

The Potential for Immersive Technology combined with Online Dating

How will Immersive Technology change the online dating paradigm?

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Abstract: While online dating has been a method of meeting prospective partners for several years; immersive technologies are relatively new to this type of interaction. The first forays into immersive VR online dating have only just been made in the past year. The degree this type of technology will change the way that we date is potentially quite different from the current way that online dates are conducted. The way the technology works could make virtual dates seem as real as a physical date. Understanding how immersive technology functions gives some new perspectives into the future of online dating and also the impact on the digital economy.

Keywords: Virtual Reality, immersive technology, online dating, dating, digital economy.

Introduction

Online dating is not new, in fact, in 1994 Andrew Conru, a graduate of Stanford University, claims the distinction of starting the first online dating site (Sayej, 2017) aptly named Web Personals. It accrued around 120,000 signups, but the very next year it was overtaken by Match.com, which still exists today and currently has around 75 million profiles (Rainey, 2017). Match.com is but one of a number of what might now be termed traditional online dating sites. Traditional in the sense that they have a well-recognised and common way of working as far as their clients are concerned. Their modus operandi encourages those who are eager to participate in the dating experience, to load up their profile and then find prospective dates from the profiles on offer, quite often also for a fee. After all, the business of dating is also a business for many online companies that facilitate it. Once contact is established between the two parties dating activity usually proceeds through email type of correspondence or messenger like apps and possibly telephone or video conversations and which then

eventually leads to a face to face meeting ([Couch & Liamputtong, 2008](#)). This event in the progress of a date might be termed the pinch point of the dating experience where each party is hoping that the actual physical date lives up to the preamble that has taken place in the virtual world. The question is usually then whether the physical date actually does then fulfil the dater's expectations. A study ([Sharabi & Caughlin, 2017](#)) into this very significant factor has indicated that there is a drop off in attraction following the first face-to-face date after an initial online set of encounters. This reduction in attraction can be mitigated to some degree by more disclosures and more communication during the online phase of the relationship. Thus far in time, the created paradigm of online dating holds to the point of being almost formulaic. It has done so since the inception of the online dating phenomenon which is now a commonplace occurrence, and something one might be able to say is in the mainstream of the dating world with other applications such as Tinder, Second Life and even Facebook facilitating the forming of relationships.

However, the onset of immersive virtual technology into the mix could potentially alter this paradigm. The difference is that participants will feel as if they are actually meeting together, in person, albeit via a virtual rendition of themselves in the form of an avatar in an immersive environment. How could this crucial difference affect the world of online dating and is it already doing so? This paper asks and examines these questions.

The Factor of Presence

It seems almost expected that a graduate of Stanford University invented the first online dating site because the university itself has been involved in virtual reality research since the 1990's. Jeremy Bailenson is one of the main proponents of the department that investigates the psychological aspects of VR. The term 'presence' is one that Bailenson has defined in a lecture in 2013; he says that it is "feeling like you are in the virtual world and forgetting that you are in the physical world" ([Bailenson & Gurley, 2013, 4:43](#)). Presence is particularly applied when using immersive technologies such as the HTC Vive or the Oculus Rift which seemingly place the user in a virtual 360-degree environment. In other words, he describes a psychological change within the person experiencing the immersive VR that would be akin to having been teleported elsewhere while still remaining in the same physical space. The effect of presence is strange at first but the longer that one remains within the immersive environment, the more real it becomes.

Dating which takes place within an immersive virtual environment is something one might assume, based on Bailenson's discussion of the factor of presence above, will be different from screen-based dating encounters. The two-people involved, represented as avatars, will experience a perception and spatial shift which places them together in a virtual world. That

world may or may not like the physical one they know. Interestingly, one only has to observe for oneself videos of participants in the online game VR Dating to note that they adapt almost seamlessly to a VR environment that may be completely different to their own. The key point is that the two people are very likely to feel as if they are actually meeting each other face to face. Thus, the points about physical attraction dropping off that were raised in Sharabi's study may no longer be pertinent.

How could Immersive VR change the way we date?

The meeting of two people in VR for the purposes of dating may be the equivalent of a physical meeting. In the first instance the factor of presence, as discussed, will make them feel almost as if they are in the same room together. However, at this point in time, the physical sensations of touching may not be present. Technology is catching up with this deficiency and various haptic (sensation providing) devices are already on the market which include those that facilitate sexual sensation. For example, a study earlier this year ([Chinello, Pacchierotti, Malvezzi & Prattichizzo, 2017](#)) experimented with a device that stretches the skin on the hand giving the sensation of touching. As described in a science article ([Hutson, 2017](#)) this device enables users to feel as if they are touching virtual objects and are thus able to manipulate them with some accuracy. For vibration sensation such as that felt in games, a body suit ([Carman, 2017](#)) is being developed by NullSpace, although this is not the first bodysuit in development for VR. Another body vest by bHaptics ([Lai, 2017](#)) called the TactSuit has 87 feedback points and has already been successfully tried by nearly 50,000 people in a gaming environment. This particular suit gives sensations all the way down the sleeves. In a further development still, there are full body suits which provide touch feedback and also temperature such as that developed by AxonVR ("[AxonVR](#)", [2017](#)). This suit will allow the wearer to experience the sensation of walking, climbing stairs in VR and touching virtual objects and at the same time gain sensations all over their body. Teslasuit is another full body suit that provides full body feedback, with a range of sensation and temperature controls provided by the suit and accompanying software ([Rigg, 2017](#)). With the tactile issues solved dating within immersive VR would potentially also thus take on the feeling and sensations of a physical date. To move on from this is a small step to an immersive virtual sexual encounter. The term for VR sex-aids is 'teledildonics', which as the word implies allows them to be remotely controlled. This was coined in 1974 by Theodore Nelson ([Nelson, 1974](#)) and thence slipped onwards into wider use ([Liberati, 2016](#)). According to Liberati these devices range from the simulation of kissing through the simulation of intercourse in various forms. Obviously, the marriage of these devices and immersive technologies would lead to the assumption of the act being akin to real-life sexual encounter. Indeed, as she concludes, "the fictional world of virtual reality can become actual" ([Liberati, 2016, p 820](#)). The problem of online dating prior to the advent

of such technologies has always been that a relationship could not be exactly consummated online. However, now that this is no longer the case then perhaps individuals may determine that there is no necessity to meet at all other than in cyberspace. The sex scene or virtual coupling in *The Lawnmower Man* ([Leonard, 1992](#)) which, at the time, dominated press coverage of the film, may become in some form an actuality. Could we, by dint of these enabled affordances that allow touching and more, in VR, be heading for some dystopic version of existence where isolation from each other punctuated only by virtual contact is the norm? Such an existence is that described in a story early on in the 20th century by E.M Forster ([Forster, n.d.](#)), *The Machine Stops*, where humans live in hexagonal cubicles and contact each other through television style globes, and a machine caters for all of their needs. These are pertinent questions to ask, but the long-term future of virtual dating and relationships is one which is subject rather to extrapolation than purely solid evidence at this time. The advent of immersive VR has only become a reality in 2016 and has yet to reach the heights of a mainstream technology such as the smartphone. Should it finally become the technology of everyday use then by the same token it is likely that immersive virtual dating will also have come of age.

Current Ventures into Immersive Dating

There have been a number of initiatives in this area. One of the most prominent being a dating show ([Feltham, 2017](#)) collaboration between Facebook and Conde Naste entitled *Virtually Dating*. It is a version of blind date using an HTC Vive. A blind date in the sense that the participants are unknown to each other before the actual VR date. The premise of the show places two people as scanned avatars in the same space physically but unable to see each other except through the immersive VR. The difference between this and a usual online type of dating scenario is that they are in the same room and thus able to touch each other in a physical way that would not normally be possible. The software is also prone to glitches, and the avatars can end up having their feet facing the wrong way, or arms going through their bodies at odd angles for example. The participants interact through the virtual environment and are placed in different scenarios such as a bar, or the moon. They use the Vive hand controllers for further interaction with each other or objects in the space. Once the date is concluded, the participants are placed either side of a screen and revealed to each other in the flesh. Having already seen a fair representation of the other person in 3D this 'reveal' should be less surprising to them than the usual blind date scenario where the couple has no idea what each other looks like. The participants are then asked if they want a second date. It seems that some of the participants do want to continue although what happens after that is not known or at least we are not told. The purpose of this show seems to be more than a gimmick than serious application, but it is noteworthy that the participants, by dint of their interaction, do appear to experience the phenomena of presence while in the virtual space. Presence contributes to

the dating experience being and feeling more real it seems and would appear to have a positive outcome on their interaction. It is also worth noting that to date these types of current ventures into immersive online dating are predominantly outside of experimental research studies.

Other, somewhat unconventional uses of immersive dating have appeared with a Japanese gaming company (Miley, 2017) offering men the chance to marry their favourite character from the game. The marriage takes place in a physical chapel while the participant wears an immersive headset. A facilitator uses props to give certain physical sensations to the participant such as that of kissing their new wife who is an anime character from the game. The popularity of this pastime might suggest there could be some acceptance of virtual relationships in certain cultures and that VR may be starting to challenge the accepted norms of relationships in the 21st century. More cultural specific and cross-cultural research will hopefully investigate this in the future.

Another company datinglessons.com ("Dating Lessons", 2017) offers dating lessons using immersive VR. The participant is presented with an avatar who is their dating coach. The coach then offers them advice (Hayden, 2017) on various aspects of dating which they can then try out on avatars of women in the dating app who will respond favourably or not depending upon the participant saying or doing the right things. The virtue of this approach is that the participant feels as if they are talking to a real person, even though it is, in fact, a computer controlled avatar. This website which is aimed primarily at men wanting to date women has been rightly criticised as sexist (Lindsay, 2017) not only because of this but also due to the content and dating techniques that it portrays. However, it illustrates another facet of application of VR technology to dating and the fact that the technology is becoming more accepted in this field.

The Future of Virtual Dating

Although there are no actual dating sites using immersive technology so far, it is likely that these will not be far behind the ventures mentioned above, and they may be already in development. Whether immersive or perhaps even augmented technology will change the face of dating may be unknown at this time, but it is possible to dwell upon the potential of this new form of interaction. The immersive date will be one in which the participants feel as if they really are together and with the increasing developments of haptic touch-based accoutrements the physical content of the date will also be augmented to feel more real. How participants respond to this type of dating is an interesting question and one which it is not possible to fully answer at this time. Even a cursory examination of current video evidence of people engaging in immersive VR activity shows that their reactions are predominantly positive towards it. The figures for the use of VR based material from Pornhub which are now

hitting 500,000 per day ("[Virtual Reality Porn – Pornhub Insights](#)", 2017) also indicate that VR and human sexuality are becoming more entwined at least in that area. Up until this point, the idea of dating in VR has also only been discussed in the context of two humans posing as avatars. However, what of dating a computer-generated avatar? This would perhaps have been less likely until the advent of immersive technology. Coupling immersive VR with the increasingly sophisticated technological, personal assistants such as Alexa on the Amazon Echo means that computer-generated avatar dating could be available in a very short time. Once an AI simulation can pass the Turing test and is not distinguishable from a human counterpart, it is likely that humans will start seriously dating computer generated personas. In VR parlance, these are known as 'agents'. Perhaps the bigger question is then, how will you know if the person is real or just computer generated? If a date or relationship only occurs in the digital realm, then the fact that the other party is just a computer simulation may never be discovered. Perhaps for some, this is a desirable scenario with a biddable, programmable partner who is always available when you want them and doesn't complain when you are not around. This outcome could also be considered somewhat dystopic, but it is definitely within the realms of future possibility.

In a more prosaic prediction, it is likely that the first immersive VR dating sites will soon begin to appear as well as new iterations of virtual worlds such as Second Life which will cater for immersive participation. Sites like Second Life are already known for engendering virtual and online screen based relationships, so for them, it is a small step into the world of immersion. For the most part, it is likely that development of these types of sites will 'follow the money', and thus participation and usage will drive the proliferation of VR dating sites.

The impact on Digital Economy

The question can and should be posed as to how virtual dating and immersive technology impacts the use of telecommunications and the internet. A basic understanding of how server-based VR actually works is necessary to answer that question. Unlike video conferencing, VR does not transmit all the information from the transmitter to the receiver and vice-versa. The antecedents of VR are multiplayer online games where numerous characters interact in a virtual world. The server contains only such information as is necessary to determine the position and certain characteristics of those characters, the graphical information is built and constructed by the client computer. With server-based VR immersive or otherwise, this is equally true. To explain more clearly, this means that each person involved in the immersive date will have the graphics mainly constructed by the software on their own computer, the server will simply relay information between their computers to enable this to happen. Thus, the amount of individual traffic required is vastly reduced. Were it the case that all the

graphical content was constantly updating over the telecommunications network only the fastest networks would be able to handle it competently. The increased use of the internet for virtual dating will contribute to the traffic and faster backbones, and fibre networks will most likely win out over older technologies in this regard. According to Cisco's internet traffic predictions ("[Here's how much IP traffic will be video by 2021](#)", 2017), AR and VR traffic will increase 20-fold by 2021.

One equally as important sector that has already seen an increase in high specification hardware is that of the computer industry. Machines that are capable of efficiently running and processing the complex 3D graphics required for immersive technologies such as the Oculus and Vive are resource hungry. Typically, they require a heavy-duty graphics card, a processor that is I5 or I7 and something on the order of 16 GB of RAM or more ([Hunt, 2017](#)). This type of hardware is generally expensive and thus could be considered at the high end of the scale of the cost of computing. Lesser technologies such as Samsung Gear enable phones to be used, and developments are in progress at Oculus to produce a self-contained VR headset ([Robertson, 2017](#)). However, the cost of these compared to the computing power needed for a Vive or Oculus, may or may not be comparable depending upon developments in the hardware arena.

The sales of VR hardware itself in 2016 ([Ergurel, 2017](#)) were not as high as perhaps industry pundits had hoped at the start of that year. Around 6.3 million headsets being shipped netting \$1.8 billion in revenue. Five million of these were Samsung Gear headsets which is an immersive system based on a Samsung smartphone. Google Cardboard is likely to have shipped between 8 to 10 million units since the start of 2016 and is marketing to the smartphone user base at a low cost, hence the higher sales figures. According to predictions ([Roettgers, 2017](#)), the revenue for VR technology overall will increase to around \$7 billion in 2017 and after that increase dramatically year on year to around \$75 billion in 2021. The applications of immersive technology are ranging far and wide, but immersive dating could make a significant contribution should it take off. With around 40 million users of online dating America alone ([Broussard, 2017](#)) were that translated into VR immersive hardware it would make a potentially a significant amount of sales. For proponents of online dating and for those who supply industries that can support VR immersive technology there is the potential that this could be a 'cash cow' for some technology companies while the market is ramping up to its full potential. Figures for 2017 are not yet available, although it is known that VR headset sales broke the 1 million mark for the first time for quarter three of that year ([Matney, 2018](#)). Until the full figures are released for 2017, it is not possible to confirm whether the sales predictions for that year have been well founded.

Conclusions

Immersive dating is in its infancy but perhaps another 12 months ought to see some significant movement in this field with regards to sites offering this kind of dating experience. In January 2018, for example, an immersive VR app named VRChat on Steam unexpectedly went from 400,000 installations to over two million in one month ([Hayden, 2018](#)). While this is not a dating app per se, it nevertheless opens up immersive social interaction to an increasing number of people should that trend continue. A rise of this magnitude could also signal more buy-in of immersive hardware, but this conjecture is unlikely to be substantiated by figures until towards the end of 2018. Immersive technology is, however, becoming more commonplace, but it is not known when it will start to hit a threshold where it can be considered as mainstream. It could, for example, be just two or three years or it could take longer. What will dictate this are apps such as VRChat increasing their take up of users in such numbers as to fuel a high-volume change in hardware sales and usage. It is easy to argue that having bought a VR headset for one app, a person will explore further uses and immersive applications. In the meantime, developments in the VR field are not standing still, and various offerings in augmented reality field may add yet another dimension to be considered. Late in 2017 Magic Leap finally revealed a first look at the production models of their augmented reality headset which the company says will make virtual objects appear almost as 'real' as physical objects within view ([Robertson, 2017](#)). Magic Leap is due for release in 2018 and until then the consequences upon the market are not predictable. The impact of immersive technology upon human interaction also isn't entirely predictable, and until it becomes as prevalent as the smartphone with broadly used applications such as Facebook, we probably won't know. The example of VRChat above, though significant is still too early to conjecture across a wider sphere. What can be said is that human and dating interaction, in particular, will change as this technology becomes more commonplace within society. Being aware of the potential either as an individual or a business puts us one step ahead. The real pitfall is not being aware and not rising to the challenges that this new technology brings. If we are to remain masters of our own dating destiny, then understanding the new face of that paradigm is essential for the future.

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