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# BRIDGING THE GAP: STORE EXPERIENCE MEETS THE SUITABILITY OF VIRTUAL SHOPPING

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## ABSTRACT

The journey of virtual try-on technology traces back to the dawn of the Google age when e-commerce began reshaping our shopping habits. It arose as a solution to address the dilemmas posed by online shopping, where shoppers faced limitations in physically experiencing or testing products before committing to a purchase. [1.2]This gap between the physical in-store experience and the suitability of online shopping presented a prospect for innovation. As the technology evolved, so did its significance in the fashion industry. VTO emerged as the bridge between traditional in-store shopping and e-commerce, catering to the growing demand for a more engaging and immersive online shopping experience. It addressed the concerns of hesitant buyers, who were uncertain about how a garment would fit or how a shade of lipstick would look. [2,3,4]By providing a solution to these uncertainties, virtual try-on technology swiftly became an essential tool for fashion retailers, enhancing their customers' shopping journeys.

**Keywords:** Virtual Try-On, Omni Channel Strategies, Physical Visit, E-Commerce Growth

## 1. INTRODUCTION

In recent years, the retail landscape has undergone a significant transformation, driven by advancements in technology and changing consumer expectations. The convenience and efficiency of online shopping have increasingly complemented and in some cases, replaced- the traditional in-store shopping experience, which was once the cornerstone of retail. This shift has forced retailers to rethink their strategies, aiming to create a seamless blend of both worlds. While online shopping offers the ease of browsing and purchasing from the comfort of home, it often lacks the personal touch, [2,3,4] sensory engagement, and instant gratification that come with visiting a physical store. On the other hand, brick-and-mortar stores, with their hands-on customer service and interactive environments, can't compete with the speed, variety, and 24/7 accessibility of e-commerce.

This emerging trend of VTO, which bridges the gap between store experience and online convenience, represents both an opportunity and an innovation for the selling commerce Industry. Retailers are now leveraging expertise to create hybrid models—[4,5]such as click-and-collect services, virtual fitting rooms, and personalized online recommendations—to offer customers the best of both worlds. This incorporation not only enhances the customer journey but also builds brand loyalty in an increasingly competitive market.

As consumer behavior continues to evolve in VTO activity's, businesses must adapt by creating omnichannel strategies that seamlessly combine digital and physical touch points, transforming the retail experience into a consistent and dynamic offering. [4,5,6] This paper explores how this fusion of in-store experience and online convenience presents an occasion for retailers to innovate and stay competitive in the modern marketplace.

## 2. DATA ANALYSIS

Analysis the Bridging the Gap between Store Experience Meets the Convenience of Online Shopping scholar collected data from multiple areas, including consumer behavior, retail trends, technological integration, and financial performance of hybrid retail models. The following areas are related to data collection for analysis as;

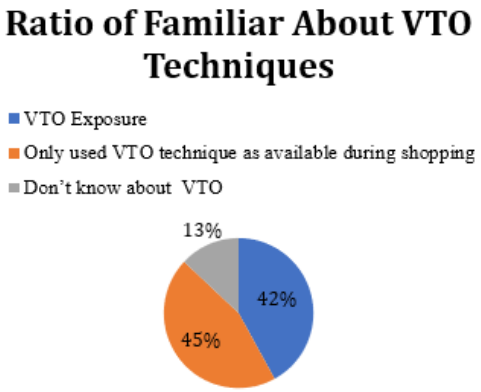
2.1 Consumer Behaviour and Preferences

2.2 Online vs. In-Store Shopping Preferences

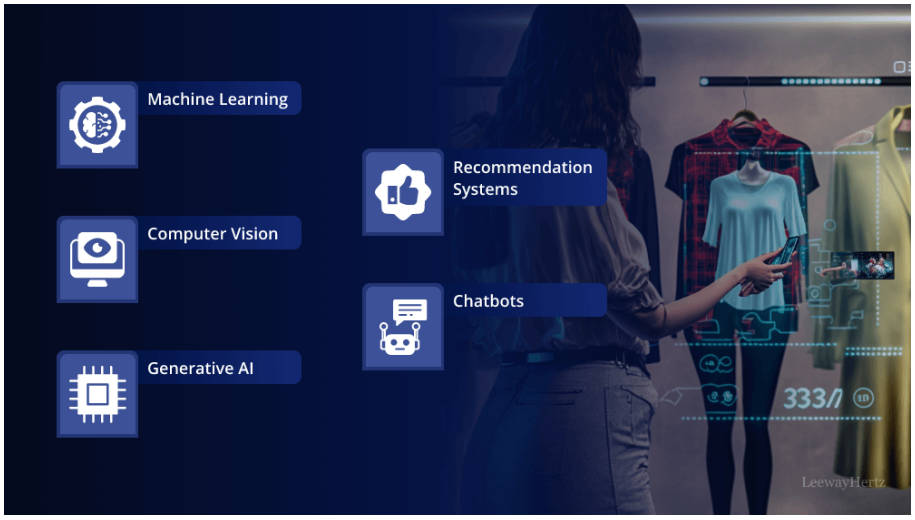
2.3 Data collected from consumer reports or research firms they have data for profit margin and loose trends in e-commerce growth and in-store shopping decline.

**2.1 Consumer Behaviour and Preferences:** Selected 150 respondents from Rajasthan based on a random sampling method, using a standard questionnaire that was divided into three parts each part with ten questions related to specific concern area.

**Find out the status of respondent familiar about VTO techniques:** The below mentioned graph indicated only 42% responded to only explore different VTO technique. As per data, we need to educate customers because 13 % customers never know about VTO techniques.




**Retailer Strategy of Online and In-Store Services; Influence factors;[4.5.6]** During the data collection, scholar formally discusses attractive features of the Online and In-Store Services mentioned in comparative table for easy understanding because both of techniques have their own importance.



**Ref: https://www.leewayhertz.com/ai-use-cases-in-fashion**

| Online | In-Store Services |
|---|---|
| Best Buy, Biggest Grade Deals | Best Buy, Biggest Grade Deals |
| click-and-collect these strategies impact customer satisfaction, conversion rates, and sales growth | Develop personal relationship |
| VTO techniques are available save time and trial room process | Actual fitting and real look available with barging option and gift ,rewards receive chance more as per on line stores. |

**The Relationship between Online Shopping, Virtual Try-On, and Economic Impact is examined in the table below:**

Retailers offering virtual try-on options are seeing a reduction in cart abandonment, which directly impacts revenue growth. For example, brands like **Sephora**, **Warby Parker**, and **Nike** have reported improvements in conversion rates since implementing these technologies.[7]

**Reduced Product Returns:** One of the major challenges in online shopping is the high return rate, particularly in fashion retail, due to sizing and fit issues. Virtual try-on helps mitigate this by allowing customers to better gauge how an item will look or fit. This reduces the number of returns, which can be costly for retailers in terms of reverse logistics, restocking, and inventory management.[7,8]

**Economic Impact:** Reducing return rates leads to significant cost savings for retailers. According to industry estimates, return rates in fashion e-commerce can range from 15% to 40%. Even a small reduction in returns—facilitated by better pre-purchase fit assessment through virtual try-on—can result in substantial savings for companies, improving profit margins.

Aspects of Consumer Behaviour and Preferences:

During the data collection process researcher formally examine consumer behavior in online and In-Store shopping. The table below highlights key factors such as online shopping, physical store shopping is mentioned in below table:

| On line Shopping | Physical Store Shopping |
|---|---|
| Browsing in -store and buying on line (show rooming) | Web rooming but buying in store |
| Hybrid models like click-and-collect | Develop Relationship and provide more services |
| Virtual fitting rooms, in-store kiosks, and augmented reality apps | Smart mirror |
| Payment option Cash on Delivery, E-Commerce raise economic growth. | Payment pay time of purchasing no option COD |

Financial Data: E-Commerce Growth vs. In-Store Sales Trends**:**

Financial data showing the comparative growth of e-commerce and traditional in-store shopping.

The study delves into the impact of omnichannel retailing, which integrates both online and offline channels, on the profitability of retailers. A few case studies from **Amazon**, **Alibaba**, or **Nike** that demonstrate the financial effects of their hybrid strategies.

Data demonstrates how retailers benefit from reduced returns, increased foot traffic, or optimized supply chain management through the implementation of omnichannel strategies.

By analyzing all the descriptions mentioned based on different responses collected by respondents from these various sources, you can provide a comprehensive analysis of how the convergence of in-store and online shopping is transforming the retail industry. The relationship between online shopping and virtual try-on technologies has a significant impact on the economy, particularly in the retail sector. Virtual try-on technologies, which allow consumers to digitally visualize how clothing, accessories, or cosmetics will look on them before purchasing, are reshaping customer behaviour and driving new economic trends in both e-commerce and brick-and-mortar retail. [5,6,7,8]

**Retail Tech Innovation and Adoption:** As more retailers invest in virtual try-on solutions, there's been an increase in demand for AR, machine learning, and artificial intelligence (AI) technologies to power these platforms. Consumers value in-store experiences for **instant gratification** (56%) and **hands-on experience** (67%), while **convenience and**

**speed** (81%) are the leading motivators for online shopping. **Consumer Demographics** according to **Millennials and Gen Z**: These groups are the most tech-savvy and open to hybrid shopping experiences. Studies show that **87% of Millennials** use online resources to influence in-store purchases. As per review of **Baby Boomers**: Interestingly, **41% of Boomers** now prefer the convenience of shopping online, but they still desire the personal touch of in-store service, making them potential adopters of hybrid models that emphasize customer service, such as virtual consultations or chat support. As per research found Around **48% of Gen Z shoppers** make purchase decisions influenced by social media, often using social media "buy now" features to engage with both online and offline retail stores, By **2025**[8.9.10] it is projected that **78% of global retailers** will heavily invest in AI-driven tools that analyze both online and in-store shopping behaviours to deliver hyper-personalized experiences also Consumers are increasingly looking for **sustainable options** across online and in-store channels. Research indicates **55% of shoppers** now prefer brands that offer eco-friendly packaging and carbon-neutral delivery options.[9,10]

## 3. VTO BENEFITS FOR SHOPPERS

**Enhanced shopping confidence** – virtual try-on apps provide users with the ability to visualize how virtual try-on apparels and trimmings will look on them, thereby boosting their confidence in making the right purchase decisions.

**Reduced return rates** – by providing a more accurate representation of how virtual try-on clothes and trimmings will fit and look, VTO technology significantly reduces the likelihood of returns, benefiting both clients and sellers.

**Efficient shopping experience** – users can save time and effort by quickly narrowing down their choices and preferences by trying on clothes virtually. It streamlines the shopping process.

**Exploration and creativity** – VTO apps encourage users to explore different styles and experiment with unique virtual try-on clothes and accessory looks without any commitment. It's an opportunity for creative self-expression.

**Convenience** – the convenience of trying on virtual clothes, accessories, or makeup from the comfort of one's home or via a mobile device can't be understated. It minimizes the need for physical store visits.[8.9.10]

**VTO Benefits for Businesses**

**Reduced return costs** – virtual try-on technology leads to more informed purchase decisions, reducing the number of returned items. That not only saves on return shipping and restocking costs but also minimizes the impact of returned products on inventory management.

**Enhanced customer engagement** – businesses can engage customers more interactively and memorably, fostering a sense of connection with their brand. The immersive nature of virtual try-on apps encourages customers to explore and interact with a broader range of products.

**Personalized recommendations** – by collecting data on customer preferences and their virtual try-on choices, businesses can provide tailored product recommendations, improving cross-selling and upselling opportunities.

**Competitive edge** – brands implementing virtual try-on technology gain a competitive edge in the market. It signals a commitment to innovation and an understanding of evolving customer needs, potentially attracting a broader customer base.

**Efficient inventory management** – with real-time insights into which virtual try-on clothes and accessories are more popular, businesses can streamline their inventory management, ensuring they stock products in demand.

**Data analytics** – virtual try-on technology generates valuable data on customer behaviour and preferences. By analysing this data, businesses can make data-driven decisions regarding product development, marketing strategies, and customer engagement.

**Reduced show rooming** – virtual try-on minimizes the need for customers to visit physical stores, mitigating the risk of show rooming, where customers try-on products in-store but purchase them online from a different retailer.

**Global reach** – businesses can expand their customer reach beyond geographic boundaries, as virtual try-on technology enables international customers to experience their products without needing a physical presence in various regions.[7,8]

**Environmental impact** – businesses can minimize the fashion industry's environmental footprint by decreasing the necessity for physical product trials and returns. This includes addressing issues like transportation emissions and properly disposing of returned items.

**Brand loyalty** – enhanced shopping experiences and the convenience of virtual try-ons can foster stronger brand loyalty, encouraging repeat purchases and positive word-of-mouth recommendations.[8,9,10]

**Ref: Olha Kurinna, https://www.apptension.com/blog-posts/virtual-try-on,2024.**

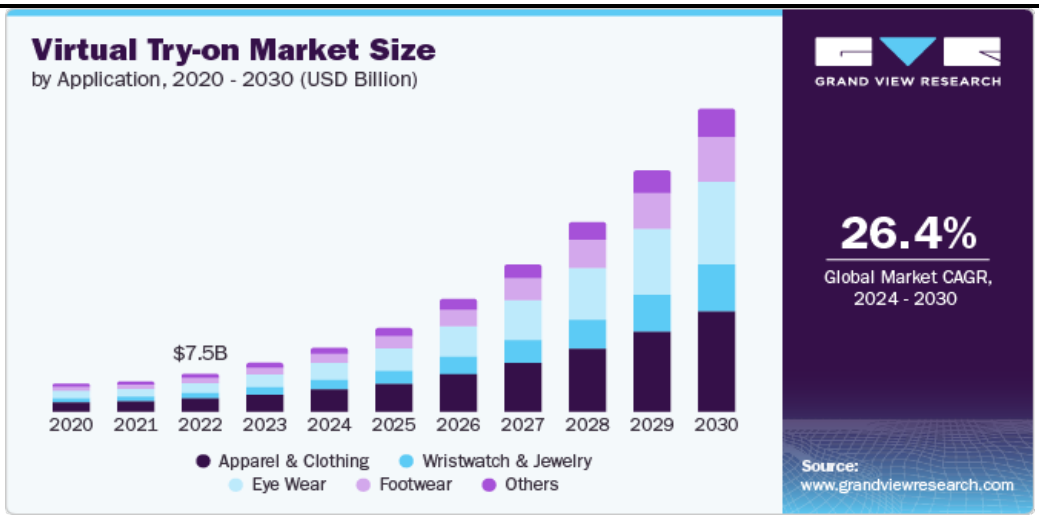
The Same Case Study, Related to VTO, is mentioned below to justify the scholar's descriptive study, which is based on formal interview and questioner.

**Case Study:1.** About 77% participants indicated that they'd want to give virtual try-on a try if it's easily available on a retail web or mobile site. When the Circling back to Lenskart, they understood the importance of virtual try on and made a clever use of augmented reality. However, they weren't the first to apply this knowledge, and there are also well-known to the However, Snapchat is not merely focusing on face filters;they are already leading the way in this field and are actively shifting gear towards a v-commerce realm. This year, Snapchat has introduced a range of new AR products, including their own AR try-on feature that allows users to virtually try on clothes using their smartphones. This could be a game-changer in online apparel shopping.[7,8,9]


**Ref Image: https://tri3d.in/blog/virtual-try-on-future-of-online-shopping**

The customer experience in online shopping could be revolutionized by this technology. Even the chief technology and product officer, Shamik Sharma, at Myntra has said "When they (virtual try-on) do become mass products, I think it'll become very important for ecommerce just because it's so much easier to visualise the product that you're buying". Common 77% customers like to use VTR due to the easy and more options are available for trying apparel sector with time and energy saving. [**Ref. https://tri3d.in/blog/virtual-try-on-future-of-online-shopping]**

**Case Study-II -** Estimates place the global virtual try-on market at USD 9.17 billion in 2023 with a predicted to grow at a CAGR of 26.4% from 2024 to 2030. Online shopping's growth has fuelled the demand for more interactive and engaging shopping experiences, thereby driving market growth. In addition, virtual try-on technology is becoming popular as it helps consumers with immersive shopping experiences that balance physical and online retail. This technology helps customers try products virtually before buying, reducing the uncertainty that comes with online shopping thereby expected to drive the market growth.




Furthermore, the advancements in Augmented Reality (AR) and computer vision technologies have fueled the demand for virtual try-on solutions. These technological improvements enable the creation of realistic and interactive virtual experiences, accurately portraying products to users in real-world settings. This enhanced capability attracts consumers seeking engaging and authentic online shopping experiences, contributing to the expansion of the virtual try-on market.[9,10,11,12]

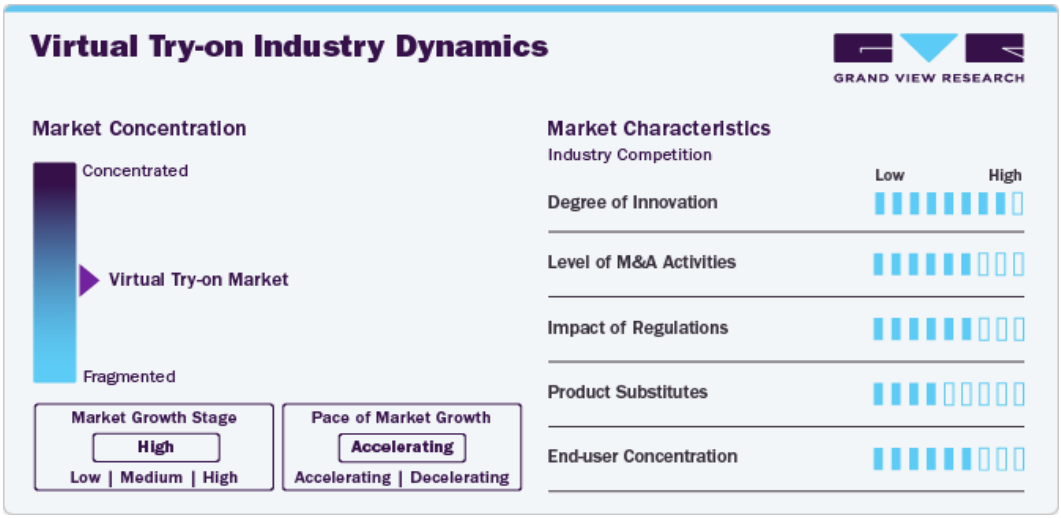
Moreover, the rising demand for personalized and customizable shopping experiences is propelling the virtual try-on market growth. Brands can provide personalized recommendations and customization features aligned with individual preferences, sizes, and styles with virtual try-on technology. This capability boosts engagement and also encourages customer loyalty by offering an interactive and personalized shopping experience as per each shopper's unique style and needs, thereby driving the virtual try-on market growth.

Additionally, the widespread availability of smartphones equipped with high-quality cameras and strong processing capabilities has stimulated the large acceptance of mobile-based virtual try-on applications. This accessibility empowers consumers to effortlessly utilize these features on the go, anytime and anywhere, thereby fuelling the demand for such innovative technologies within the virtual try-on market.

**Case Study III: Market Concentration & Characteristics**

The market for virtual try-ons is witnessing a high degree of innovation, particularly with the integration of AI and ML, among others. Increasing penetration of technologies has brought various innovations in virtual try-on and benefited developers to enhance the user experience of their products & expand their customer base across the globe.

The virtual try-on market is witnessing a significant impact of regulations and policies. For instance, regulations regarding the collection and use of biometric data can shape how virtual try-on platforms operate.[9,10]



The market is also being influenced by the rising number of mergers & acquisition activities that help companies increase market share, expand the customer base, and strengthen product portfolios.

Product substitutes are having a considerable impact on the virtual try-on market. The presence of substitutes increases competition within the virtual try-on market and the availability of substitutes can make customers more price sensitive.

End-user concentration is high in the market, as several industry verticals are adopting virtual try-on solutions to enhance user experience. Moreover, by eliminating the need for travel and associated expenses, virtual try-ons help end-users save money and time.[10.11.12]

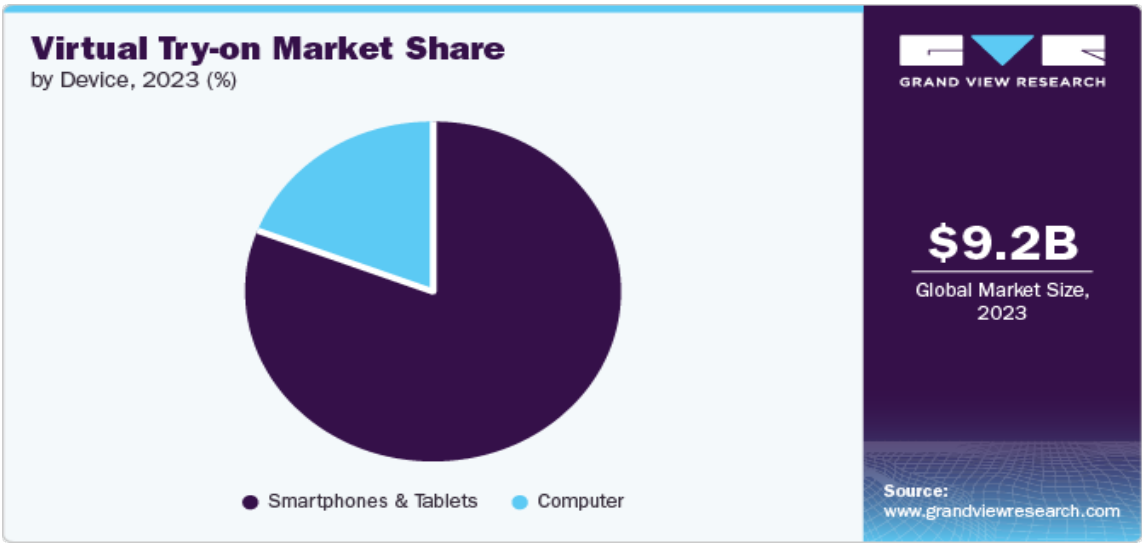
**Technology Insights**

The Augmented Reality (AR) segment accounted for the largest revenue share of over 63% in 2023. The segment growth is attributed to personalized recommendations based on individual preferences, sizes, and styles, making the shopping experience more personalized and relevant. Moreover, AR enhances the experience, which leads to higher conversion rates and stronger brand engagement, as customers are more likely to complete purchases.

The Artificial Intelligence (AI) & Machine Learning (ML) segment is expected to record the highest CAGR of 30.1% from 2024 to 2030 as AI & ML technology enhances the accuracy and personalization of the shopping experience. Additionally, ML continuously improves these simulations by learning from user interactions and feedback, ensuring a progressively better and more realistic virtual try-on experience. This, in turn, is driving the segmental growth.

**Device Insights**

The smartphones & tablets segment accounted for the largest revenue share in 2023. The segment growth is attributed to the widespread adoption of smartphones and tablets globally. In addition, the rapid advancement of augmented reality (AR) and virtual reality (VR) technologies has significantly improved the capabilities and realism of virtual try-on experiences on smartphones and tablets. These advancements have made virtual try-on experiences more immersive and accurate, enhancing the appeal of such applications to consumers, and thereby driving segment growth.




From 2024 to 2030 ,we expect the computer segment to register a significant CAGR .Virtual try -on solution on computers enable user to personalize their experience and experience the product with enhanced resolution and clarity, thereby driving segment growth

Moreover, the virtual try-on experiences on computers serve as effective marketing tools for brands as they can engage with their target audience more interactively, increasing brand awareness and customer engagement. In the coming years, we expects these experiences to drive segmental growth.[9,10,11,12]

## 4. APPLICATION INSIGHTS

The apparel & clothing segment accounted for the largest revenue share in 2023, owing to the implementation of AR, VR, AI & ML, among other technologies. These technologies help in a more accurate and user-friendly experiences of

clothing try-on, allowing customers to make purchase decisions. Moreover, market players are launching services to enhance the user experience. For instance, in September 2022, Wal-Mart, Inc. launched a new virtual try-on feature in collaboration with Zee kit, a start-up company, to enhance the shopping experience for its US customers.[11,12]

The wristwatch and jewellery segment is expected to register the highest CAGR from 2024 to 2030. Technological advancements help reduce the uncertainty related to purchasing high-value items online, thereby boosting consumer confidence and driving sales growth in this segment. Moreover, advanced features, such as high-definition 3D rendering and AR, provide a realistic and immersive experience that has resulted in the growing adoption of virtual try-on solutions.

## CONFLICT OF INTERESTS

None.

## ACKNOWLEDGMENTS

None.

## REFERENCES

Goldman, J. M., Weininger, S., & Jaffe, M. B. (2019). Applying Medical Device Informatics to Enable Safe and Secure Interoperable Systems: Medical Device Interface Data Sheets. Anesthesia & Analgesia, 131(3), 969–976. https://doi.org/10.1213/ane.0000000000004251

https://squashapps.com/blog/9-reasons-why-to-use-a-school-management-system-software/. (n.d.).

Hvid, H. R. (2015). Opening the black box of commodification: A philosophical critique of actor-network theory as critique. www.academia.edu.

https://www.academia.edu/12273454/Opening_the_black_box_of_commodification_A_philosophical_critique_of_actor_network_theory_as_critique

Hvid, H. R. (2015b). Opening the black box of commodification: A philosophical critique of actor-network theory as critique. www.academia.edu.

International and Comparative Studies in Adult and Continuing Education. (2020). In Studies on adult learning and education/Studies on Adult Learning and Education. https://doi.org/10.36253/978-88-5518-154-9

Maiti, D. K., Jana, P., Mistry, C. S., Ghoshal, R., Afzal, M. S., Patra, P. K., & Maity, D. (2022). Recent Advances in Computational and Experimental Mechanics, Vol II: Select Proceedings of ICRACEM 2020. Springer Nature.

Retail & Business Ram Mandir Fervour: Ornaments Inspired by Lord Ram Sweeps the Nation BY - Imran Fazal, Features Editor, IndianRetailer.com & Retailer MediaJan 22, 2024. (n.d.).

Roache, D. a. M. (2023). Transformational Leadership Styles for Global Leaders: Management and Communication Strategies: Management and Communication Strategies. IGI Global.

Sa'at, A., Joraimi, F., & Min, S. S. (2022). Raffles Renounced: Towards a Merdeka History. Ethos Books.

Takyar, A., & Takyar, A. (2023, April 19). AI in fashion: Use cases, benefits and future trends in the fashion landscape. LeewayHertz - AI Development Company.

What is 3D Rendering? | Everything there is to know about 3D Rendering. (n.d.). https://www.realspace3d.com/resources/what-is-3d-rendering