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Managing user engagement in Virtual event platforms

Mona Seyed Esfahani*

Bournemouth University, Poole, United Kingdom.
E-mail: mseyedesfahani@bournemouth.ac.uk

Katayoun Abbasirad

Imperial College London, United Kingdom
Email: k.abbasirad@imperial.ac.uk

Abstract: Virtual platforms are considered as an innovative solution, and sometime a disruptive innovation, helping various industries to operate and interact with stakeholders and institutes to educate and inform users. Virtual conference and events have been on the rise and proved to be an effective solution in this unprecedent era. However, how the virtual event was received by users needs to be explored. Applying classical theories of user engagement, this paper aims to understand what has affected participant's level of engagement and attitude towards Virtual conferences over the last 18 months. A sample of 70 participants were recruited and two groups of antecedents of service provider and participants and their relationships with engagement and participants attitude is examined. Data analysis indicated that **perceived conference informativeness** and **perceived service quality** indicate 74% and 69% of the total variation in **user engagement** respectively and 82% and 77% of the total variation in participant's **attitude** towards virtual conferencing. This is a great insight and in contradiction to factors impacting engagement in a non-virtual environment.

Keywords: Consumer engagement, Virtual conference, Consumer behaviour

Introduction

COVID-19 had a huge impact on people daily lives. Almost all face-to-face occurring were cancelled, from doctor appointment to school. Scientific conferences were not immune from the pandemic and they were either delayed or moved to an online platform. There was a huge push for organizers to facilitate events and conferences online and for users to learn how to partake in online events. One of those conference were ISPIM, that moved to ISPIM virtual over the last 18 months. With the help of technology, running a virtual event was possible which allowed an international audience. Despite the benefits of event technologies, there were many criticisms. For instance, human contact and emotions are almost impossible to reproduce on an online platform, some formal and informal interactions were at risk and networking opportunities were limited. From organizers' perspective there was economic implications (Porpiglia et al. 2020). Over the pandemic, organizers' learning from their past event, worked towards improving online

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events and conferences to not only reach to a better financial condition, but also offer a higher quality virtual event to users. There are many factors than can enhance a virtual conference engagement, such as content quality, technology accessibility and ease of use, higher engagement and better socializing (i.e. Verbeke, 2015). This paper is taking the first step in understanding the factors effecting user engagement and attitude towards scientific virtual conferences, therefore the literature on user engagement, particularly in online environment and towards online event attendance is explored and a conceptual framework is formed to answer the research questions.

Literature Review

User Engagement

Engagement is defined as user's activities and attitude (Kappelman 1995). Haven et al. (2007) divides engagement into four components of involvement, interaction, intimacy and influence. From brand's perspective, engagement is about users' relationship with the brand (conference) and with other users. Involvement includes measurable aspects of individual's relationship, in a virtual conference context, it can be attending and spending time in the platform. Interaction is about actions, such as partaking in conversations or workshops. Intimacy is about sentiment and affection, such as showing support for the event by sharing, commenting and liking the workshops and talks in the conference. Influence, is beyond sentiment and is about the likelihood of users recommending the conference to others. It is an indication of users' loyalty and brand awareness.

Engagement is studied in various contexts. In health, engagement is about quality of user experience, categorized by increased attention, sensory and intellectual satisfaction, positive affect, and mastery (O'Brien and Toms, 2008). In human-computer interaction, Engagement is considered "a desirable- even essential - human response to computer-mediated activities" (Laurel, 1993, p. 112). Lalmas et al. (2014) explain user engagement as the quality of user experience while interacting with an online application. For learning to happen, the interface should be engaging while presenting or educating the audience (Webster and Ho 1997, Salvo 2002) and online application and platforms should be able to satisfy users' pragmatic and hedonic needs (Hassenzahl 2003).

From Brand perspective, Customer engagement is explained as customer's interaction and connection with the business and brand (Vivek et al. 2014). Customer engagement theories identified satisfaction, emotion, involvement and participation as factors influencing CE (Pansari and Kumar, 2017; Bordie et al. 2011). In branding literature, Involvement has been broken down into motivational elements by scholars (i.e. Parihar et al. 2020) in order to capture the complexity of involvement. Customer engagement improves the relationship between customer and the brand and improves purchase intention (Hsieh and Chang, 2016; So et al., 2016). If event organizers understand what the expectations of customers are, they can impact customer engagement positively (Parihar et al. 2019).

Virtual events

Events including meetings, workshops, conferences and classes have been moved extensively to online format due to COVID-19 pandemic over the past 18 months. Using advanced technologies, organizers and educators can create online platforms with different levels of complications and tools and facilities. These online platforms are cost effective, mostly easy to use and provide users with an opportunity to avoid disruption caused by COVID-19. It has also proved to be economically viable and very beneficial for organizations. Although virtual events proved to be a practical and feasible solution, but there is a long way to achieve success and profitability in this context. Ways to improve user engagement and content accessibility and quality are a few factors that need to be explored in order to achieve a successful virtual event (Julius 2020). This is hard as audience are physically distant from the venue, participants and presenters and it can make them feel disconnected which can influence user engagement. "Human contact, affections and emotions are almost impossible to reproduce on an online platform" (Porpiglia et al. 2020 p.301). Participant interaction, in particular informal interaction could be at risk and negatively effecting networking and socializing.

Examining virtual conferences, it is noticed that the virtual element implies a different framing of these events (Jose Sa et al. 2019). Scientific and academic conferences have always been a place for dissemination of science and discoveries as well as social interaction and expanding scientific networks (Edelheime et al. 2018; Verbeke, 2015; Richards, 2015; Fraser, Soanes, Jones, Jones, & Malishev, 2017). This interaction is vital to science but also scientific conferences can be used as a tool to evaluate institutions and brings about profitability (Rowe, 2018; McCulloch, 2018; Lindley, 2009; Nicolson, 2017). Although there are some models on organizing a conference, surprisingly there is little literature on how to organize an effective conference (McCulloch 2018). According to the literature, some of the motivations of attending a scientific conference can be "socializing with colleagues from other universities, trip to a possibly exotic location, experience famous keynote speakers and/or researchers; attend presentations by peers; present yourself so you become visible in the field, and converse and discuss with other researchers" (Verbeke, 2015 p. 98). In a virtual conference, one need to eliminate the trip experience altogether and think about the ways to create a platform for socializing, conversing and interacting. As explained, user engagement includes users activities and interaction, hence this paper looks into modifying existing customer engagement models to create a fit to purpose model for virtual scientific conferences. Also, according to the literature a virtual conference needs to create a high quality, social environment to encompass a feeling of being connected and informed.

Conceptual Framework

Based on the virtual conferencing literature and user engagement models, the final conceptual framework is designed. For user engagement, Short et al. (2016) addressed environmental, individual and intervention (persuasive design, usability and personal relevance) as factors influencing engagement (Figure 1). Parihar et al. (2018) broken down involvement into risk importance, risk probability, sign, interest and pleasure that are linked to customer engagement and found out that risk sign, interest and pleasure are positively associated with customer engagement (Figure 2).

Based on these models, this paper will be looking into two elements of environmental (service provider) and Individual (involvement), and their impact on user engagement and consequently attitude towards the virtual conference. Involvement has been an important factor in creating competitive advantage for companies (Prahalad and Ramaswamy 2000; Vargo and Lusch 2004). In the context of scientific conference, users' previous knowledge and expertise alongside their level of interest and experience of dealing with virtual environment are the chosen elements of involvement (i.e. Gbadamosi 2012; Parihar et al. 2018). For service provider, connectedness, informativeness and service quality have been chosen. Although some scholars studied the impact of attitude towards engagement (i.e. Parihar et al. 2018), but this framework looks into examining the impact of engagement on attitude. The reason is that the survey occurred after attending the virtual conference, hence the attitude is formed based on the existing experience of attending the conference and indicates the attitude to attend future virtual conference.

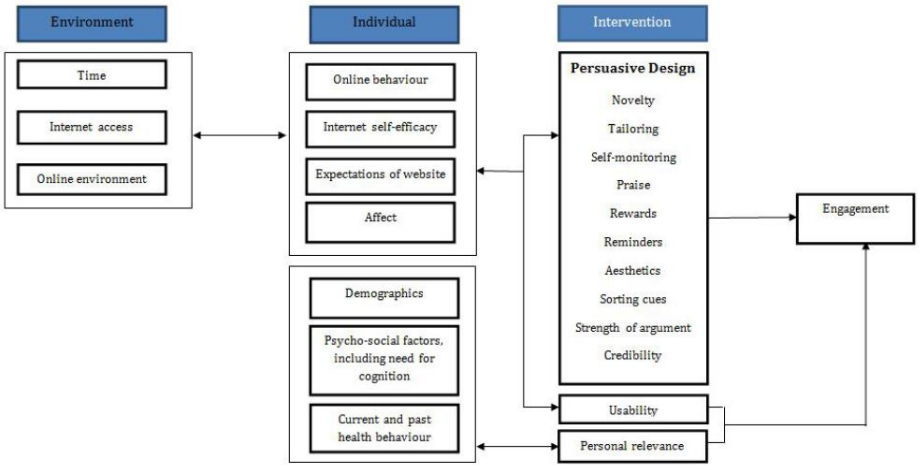

Figure 1 Short et al. (2016) engagement model

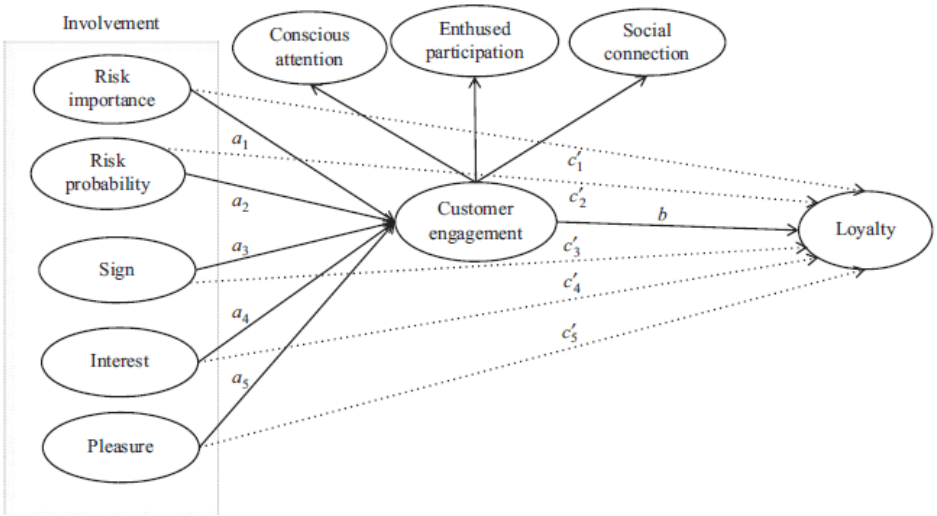

Figure 2 Parihar et al. (2018) engagement model

Based on the literature review, this research aims to answer the research questions below:

1- What is the relationship between user involvement and engagement in attending scientific virtual conferences?

2- What is the relationship between service provider's perceived attributes and engagement in attending scientific virtual conferences?

3- What is the relationship between participants' engagement and their attitude?

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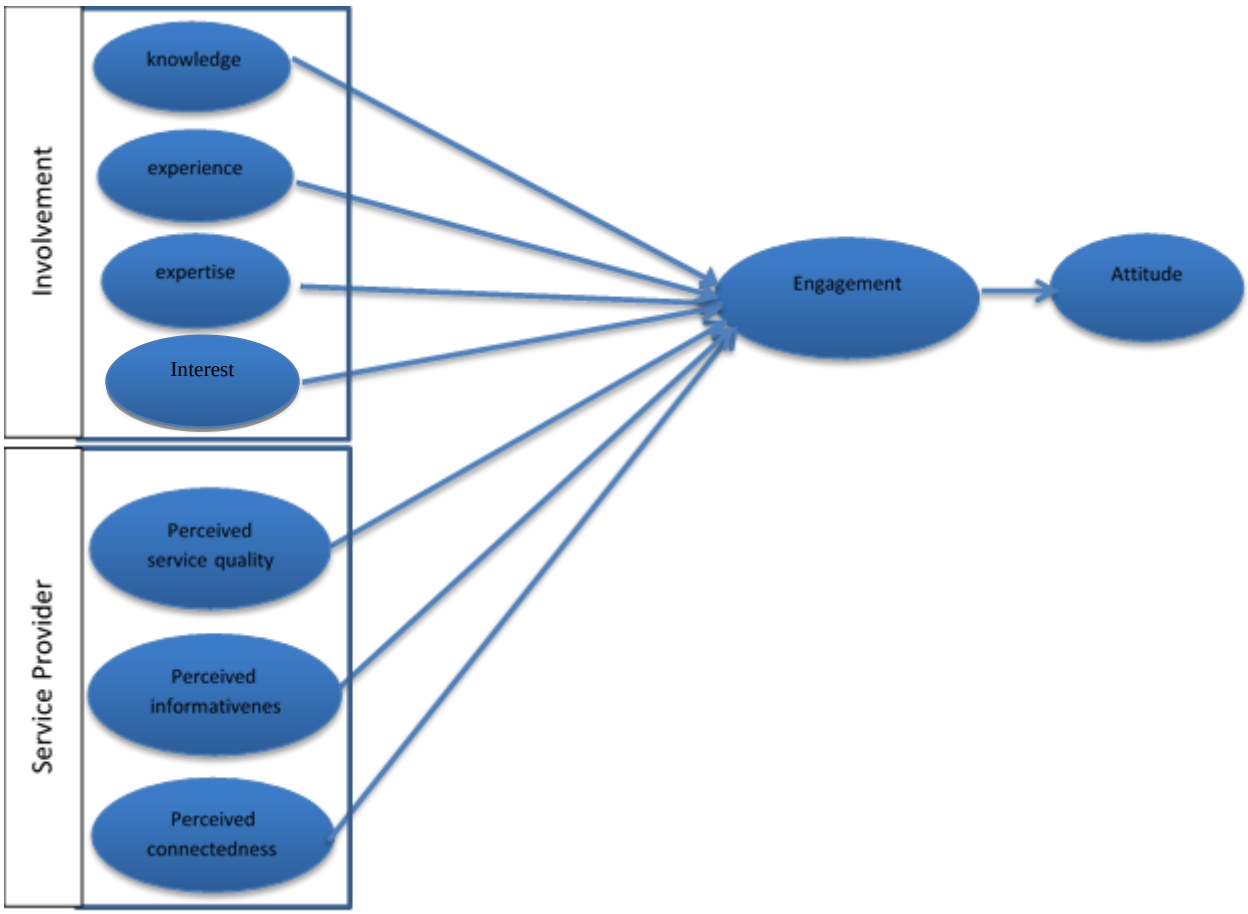

Figure 3 conceptual framework

Methodology

Research Design

The study follows a pragmatic approach and looks into answering the research questions. A mixed method approach is taken and a survey was designed with mostly quantitative questions and two open ended questions to gain a better insight into perceived benefits of the virtual conference and participants' suggestions. In the survey

design, existing validated scales were used and occasionally modified based on the context of the study. The survey was distributed amongst conference participants and so far a sample of 70 participants has filled in the questionnaire. The survey is live and we are aiming to collect a bigger sample for future exploration.

Data analysis

Regression analysis was used to analyse the dataset as the aim was to look into the relationship between variables. For open ended questions, thematic analysis is used. It is a method for identifying, analysing and reporting patterns within data and is widely used in analysing qualitative data (Barun and Clarke 2006)

Findings

Exploring the relationship between involvement and engagement, first involvement is considered as a combination of contained variables of "knowledge, experience, expertise and interest". Examining the relationship between *involvement* and *engagement*, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=8.8$, $P<.05$). However, engagement, can't be explained by the independent variable of Involvement. only 11.3% can be explained, which is insignificant.

Looking into the elements of involvement individually, for *knowledge*, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=10.9$, $P<.05$). However, engagement, can't be explained by knowledge as R square is very insignificant. Examining the relationship between participant's *experience* and engagement, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=5.6$, $P<.05$). However, engagement, can't be explained by experience as R square is very insignificant. Examining the relationship between *expertise* and engagement, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=9.29$, $P<.05$). However, engagement, can't be explained by expertise. only 11.9% can be explained, which is insignificant. Examining the relationship between *interest* and engagement, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=33.28$, $P<.05$). There is a *weak relationship* between interest and engagement and 32.5% of the total variation in engagement can be explained by interest.

Next the relationship between the elements related to the service provider of "perceived connectedness, perceived service quality and perceived informativeness and engagement is explored. Examining the relationship between *connectedness* and *engagement*, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=21.59$, $P<.05$). However, engagement, can't be explained by perceived connectedness only 23.8% can be explained, which is insignificant. Examining the relationship between *informativeness* and *engagement*, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=196.2$, $P<.05$). There is a *strong positive relationship* between perceived Informativeness and Engagement and 74% of the total variation in Engagement can be explained by perceived informativeness.

Examining the relationship between *service quality* and *engagement*, the regression model predicts the dependent variable (engagement) significantly well ($F(1,69)=151.49$, $P<.05$). There is a *moderate positive relationship* between perceived Service quality and Engagement and 68% of the total variation in Engagement can be explained by perceived Service quality.

Finally in examining the relationship between *engagement* and *attitude*, the regression model predicts the dependent variable (attitude) significantly well ($F(1,69)=185.84$, $P<.05$). There is a *strong positive relationship* between engagement and attitude and 73% of the total variation in attitude can be explained by engagement.

Thematic analysis

Looking into qualitative data, when asked about the positive elements of the virtual conference, we could pick up on five main themes, three linked to service provider's variables included in the conceptual framework.

1- Travel

There were 30% of the participants mentioned about no need to travel. There were quotes on how attending a virtual conference eliminated travelling, which was a positive factor for participants. This was linked to saving time and expenses and no need for any change in their schedule. Two quotes were about no need to arrange childcare.

2- Convenient

Convenient was expressed from a personal and service perspectives. From personal point of view, no need to travel and the stress around travelling, ease of attendance, fitting the conference around work and personal responsibilities were mentioned more.

> "it was convenient to attend the conference from the home, given that the teaching commitments are still going on at the University."

However, this needs to be explored further to see if there is a difference between genders or participants roles. From a service perspective, ability to access the virtual conference from any device, with screen turned off (no camera), accessing the content easily and ability to share and message other participants easily were amongst the main discussion points.

> "The online platform tends to promote visibility, so questions are more easily asked and viewed. Also, it is possible to attend with the screen turned off."

3- Connectedness

Although there was no significant relationship between connectedness and engagement, there were many mentions of how virtual conference helped participants connecting with other participants and like-minded people. There were quotes on conference enabling "communicating with other scholars", "wider engagement nationally and internationally" and "connect with scholars

with same interest". Many quotes were around how virtual conference enables connection with more people from diverse backgrounds. So, could the insignificant relationship be the result of a misperception on the aim of connectedness? Participants wouldn't achieve the same level of social interaction satisfaction and human connection (Porpiglia et al. 2020) so this might be the reason behind the insignificant relationship between connectedness and engagement.

4- Service quality

Service quality was mentioned over and over by almost all of the participants. There were technological elements including accessibility to the content and presentations, technological support, chat spaces, ability to share content, smooth technology, easy instruction for navigation and high quality videos and recordings. From human side of the service, having expert facilitators and support staff, fast-paced program, informative programs, engaging content, great atmosphere, family feeling, blended learning, efficiency, relaxed and supportive environment and good organization skills were mentioned mostly. As it can be seen, there is a moderate positive relationship between service quality and engagement, and it was evident from qualitative data that participants have picked up on technological and human qualities offered by the service providers and appreciated what conference provided against all the technological and personal difficulties. There were many quotes on participants appreciation that the conference actually happened, this shows an initial satisfaction on the occurrence of the event which might attributes to a positive attitude and a better appreciation of the virtual conference.

5- Informativeness

Participants expressed their satisfaction connecting with colleagues from the same field and attending thought-leader sessions and engaging, expert talks. However, only 10% of the participants made a direct quote on how informative the conference was. There were discussions around "the range of papers was great", "interesting speakers" or " good opening talk" that can indirectly refer to perceiving conference as informative. Interestingly there was a strong positive relationship between participants' perceived informativeness and their level of engagement with the conference.

Discussions

This paper is an initial investigation into factors impacting participants engagement towards virtual conference. Based on the data analysis, it was evident that amongst the elements of involvement, only '*interest'* played a role affecting participants' engagement which is in line with previous academic literature that have identified interest as a factor impacting user's engagement with scientific conference (Gbadamosi 2012; Parihar et al. 2018). Knowledge, experience and expertise didn't have a significant relationship with engagement. This might be due to the fact that the conference was facilitated well and

participants were supported. Also as expressed by participants, simple instructions were provided so perhaps this compensated for any lack of knowledge, experience or expertise attending virtual conferences. The findings also indicated the importance of service quality and perceived informativeness of the conference on participants engagement and how being engaged with the conference result into a more positive attitude towards attending future virtual conferences.

The paper recommends conference organizers to improve the quality of the conference from technology and human perspectives. It also helps if service providers highlight what is being offered in the conference, what support is available and how they are using technology to make things easy, accessible and engaging for participants. Informativeness of the event can be improved by inviting thought-leaders, like minded speakers and providing a good range of discussions and talks. Finally, engagement is key, and can result into future participation. As mentioned, this paper is a preliminary study into exploring virtual conference attendance and engagement. We need to collect more data and uncover other factors that might be influential in participants engagement and involvement with virtual conferences.

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