

What is Déjà Vu?

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Abstract

Imagine walking into a room and suddenly feeling like the surroundings and the conversation feel strangely familiar. Then, just for a moment, you feel like you already know what will happen next. This unsettling yet fascinating experience is commonly known as déjà vu. While it can seem mysterious, modern neuroscience suggests that some of the brain's most extraordinary experiences can be explained through the normal cognitive processes that occur in the brain, such as memory, pattern recognition, and predictive processing. This study examines everyday experiences with déjà vu, which was gathered by a survey-based research design including 34 participants from North America, and compares these observations with existing scientific research. By analyzing existing research, discussing these concepts and considering the possible limitations of those studies, this article explores what déjà vu is, why it occurs, and how the brain creates such convincing feelings of familiarity. By connecting scientific findings with personal experiences, this study aims to help make complicated research regarding these topics more accessible to general audiences.

Introduction

Many people have experienced a strange phenomenon where they have already encountered a moment before the event has occurred. Individuals often describe this feeling as a familiar dream that later seemed to come true, also known as *déjà vu*, or just simply dismiss it as a coincidence (Cleary and Claxton 2018).

Scientists have spent years researching why our brains create these feelings, explaining the mysteriousness of these phenomena with processes such as memory, perception, and the brain's ability to "predict" what comes next. While many people might consider these scenarios paranormal, studies suggest that these instances are rooted in the ordinary functions of the brain's natural processes.

Understanding such processes does not only explain our daily happenings, but also gives a perspective into how memories are created by the brain, how it can spot patterns, and easily see our surroundings. This science communication article guides readers to see how the brain can make people think they already know what will happen next, what modern neuroscience is showing about these special happenings, and the reasons researchers keep looking into these activities.

Literature Review

Cleary, Claxton, and other researchers designed a study regarding the feeling of predicting events as part of the *déjà vu* experience. In this study, participants were placed in a virtual reality environment and had to follow a certain path. Later, they were asked to navigate a second path that looked completely different but shared the same overall layout. Many participants often felt like they experienced *déjà vu* during the experiment because their brains subconsciously recognized the similar structure of the path. While this made many people think

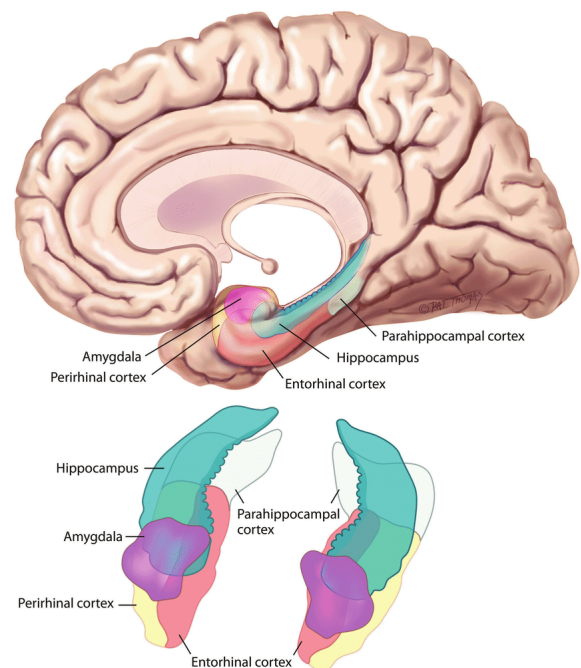
that they could predict the next turn, when they actually did so, their predictions were no more accurate than a random guess. This suggests that although many people think that déjà vu can create a powerful feeling of knowing what comes next, it doesn't actually improve an individual's ability to predict future events (Cleary and Claxton 2018).

People might also feel like they can anticipate upcoming events due to the theory of predictive processing, a theory that is deeply observed in a study published by Corlett, Mohanty, and MacDonald (2020). Instead of just reacting to events and the world around it, the brain uses these instances to make predictions, meaning that it is constantly analyzing previous events, memories, and patterns it has learned over time, such as reading words even when letters are missing. Once new information is received by the brain, it compares it with what it expected to happen, and if the prediction is correct, the brain strengthens those expectations and vice versa if the prediction is incorrect, therefore proving the pattern element. This process allows people to quickly interpret their surroundings and respond efficiently to everyday situations (Corlett et al. 2020).

Experiences like déjà vu can feel so convincing due to predictive processing since the brain is continuously searching for familiar patterns, it might occasionally interpret a current situation as one that has already happened, which is what causes people to feel that they know what will happen next even though there's no evidence that their predictions are actually accurate. Predictive processing fundamentally says that these experiences occur naturally and that it is simply a result of how the brain processes information, forms memories, and reduces uncertainty (Corlett et al. 2020). Together, these studies suggest that feelings of prediction during déjà vu occur because our brains use familiar memories and learned patterns to process new experiences, rather than it being due to people being able to foresee future events.

While things like familiarity, pattern recognition, and the brain's natural predictive abilities have all been used to demonstrate how feelings of prediction can occur, there are also some limitations in these studies. The Cleary et al. (2018) study was conducted in a highly controlled virtual environment where participants, in a way, were unnaturally creating feelings of prediction using complex theoretical models and laboratory-based experiments. This might not be completely accurate because in everyday life déjà vu occurs spontaneously during regular day-to-day activities such as conversations, daily routines, emotional experiences, dreams, and other unpredictable situations.

Behind the many studies that have been conducted using theoretical observations and controlled experiments, researchers have also investigated what is happening in the brain as these cognitive brain processes occur. In a study conducted by Spatt (2002), when the parahippocampal region finds a new experience and associates it with a familiar one, déjà vu can occur. The brain usually retrieves a specific memory from the hippocampus, and since it already exists and has been lived through, there is a feeling of familiarity as the person reminisces their past memories. But during déjà vu, there is no memory of the event actually occurring since it has never occurred, but the brain still creates a feeling of familiarity, which ultimately causes individuals to feel as though they lived through the moment before despite never having experienced it. This mismatch between familiarity and memory retrieval provides a neurological explanation for why déjà vu feels so convincing despite there being no corresponding memory to support the feeling of familiarity (Spatt 2002).



While many researchers have conducted extensive studies on déjà vu, predictive processing, and how our brain processes these responses, much of the research is conducted in controlled environments with a lot of highly technical neuroscience terminology. Combining scientific research with survey responses that include participants' real life experiences has allowed them to present these concepts in a more accessible and relatable way. This might allow readers to understand the neuroscience behind déjà vu better, while connecting scientific findings to experiences that many people can encounter in their everyday lives.

Methodology

This study combines a literature review with an online survey using articles that were found through PubMed after searching for studies that were widely known and reliable with extensive déjà vu research. Research conducted by authors such as Cleary, Corlett, and Spatt help in finding scientific reasons for why phenomena like déjà vu and feelings of prediction occur (Cleary; Corlett; Spatt). On the other hand, the survey conducted for this study was able to provide firsthand accounts of participants' experiences and insights into how these instances are perceived in everyday life.

A survey-based research design was used to analyze the relationship between déjà vu and illusion. After collecting data anonymously through a Google Form that was circulated online, we received 34 responses that represent a range of ages and perspectives in order to help explore the individual opinions that people may have on feelings of prediction and déjà vu, including both multiple-choice and open-ended questions.

After collecting the responses, the data was analyzed by identifying recurring patterns, similarities, and themes. The open-ended responses provided deeper insight into the different ways people experience déjà vu and their perceptions of prediction in everyday life.

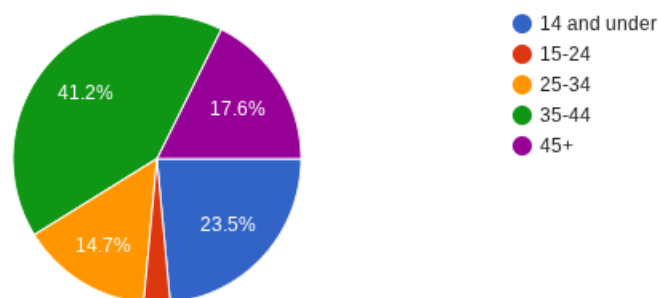
Finally, the survey findings were compared with pre-existing neuroscience research to identify similarities and differences between participants' experiences, public perceptions, and current scientific explanations of déjà vu.

Results

The chart below shows that a total of 34 participants completed the anonymous survey. The respondents belonged to different age groups with the highest percentages from the age category 35-44 (41.2%), followed by 14 and under (23.5%), 45+ (17.6%), 25-34 (14.7%) and then the category of 15-24 (2.9%). This demographic data shows that the survey had responses from individuals of various age groups. In our participants, 10 responders were male and 24 responders were female.

What is your age?

34 responses

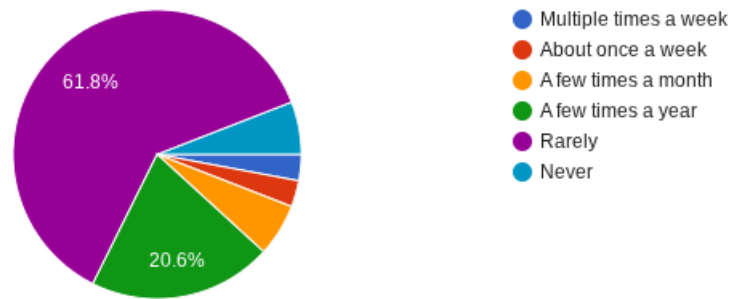


The survey found that déjà vu was a common experience between respondents. 85.3% reported having undergone déjà vu, while only 11.8% never experienced it before. Among participants who have gone through déjà vu, the majority (61.8%) indicated that it occurred rarely, which suggests that déjà vu is generally an infrequent occurrence even though it is common. To add on to that, 85.3% of the participants had heard of déjà vu before taking the

survey, and 58.8% were aware that scientists have proposed neurological explanations for this phenomenon.

How often do you experience déjà vu?

34 responses

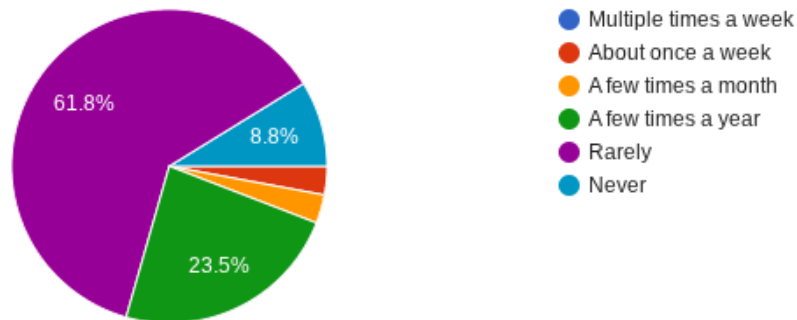


According to the two charts shown below, participants were also asked about experiences that could be interpreted as feelings of prediction. Another survey question was conducted, where 70.6% reported feeling that they knew something was going to happen before it occurred, while 55.9% stated that they had experienced a dream that later seemed to come true. However, when they were asked how confident they were that the dream had actually predicted the event, the largest percentage (48.5%) selected "Slightly," suggesting that although these experiences are relatively common, most participants were not completely convinced that they represented true

predictions.

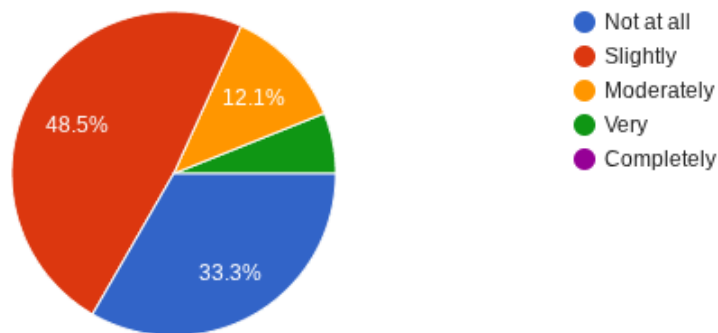
If yes, how often have you experienced this feeling?

34 responses



How confident were you that the dream predicted the event?

33 responses



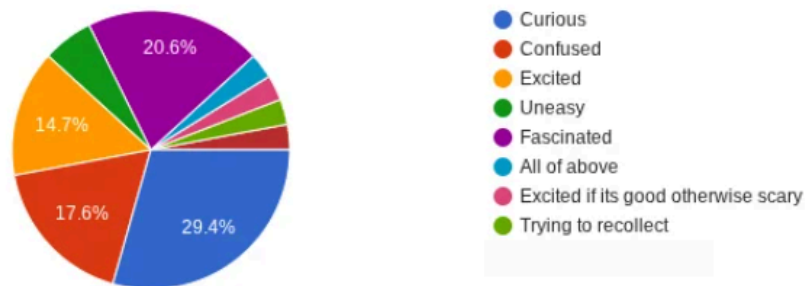
Additionally, participants were also asked how they felt about events such as déjà vu or dreams that seemed to come true. The most common response was "Curious" (30.3%), followed by "Fascinated" (18.2%) and "Confused" (18.2%). A few of the respondents provided different responses, such as feeling both excited and scared of the situation or trying to recall why the experience felt familiar while fewer participants reported feeling "Excited" (15.2%). According

to the survey results, many of the members viewed these experiences with curiosity rather than fear, as shown by the survey findings.

When you experience déjà vu or a dream that seems to come true, how does it make you feel?

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34 responses

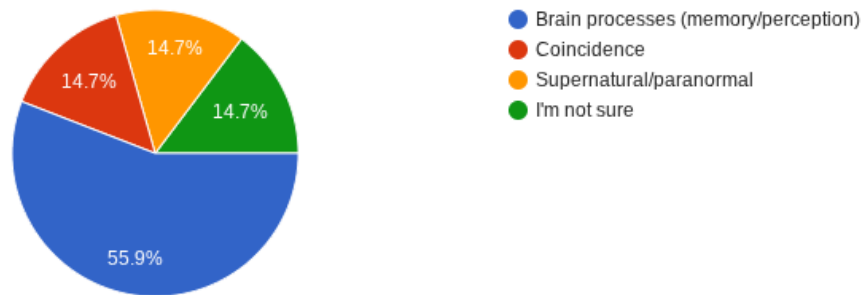


Many of the respondents' beliefs regarding the cause of these experiences varied. More than half (55.9%) believed that brain processes involving memory and perception were the most likely explanation for déjà vu and perceived prediction. The remaining participants were evenly divided at 14.7% between believing the experiences were caused by coincidence, supernatural or paranormal causes, or being unsure. When asked how these experiences made them feel, the most common responses included fascination, curiosity, and excitement, indicating that many people viewed these experiences as intriguing rather than frightening.

Which explanation do you think is most likely?

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34 responses



Discussion

The results of this study suggest that experiences such as déjà vu and feelings of prediction are common among people of different ages. Respondents often seemed to follow a similar pattern in their responses, with most experiencing déjà vu, but only rarely. The majority of the respondents were only “slightly” confident that these experiences predicted future events even though participants reported having déjà vu or feeling that they knew something would happen before occurring. Many participants might have recognized that having these feelings doesn't automatically mean that they can predict future events and assumed them to simply be coincidences, as shown by the low number of people that were confident in their predictions. Participants described feelings of curiosity, fascination, excitement, confusion, and uneasiness when asked about their emotional response. To add on, over half of the participants believed that brain processes involving memory and perception were most likely the explanations for these experiences. This shows that many people already relate to déjà vu with science rather than supernatural explanations, illustrating how the findings and previous research suggests that déjà vu is a common cognitive experience rather than an unusual occurrence.

Consistent with previous research, the open-ended questions provided responses into how participants personally understood and experienced déjà vu in everyday life. One respondent said, *"I went into a mall I hadn't been in for years. I got lost in a new section but somehow was able to navigate it like I knew it like the back of my hand to find everyone"*. This ties back to the findings of Cleary et al. (2018) who found that many participants often experienced a strong feeling that they knew what would happen next, even though there wasn't any scientific evidence that they could actually predict the future, as in many instances their "predictions" were more like guesses. Because the brain constantly predicts the outcomes based on past patterns, participants reported feeling a sense of hope and familiarity during everyday situations (Corlett et al. 2020). This helps explain why participants described feelings of anticipation during everyday events. Another respondent shared, *"I walked into a room I've never been in. Someone says, 'you're finally here.' Before anyone speaks, I somehow know exactly what they're about to say. They say it word for word."* This shows what the brain generates expectations based on previous experiences and patterns, which is predictive processing. The neurological explanation also supports these findings by proposing that déjà vu occurs when the brain mistakenly signals familiarity, even though there is no actual memory associated with the experiences, proposed by Spatt (2002). One participant also explained, *"Some conversations feel like I already had them."* This type of experience is similar to Spatt's (2002) explanation that the brain can produce a feeling of familiarity even when no corresponding memory exists. These studies support the idea that these experiences are better explained by normal cognitive processes rather than paranormal or supernatural abilities.

According to a review of déjà vu research published by Brown (2003), 60% of the sample population has experienced déjà vu before, compared to a prevalence of 85.3% in our survey.

Similar to the survey conducted by Brown, our survey findings stay consistent with how the frequency of people who experience déjà vu decreases with age. Additionally, his findings suggest that déjà vu is more common in people who experience more stress and fatigue, suggesting that some cognitive factors can influence the presence of déjà vu (Brown 2003).

Our findings aim to make scientific research more accessible to the public. While a lot of research has been conducted, most existing literature regarding topics such as predictive processing and déjà vu use complex terminology and tools that might not be within the scope of the understanding of general audiences. It is important to understand the science behind déjà vu and learn more about how our brain functions in order to reduce misconceptions, and by combining established neuroscience research with firsthand survey responses, this study helps make it easier to relate these ideas with daily experiences. This study also helps encourage more people to see these phenomena scientifically rather than assuming they are supernatural.

Despite these findings, several limitations should be considered about the findings of this survey. While the survey only recorded 34 responses, it still was able to provide awareness on how déjà vu is perceived in real-world scenarios. Also, it should be mentioned that some of the responses might not always be completely accurate as responders had to rely on their own memory and personal version of past experiences since everything was self-reported. In addition, our survey was distributed online using a convenience sample, meaning that the results might not fully represent a broader population. To build on this, in the future, such surveys can be conducted with a larger and more diverse group while also adding an experimental study element as this would allow a better comparison of everyday experiences with backed up findings collected in controlled laboratory settings. This approach can better provide an understanding of why people experience déjà vu and feelings of prediction.

Conclusion

This study explores why people often feel as though they can predict future events through phenomena such as déjà vu and dreams that seem to come true. By combining our survey results and existing neuroscience research including experiments and surveys, we were able to demonstrate that these experiences are common and often create a feeling of familiarity. While this is true, they don't provide evidence that people can predict the future. Instead, the results support existing research, suggesting that these experiences are more accurately explained by cognitive processes involving memory, perception, and the brain's ability to recognize patterns and generate predictions.

This study also highlights the importance of making scientific research more accessible to the general public. Much of the existing literature contains complex terminology and is based on controlled laboratory experiments. Even though déjà vu and predictive processing have been widely studied, existing research often makes it difficult for general audiences to understand. So, our article helps simplify complex topics while maintaining scientific accuracy. It also allows readers to connect scientific concepts with situations they may encounter in everyday life. We do this by discussing existing neuroscience with the survey findings allowing us to bridge the gap between scientific research and public understanding.

Even though this study provides insight into others experiences of déjà vu, future research should include a large and more diverse population while continuing to investigate these events in real-life situations. This can help general audiences better understand how feelings of familiarity can rise, and why studies and laboratory experiments sometimes create an illusion of predicting future events. In the end, understanding the science behind déjà vu allows us to appreciate that these experiences are part of the brain's natural processes rather than supernatural

abilities. Déjà vu may seem like a mystery, which is why it builds curiosity. But the more we learn about the brain, the more we realize that some of its most extraordinary experiences can be explained by the way it remembers, recognizes, and predicts the world around us.

Work Cited

Brown, Alan S. “A Review of the Déjà Vu Experience.” *Psychological Bulletin*, vol. 129, no. 3, 2003, pp. 394–413, <https://doi.org/10.1037/0033-2909.129.3.394>.

Cleary, Anne M., and Alexander B. Claxton. “Déjà Vu: An Illusion of Prediction.” *Psychological Science*, vol. 29, no. 4, Mar. 2018, pp. 635–44, <https://doi.org/10.1177/0956797617743018>.

Cleary, Anne M., et al. “Déjà Vu and the Feeling of Prediction: An Association with Familiarity Strength.” *Memory*, vol. 29, no. 7, Nov. 2018, pp. 904–20, <https://doi.org/10.1080/09658211.2018.1503686>.

Corlett, Philip R., et al. “What We Think about When We Think about Predictive Processing.” *Journal of Abnormal Psychology*, vol. 129, no. 6, Aug. 2020, pp. 529–33, <https://doi.org/10.1037/abn0000632>.

“FIG 1. The Medial Temporal Lobe Consists of the Hippocampal Formation....” *ResearchGate*, https://www.researchgate.net/figure/The-medial-temporal-lobe-consists-of-the-hippocampal-formation-blue-green-superiorly_fig5_268791398. Accessed 5 Aug. 2026.

Spat, Josef. “Déjà Vu: Possible Parahippocampal Mechanisms.” *The Journal of Neuropsychiatry and Clinical Neurosciences*, vol. 14, no. 1, Feb. 2002, pp. 6–10, <https://doi.org/10.1176/jnp.14.1.6>.