept that power is distributed unequally. Societies with large power distance accept hierarchical orders in which every person has a place. In countries with low power distance people demand justifications for inequalities and strive to equalize the distribution of power within the society. In Individualistic cultures only loosely knit social frameworks are existent and people are expected to take care only of themselves and their immediate families. In contrast, in collectivistic cultures tightly knit frameworks in society are existent and people can not only rely on their relatives but also expect members of a particular in-group to look after them. Masculine cultures value achievement and success. Society in general is more competitive. The dominant values for feminine cultures are cooperation, caring for others and quality of life. Society in general is more consensus-oriented. Uncertainty avoidance describes the extent to which people of a society feel threatened by ambiguity and uncertainty. Countries with strong uncertainty avoidance tend to rigid codes of belief and behavior and are intolerant of unorthodox behavior. Countries with weak uncertainty avoidance, maintain a more relaxed attitude in which practice counts more than principles. Countries with long-term orientation hold a future-orientated perspective. They encourage thrift and efforts in modern education as a way to prepare for the future. For countries with short-term orientation the near term point of view is the prominent perspective. They prefer to maintain time-honored traditions and norms while viewing societal change with suspicion [5].

3 Research Method

The main goal of this study is to develop and define design elements that support cultural sensitivity of the peer assessment process in MOOCs. To do so, we followed a DSR approach [6]. After the problem identification, we identified challenges in the current design by analyzing the MOOC platform Coursera and derived objectives of a solution. We completed three MOOCs: Modern Art & Ideas (The Museum of Modern Art), Leading Innovations in Arts and Culture (Vanderbilt University) and Coursera Mentor Community and Training Course (Coursera Community Team). We chose Coursera, based on its high popularity, amount of courses and amount of students. We defined five areas of the peer assessment eligible for cultural adaptivity and created different design solutions for all those areas that are subject to cultural preferences. These solutions are inferred in close reference to the literature, in particular Hofstede's cultural dimension theory [5]. For evaluating our design elements, we conducted 16 semi-structured interviews with 8 randomly selected participants from Switzerland and 8 randomly selected participants from China to evaluate whether the developed design elements correspond to the learners' preferences in practice. All participants had prior experiences with peer assessments. However, only 4 of the Chinese and 3 of the Swiss participants completed a peer assessment process in a MOOC. Therefore, prior the interviews, we elucidated the procedure of the peer assessment in Coursera to ensure a consistent level of knowledge about the process. The age ranged from 19 to 27 (mean 24.19; mean Swiss 23.50; mean Chinese 24.88). We chose this approach for our inquiry as qualitative research designs have been shown to be particularly well suited to analyze dynamic, interactive processes [16]. Further, we decided to interview Chinese and Swiss students as the coherent cultures inhibit major differences and therefore offer a firm base for a comparative study. Prior the interviews, we asked the participants to fill out the Value Survey Model [17] to evaluate if the participants of both sample groups correlate with the official scores of their relating country, published by Hofstede. The Value Survey Model is a 30-item questionnaire for comparing culturally influenced values and sentiments of similar respondents from two or more countries. The following table gives an overview of the VSM data of the participants of this study and the official scores published by Hofstede in brackets.

Table 1. VSM Data

VSM Data	Chinese	Swiss
Power Distance	48,50 (80)	16,88 (34)
Individualism vs. Collectivism	21,88 (20)	43,75 (68)
Masculinity vs. Femininity	52,50 (66)	30,63 (70)
Uncertainty Avoidance	61,88 (30)	65,00 (58)
Long Term Orientation	82,50 (87)	70,00 (74)

The scores do not perfectly match with the official country scores published by Hofstede. This has several reasons: First our sample groups represent a specific population group of these countries as we interviews students. Further, our sample groups are relatively small and answers also reflect other characteristics than culture,

e.g. gender and age. However, the tendencies are recognizable. In particular, and of most importance for this study, the differences of cultural values between the Swiss and Chinese are visible. Afterwards, all participants received the interview guidance with explanations of the aim of this study, the aim of the interview, background information about MOOCs and the peer assessment process in MOOCs and the following 25 open-ended interview questions. The interview questions are divided into six categories. The first set of questions target to get a deeper understanding of the participant's general perception of peer assessments. The following five categories question on the participants' preferences regarding the prior defined design elements. During the interviews, we asked for both roles, reviewer and reviewee. The interview ended with collecting information about the participant's current country of residence, age, gender, educational background and current nationality as well as nationality at birth. On average, the interviews took 30 minutes. For the analysis we prepared written transcripts of all interviews and looked at the text data, seeking correlations in descriptions of the participants' preferences regarding the peer assessment process in MOOCs.

4 Towards Designing and Evaluating Peer Assessment Design Elements

Following the DSR process, the first activity emphasizes the problem identification. The second activity contains the definition of objectives for a solution. Activity 3 contains the design and development of artifacts. Activity 4, demonstration, and 5, evaluation, are implemented in the empirical part of this study.

4.1 Problem Identification

MOOCs attract learners from all over the world. However, so far MOOC providers do not consider cultural differences of their customers. Research has long acknowledged that cultural differences can inhibit the successful use of information technology [4]. To prevent learner rejection and fluctuation, MOOC provider should consider cultural differences. This is especially important during the peer assessment, as this process directly connects learners from various cultural backgrounds.

4.2 Definition of Objectives

During a typical peer assessment in Coursera learners are requested to complete an assignment and submit it online. Each assignment is then distributed to three randomly selected fellow learners. Each fellow learner then rates the assignment based on pre-specified scoring rubrics and is requested to provide further feedback in the form of written comments. The mean score of all ratings as well as the written comments are then made available to the learner who submitted the assignment [15]. The multicultural nature of MOOCs leads to individual and collective enrichment. However, cultural differences among the learners also provide challenges for

instructional designers. First, the acceptance of feedback: Referring to the dimension of power distance, it is questionable to what extent learners accept the received feedback from their peers, especially if the feedback involves criticism. In cultures with high power distance, students expect the teacher to outline paths. Status in important and hierarchies are well accepted [5]. At the moment, Coursera does not offer any information to learners about their peer reviewers. However, especially learners from cultures with high power distance might prefer to have more information. Second, group dynamics: Group dynamics appear very different in collectivistic and individualistic cultures. Whereas collectivistic cultures put a strong emphasis on social networks, harmony and the preference of small group belongings, individualistic cultures tend to focus on individuals [5]. During the peer assessment process in Coursera the learner's assignment is randomly distributed to three different reviewers. If the learner has to complete multiple assignments involving peer assessments, the reviewers will change during the course. The current allocation process neglects collectivistic values like the preference of small group belongings. Third, competition and comparison between learners: Whereas feminine cultures tend to avoid situations, which distinguish clear winner and losers, masculine cultures put emphasis on achievement and success [5]. The results of the peer assessment in Coursera are shown as percentage. However there is no information about the performance scale of the course. Competitive learners have no opportunity to set their performance in relation to the performance of the other MOOC participants. Fourth, Instruction: In cultures with weak uncertainty avoidance learners feel comfortable in unstructured learning situation whereas learners from cultures with strong uncertainty avoidance tend to prefer structured learning situations [5]. Learners from cultures with high uncertainty avoidance might prefer strict instructions how to assess their peers' assignments, whereas learners from cultures with low uncertainty avoidance might feel more comfortable with more freedom regarding the assessment process. At the moment Coursera offers rubrics for assessment to ensure uniform and consistent reviewing and ask the reviewer to provide additional qualitative feedback. Fifth, interaction between learners: The need for interaction might vary between learners from different cultures. Cultures with long-term orientation believe that truth depends on context and situations [5]. Thus, learners from those cultures might prefer the opportunity to discuss an assignment and the peer feedback to gain a deeper understanding of the context. At the moment, Coursera does not offer the opportunity for interaction between learners during or after the peer assessment process. Discussion does solely take place in the discussion forums, open and visible for everyone.

4.3   Design and Development

Addressing the discussed areas of the peer assessment process eligible for adaption, the following section deduces design elements for a cultural sensitive peer assessment process. It should be noted that the deduced design elements refer to the process of the peer assessment and are not design elements of the user interface. First, to address the acceptance of feedback, the peer assessment process needs to include information

about the reviewers. The information might include basic information such as name, age as well as the educational background and relevant work experience (DE1). Second, to address differences in group-dynamics, learners should have the option to keep the same reviewer during a course to meet the preferences of small group belongings of collectivistic cultures (DE2). Third, to give competitive learners the opportunity to set their performance in relation to the performance of other MOOC participants, the results of the peer assessments should be made comparable, for example on a grade-scale (DE3). Fourth, to meet the need for instructions, especially in high uncertainty avoidant cultures, MOOC providers should consider the inclusion of a more extensive support in the form of more information and instructions on how to give feedback during the peer assessment process (DE4). Finally, learners should be offered the opportunity to discuss their assignments and received grades. It should be considered to include the opportunity of private messages with reviewers after the assessment is done (DE5).

Table 2. Design Elements and their inherent cultural dimension

Design Element	Dimension
DE1: Profile Information	Power
Learners from cultures with high power distance prefer to have information about their reviewer whereas learners from cultures with low power distance prefer anonymity.	Distance
DE2: Group Dynamics	Individualism
Learners from collectivistic cultures prefer to keep the same reviewers during the duration of a MOOC whereas learners from individualistic cultures prefer to change reviewers.	vs. Collectivism
DE3: Competition and Comparison between Learners	Masculinity
Learners from masculine cultures prefer to receive grades instead of "passed/failed" and see a scale of their performance in relation to the performance of their fellow learners.	vs. Femininity
DE4: Instructions	Uncertainty
Learners from cultures with high Uncertainty Avoidance prefer to have detailed instructions for the peer assessment process in a MOOC, whereas learners from cultures with low Uncertainty Avoidance prefer to have more freedom how to review their peers.	Avoidance
DE5: Interaction between Learners	Long Term
Learners from cultures with Long Term Orientation prefer to interact with their reviewers and rate their received feedback.	Orientation

5   Results

To evaluate our theory derived design elements for a cultural sensitive peer assessment we asked the 16 participants of this study about their preferences. The following table summarizes our findings.

Table 3. Comparison of Swiss and Chinese Preferences

DE	China	Switzerland
1	Preference for Information: 7 (87,50%)	Preference for Information: 1 (12,50%)
	Preference for Anonymity: 1 (12,50%)	Preference for Anonymity: 7 (87,50%)
2	Keep the same Reviewers: 3 (37,50%)	Keep the same Reviewers: 0 (0%)
	Change Reviewers: 5 (62,50%)	Change Reviewers: 8 (100%)
3	Preference for Grades: 7 (87,50%)	Preference for Grades: 6 (75%)
	Preference for Scale: 8 (100%)	Preference for Scale: 7 (87,50%)
	Preference Passed/Failed: 1 (12,50%)	Preference Passed/Failed: 1 (12,50%)
	Preference for No Scale: 0 (0%)	Preference for No Scale: 0 (0%)
4	Preference for Instructions: 3 (37,50%)	Preference for Instructions: 4 (62,50%)
	Preference for Freedom: 5 (62,50%)	Preference for Freedom: 4 (37,50%)
5	Preference for Interaction: 6 (85,71%)	Preference for Interaction: 3 (37,50%)
	Rate the received Feedback: 8 (100%)	Rate the received Feedback: 7 (87,5%)
	Preference no Interaction: 1 (14,29%)	Preference no Interaction: 1 (14,29%)
	No Rating of received Feedback 0 (0%)	No Rating of received Feedback 0 (0%)

6   Evaluation

The aim of this study is to investigate how to design a cultural sensitive peer assessment process in MOOCs to enhance the learning experience for all learners. For this purpose, we used Hofstede's cultural dimension theory [5] to deduce theoretically driven design elements and evaluated these design elements on their validity in practice through a qualitative study with Swiss and Chinese students. We claimed that culture has an impact on design preferences of the peer assessment procedure in MOOCs. On the one hand, our results confirm that learners from different cultures have varying design preferences. However, some design elements did not confirm with the requirements derived from scientific literature.

Considering DE1, profile information, the results show clear differences in design preferences. Whereas Swiss students stated they prefer anonymity, Chinese students prefer to have more information about their reviewers in a MOOC. As one Chinese participant states: *"Yeah, I prefer to get more information about the peers. I don't care about the name but I really care about his background and his major, or experience, because I want to know what kind of person... Because I want to know if I can get some connection between he or she and me. If he can make a judgment."* Based on the cultural dimension theory these differences can be explained through the strong power distance in Chinese culture, as less powerful people should be dependent and therefore not entitled to criticize and in this case even assess the performance of more powerful people. DE2, group dynamics, does not confirm in our study. We hypothesized that, because of collectivistic values like the importance of group belongings, Chinese MOOC participants prefer to keep the same reviewers during the duration of a course. However, only 37,5% of the participants stated they prefer to keep the same reviewers whereas 62,5% stated they prefer change. Most of

the participants indicated that they value diversity of opinions over the development of relationships. As one Chinese participant quoted: *"I think this is a way to have me learn more how people evaluate my work. Different people's opinion might be different from each other. I think it's earning things from experience from the evaluation from different people."* Although the majority of Chinese students stated to prefer differing reviewers during a MOOC, there are still noticeable differences to Swiss students. Whereas all of the Swiss students (100%) claimed to prefer to change reviewers frequently, some Chinese students also considered the advantages of keeping the same reviewers. As one participant claimed: *"Oh yeah, I think it's a question of consistency. So I think to have the same reviewers all through the course is better."* Future research will need to execute a deeper analysis of this design element to evaluate its significance. Considering DE3, competition and comparison between learners, we hypothesized that the participants from both countries prefer to have distinct grades and the opportunity to compare their performance. Based on our results, this holds true in practice. Both countries have similar scores on Hofstede's cultural dimension "masculinity vs. femininity" which conduce as explanation for the similarity in preferences. Participants from both countries predominantly valued the opportunity to set their performance in relation to the performance of their peers as one Swiss participant stated: *"I think that would be really helpful. Sometimes just having a number doesn't really tell you what this number means. So if you have something to compare you with that can be very useful."* Considering DE4, instructions, we hypothesized that learners from countries with high uncertainty avoidance prefer to have stricter instructions on how to give feedback during the peer assessment in a MOOC. Our data confirms this assumption. The majority of Swiss participants stated they prefer to have strict instructions how to review their peers in a MOOC as this quote demonstrates: *"I think strict instructions are useful because they imply consistent evaluations which are not subjective."* In contrast, the majority of Chinese participants valued freedom during the peer assessment process. The preferences are congruent with the cultural dimension theory [5]. Strong uncertainty avoidance implies an emotional need for rules expressed by the desire for more instructional support on how to do the peer assessment process in MOOCs. Weak uncertainty avoidance manifests in dislike of rules and the Chinese participants are more comfortable with weak instructional support. When having a closer look at what instructions the participants perceived as valuable, it is noticeable that the Swiss participants predominantly value support how to assess the content of the peer's assignment leading to a consistent and fair evaluation process. The Chinese participants emphasized that there might not be one best answer and that, for example a single best-case solution is not enough. They prefer support which aspects they should consider in their evaluation for example through multiple cases and multiple sample answers for comparison. One Chinese participant said: *"Maybe just a best practice. Oh, or maybe, yeah I know that. So maybe a best practice from like different point of views. So not just one, maybe we can have couple of it."* From a theoretical point of view, these differences can be explicated by the tolerance of deviant ideas and ambiguity, resulting from weak uncertainty avoidance in the Chinese culture. Finally, our results show that DE5, interaction between learners, holds partially true in

practice. We hypothesized that learners from long-term orientation cultures prefer the opportunity to rate the received peer feedback in MOOCs. Our data confirms this assumption. Most participants stated they believe this opportunity will lead to more efficient peer assessments. As one Chinese participant stated: *"Yeah I think this can help, like to make the evaluator to evaluate others more fairly."* This belief can be explained by the desire for accountability, honesty and self-discipline in cultures with long-term orientation [5]. However, the majority of Swiss participants stated that they don't value the opportunity to further interact with their reviewers. Despite main work values like learning and perseverance in long-term orientation cultures the Swiss participants predominantly emphasized the increased workload and the risk of manipulation through the opportunity of direct and anonymous interaction between peers after and in particular during the assessment. As one Swiss participant said: *"I think anonymity is good because otherwise it is an immense effort to personally discuss with the peers and as I said I strictly prefer anonymity during the whole thing and to discuss personally would be contradictory."*

7   Limitations and Future Research

The conducted analysis exposes a high research potential in various further areas. First, the participants only represent two countries, China and Switzerland. Future research needs to compare more countries to gain a better understanding how design preferences evolve and consequently develop general solution concepts for different cultures. Further, future research needs to quantitatively examine the impact of the developed design elements on the learning experience of MOOC participants. This study offers valuable contributions for theory and practice. However, we should note possible limitations. Nations might not be the best units for studying cultural differences, as they do not produce groups of people with uniform codes of behavior. For example, a Swiss person who spent couple of years in Australia might inhibit a mixture of both cultures.

8   Conclusion

With this study, we developed design elements to create a cultural sensitive peer assessment process in MOOCs. First, we used the Hofstede's cultural dimension theory [5] to identify areas of the peer assessment process eligible for adaption. Second, we derived theory driven design elements for a cultural sensitive assessment. Finally, we conducted a qualitative and comparative study with Swiss and Chinese students to evaluate the validity of the design elements in practice. The results show that differences in design preferences exist and the data we derived from practice appeared to be similar to those derived from theory. We contribute to the existing theory of cross-cultural research by adapting an existing framework to the specific case of peer assessments in MOOCs. Further, our key contribution is the practical illustration of how to adapt the peer assessment process in MOOCs for a cultural sensitive assessment process. Referring to the system MOCCA [18], which presents

the first system that is able to automatically adapt its interface to the preferences of users of any national culture [18], instructional designers could develop different versions of the peer assessment process according to different combinations of cultural dimension scores. This approach would lead to a peer assessment process that adapts itself to the learners' cultural preferences rather than having the user to adapt to a more or less standardized interface.

References

1. The Economist.: Lifelong learning is becoming an economic imperative. (2017)
2. Yousef, A., M. Chatti, U. Schroeder, M. Wosnitza, and H. Jakobs: MOOCs: A Review of the State-of-the-Art. Proceedings of 6th International Conference on Computer Supported Education–CSEDU, Barcelona, Spain (2014)
3. Kulkarni, C., Wie, K. Le, H. Chia, D., Papadopoulos, K., Cheng, J., Koller, D. Klemmer, S.: Peer and self assessment in massive online classes. Design thinking research. Springer International Publishing, 131-168 (2015)
4. Leidner, D. E., Kayworth, T.: A review of culture in information systems research: Toward a theory of information technology culture conflict. MIS quarterly 30.2, 357-399 (2006)
5. Hofstede, G., Hofstede, G.J.: Cultures and organizations: Software of the mind, revised and expanded (2nd ed.). New York: McGraw-Hill (2005)
6. Pfeffers, K., Tuunanent, T., Rothenberger, M. A., Chatterjee, S. A Design Science Research Method for Information System Research. Journal of Management and Information Systems (24:3), pp. 45-77 (2007)
7. Allen, I. E., Seaman, J.: Grade change. Tracking Online Education in the United States. Babson Survey Research Group and Quahog Research Group, LLC (2014)
8. Kay, J., Reimann, P., Diebold, E. Kummerfeld, B.: MOOCs: So Many Learners, So Much Potential... IEEE Intelligent Systems 28.3, 70-77 (2013)
9. Brown, M.: Moving into the post-MOOC era. 2014-04-05], http://www. educause. edu/blogs/mbbrown/moving-post-mooc-era (2013)
10. Gaebel, M.: MOOCs: Massive open online courses. EUA (2014)
11. Rietsche, R., Lehmann, K., Haas, P., Söllner, M.: The Twofold Value of IT-Based Peer Assessment in Management Information Systems Education. 13th International Conference on Wirtschaftsinformatik (WI) (2017)
12. Topping, K.: Peer assessment between students in colleges and universities. Review of educational Research, 68 (3), 249-276 (1998)
13. Piech, C., Huang, J., Chen, Z., Do, C., Ng, A., Koller, D.: Tuned models of peer assessment in MOOCs. arXiv preprint arXiv:1307.2579 (2013)
14. O'Toole, R.: Pedagogical strategies and technologies for peer assessment in Massively Open Online Courses (MOOCs). Discussion Paper. University of Warwick, Covertry, UK: University of Warwick (2013)
15. Suen, H. K.: Peer assessment for massive open online courses (MOOCs). The International Review of Research in Open and Distributed Learning 15.3 (2014)
16. Lee, T. W., Mitchell, T. R., Sablynski, C. J.: Qualitative research in organizational and vocational psychology: 1979-1999. Journal of Vocational Behavior, 55:161-187 (1999)
17. Hofstede, G., Minkov, M.: Values Survey Module 2013 manual, www.geerthofstede.eu/vsm2013 (Accessed August, 12, 2017)
18. Reinecke, K.; Bernstein, A.: Knowing What a User Likes: A Design Science Approach to Interfaces that Automatically Adapt to Culture. MIS Quaterly, 37.2 (2013)