PSYCHOLOGY AND EDUCATION (2021) 58(5): 5813-5836
ISSN: 1533-6939

Effects of Product Recommendation System on Customer & E-retailer Relationship Optimization

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Abstract

In the early 90s, ecommerce revolution initiated a fundamental change in consumer shopping behavior, which further continued to gain momentum in the digital era. During this transition, customer demand reshaped the retail industries as a result Online Retail Industries entered into a new phase of technological innovation with Artificial Intelligence and the Artificial Intelligence (AI) enabled intelligent recommendations revolutionized the way customers interact with online retailers and increasingly being implemented in the online shopping environment. Not only these recommendations stay close to market trends, but also understand consumer preferences and shopping behavior and offer a host of personalized recommendations based on analysis of customer's previous purchase and browsing history. However, there is no substantial research on how this AI driven product recommendations can lead to an improved customer experience and purchase intention. At the same time there is no research pertaining on how online retailer can enhance the customer experience and customer loyalty by product recommendation system. Hence, this study analyzed the role of product recommendation system both on purview of customer and online retailer and proposed a theoretical model. This study contributes to the existing literature by revealing the effects of AI enabled product recommendations on perceived convenience, personalization, customer experience as well as on purchase intention. The findings indicate the impressive advantage of online product recommendations towards both online retailer and customer.

Key words

Artificial Intelligence, RFM, Online Product Recommendation, Virtual Product Presentation,Purchase Intention, Customer Satisfaction, Online Retailing

Introduction

The traditional retail landscape in India has undergone a substantial transformation from retail to e-tail due to the rapid development of technology, on-going digitalization of modern life, digitization of economy, easy access and adoption to the internet. Since decade, e-commerce has turned out as an essential part in global

retail as a result, number of digital buyers keep on increasing every year that boost the growth of digital sales in India .According to IBEF Feb,2021 report ecommerce companies in India reported a sales of US$4.1 billion during October, 2020. Again, there is an evidential improvement witnessed in consumer experiences in eCommerce stores such as ease of transaction, ease of accessibility, wide product range, better offers and deals, and personalized offers which results customers to prefer buying online rather offline .E-tailers sell a large variety of goods and allow customers to save time while shopping, it increases the convenience of customers. Gupta S. Ramachandran D.(2021) discussed about how product centric performance shifted to customer centric performance and outlined since the markets are emerged , retailers also need to achieve customer centric performance metrics, as product centric performance has shifted to customer centric performance to survive and compete, so e-tailers are continuously trying innovative strategies to cater the unique needs and preferences of customers by providing quality products and services to strengthen the trust of the customers. They have differentiated themselves by incorporating AI driven personalized product recommendations to attract and retain customers which improves customer accessibility and greater sales reach and bridged the gap between retailer and customer which leads to a win win situation for both customers and e-tailer.

Artificial Intelligence (AI) has changed the face of online shopping as well as the way customers shop online and broadly changed the areas like product search and product recommendations. Day after day , week after week , intelligent automation is getting more powerful supporting clients , employees ,companies. Previous Research by Craig s. Smith (2021), says interactions with technology will become more personalized in the coming days, and DavenportT.et al (2020) outlined that now a days the impact of AI on marketing is highest.AI driven product recommendations in E-commerce has transformed the way business is done in India. Now a day, AI is being used by retailers and e-commerce sites to improve the lives of online consumers. These AI provide software based recommendations to perform complex tasks without active supervision by humans. Suchith B et al. (2021) says the success and future of online businesses depend on how well they adopt newer technologies. Further the business model proposed by Agrawal et al. (2018) and Gans et al. (2017) which is known as “The shopping-then-shipping model “currently used by online retailers where customers place orders then the online retailer ships the products.

Rapid growth of AI receives attention from academia. Recent research by Colin Campbell (2020)shows that AI provides a host of ways to better understand , predict and engage customers, which is further added by S. Tong et al. (2020) that AI powered recommendations influence customers’ needs desires to provide more personalized experiences and drive purchase intention. Also, research says (Baum and Spann 2014; Jing Luan, 2018 ; Lin 2014; Tsekouras et al. 2020) consumer purchase decisions are assisted by product recommendations, The contribution of these studies towards purchase intention and purchase decision are prominent.

However, there is still room for further research on decision making quality of customers.

Again, by the help of AI driven Online personalized recommendations; online retailers also get two major benefits. These benefits are discussed by (Postma & Brokke, 2002) such as it generates additional sales by providing precise ,exact and timely information to customers , and further (Cyber Dialogue, 2001; Srinivasan, Anderson, & Ponnavolu, 2002) increases the consumers loyalty towards a retailer. To date, very limited study has shed light on influence of online product recommendation on consumers' perceived convenience and experience. At the same time product recommendations and its influence on retailers is yet to be focused. Hence, the objective of this study is to examine the influential role of online product recommendation on consumers' perceived experience, purchase intention and online retailers. This study expands the relevant set of constructs that are relevant for AI applications specifically in product recommendations such as perceived convenience, customer experience, customer trust, and customer loyalty. This research includes the following research questions and directs to the conceptual framework.

Research Questions

1. How Online product recommendation (OPR) can influence a consumer's purchase intention and online decision process?
2. How OPR can build customer experience ?
3. How customers perceive convenience in using OPR ?
4. Can OPR build customer loyalty ?

Conceptual Background

RFM Model

RFM (Recency, Frequency, and Monetary) model is a behavior-based model that analyses customer behavior and make predictions using the behavior from the database, (Hughes, 1996; Yeh et al., 2009). Moreover, recency describes how long has passed since the last purchase, frequency describes how many purchases have been made within a specified period of time, while monetary refers to how much money has been spent within the period, (Wang, 2010). By observing customers' attitudes toward a product, a brand, a benefit, or a loyalty program, these three variables can be used as segmenting variables. The RFM model can be applied to analyze customer behavior, as well as behavior of on-line reviewers in the virtual shopping context. By the help of online product recommendations (OPR), retailers can analyze customer life time value by RFM (Recency, Frequency, Monetary) analysis where profitable customers can be identified and strategy can be implemented to target potential customers. This RFM model widely used to characterize customers due to the predictive analysis. Recency represents the time since last purchaseor the recent purchase the customer. Lower value represents higher probability of repurchasing of customer. Frequency represents numbers of purchases within a certain time frame. Higher numbers of purchase can lead to a customer loyalty. Monetary value represents the amount of money spent in shopping in a specified time frame. Bellogin et al. (2013) stated that a higher monetary value represents company should focus on that customer who spent higher amount in purchases. By this model

customer behavior, attitude towards a product, brand and loyalty can be identified by analyzing these three variables. This model has been used in the context of online product recommendations to analyse customer behaviour in previous researches (Rodrigues F. 2016 ; Bellogin et.al 2013)

Artificial Intelligence

AI is defined as "*the ability to process and transform data into information to inform goal-directed behavior"* [Paschen, Kietzmann, & Kietzmann, (2019), pp. 1410-1419]*The term "artificial intelligence" is attributed to John McCarthy, [McCarthy 2007,* Page no.1174 *]the father of AI, who coined* "*AI as "the science and engineering of making intelligent machines"* Artificial intelligence (AI) and its application are much important in marketing because of its low computing cost and enhanced computing power and the advancement of machine learning algorithms. Researchers (Davenport et al. 2020; Rust 2020) say that AI will change the future of marketing

Online Product Recommendation (OPR)

[Suchith B et al. (2021),p. 263] says*" Recommender system is a computer- based intelligent technique to facilitate the customers to accomplish their purchase requirements, also helps retailers to develop different business strategies keeping in pace with the current market",*Zhihua Cui et al. (2020) outlined that recommendation technology is an important part of the AI services, and can provide better service for users to get information anytime, anywhere. Again ,B.Zhou, et al. (2021) discussed about how online marketplaces use recommendation systems to personalize product recommendations for each customer . Further Nitha L et al.(2015) outlined that a recommendation engine or a recommendations system predict and propose 'items' of interest to the users. Also, More and Lingam (2017) define online recommenders help the potential customers to arrive at a buying decision .It is being said that (Häubl and Trifts 2000; Li and Karahanna 2015) Online product recommendation systems does the high quality product assortments for the consumer and improves consumer decision outcomes .Online product recommendation (OPR) plays a vital role in e-commerce transactions and key determinants of product judgment and buying decision, so e-retailers assist the buyers by OPR mechanisms. (Li and Karahanna 2015; Xiao and Benbasat 2007) said that Consumers refer to these product recommendation systems those match their preferences. Also previous research done by (Mingyue ZhangJesse Bockstedt,2020 ; Tsekouras et al. 2020) confirmed that Online product recommendations influence consumers' preferences , boost consumer response and help in consumer decisions and purchasing behaviors for recommended products . So Wang and Benbasat, (2009) opined that OPR facilitates consumers' product search and evaluation process.

Online Product Recommendation & Purchase Intention

The research conducted by Mingyue ZhangJesse Bockstedt, (2020)and More and Lingam (2017) says Online product recommendations have been shown to influence consumers' preferences and purchasing behaviors for recommended

products and it helps to reach at buying decision. In addition to that See-To &Ho(2014) ; Franke et al. (2009) confirms within traditional marketing sources, OPR tends to be more persuasive and therefore drive consumer purchase intentions . So the study can postulate the hypothesis as H1:Online product recommendations (OPRs) by AI drives consumer's purchase intention

Virtual Product Presentation

Grewal D. et al (2021) in their study "Strategizing Retailing in the New Technology Era" explained about the new transformation of retail industry in this digital era. Due to new technologies and change in pattern of consumer buying behavior, the world of retailing is being transformed with a rapid speed. Further he added this new technology era that emphasizes technology as well as strategize the 6Ps of retailing such as (retail place and supply chain management, product, pricing, promotion, personnel, and presentation) .Online product presentations have an important role in e-shopping . This is studied by (Choi et al., 2019; Li et al., 2016; M.Li et.al, 2015) where It is said that product presentation is helpful in obtaining product information, and has a stronger effect on consumer shopping performance and on decision making. It is also confirmed by (Then & DeLong, 1999) that an attractive visual presentation of the product can accelerate the consumer's intention to buy the product. Virtual product presentation leads to higher purchase intentions in turn, increase sales for e-commerce . Again Flavián, C, et al (2017) during their study confirmed that Product presentation videos (PPVs), affects consumers' attitudes and purchase intentions toward the product.

Virtual Product Presentation and Purchase Intention

It is evidential that an attractive visual presentation of the product can accelerate the consumer's intention to buy the product and creates higher purchase intentions for consumers and in turn, increase sales for e-commerce . Therefore, a virtual product experience may generate more vivid imagery regarding consumption experience. So here we postulate AI recommended images on retail websites can strengthen online shopping purchase intention which is vital for online shopping. Hence the above mentioned facts lead to the development of the following hypotheses given below:

H2:AI driven Visual product presentation drives purchase intention

Content Personalization

Thurman and Schifferes (2012) defined" *personalization as a form of interaction between user and system that depends on "technological features to adapt the content, delivery, and arrangement of communication to individual users'"*. From a theoretical point of view, it is being said that (Koster, Ruth, Hamborg, & Kasper, 2015) users can remember customized content easily "*Personalization in any kind of advertising means the extent to which the advertising message is tailored according to consumers' needs and preferences, mindset and lifestyle (Baek & Morimoto, 2012; Bleier & Eisenbeiss, 2015)".* As per Nyheim, (2015), Personalization is diffusing rapidly in online shopping communities as it makes customized information more efficient and convenient. Personalized message is designed in such a

way to create a match between the customer's preferences and the content of the recommendation message. Kotouza (2020) fund that a personalized message is more persuasive in nature, form a strong impact on positive attitude.

Content Personalization & Purchase Intention

Previous research (Liu,Li, Mizerski &Soh, 2012)says customers get attracted and pay much attention to personalized ads and avoid pay attention to non-personalized ads. Again study held by (Ha et.al 2010 ; I.O. Pappas et.al.2015 ;Moon et.al.2008 ; Zhang et.al.2012) confirmed that personalization affects consumers purchase intention whereas Winter, S.et al (2021) found in their study that customized and tailored ads lead to higher engagement and purchase intentions.

Hence the above mentioned facts lead to the development of the following hypothesis;

H3: Content personalization driven by AI positively affects purchase intention

Customer Online Purchase Intention

(Ganjar Moh. Disastra, (2019) found that Online purchase interest is defined as the desire and interest of consumers to participate in an online agreement based on their website's quality evaluation and information whereas Salisbury et al., (2001) said customer online purchase intention gives the strength to a customer to purchase online. It is discussed with the context of choice by Andreea Druga (2019) and found consumers generally prefer to buy online if given the choice. Also, Ariffin, Mohan, & Goh, (2018) recommended that consumers' *online purchase intentions is vital to understand because it forecasts consumer behavior and predicts the actual buying activities*.

Perceived Convenience

Morganosky (1986, p. 37) defines convenience as "the ability to accomplish a task in the shortest amount of time with the least expenditure of human energy" which leads to "higher engagement" and this is also confirmed by (Roy, Balaji, Sadeque, Nguyen, & Melewar, 2017; Van Doorn et al. 2010) in the context of customer engagement .Ong, Khong, Faziharudean, & Dai, (2012) found that perceived convenience increases the trust towards the technology used to deliver a service and (Pham, Tran, Misra, Maskeliunas, ¯ & Damaˇseviˇcius, 2018)confirmed that it influences customers' overall assessment. Walch, (2019) in his research in the context of convenience found that the convenience of any AI-enabled services can be judged by availability and accessibility of the services and improvises the customer satisfaction. Thiel (2019) found that convenience supports the customer with real-time information .With AI-enabled services, perceived convenience has considered as customer can use and access OPR anytime and anywhere. Hence the study can postulate the hypothesis as

H4:OPR has a positive influence on Perceived convenience of customer

AI-enabled Customer Experience

In the context of customer experience and interaction, (Oh, Teo, &Sambamurthy, 2012; Verhoef et al., 2009) found that customer experience refers to the overall experience of a customer interaction with a retailer. In online context, Keiningham et al. (2017) found that customer experience is associated with technology-related

features, friendly-user interface, ease of use and a clear understanding. Gartner (2020)says, since AI technologies can analyze customer feedback so retailers are using this tool to continuously improve the customer experience to remain competitive. Newman, (2019) said AI enabled tools enhance customer experience . Omale (2019) opined these AI enabled tools can be able to establish best communication with customers, so, the above formulate the hypothesis as

H5: OPR systems enhance customer experience

Customer Decision Making Quality

Online Product Recommendation simplifies and supports customer's decision-making process by reducing customer's waste time for narrowing down searching the number of irrelevant products, and suggest selected alternatives to match the needs of the customers based on their taste and preference. Zhang, et al. (2011) found that customer decision making quality is the level of customers to believe the items they bought serve their needs and are pleasurable. During product browsing stage , OPR reduces the costs of searching and evaluating products and saves consumers' cognitive costs, which in turn helps in improving decision quality. Hence, the quality of OPRs (content relevance) will significantly influence customers' Decision Making Quality (DMQ) in the context of e-commerce shopping. So, the hypotheses proposed was:

H6: Content relevance of OPR positively influences DMQ.

Customer Retention

Customer retention is defined as *"the customers liking, identification, commitment, trust, willingness to recommend, and repurchase intentions, with the first four being emotional-cognitive retention constructs, and the last two being behavioral intention"* Stauss et al. (2001) . Further *(Zineldin, 2000, p. 28) said that It is "a commitment to continue to do business or exchange with a particular company on an ongoing basis"* . Danesh, Nasab and Ling (2012, p. 142) defined *customer retention as "the future propensity of a customer to stay with the service provider".*(Alshurideh, 2014a; Alsurideh, 2016a ; Keiningham et al., 2007; Alshurideh, 2016b outlined that retailers focus on customer retention as because cost of finding new customer is expensive than the cost of retaining the existing one. Reichheld, (1996) discussed about how existing customers purchase more, take less time for purchase decision and not price sensitive . Again (Al-Dmour et al., 2014; Alshurideh et al., 2019) opined that customer retention leads to higher profit , growth , company value and revenue .Customer retention is affected by quality of service provided, customer trust, customer experience and customer satisfaction. In this study service quality refers to quality of OPR (Sim, Mak, & Jones, 2006; Alshurideh, 2019) suggested that to enhance customer retention, etailers need to understand and focus on customers' satisfaction.

Customer Satisfaction

(Akhbar & Parvez, 2009; Alshurideh et al., 2012) said offering a good service to the end users leads to customer satisfaction. "*Kheng et al., (2010) stated that the companies that concern strongly on customer satisfaction can improve loyalty as well as build a positive image of their company."*Customers always search good

products or services which can satisfy their needs and preferences. (Al-Dmour & Al-Shraideh, 2008; Bowen & Shoemaker, 1998b) found that satisfied customers are those who receive the service as expected. Here satisfaction leads to the suggested recommendation by OPR in product search stage. Search outcomes are largely determined by the satisfaction of users (Yi et al. 2017). In this study, an OPR satisfaction metric is defined, "*as the degree to which a user is satisfied with the choice of content during a search operation",* (Kwon, Y. et.al.2021). A key component of improving consumer satisfaction in online shopping is improving product knowledge (Jiang and Benbasat, 2004). As a result, an accurate recommendation should be evaluated to determine whether online consumers are satisfied (Wang et al., 2019). However, if the customers are satisfied with the results of their expectations-confirmed and are confident in OPRs' trustworthiness, they will most likely to purchase from OPRs in the future.

Accordingly, following hypothesis can be established as:

H7 : OPR helps in customer retention as well as enhance customer satisfaction

H8: Customer satisfaction driven by product recommendation improves customer loyalty

Customer Loyalty

As per Karunamoorthy, Anderson, & Ponnavolu, (2002) *"Customers purchase repeatedly when they form a positive attitude towards a particular e commerce platform*. Zhang, et al. (2011) said that personalized product recommendations have a positive influence towards customer loyalty (CL) .Kandampully and Suhartanto (2000) stated that customer loyalty means showing loyalty towards the company. (Oh, 2002; Alshurideh et al., 2020) state that companies focus more on "customer loyalty" as because loyalty is a key point for long term success of business." Again *(Deng et al., 2010; Alshurideh et al., 2017)* found that *Customer loyalty is major objective of all service providers* .Customers, who have positive experience towards any specific service, will remain more loyal to that company. The study conducted by (Alshurideh et al. 2015; Duddy, 1999; Kandampully and; Caruana, 2002) also confirmed the same and recommended that it is essential to retain existing customers in order to have a long-term relationship with them.

Accordingly, the following hypothesis can be postulated as:

H9: Online product recommendations have a positive effect on customer loyalty which further leads customer retention.

Customer Trust

Smith & Barclay (1993) stated that "*Trust is one of the most broadly examined and confirmed constructs in relationship marketing research .Moorman et al. (1992, p. 82) described trust as "a willingness to rely on an exchange partner in whom one has confidence".* "*Andaleeb (1992) stated that trust signifies the belief, attitude, or expectation of a party that the relationship partner's behavior or its results will be for the trusting party's advantages".* So, customer trust further can be defined as the "*customer's belief in the provider's benevolence, honesty, and competence"* .Here customers trust is defined by the accurate, precise, c o r r e c t and in time recommendation of OPR which is the quality of OPR.

Accordingly, the hypothesis can be drawn as

H10: Customer trust is positively related to OPR quality

Conceptual Model

Nguyen P.(2021) stated that product recommendations are highly applied by the retailers in ecommerce sites also Ratch Ford, (2011)found that customers become more loyal to the estore if their purchase process is efficient . Integration of Artificial Intelligence in online shopping can improve customer experience and foster customer loyalty which leads to purchase intention. Earlier studies (Jarrahi 2018 ; N.Ameen et.al. 2021) have focused more on the technical perspective of AI and (Ameen et.al.2021 ; Shank et.al. 2019; Wang , Molina & Sunder ,2020 ;) found that there is less evidence on how customers perceive AI in their shopping experience .Again, Frow and Payne (2007) stated that customer experience is being translated to achieve customer satisfaction and develop customer loyalty also generate revenues for the firm. So, this study proposes a model where customers' journey from perceived convenience to repeat purchase has taken into consideration with the help of product recommendation. Here relationship between customer and etailer has established and customers' online experience, customer satisfaction, purchase intention and loyalty were found as a source of customer value creation. This proposed model outlines the customer journey with the help of product recommendation.

This proposed model tried to identify the role of AI driven OPR towards purchase intention and presented a conceptual framework, based on previous literatures and theory, to explain customer perceived convenience, experience and customer decision making quality towards OPR in online shopping. The framework expands influential role of OPR and established constructs to include AI-specific variables such as customer experience, customer decision making quality and perceived "convenience." The model also examined influence of set of independent variables such as content personalization, visual (virtual) product presentation, and online product recommendation on dependent variable "purchase intention"

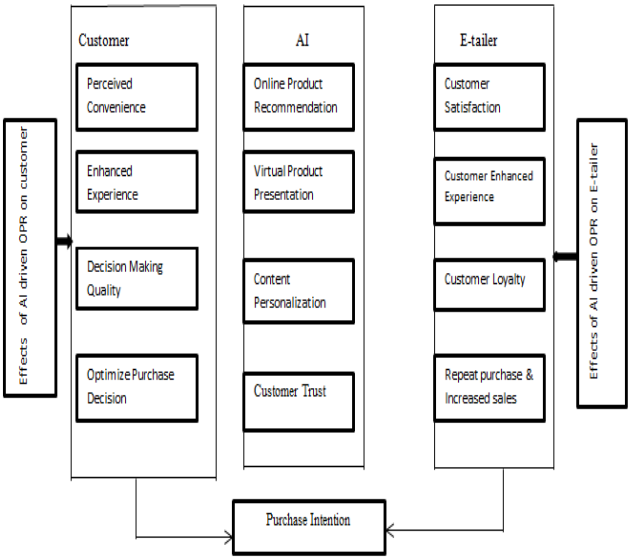

Figure 1 : Proposed model on Effects of online product recommendation on purchase intention with reference to optimization of customer – etailer relationship

Customer loyalty has become more important in the world of retail both in online and offline.. So it is essential for retailers to build and maintain a loyal customer.. A loyal customer is valuable for retailers in many ways. Loyal customers are mostly intend to purchase repeatedly and more frequently, spend more money, generate more income from their own purchases, refer new customers, furthering leads to customer retention. So it is highly essential for the retailers to enhance

customer experience to retain customer and maintain loyalty. At the same time customers want convenient shopping, prompt and personalized service, outstanding customer experience and accurate, precise timely information to reach at purchase decision. So this study has conducted considering the constructs such as perceived convenience, customer experience and decision making quality with reference to customer point of view. Similarly, customer satisfaction, customer retention, customer enhanced experience, customer trust and loyalty have considered with reference to etailer point of view. Since the study has carried out in AI context, Online product recommendation, Visual(virtual) product presentation, content personalization have considered as constructs which drives purchase intention as purchase intention is the expected outcome of the study.

Model Propositions

Nine propositions in the proposed model represented the relationship between the constructs. In accordance with purchase intention to take place, a customer needs to get perceived convenience and a retailer needs to be aware of customer experience, customer trust and retention which results customer satisfaction , repeat purchase and loyalty . Positive association of these propositions justify the proposed model. The propositions of the model are based on multiple constructs such as perceived convenience, customer experience, customer decision making quality, customer retention, customer trust, customer loyalty , customer experience, customer trust, customer retention , online product recommendation, content personalization, visual product presentation, purchase intention also trust commitment theory literature. Considering the objective of the study, both customer and online retailer centric views were considered to understand the effect of online product recommendations on purchase intention. This study introduced consumer experience ,consumer convenience , customer retention, customer satisfaction and loyalty in the proposed model. The variables were obtained from the different literatures by scanning various journals of repute. The content validity for model constructs was carried by marketing academicians and the model was modified accordingly . The construct variables and their relation with dependent variable was examined , summarized and presented.

This research model was developed to investigate how online product recommendations influence decision making process and purchase intention while doing online purchases. The results point out that purchase intention is significantly influenced by product recommendations and found a positive relationship between the constructs and purchase intention. This model can be utilized by customers, retailers, e com managers. Also ecommerce companies can utilize this for product recommendations to gain more customer loyalty and can be a strong player in the market. This proposed model outlines the benefits of using OPR for online retailers, customers and ecom companies also optimizes customer and retailer relationship. It has implications for retailers and customers which has mentioned below .

Online Retailers

Rising need for customer retention, increased revenue, Return on Investment (RoI) and growing emphasis on improving

costumer experience are the major driving forces to increase the demand of recommendation systems by online retailers. In the digital era, AI-powered recommendation engines made the etailers to adapt and use new technology innovations to survive and succeed in the market .These Product recommendation offers a lot of opportunities to online retailers such as customer retention , customer satisfaction, repeat purchases , loyal customers and increased revenue, also, customer experience, which is a major factor achieve customer engagement , retention, higher sales and return on investment (RoI). Schafer (2001) stated that OPR is a great help for retailers to offer cross-sell and up-sell products to the customers to inspire with items that complement the one they are browsing also increases brand loyalty. This type of recommendation is particularly effective because it reminds customers about products that they are already interested in but haven't carted yet or items that are available for repurchase. By offering personalized recommendations, online retailers can target frequent browsers who haven't yet made a purchase or to make it easy for loyal customers to replenish their favourite items. AI driven product recommendations help etailers in many ways. Such as

- Serves more customer easily
- Enhance repeat purchase
- Provides most relevant products to the customer
- Target customers who were about to make purchase
- Fulfil customers' needs and expectations
- Maintain and foster loyal customers
- Attract new customers

Customers

Since AI, has become the interface between marketers and consumers, Ming-Hui Huang, Roland T. Rust, (2021) suggested that consumers should understand the collaboration between AI and HI (human marketers and consumers) for the consumption decisions. In this context, Product recommendation is a great way to engage online shoppers who might have been distracted before carting their favourite product. The benefits customer can get are-

- Ease in getting similar product
- Ease in product browsing
- Getting Personalized content
- Time saving in product search
- Helps in research and purchase stage
- Extra information about the product
- Effective suggestion related products
- Helps in optimize customer purchase decision
- Enhanced customer experience

Future Scope of this Model, Extent Model

1. Content, Collaborative and Hybrid Recommendations

Extent model of this proposed model may complement further research. Since In the current research, focus has given on online product recommendation system it can be further segmented into content, collaborative and hybrid recommendation while their effect on purchase intention can be measured .Also customer life time value (LTV) analysis can be done by using these three segments.

2. False Positive Recommendation

False positive Recommendation which means recommendation of no interest or recommendations of excessive number of recommendations which could have an negative effect for customers and results customer loss (Rodrigues F.2016) So this extent model can be taken False positives as a construct and can determine its effect on customer experience and customer purchase decision.

3. Perceived Benefit

In this model perceived convenience has considered and its impact on various constructs such as customer experience ,customer decision making ,customer loyalty and purchase intention were measured. Since the perceived benefits of online product recommendation (OPR) influence consumers' decision-making process, Perceived benefit of customers can be taken into consideration in the extent model for the further research which will give a new dimension towards AI driven marketing.

4. Customer Engagement

The effect of only seeing the recommended product but not getting engaged with the suggested recommendation is equally the same as a customer has seen no product recommendations. Similarly online browsers, who clicked on a recommended product but didn't intend to buy anything, might have a lesser chance to return to the site. So in order to make higher engagement rates, online retailers need to make the accurate recommendations to engage the customers.

5. Customer Reviews

Recommender systems can interact with other features such as customer reviews to drive purchases, such as customer reviews. Apart from product attributes, customer reviews can act as a moderator for the performance of the recommender. So, customer review can be taken into consideration in the future model.

6. **Utilitarian Product / Hedonic Product**

Which products are more likely to get benefitted by product recommendations? Utilitarian or hedonic products ? This model can take these two product attributes in future research.

Findings

This study tried to answer the research questions on product recommendations and its influence on purchase intention, decision making quality, customer experience, perceived convenience, customer loyalty and trust. Based on the literature review, hypothesis, proposed research model, it is clear that AI driven online product recommendation, content personalization and visual product presentation leads to purchase intention. AI recommended product and its visual presentation comprehend the product smoothly and influence their purchase intention. The faster assistance OPR can provide to the customers, higher the chances of user conversion. As the antecedent of actual purchase behavior, purchase intention found as a dependent variable where as independent variables consist of online product recommendation (OPR), virtual product presentation (VPP) and content personalization. Content personalization found as an important contributor towards the diverse needs of the consumers' and it helps in better product discovery and provides better customer experience which results purchase intention for the recommended product.

Again, this study discussed the effect of AI driven online product recommendation (OPR) for customer and online retailer. It is found that OPR supports perceived convenience of the customer as the product recommendation is available and accessible at everywhere, anywhere and at any point of time. Again AI driven OPR enhances customer experience, customer satisfaction, increases customer decision making quality towards purchase and creates a loyal customer towards the brand and the product recommended. Again because of the quality of the recommended product, customers develop a trust towards OPR. Due to developed trust for OPR, customer drives purchase intention towards AI driven recommended products. Similarly, this study discussed about how the online retailer gets influenced by OPR. Primarily, online retailers use OPR to provide the best product range to match the needs of the customers based on their taste and preference without wasting the customer time. By the help of OPR, e-tailer provides concise and accurate information to customer which improves the shopping experience of customers and customer satisfaction. In turn etailers get repeat business increased sales, loyal customers and higher retention.

Managerial Implication

This study highlights two important aspects of OPR users in the context of customer and online retailer. It is identified that perceived convenience of customer and customer experience are the major contributor towards AI enabled services whereas study results indicate personalized content can create more customer engagement .Again from the study, it is evident that the content of product recommendations help customers in their purchase decision that implies content should be very informative, personalized and tailored as per the customer preference.

Retailers have experienced a transformational growth because of intelligent automation. To cope up with this automation, it requires the right skills and infrastructure to adopt the technology .These days; many online retailers are using AI to automate the processes. Harvard Business Review report found that companies can achieve the most significant performance if successfully adopted intelligent automation . At the same time, Online retailers have information on customer preferences and buying habits and they integrate and automate this data to tailor content to the right customer. With the help of AI, personalized content can disseminate quickly to customer needs hence strengthen loyalty .By enhancing customer experience, online retailers can adopt new approaches to customer engagement and interaction also can identify and anticipate need of the customers' at precise time .

However, despite of development of AI, deployment is still a challenge for retailers. Though online retailers are looking forward for innovative technology implementation for better understanding of customer perspective and enhanced customer experience, so it needs to understand how consumers perceive the potential benefit of using technology .

Practical Implications

The practical implication of the study has contributed towards online retailers and the AI deployment towards services offered to their customers. From the study, it is found that OPR can increase customer's decision-making quality,

customer convenience ,customer loyalty customer shopping experience and customer loyalty. Customer loyalty has a potential to increase repeat customer and repeat purchase also helps in boosting their shopping experience and increases the decision making quality .Since there are many E-commerce companies have penetrated in the market, customer loyalty will make them stand out from others. Again, content of the OPR must be concise, accurate, and attractive for the customers for shopping experience improvisation and strengthen the e-tailers and customers interaction. As, Artificial Intelligence is the core of OPRs, the success of OPR depends on the accuracy of AI deployment whereas accuracy of OPR, depends on attributes of products and it contributes towards purchasers' satisfaction, generates revenue by up-selling or cross-selling, as a result long-term relationship with customers can be established .

Limitations and Scope of Further Research

This study has focused on customers' experience , customers' convenience , customer decision making quality ,customer trust and loyalty also customer purchase intention and buying decision and customer retention in the context of AI-enabled product recommendations . Also it encourages other researchers to conduct further studies in other dimensions such as OPR and brand loyalty, OPR and customer engagement, OPR and impulse buying behavior etc. Since AI based OPR has tremendous potential, it can examine other factors which leads to success factors of AI-enabled OPR in different consumer segments and in different demographics. Furthermore, this study focuses on uses of OPR in retail industry; future studies could investigate different industries such as hospitality, Media & Entertainment, Transportation, Healthcare, Banking, Financial Services, Insurance industries and so on. In this study AI-enabled, OPR focused on success factor of both perspective of consumers (such as convenience, personalization, and decision quality), and perspective of etailers (such as customer retention , customer trust and loyalty ,customer satisfaction) so future studies should consider implementation of each success factor within any retail organization. Finally, investigating security from a consumer perspective and implementation and deployment of AI technology from the perspective of e-tailer can provide additional opportunities for future research.

Conclusion

The shifting paradigm associated with e-retailers and their shift into a segment-based and customer-centric business models, has contributed to AI-driven product recommendations and customer engagement as a critical element of competitive advantage. In terms of any ecommerce service organizations, satisfying clients is one of the ultimate goals for e-retailers since having satisfied customers can lead to customer loyalty and sustainable profitability in the long run. Hence, the current study contributed towards online product recommendation and its effect on customer –etailer relationship optimization. First, it expands existing literature on content personalization, virtual product presentation and online purchase intention and proposes a model to bridge the literature gap. Second, this study tried to

answer all the research questions. Third, it specified the customer and online retailer point of view towards online product recommendations. Fourth, it identified the impact of AI driven OPR on purchase intention. Also this study identified few essential elements for customer satisfaction, customer retention and customer loyalty and proposed a research model related to OPR and purchase intention with reference to customer and etailer. The current study will certainly be looking forward to address the other issues raised in this research and the future study can identify other constructs related to online product recommendations as they evolve with time which will open new research opportunities .In the digitalization era, customers come across with huge variety of products and information which they have not experienced before .So there is an increasing diversity of consumers' demand towards product recommendations as a result it's difficult to measure the performance of the recommender system which can only be evaluated after getting the feedback from the customers. So the success of recommendation systems depend on the numbers of recommendations followed and the revenue generated. In the future research, this study intends to monitor these two aspects along with the existing constructs.

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