DreamTime
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A Rift in Reality
Exploring the Oculus Rift's effect on
Dream and Waking Realities

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A rift is about to occur. Not simply the release of the Oculus Rift in early 2016 or other affordable VR headsets like it. But rather a rift in our very perception of reality and our understanding of what consciousness is. With the widespread release of VR interfaces to the public, for the first time in history people's ability to frequently toggle their vantage point of reality—be it by slipping into dreams, engaging in their waking life, or by playing the video games they like to play—will have profound effects on their ability to distinguish each nuance of those perceived realities from one another. And this phenomenon of carrying some aspects of playing a game into real life, previously documented simply as the 'game transference effect,' has game developers and researchers alike scrambling to fully understand and appreciate the depths to which virtual reality might help to challenge or bolster the average person's vantage point of reality.

Working with the second developer's kit of the Oculus Rift (DK2) in our lab at MacEwan University in Northern Canada, we found that gamers experience a sense of presence (feeling that they are a part of the playing experience) that is comparable to the presence felt while dreaming. This comparison has been established as the 'gold standard' for feeling as if a person is really 'there' or 'present' when studying alternative realities and people's engagements with them. We also incorporated a survey along with our experiments to delve deeper into both the player's experiences of using the Rift itself and of the effects that its use had on their dreams. But before we talk about the results of those experiments, it's important to talk more about the emphasis we placed on the participant's dreams and, moreover, how it is that the experience of dreaming is such an important clue to deciphering reality's puzzle.

Dreams are not the meaningless byproduct of sleep, nor are they phenomena that only a few people experience. Everybody dreams. Yet unfortunately, Western cultures have a tendency to minimize or overlook the significance of dreaming, which, put simply, can be defined as our mental experiences of the brain's activity while sleeping. Mental experiences, mind you, that are completely separated from the external stimuli of waking life and allow the dreamer to live in a biologically constructed virtual reality inside of their own head. This virtual reality 'dreamscape' is composed of imagined perceptions that often feel very real—hence, it is a legitimate, biologically created, virtual reality. Even if the dreamer realizes they're dreaming, which occasionally happens, the 'felt presence' or 'sense of really being there' remains. In such cases the dream is called a lucid dream—one in which the dreamer knows they're not in reality. And it's that feeling of knowing that your perception of reality does not align with reality which, when juxtaposed with the use of the Oculus Rift and its effects on people, serves to illuminate research into tiers of reality and its implications on our understanding of what consciousness is all about.

The survey we constructed to document dreams, which accompanied the experiments done in the lab with the Rift, was online for almost a year, and several concentrated data collection efforts took place during the two summers of 2014 and 2015. Of those who entered the survey over that period of time, 73 useable responses were culled. These were almost all males (68) who were on average 33 years old, and half had never been married. They came from numerous cities in 17 different countries around the world, from London to Sydney; Istanbul to Guadalupe; Fort McMurray, Alberta to Vienna, Austria.

When asked about their history of playing video games, participants reported playing several times a week or more (79%), playing from less than an hour to 3 to 4 hours (88%), having played over 100 different games (86%), and having started playing video games in early childhood (85%). Favorite genres were FPS (First Person Shooter) and MMOs (Massively

Multiplayer Online games) as well as adventure games. 'Casual' games such as dance or puzzle games were rarely or never mentioned as favorites. Specific games mentioned included: World of Warcraft, Minecraft, Final Fantasy VII, Skyrim, Elite: Dangerous, League of Legends, Red Dead Redemption, Grand Theft Auto V, The Witcher 3, as well as Portal 2 and Half Life 2, which several of the respondents enjoyed with new Oculus Rift functionality.

Attention then turned to the Oculus Rift specifically, and we asked them if they were a developer of the Rift. While 37% said they were, another 24% were unsure. The rest were primarily Rift users. A few had DK1 (Development Kit 1) (31%) but most were working and playing—or as in our case doing research—with DK2 (69%).

Presence: The Sense of Being There

The easiest way to grasp the concept of 'presence' within virtual reality is to think of it as 'what it would feel like if you were actually present in that reality.' More than anything else, 'presence' is tied to how people 'feel' or how they are 'made to feel' by the games they play. From that felt sense of presence when playing a game comes emotional investment to the experiences within that game. And from that emotional investment comes deeper and deeper immersion. In fact, emotional investment holds such a strong grip over how much 'presence' can be felt while using the Rift that many participants noted its immediate decline in direct relation to any glitch or technological shortcoming that might arise.

If any lag or tearing occurred, the emotional investment plummeted as the player was reminded that they weren't, in fact, in a 'consistent reality.' Similarly, it soon became clear that other factors beyond just the hardware itself played a crucial role in the depth of immersion that could be obtained; the amount of consecutive time spent in the Rift greatly increased the ability to become completely immersed as well as the comfort and freedom felt while wearing the headset itself. Additionally, computers outfitted with better graphics cards that could synthesize more realistic virtual worlds helped increase the felt sense of realism while playing. But it was consistency within virtual reality that was the most significant factor for achieving immersion.

Dreams of Rift Users

The biologically occurring virtual realities of our dreams allow us to practice and play in a way not unlike the synthetic virtual realities of the Rift. The difference is that for the most part, in our dreams we remain unaware that we're not in reality. But what if the use of the Rift and the increasing frequency of toggling back and forth between perceived realities helps us hone our overall grasp of reality? Conversely, what if it strips us of our ability to distinguish between one state of realism and another? What if we could be fooled into thinking something was real that wasn't? And what if all of these questions coming to fruition is only a matter of time and exposure to technological interventions messing with our biologically hardwired perceptions of reality?

Ann Sinyard, one of the authors and the primary student researcher in initial laboratory study,
wearing the Oculus Rift

Those are the questions we've been asking in our lab and those are the answers we've been striving to fully uncover. Our studies demonstrate that the dreams of Rift users, as well as frequent gamers, do show increased awareness and control. Aspects of the video games people play do trickle into their conscious awareness within the unconscious processes of their dreams—helping to override what could otherwise be an unwilling ride. In our survey, a large portion of fully recalled dreams were correlated to combat centric dreams. Statements like "I began to notice that my dreams don't feel very real anymore in the sense that I don't fear dying," and "Lately it seems I can fight and I'm less scared than I normally am when having a nightmare" support what our laboratory has identified as the Nightmare Protection Effect, which states that altered realities, including nighttime dreams and gaming, may act as rehearsal for threat avoidance. Given these parameters, it not surprising that 81% said they did not have a

nightmare and that it was not a bad dream (59%). A married woman, who is a technical writer from Canada, reported this effect in her dream:

> "The demo I enjoy [most] on the OR is one where they drop you from a plane and you can fly around by moving your head in any direction. I have a lot more flying dreams now —in the most recent one I was running through a green field and after doing a few short jumps, I could jump and take off. It [wasn't] really flying—more like jumping really high up in the air and then slowly coming down. I used to get really scared during dreams like this, but I seem more in control of my dreams now and am somewhat aware that it is a dream."

We have found in past research in our laboratory that gamers were more likely to report lucid, control, and bizarre dreams than those who do not game very much. So too in this study, when these high gaming respondents rated the type of dream they had, they reported that they were somewhat to very confident that their dream was lucid (59%), high in control (59%), and bizarre (64%). One of the dreams reported by a Reddit user was particularly interesting in the way it exhibited control: through an antique television. In particular, the individual would watch something interesting on the television and as they became more engrossed in what the character was doing, their reality began to fade away and eventually they found themselves in that character's body. Thus by changing channels the individual was able to exhibit some control over what happened in their dream and they even reported that they had this type of dream on multiple occasions.

One of our participants, a female from San Francisco with a bachelor's degree in computer science, noted the merging of virtual reality experiences with dreams and control:

> "I tend to recognize some degree of control over dreams (i.e. I am aware that I am in a non-physical experience) and my general feelings around unusual behavior seems to be less now that I spend time in VR (i.e. more things in dreams feel plausible, because of the idea they could be VR experiences)."

Many of the dreams tended to be peculiar because they often drew upon elements and settings of the video games the dreamers played. This could be as simple as just being in the Minecraft world they created in waking life, or it could mean their dreams literally took on elements of video games in general, as some reported dreams that were pixilated or seen through a "screen door" effect.

This brings us to the game transfer effect initially identified by Angela Ortiz de Gortari as part of her doctoral work. This is when elements of gameplay continue in a felt or perceptual sense into regular reality after leaving the virtual reality. One individual wrote that after playing some Oculus Rift demos for a long period of time, that they experienced occasional pixilation or screen door effects when blinking or closing their eyes. Afterwards, when the individual went to sleep, they reported that these effects persisted into their dreams as well. These are the types of effects that can lead a user to question their reality construction.

This cross-reality-pollination has fundamentally helped cultivate a greater depth of thought and reflection about the nature of reality in those who play with their perceived states of reality. People want to know what's real—to elevate their consciousness within reality, regardless of which state of reality they happen to be experiencing at a particular time. And reality, seemingly, wants to keep the truth of itself a mystery—as if the right to know more will remain assumed until earned. To that end, one way or the other, virtual reality will serve to illuminate our emotional investments in this life—whether it's in waking, dreaming, or played reality. How exactly is still very much unfolding, but a rift is coming.

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