Citation: Samaa Waheed (2020), Benefits of using Virtual Reality, Augmented Reality and Mixed Reality in Product Design, International Design Journal, Vol. 10 No. 2, pp 405-416

Benefits of using Virtual Reality, Augmented Reality and Mixed Reality in Product Design

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Abstract:	Keywords
VR, AR and MR are all new technologies for product designers. They create new	Virtual Reality,
work situations and open up doors to new possibilities. But, at the same time, they	Augmented Reality,
come with numerous challenges that industry experts need to be aware of. Thanks to	Mixed Reality,
the emerging technologies in the 21st century that enabled product designers to	Visualization, Design
generate ideas more creatively and actually predict and solve design problems before	process
they even arise. This not only creates the possibility for an efficient manufacturing	
process but also reduces the cost and time needed for both design and production.	
This indicates that the product manufacturers will be using all their resources to make	
the most of their efficiency. VR is already used in several product design and	
production cycle stages. Designers first use it to assess the potential, strengths, and	
weaknesses of a design before actually working on a product. Afterwards, they can	
test how a product works and examine its details before allocating the company's	
resources to produce this particular product, saving the company time and money.	
Statement of the Problem: Are the standard product designers aware of the full	
potential of employing VR technologies in their design process, and different	
practices of product design and development? Do they have the tools and design	
techniques that are compatible with those new technologies ?	
Objective : Help product designers to explore the impact of these technologies and	
see how they can change the design and production processes. In addition, the study	
attempts to review the benefits of using virtual reality, augmented reality and mixed	
reality in product design. Methodology: The study employs a deductive approach	
supported by an analytical descriptive method. Results showed that; the younger	
generation of product designers are fully aware of the benefits they are going to gain	
by employing the new VR and related technologies in their design process, and	
design evaluation. They are mindful that the technology provides them with a safe	
environment to work in. The use of VR and related technologies in product design	
allows the creation of dangerous and hazardous situations that are usually thought-	
provoking or even intolerable to create in real life. As a result, designers can make all	
the essential adjustments that would permit them to fine-tune a product to its perfect	
state before it reaches the production line. The older generations are all aware to	
some extent of the capabilities of those technologies but they feel reluctant to employ	
them at their full capacity.	
Paper History:	
Paper received 4 th of January 2019, Accepted 28 th of March 2020, Published	d 1st of April 2020