

Sample Paper

This paper was written by one of my students and provides a general idea of what I am looking for in your paper for this class. I believe that it is a very good paper in that it reflects the format that is required, and a high level of writing and thinking ability. Note that the paper consists of three parts: a summary of a psychology related article, a critical analysis of the article, and the article itself. Note also the general length of the student’s paper and of the article the student chose to write about.

Psychology 300

“Dreams: Night School”

Summary

The article “Dreams: Night School” focuses on a new theory about dreams called the threat-simulation theory. A Finnish psychologist named Antti Revonsuo proposed the theory. The theory was based off of an experiment performed in 2004 at the University of Wisconsin at Madison with rats. They put rats in tubs of water, with an upside down flowerpot in the middle. The rats would lie down on the flowerpot to sleep, but when they hit REM sleep their body would go slack due to the muscular paralysis and they would fall through the hole and into the water. Then they would climb back up and go back to sleep. So after several days of no REM sleep, which meant several days of almost no dreaming the rats were put through tests of their survival behaviors. The rats that were dream deprived did very badly on all of the tasks. Their survival instincts decreased dramatically. In another part of the experiment, the dream-deprived rats were given amphetamines to reverse the sleep deprivation, but they still did badly on the tasks, so the cause must not be related to sleep.

Several theories have arisen to explain dreams. Freud believed dreams were ways of fulfilling our forbidden desires. Another theory is that dreams are glimpses of us trying
to solve emotional problems. Another one is that dreams mean nothing, and they are just our brain trying to make reason out of random firings in the brain. Revonsuo believes that dreams are where we go over survival behaviors in many different threatening situations. In our dreams we are presented repeatedly with threats, so that if presented by the threat in real life we can identify and respond to the threat much more efficiently. The explanation for the rat’s poor performance was a lack of practice of their survival behaviors in their dreams.

Revonsuo believes that our dreams are like a virtual reality of real life scenarios that allow us a safe place to practice our reactions. He says: “The primary function of negative dreams is rehearsal for similar real events, so that threat recognition and avoidance happens faster and more automatically in comparable real situations.” Revonsuo asked some of his students to keep dream logs and his finding were that many of them involved negative and dangerous things. Some of the most common dreams involved being chased or attacked. Revonsuo believes that these occur to actually help us respond in a real life situation. He relates this dream rehearsal to practice. It is proven that practice of anything improves the efficiency, and he believes that dreams are no different. He also believes that our brain while dreaming scans for memories with a negative emotion behind it and that there is a direct correlation between how traumatic the event is and how intense the nightmare is. This explains the reoccurring nightmares after such events as a rape, attack, or war. When there is more exposure to trauma there is more exposure to threats in our dreams. Revonsuo’s explanation for not all dreams being about threats is that a biological system doesn’t have to express its function at all times.
Not everyone agrees on threat rehearsal as the primary function of dreams. For instance, it has been proven that dreams also help with problem solving and solidifying and organizing knowledge. Problem solving could just be an effect of the rehearsal of the situations in our dreams. It has also been shown that dreaming about a task improves how well it is done. Revonsuo sums it all up by saying: "Dreaming is a sensitive system that tries to pay much attention to the threatening cues in our environment. Their function is to protect and prepare us." It is agreed that threat-simulation is a part of dreams, but there are many more aspects of dreaming.

Analysis

I think that the threat-simulation theory is a good one, but I’m not sure if threat-simulation is the main function of dreams. I think that there are many different functions of dreams, and this is just an example of one. I’m still skeptical about the practicality of these threat simulations. The question of if they really do help in real life situations is almost impossible to test. The rat experiment is a good one, but there are other factors that could have accounted for the loss of survival behaviors. It doesn’t make sense how the loss of a couple nights of dreams would make them lose all of their natural instincts that they were born with. So I’m not sure if it is really the loss of dreams that makes them do so poorly, or the loss of REM sleep. It is shown in humans, that the loss of REM sleep has a lot of negative effects. So it is possible that the loss of dreams had nothing to do with it. I do think that animals dream based off of dogs. Sometimes when a dog is asleep they start making noises and their legs start moving like they are running. This would
lead me to believe that they are dreaming about running. It is possible that it was the loss of dreams and the proposed practice of survival instincts that made the rats perform so poorly, I just don’t get how losing that couple nights of dreams would make them forget their basic survival instincts. One possible explanation would be tiredness from the lack of sleep in general, but when they gave the rats amphetamines they still performed badly. Even if it wasn’t the tiredness, I think there still could be some specific part of REM sleep that allows rats to exercise their survival instincts.

The practicality of these threat simulations would be impossible to test in humans for several reasons. For example, you can’t control dreams, so it would be hard to test a specific threat. Also you can’t confront someone with a threat, because it would be against the law. Finally, it would be very hard to rank how well someone handles a threat with threat simulations in dreams compared to someone who did not have these dreams. It is just hard to say whether these threat simulations really help in real life situations.

I’m not completely sure if they do. It is possible for them to help, but it is also possible for them to have little or no effect. There is evidence for both sides. Personally I can’t recall any specific threat-simulation dream that I have had that caused me to learn what to do in that situation in real life. I think that most people would probably say the same thing. On the other hand most people could probably remember having a dream about some sort of threat-situation such as being chased or attacked. I’m just not sure if these dreams really help in real life. Although just because I don’t consciously know of a response I learned to a threat, doesn’t mean it didn’t sink into my subconscious while I was dreaming it. Revonsuo brings up a good point to this when he says “you don't have
to recall exactly where you practiced your tennis serve in order to reap the rewards.” He thinks that just the rehearsal of the threat-situations is enough to help. Just because you are rehearsing or practicing something doesn’t mean it will help. For example, if you were practicing the tennis serve wrong and the ball went out every time you served, all the practicing you did wouldn’t have helped at all. It is possible than in these threat-simulation dreams you do the wrong things that would work out terribly for you in real life. That is the trouble with dreams, we can’t consciously control them, so if our brain tries to solve these problems the wrong way and that influences us in real life, then it could have some damaging effects. On the other hand, the rehearsal of these dreams could sink into our subconscious and end up helping, but that brings us back to the problem of coming up with a way to test if it does in fact help.

I don’t see it having a huge effect, but it could have some effect. I just don’t think going over threat situations in our dreams could truly have a great help in a real life situation. When we sleep, our brain just deals with information that is already there. While we sleep, I don’t see how we could magically come up with a new way to deal with a threat without any added information. I just don’t think that new information could come to our attention while dreaming, that we wouldn’t have already found out while we were awake. I don’t think that dreaming helps us to come up with new ways to deal with threats and this is the only way I see that dreaming about a threat-situation could be a great help to us in real life. If you don’t come up with a new idea while dreaming, that must mean that you are practicing an existing idea. If that idea exists already, then there is a good chance that you know about consciously too. So dreaming about using that idea wouldn’t really be that helpful, because you would probably just do that same thing in
real life anyway. So it comes back to the rehearsal of these situations in dreams. I just don’t think that dreaming about something 50 times is the same as actually doing it in real life just once. I don’t think you can truly know what something is like until you actually do it. Take skydiving for example. You can read books about it, watch videos of people doing it, and talk to people that have done it, but until you are actually looking out of the plane 10,000 feet up, these things don’t tell you what it is actually like. In the same way, I don’t think rehearsing what you would do if someone came and attacked you in a dream would provide a great help if it happened in real life. It is the subconscious rehearsal that I am not so sure about. Conscious rehearsal or visualization has shown to be helpful in improving performance, but I don’t think that it is the same or as helpful in subconscious rehearsal.

Since I don’t think threat-simulation rehearsal in dreams provides that great of help in real life situations; I don’t see how threat-situation rehearsal could be the main function of dreams. If it was the main function of dreams I think that it would have to be more helpful. A way for it to be more helpful would be for us to remember the specific details of our dreams a lot better. For a dream to help in real life, I would think that the details have to very vivid and we would have to remember all the details. The most important part would be to consciously remember all the details. I think this is the only way in which it would be a great deal of help in real life. I do agree with the theory, I just don’t think it has as much practical use as Revonsou does. I think it is safe to say that it is a fact that all people dream, and that they have had at least one threat related dream. I also think that in a threat related dream, people do what they have to do to survive. What you hear from most people is that they were being chased. Being chased involves running
away. So the person in the dream must be running away. Most people probably won’t say that in the dream, they decided not to run. So I think it is true that in dreams we practice survival techniques. I also agree that there is a good correlation between real life trauma, and the threat related dreams that we have. I am basing this off of the reoccurring nightmares that people have after severe instances such as a rape, an attack of some kind, or a war. So I think that all of the points of his theory are correct except for the thinking that it is the main function of dreams.

If threat simulations were the main function of dreams, it would make sense that almost all of the dreams we have would be threat simulations. For me, this is not the case. Of most of the dreams I remember I would say that about 5-10% are threat simulations. That’s not to say that I didn’t have more, but that is of the ones I remember, but if the threat-simulations were so important it would make sense for me to remember them. Most of my dreams are really random. Judging by my dreams, I would say that the purpose is making connections between things in my life and memories. In most of my dreams, really random things pop up; things that I definitely don’t think about in my day-to-day activities. A lot of people that I don’t talk to or hardly ever talked to spring up. So I think my brain is making connections to these people in some way, or possibly trying to come up with solutions to problems abstractly. Either way, it doesn’t seem to me that the main functions of my dreams are to “protect and prepare” me. I really like having dreams. They are usually about something fun or interesting. I can also do whatever I want in dreams with no consequences. It has happened to me several times where I have a dream and I remember it, but not as a dream as something happening. Then later that day something reminds, and I realize that my memory was a dream. I just accept some of
my dreams as real occurrences. Most of the times I am disappointed because it was a
good things too. This might be why I just subconsciously chose to accept it as fact. So I
think that my dreams reflect upon things going on in my life and things that could
possibly happen in my life.

So in conclusion I think that Revonsuo’s theory is valid in all of its parts except
for it being the main purpose of dreams and that the rehearsal of the threat situations help
us a lot in real life. I think that it is possible for these rehearsals to help in real life, but
not to a great extent. Threat simulation is a part of dreams, but I don’t think it is the main
purpose. I don’t think the main purpose of dreams is the same for everyone. I think
everyone utilizes dreams a little differently. Although dreams run through our
subconscious, I think that what we do consciously can have an affect on what dreams we
have and how they are presented to us. Dreams can help with problem solving and more
importantly just organizing all of the information we have running through our heads. I
think the degree of helpfulness also varies depending on the person. I think there are even
more functions of dreaming beyond these. For me, dreaming is just something fun to do.
It is possible that in this fun, dreaming also serves to help me in some way, but it is hard
to say.

**Dreams: Night School**
A hundred years after Freud, one man may have figured out why we dream. You'll never
think the same way about nightmares again.

By: Jay Dixit

The Dream Robbers

What happens when a rat stops dreaming? In 2004, researchers at the University of Wisconsin at Madison decided to find out. Their method was simple, if a bit devilish. Step 1: Strand a rat in a tub of water. In the center of this tiny sea, allot the creature its own little desert island in the form of an inverted flowerpot. The rat can swim around as much as it pleases, but come nightfall, if it wants any sleep, it has to clamber up and stretch itself across the flowerpot, its belly sagging over the drainage hole.

In this uncomfortable position, the rat is able to rest and eventually fall asleep. But as soon as the animal hits REM sleep, the muscular paralysis that accompanies this stage of vivid dreaming causes its body to slacken. The rat slips through the hole and gets dunked in the water. The surprised rat is then free to crawl back onto the pot, lick the drops off its paws, and go back to sleep—but it won't get any REM sleep.

Step 2: After several mostly dreamless nights, the creature is subjected to a virtual decathlon of physical ordeals designed to test its survival behaviors. Every rat is born with a set of instinctive reactions to threatening situations. These behaviors don't have to be learned; they're natural defenses—useful responses accrued over millennia of rat society.

The dream-deprived rats flubbed each of the tasks. When plopped down in a wide-open field, they did not scurry to the safety of a more sheltered area; instead, they recklessly wandered around exposed areas. When shocked, they paused briefly and then went about their business, rather than freezing in their tracks the way normal rats do. When confronted with a foreign object in their burrow, they did not bury it; instead, they groomed themselves. Had the animals been out in the wild, they would have made easy prey.

The surprise came during Step 3. Each rat was given amphetamines and tested again; nothing changed. If failure to be an effective rat were due to mere sleep deprivation, amphetamines would have reversed the effect. But that didn't happen. These rats weren't floundering because they were sleepy. Something else was going on—but what?

What Dreams Are Made Of

Dreaming is so basic to human existence, it's astonishing we don't understand it better. It consumes years of our lives, and no other single activity exerts such a powerful pull on our imaginations. Yet central as dreaming is, we still have no idea why we dream. Freud saw dreams as convoluted pathways toward fulfilling forbidden aggressive and sexual
wishes; frightening dreams were wishes in disguise—wishes so scary, he believed, they had to transmute themselves into fear and masquerade as nightmares.

Later came the idea that dreams are the cognitive echoes of our efforts to work out conflicting emotions. More recently, dreams have been viewed as mere "epiphenomena"—ex crescences of the brain with no function at all, the mind's attempt to make sense of random neural firing while the body restores itself during sleep. As Harvard sleep researcher Allan Hobson puts it, dreams are "the noise the brain makes while it's doing its homework."

"There's nothing closer to a consensus on the purpose and function of dreaming than there's ever been," says Deirdre Barrett, a Harvard psychologist and editor of the forthcoming *The New Science of Dreaming*. Indeed, no theory has been able to reconcile the findings of various subdisciplines of dream science. Until now.

Finnish psychologist Antti Revonsuo believes the marooned rats lost their ability to defend themselves not because they were exhausted but because they were robbed of their dreams. Dreams, he contends, are a training ground in which animals and people alike go over the behaviors that are key to their survival. Prevented from dreaming, the rats were unable to rehearse their survival behaviors. In other words, they were defenseless because they were out of practice.

A Theater of Threats

Say you're in a fight and somebody wraps his arms around you from the front, pinning your arms to your sides—a bear hug. Most people reflexively stiffen their body. But this is actually the worst thing to do; making your body rigid makes you easier to lift—and lets your assailant pick you up and drop you on your head, or worse, haul you off somewhere.

Better to bend your knees and lower your center of gravity so you're harder to lift. You're then free to punch your aggressor's testicles, claw the skin on his back, kick out his knee, stomp his foot, even bite his neck—unappetizing options, but effective against even the biggest thug.

The difference between the typical and optimal response could save your life. But making such a reaction swift and automatic takes practice. It's the reason martial arts students drill their movements over and over. Frequent rehearsal prepares them for that one decisive moment, ensuring that their response in an actual life-or-death situation is the one they practiced.

Dreams may do the same thing. A dream researcher at the University of Turku, in Finland, Revonsuo believes that dreams are a sort of nighttime theater in which our brains screen realistic scenarios. This virtual reality simulates emergency situations and provides an arena for safe training. As Revonsuo puts it, "The primary function of
negative dreams is rehearsal for similar real events, so that threat recognition and avoidance happens faster and more automatically in comparable real situations."

Faced with actual life-or-death situations—traffic accidents, terrorist attacks, street assaults—some people report entering a mode of calm, rapid response, reacting automatically, almost without thinking. Afterward, they often say the episode felt unreal, as if it were all a dream. Threat simulation, Revonsuo believes, is why.

A Season in Hell

As a grad student in psychology in the early 1990s, Revonsuo often had bad dreams. What struck him the most was how lifelike they were. "I would say to myself, in my dream, 'Oh shit! I've dreamt of this before, but now this is really happening!' " he recalls.

"Credible world analogs" are what cognitive psychologist David Foulkes calls dreams. Although we tend to dwell on the bizarreness of dreams, most dreams are quite mundane, Foulkes notes. You move around, talk, run, interact with others, experience emotions, and feel the passage of time, just as in everyday life.

When Revonsuo began studying dreams, he asked his students to start keeping logs of their own nocturnal escapades. He noticed something striking. The dreams were filled with dangerous events, negative emotions, monsters, chases, escapes, fights, and near-death experiences. The dream world was a hellscape of danger, teeming with threatening events far more sinister than in waking life.

These weren't the misfirings of diseased brains. Threat dreams were the norm, accounting for a staggering two-thirds of all dreams. Revonsuo discovered that we grossly underestimate the number of nightmares we have. As it turns out, we have 300 to 1,000 threat dreams per year—one to four per night. Just under half are aggressive encounters: physical aggression such as fistfights, and nonphysical aggression such as verbal arguments. The rest are about car crashes, falling and drowning, missing a meeting or a test, being lost or trapped, and being naked in public. The whole dream world seemed to have a negative bias: more negative emotions than positive ones, more misfortune than good fortune, more nightmares than fantasy.

A Theory Is Born

In the ancestral environment, Revonsuo reasoned, our dreams served to protect us, teaching us how to respond when a wild animal was chasing us or when we got lost in the forest. That was why the dream world was so filled with peril: to simulate the potential threats and prepare us to react quickly. But how could dreams help us select the optimal response, given that dream recall is so fragile? After all, we remember only a few of our dreams, and even those fade fast in the tumult of the day.
Revonsuo believes that by providing rehearsal, dreaming helps us recognize dangers more quickly and respond more efficiently. We don't need to be aware of this rehearsal, just as you don't have to recall exactly where you practiced your tennis serve in order to reap the rewards.

The idea that dreams are a dojo for perfecting waking activities fits well with what is already known about practice. Mental rehearsal through visualization improves skills, enhances learning, and changes the brain, polishing performance in almost any domain, from sports to piano playing.

The single most pervasive theme in dreaming is that of being chased or attacked. Just as athletes in training repeat parts of their performance, we may, in our nightmares, be attacked and chased over and over again, not to solve a particular problem but to actually practice efficient escape behavior.

Saber-toothed tigers no longer stalk our villages, but Stone Age themes still rule our dreams. "Nowadays, the evolutionary footprint is clearest in the dreams of children, who often dream about being chased by monsters, much the same way we were once chased by predators," says Revonsuo. As life has evolved, so have the threats we rehearse. "You insert a modern danger into that ancestral key and get a bizarre combination," says Revonsuo. "We dream of being chased, shot, or robbed, getting into traffic accidents, a burglar in our house, or perhaps smaller mishaps such as losing our wallets—and that prepares us for our waking life."

The dreaming brain, explains Revonsuo, scans emotional memories. When it detects a memory trace with a strong negative emotion, it constructs a nightmare around that theme. The more traumatic the event, the more intense the nightmare. The brain's system for detecting threats is sensitive and flexible: Anything the brain tags with a strong negative charge gets thrown into the threat bin and dredged up at night.

Sometimes this system works well: Dreaming about a boy running in front of our car better prepares us should that danger crop up in real life. But sometimes the modern world throws the threat-detection mechanism out of whack: Watching horror movies can trigger nightmares about vampires, ghosts, aliens, or zombies. Such "nonsense nightmares" don't rehearse any useful threats; they're like an allergic reaction, says Revonsuo. Just as our immune system can mistake pollen for a pathogen and mount a defensive campaign, the threat-detection system misperceives horror movies and deploys its defenses by generating a nightmare.

Heroes of Our Own Dreams

In the jungles of the Amazon lives a tribe called the Mehinaku. The Mehinaku lead the traditional life of hunter-gatherers. They spend their days fishing and gathering roots. Since they believe that dreams predict the future, they are scrupulous about remembering them and sharing them with others. That makes them perfect for an ethnographic study of
dreams. In 1981, anthropologist Thomas Gregor surveyed their dreams and analyzed the content.

As it turns out, the Mehinaku dream profusely about the dangers in their everyday lives: being attacked by wild pigs; chased by jaguars; bitten by snakes; stung by wasps, ants, or bees—all potentially lethal. "Their dreams simulate over and over again what to do and how to do it quickly when they spot these animals in the wild," reports Revonsuo. Across a tribesman's lifespan, a single failure to react efficiently could be fatal. If threat simulation even marginally increases the likelihood that such fatal failures won't occur, it would prove adaptive.

If the threat-simulation theory is correct, dreams should focus on the self, and when confronted with a threat, the dream self should react realistically to ensure its own survival and that of its loved ones. And so it is. We are the heroes of our own dreams. We don't dream about other people's adventures or about fictional superheroes battling monsters. We dream about ourselves.

If dreams evolved to simulate the threats in our environment, then being exposed to more dangers in real life should activate the nightmare function, overstuffing our dreams with threats. This is precisely what happens. Even a single exposure to a life-threatening situation can plunge a person into an inferno of post-traumatic nightmares, dreams in which the threatening event—the attack, the rape, the war—is repeated over and over in every possible variation.

Studies of traumatized Iraqi and Palestinian children who grew up in extremely violent environments, some of whom witnessed their parents' deaths, show that their dreams are phantasmagoric carnivals of threatening events. People who watched more television on September 11, 2001, and saw threatening images were more likely to dream about the events of that day; people who merely talked about it with others were less likely to dream about it.

Traumatic dreams do seem to rehearse relevant threats. Just four weeks into the first Gulf War, as Scud missiles were raining down on Tel Aviv and Haifa, the war was already encroaching on the dreams of Israeli college students, according to a study. The most prominent topic: gas masks.

But not all our dreams contain threats. That's not surprising, says Revonsuo. There's no reason a biological system has to express its function at all times. Many bodily systems spring into action only in critical situations. Take sperm cells. The average man ejaculates over 100 million sperm at a time, yet over the course of his life, only a few will ever accomplish their biological mission of fertilizing an egg. Every day, millions of sperm are wasted—and while this may, as Monty Python sings, make God quite irate, it doesn't mean that sperm cells have some function other than fertilizing eggs and competing with other sperm.
Intriguing as Revonsuo's theory is, not everyone is sold on the idea that dreams are primarily a theater of threat rehearsal. Dream researchers have known for centuries that dreaming helps problem solving, for example—but they still do not know why.

Some researchers argue that dreams are designed specifically to help us come up with creative solutions. But if that's the case, it's infuriatingly inconsistent—and complicated by the fact that we rarely remember our dreams.

Those who awake with brilliant solutions to scientific or artistic problems are the exception. German chemist Friedrich August Kekule struggled to find the molecular structure of benzene until he dreamed about a snake devouring its own tail and realized benzene was a closed circle—a ring. The self-taught Indian mathematician Srinivasa Ramanujan came up with every one of his proofs in dreams. Paul McCartney dreamed "Yesterday," woke up, and wrote it down.

Problem solving may be a side effect of the simulation system. The mere fact of running scenarios over and over may inevitably generate new solutions. That's why when we have an important decision to make, we like to "sleep on it" first, why, according to a study by University of Maryland psychologist Clara Hill, couples who dream about their relationship are more likely to resolve their conflicts than couples who don't.

It's also known that we get better at tasks just by dreaming about them. Robert Stickgold, a sleep researcher at Harvard Medical School, found that if you time people as they tap out the sequence 4-1-3-2-4 with their fingers, then ask them to do it again later that day, they are no better. But let them sleep in between and their performance improves—literally overnight. The implication seems obvious: Sleep provides practice. People given brainteasers before bed dream about the answers. Math students are all too familiar with dreams about algebra problems. Anyone who's ever played too much Tetris knows you can start having Tetris dreams.

Stickgold holds that dreaming is much more complex than rehearsal. He points, for example, to the ability of sleep to allow us to integrate and consolidate knowledge. During sleep, our brains are making sense of the world, discovering new associations among existing memories, looking for patterns, formulating rules. "That's how we create meaning," says Stickgold. "Our brain puts things together."

Dreams do have a certain edge over conscious thought. Neuroimaging work has shown a distinct pattern of activation and inhibition in the dreaming brain. Visual and emotional centers are abnormally activated, while censoring mechanisms are deactivated. When we try to visualize during the day, imagery is thin and insubstantial, less real than the real world. But studies suggest that vivid hallucinations during dreaming rival the clarity and detail of vision itself.
"Dreaming is a sensitive system that tries to pay much attention to the threatening cues in our environment," Revonsuo concludes. "Their function is to protect and prepare us."

"Yes," says Harvard's Barrett, "dreams are worrying about disasters. But they're also planning for nice things and they're fantasizing and they're problem solving."

She contends that the purpose of dreaming is "as broad as all waking thought. That's why I say dreams are really just thinking in a different biochemical state."