CREATING A SENSE OF PRESENCE

The power of virtual and augmented reality

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INTRODUCTION

Reflecting on the past two years, it feels like a rollercoaster of new emotions, experiences and life-changing circumstances mostly driven by Covid-19, but not unrelated to wider environmental and political changes. We have had to adapt and change our way of life – and, for many, that has meant an acceleration of the use of digital services, turning us further into digital citizens. Globally, 68% of consumers today cannot imagine life without the internet[1], with the average daily time spent online growing significantly during 2020 as lockdowns were enforced. This is especially noticeable when compared to 2017, when the average adult spent 3 hours and 4 minutes online[2]:

- **January 2020:** 3.5 hours[3]
- **April 2020:** 4 hours
- **September 2020:** 6 hours[4]

While national lockdowns and travel restrictions presented many challenges, for those in the fortunate position to have access to technology, we can see how it has provided us with a 'digital push', moving many people beyond basic digital interactions such as texting or messaging and towards video calls for health consultations, work based interactions, socialising and health & wellness (to name a few). People also turned to gaming more during lockdown, with nearly two-thirds (62%) of adults and 92% of 16-24-year olds saying they played games on an electronic device. The most popular gaming device for all age groups was a mobile phone (used by 39% of adults).[5]

So, thinking ahead to the next level of digital interactions post-video, how can the use of virtual and augmented reality (VR/AR) technology further build on these connections?

It is not simply the 'shiny new toy' some people view it as, but the next generation of digital interaction that will get us even closer to a 'sense of presence'[6], where multiple senses can be engaged. The concept of 'presence' refers to the phenomenon of behaving and feeling as if we are in the virtual world created by computer displays. It means we can recreate the feeling of a real-world environment virtually and transport people to act and feel as if they are together.

While these forms of communication technologies (2D digital platforms, for example Microsoft Teams and Skype) are having a positive impact, they are also having a negative one. It has encouraged people to stay at home more and avoid in-person socialising, which results in less physical stimulation and fewer direct interactions or multi-sensory points of contact with people. During 2020, McKinsey identified that *'we have vaulted five years forward in consumer and business digital adoption in a matter of around eight weeks'*.[7]

This past year has highlighted how important in-person contact is and how much we rely on our different senses to feel present in our surroundings. Indeed, the heightened reliance on digital for communication[8] is not only more cognitively demanding – requiring us to attend more narrowly to the person on the video call and not our surrounding environment – but also creates an ongoing sense of being watched. In the UK, 60% of people say they are finding it harder to stay positive daily, compared with before the pandemic – an 8-point increase from November 2020.[9]

Virtual reality technology is not simply the 'shiny new toy' some people view it as, but the next generation of digital interaction that will get us even closer to a 'sense of presence'.

HOW CAN WE UTILISE OUR SENSES WITHIN DIGITAL ENVIRONMENTS?

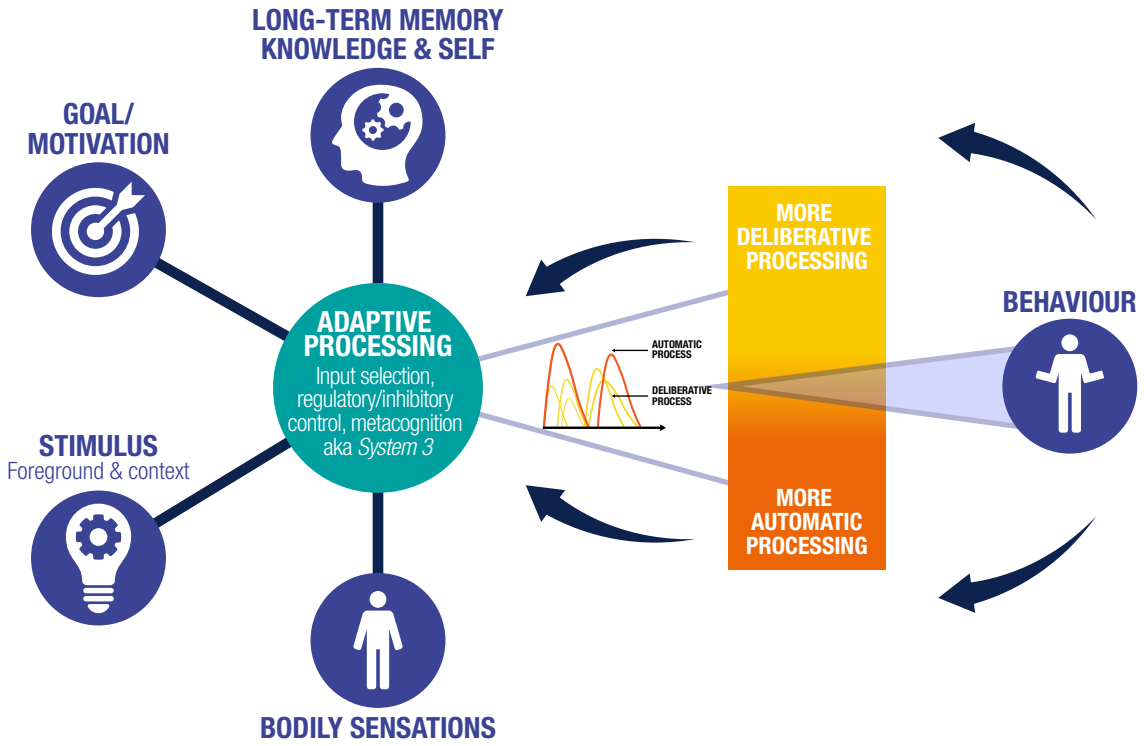
In contrast, when in 'real world' retail and hospitality environments, we are immersed through our different senses (touch, smell, see, hear, how we move etc). From shopping at supermarkets, in clothes shops, to electrical stores and restaurants, there is evidence of a strong positive effect of different perceptual sensations in influencing our purchasing behaviour.[10] Plus, by layering in non-verbal communication technology (haptics), we can understand what people feel when they touch that item.

As a customer in a retail environment, you would routinely – both deliberately but also more automatically – use your senses to guide decisions. For example, the haptic experience with a product (being able to touch and handle it) can increase the likelihood of purchase, and the smell of an environment (e.g. smell of bread or using smell to support a promotional offer) can lead to a better shopping experience.

Moreover, the experiences we have when in a physical space aren't just shaped by our sensory experience, but also by the social presence of others: having other shoppers or diners in the environment can create a strong sense of inclusion. Also, when you see an 'active/busy' restaurant or aisle, you are more inclined to have a look to understand why everyone else is there and this social cue can provide important information to guide your decisions.

When taken together – physical capabilities and virtual technology – we can see how a move to digital means that we are not tapping into the full range of inputs that can be used to shape our decisions and behaviours. The Ipsos Dynamic Decision-Making Model (see Figure 1)[11] helps us understand the many influences that shape our decisions and behaviours.

Figure 1: The Ipsos Dynamic Decision-Making Model (DDMM)



Source: Ipsos

Specifically, decisions and behaviours are based on internal cognitive influences (Goals/Motivation and Long-Term Memory, Knowledge & Self) as well as feelings in the body (Bodily Sensations) and the context in which we are in (Stimulus). What we can see is that in a digital environment, these influences can become disconnected and require more deliberative processing and effort to reconcile the divergent cues that form our experiences. For example, most people have preconceptions of a supermarket or retail shop due to previous experiences – long-term memory and sensors such as smell and layout etc. When we expose someone to a virtual supermarket, we (as human beings) draw upon these previous experiences to help 'ground us' and make sense of the new environment. It will take people longer to do this in a virtual environment so, when using this technology, we need to ensure it is creating the right experience and reducing that disconnected feeling.

Although difficult to know what the future will look like, it is clear that digital services will continue to play a central role in many of our experiences. Therefore, we need to look at how we can create the sense of presence in what we are doing and how various tools can be used to support this. It is going to be a balancing act between engaging different senses and using the right technology to maintain that richness of communication, perception and interaction.

As researchers, it creates fascinating opportunities as we can utilise the imagination and play on the sense of presence to truly re-create different realities and environments. Using VR & AR technology, we have the ability to transport people to any environment or situation, then see how people respond and interact without losing their sense of reality along the way.

Maria V. Sanchez-Vives and Mel Slater (2005)[12] conducted extensive research into this area and revealed that *'Immersive virtual environments can break the deep, everyday connection between where our senses tell us we are and where we are actually located and whom we are with.'*

With this foundational knowledge and experience, as researchers, we know that, by adding in certain elements like body manipulating suits or the smell and sound of the beach, we can bring that environment to life further. We can then learn more from people's responses and uncover less deliberative reactions that we might not have been able to access with more traditional research approaches, by using neuro measurement such as eye tracking and facial coding.

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For our clients and as researchers, it's about understanding what we want to achieve and the context within this, then utilising the different elements of this technology to meet those needs. In this next section, we highlight **four case studies** to illustrate this in more detail and show the deep insights that can be generated.

1 **How can we transport people into different environments and maintain a sense of presence? While, at the same time, gain a deeper understanding of their experience?** For example, evaluating a new store layout in supermarkets and retail outlets, or experience what it's like to be in the theatre/cinema to watch a new show.

2 **Can we make consumers experience a new environment in order to test something never previously experienced?** For example, seeing how a surgeon operates, evaluating a new automotive design or even new motorway signage.

3 **How can we enable our clients to walk in their customers' shoes and to experience life as they do to drive empathy in service and product design?** For example, patient empathy and what it's really like to suffer from chronic back pain when doing daily chores around the house.

4 **How can we test and explore new concepts and ideas that don't currently exist in the real world to quickly screen, optimise and re-test stimuli?** For example, using AR to trigger new tyre designs onto your existing vehicle and understanding which one potential customers would prefer.

CASE STUDIES

1 HOW CAN WE TRANSPORT PEOPLE INTO DIFFERENT ENVIRONMENTS AND MAINTAIN A SENSE OF PRESENCE?

As an agency who is focused on finding better ways to conduct research and access insights, we were curious (back in 2016) to understand the extent to which VR could act as a power stimulus to truly transport people to different environments and the degree to which they felt so immersed that they believed they were actually there (sense of presence). VR is also a stronger stimulus that focuses the person's attention more than what would be experienced. We can utilise their internal cognitive influences and perceptions to create a threshold test of this technology. In particular, the VR experience could create a stronger activation of their motivations and richer reconstruction of experiencing theatre live and in-person from long-term memory.

Plus, with the associated investment that comes with using VR and AR technology, we needed to know that we could drive the validity of our insights.

So, Ipsos undertook a collaborative study with The Royal Shakespeare Company (RSC) and Gorilla in the Room (GITR) to test the ability of truly transporting people to different environments. In particular, for this project we looked at live theatre, live theatre at cinema and experiencing theatre in VR. Three test cells were used (with random allocation of willing participants to each cell) to either 1) watch a production of Shakespeare's *Titus Andronicus* live in a theatre, 2) to watch a screening of that live performance streamed direct to cinema or 3) to watch a live recording in 360 VR of the performance via a high-end VR headset. Heart rate monitors were used to measure strength of emotional engagement/response whilst viewing the performance (in all three conditions) and both qualitative and quantitative techniques were used to capture the experience post-viewing.

Three key findings were taken from this research:

1. **The emotional arousal (number of significant rises in heart rate and the duration of these increases) was similar across all three conditions**, indicating that the VR experience had the power to recreate the physiological reaction of the live performance in theatre and influence their cognitive and behavioural reactions. For example, a majority of people in the VR experience applauded at the end, as if they were in the theatre. This technology can compete with more traditional media formats and reduce that digital disconnected gap.

2. **Nine out of 10 people in the VR experience felt there were moments when they were actually at the theatre** (compared to seven in 10 for cinema) and also the duration of that feeling was far higher in VR than cinema, demonstrating that VR acts as a powerful stimulus to transport people into different environments.

3. The text analytics and sentiment analysis conducted on verbatim feedback (post viewing) demonstrated that **VR was far closer to the actual theatre experience than cinema**, with higher mentions of engagement and shock. Indeed, responses indicated a richly processed, realistic response motivated by the theatre experience, rather than the novel technology that was being used. Respondents said that VR provided a realistic theatre experience and offered future opportunities for the theatre industry, indicating it was able to meet the expectations people had for in-person performances.

We could conclude from this study that VR does have the power to truly transport people and make them feel like they are there, which has important implications and true value for use in research.

2 HOW CAN WE TEST AND EXPLORE NEW ENVIRONMENTS THAT CURRENTLY DON'T EXIST?

Working with Highways England and Gorilla in the Room, we were able to break new ground on evaluating road signage, specifically for road diversions. In more traditional research settings, we would show participants 2D images of new road diversion signage and heavily rely on their imagination and previous experience to provide feedback. Now, with the power of VR, we were able to transport people into a 'typical' road journey that involves travelling along a road diversion due to roadworks. The participants were immersed into a car and followed the journey with new road signage digitally inserted.

With this, we were able to test different signage designs quickly and efficiently, probing participants to find out their views of the placement, positioning and repetition of each signage type along the route, as well as the information it displayed. This allowed participants to consider in detail how Highways England could improve diversion route signage, based on seeing signage options in their intended context and while travelling at speed (albeit virtually), unlike the traditional approach of showing static images of signs to participants. This was particularly powerful as the respondents were able to process the stimulus in a more realistic setting, tapping into their long-term memory and motivations that would be activated when travelling in a vehicle, and enabling them to provide views based on a more natural experience of the scenario.

The participants also provided richer feedback as they truly felt like they were a passenger in the vehicle. The VR brought them closer to the true 'in-the-moment' experience of driving along a diversion – including capturing the emotional responses that this driving experience may elicit – in a safe and controlled manner. This meant the researchers observed 'revealed' spontaneous responses while watching participants and what they saw on a screen, as well as capturing participants' 'stated' responses to the research questions asked during and after the virtual journey. In future, we could take this to the next level of allowing them to drive in VR to see how they would physically react to a road diversion, for example, check their satellite navigation for another route or follow the road diversions.

3 HOW CAN WE CREATE EMPATHY

One of our healthcare clients approached us with the need to build greater understanding of the patients who use their medications. By understanding more about these patients, the organisation hoped to drive greater patient-centricity within their team culture and ultimately in the products and services they develop.

To truly allow the client to understand their patients' lived experience, we went beyond VR to allow them to step into their patients' shoes not only visually, but also physically, with the use of full body immersion that utilised body suits to restrict movement and to heighten certain physical sensations, e.g. back pain or knee pain. This allowed us to create bodily sensations that shape their patients' lived experiences, providing our client with the opportunity to feel first-hand what their patients experience. In turn, having this disruptive experience helped clients see the need to adapt their thinking about their patients, resulting in them being more deliberate about putting the patient at the heart of their work.

Our client commented, *"To empower the transformation of health, we need to understand consumers' lives, their hopes and aspirations, as well as the things that get in the way. [This event] was a really unique experience that provided us with 'Aha!' moments, new perspectives and a unique feeling of realness".*

4 HOW CAN WE BRING NEW CONCEPTS TO LIFE AND INTEGRATE THEM INTO REAL-WORLD SITUATIONS?

In a joint project between a global automotive manufacturer and Ipsos, we set out to create a solution to test alternative wheel designs without the need to physically create prototypes.

Traditional wheel design research uses 2D photo stimuli for respondents to evaluate. Often, the wheel design is isolated and not displayed in the context of the overall design of the vehicle.

We used AR to test different wheel designs on their (respondent's) vehicle at home. We wanted to test the ability of using AR at home, in their natural environment, in order to uncover any potential logistical challenges, for example, technology not working correctly.

The participants were able to see more of the detail, look around the item at scale and in return provide richer insights. This allowed us to test new designs quickly, and at scale, to identify which designs people preferred. The client was given quicker, richer insights allowing them to create physical prototypes in time for production. Despite adding an extra layer of research, this was more effective than the traditional route and ensured that the decision was made within the overall context of the whole vehicle. These benefits are not only seen with technically specific stimuli, but also with clients with FMCG (Fast Moving Consumer Goods) products. For example, clients can place their concepts within certain environments, like a kitchen table[13] or on a supermarket shelf, allowing them to create a more realistic and immersive environment in which concepts can be explored.

This results in richer exploration of the concept and flexibility to embed the concept within the relevant context, such as against the competition in a shelf layout or even within a home environment. Other industries are adopting VR/AR technology to support their E-Commerce strategies as we understand that 79%[14] of online shoppers abandon their carts before completing a purchase. VR/AR technology can be used in steps to transform the way we shop online and help increase sales, for example, Peloton use AR to visualise the bike within your home. This now allows people to see what it would look like, not only aesthetically, but also practically.

Typically, when we test concepts, we have to use printouts or pull-up banners to set the scene in a central location, but working with PepsiCo, we (Ipsos) used VR to immerse people into 'summer time' environments. They were allowed to control and move around within the environment which prompted more meaningful responses when compared to the more traditional approach.[15]

In a separate but supporting project, Ipsos worked with Gorilla in The Room to support the hypothesis that 3D/AR imagery is a more powerful stimulus than 2D imagery.[16] To explore this, we tested 2D visual concepts of a leading brand in the canned goods category, alongside an AR 3D visual projected into the room. AR was found to not only create a greater sense of presence, but it also created richer memories of the experience.

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CONCLUSION

As our lives and the world around us remains uncertain, we as humans will continue to look to brands and experiences within our environments to act as our anchors. As researchers we will be able to continuously utilise this, especially as people increasingly use digital technology. Being able to immerse people in new, unexplored environments and then capture those less deliberative reactions to stimuli while immersed will provide a whole wealth of powerful insights that would not have been uncovered in more traditional routes.

Our clients can now walk in the shoes of their consumers/customers and patients, which in return drives stronger empathy allowing them to better position their brand, product or service. If we understand the technological capabilities and how they can be layered into existing approaches, we can start to embrace this new immersive way to conduct research and leap into the next level of research insights.

Driven by the rise of smartphone ownership and expansion of wearable technologies like glasses or watches/jewellery, we expect that VR and AR technology will gradually and seamlessly integrate into our daily lives and evolve into a form of mixed reality and create metaverses (virtual reality social platforms). Within these metaverse/social environments, brands are seeing more opportunities to market and sell their products, even if it's moving from physical to digital. For example, some of the large fashion houses like Gucci and Valentino are allowing people to purchase one of their products, such as a handbag, for their online avatar and selling them at a higher price than a physical one.[17]

There are still many challenges with this technology, specifically the ownership and adoption of VR headsets, which remain expensive and have limited appeal outside the world of gamers and tech enthusiasts. People also need to acclimatise to virtual environments and understand how to operate once immersed, and this is typically easier for people who have previous experience with VR and AR, such as gamers. So, it takes more time to bring people up to speed and make them feel comfortable in virtual environments, versus a more traditional research approach like an online survey. However, this technology – especially AR – is becoming increasingly integrated into our daily lives, thus making it easier for researchers to utilise.

Where appropriately integrated, we can already see the new opportunities created by this technology through the sense of presence that can be created. Its transformative potential will surely grow, opening more possibilities to build deeper connections and understanding – no matter the reality of where we are or who we're with.

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