Coelho, Carlos M., et al. "The Use of Virtual Reality in Acrophobia Research and Treatment."

    Journal of Anxiety Disorders, Pergamon, 10 Feb. 2009,

    https://www.sciencedirect.com/science/article/abs/pii/S0887618509000280.

    Coelho et al look into the use of virtual reality exposure therapy (VRET) and how recent

    innovations in VR help with acrophobia. The paper talks about how VR technology

    allows people's cognition to be tricked into thinking that they are really in the situation

    the headset puts them in. Virtual reality is also being used to study how cognitive factors

    contribute to a person's acrophobia as VR allows researchers to control every part of the

    experience in order to get the most accurate information. VRET is used to elicit fear and

    anxiety in patients making it an alternative mode of inducing exposure while also

    allowing time and money to be saved as the therapy can be done virtually anywhere. The

    researchers also cited that the flexibility and confidentiality that VR offers could

    encourage more people to seek treatment.

Maas, Han L.J. van der, et al. "How Much Intelligence Is There in Artificial Intelligence? A

    2020 Update." *Intelligence*, JAI, 25 May 2021,

    https://www.sciencedirect.com/science/article/pii/S0160289621000325.

    The authors explain that AI has two goals: first to be able to understand human

    intelligence and second to let computers do information processing tasks. However, the

    first AI models such as Deep Blue, which was used to beat a chess grand champion,

    utilized computers' ability to process mass amounts of data rather than showing true

    human intelligence. This has changed recently with the advent of novel techniques such

    as deep learning neural networks and reinforcement learning which have allowed

computers to learn just like humans do. The paper then goes on to explain Artificial Neural Networks which used layers of nodes to simulate biological neurons and networks in order to allow a computer to learn. The large amount of data that has come with recent advancements in computing have allowed ANNs to thrive and become much more accurate. Reinforcement learning is another model that is used to teach optimal behavior in a certain situation. This utilized techniques that gave feedback to a model on what areas it is deficient in order for it to make adjustments in order to improve.

M. Zyda, "From visual simulation to virtual reality to games," in Computer, vol. 38, no. 9, pp. 25-32, Sept. 2005, doi: 10.1109/MC.2005.297.

This paper looks at how the integration of virtual reality with the video game realm has led to the creation of serious games which aim to use games to further government/corporate training or any other real-world uses. The authors talk about America's Army, a game created by the US army as a recruiting tool, and how it was used by soldiers to practice their rifle skills. A sergeant noted that whenever they made recruits go complete levels in America's Army they were able to come back and pass the range tests. This led the researchers to wonder if K-12 science and math education could be taught through "collateral learning" facilitated by VR technology. The authors propose that for serious games to become cost-effective and viable projects there need to be improvements in the game development infrastructure such as open source engines and support for massively multiplayer online games. This, however, is not a problem anymore as advancements in game development have led to many open source engines like Godot along with extremely versatile engines like Unity and Unreal Engine.

Quintero, Eliud, et al. "Augmented Reality App for Calculus: A Proposal for the Development of

Spatial Visualization." *Procedia Computer Science*, Elsevier, 29 Dec. 2015,

https://www.sciencedirect.com/science/article/pii/S1877050915037126.

This paper looks at the possibilities of using Augmented Reality to help understand and

solve real-world problems. Specifically, the paper looked at how to display spatial

visualization for calculus problems. They decided to do this because calculus requires

students to have good spatial ability in order to transfer 3D objects into 2D models but

the researchers believed that by allowing students to directly see the 3D object students

would be able to perform better. The team built an AR app that not only displayed the AR

object but also showed the math behind them along with a video explaining the model.

Users were also given the ability to cut the surface in different ways as it was a very

common technique in Calculus 3 material. The team and their app were able to promote

mathematical skills and this shows one of the ways that innovations in technology can

transform classrooms.

Maples-Keller, Jessica L, et al. *The Use of Virtual Reality Technology in the Treatment of ... -*

E-Mence.

https://www.e-mence.org/sites/default/files/domain-39/Maples-Keller%20Use%20VR%2

0in%20disorders%202017.pdf.

Maples-Keller et al looked at available literature on the effectiveness of VR in psychiatric

treatment, with a specific emphasis on anxiety disorders. This is due to VR becoming

more and more common in the context of mental health to help reduce anxiety as it

allows for immersion into exposure-based treatment. The paper discusses that a large

amount of literature supports the fact that exposure-based therapy is an effective treatment for anxiety disorders and VR allows patients to be put into environments tailored to specific aspects of their fear structures. The paper concludes that VR is an effective treatment, compares favorably to existing treatments, and has lasting effects that generalize to the real world.