Consumer Perception towards Artificial Intelligence in E-Commerce With Reference to Bhopal City, India

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Abstract: In the modern era, people are much closer to technology and peoples mind are expecting new and innovative things which make their works easier and save time. Artificial Intelligence (AI) is one among those technologies which helps almost in all areas of individual's routine life. AI is the simulation of human intelligence process by machines, especially computer systems. The main aim of the study is to identify the consumer preferences towards the applications of AI in different areas of e-commerce. The research was carried out with 100 respondents and the sampling tools used were Factor analysis and Regression Analysis. The sampling method used for the study is simple random sampling. The concluding observations are that there is no relationship between usage and recompenses factors while there is significant relationship between the techniques factors. The most influencing areas of AI in e-commerce are real time product targeting, voice powered search and virtual personal shoppers.

Keywords: Artificial intelligence, E-commerce, Innovations, Recompenses, Techniques, Usage.

1. Introduction

Artificial intelligence (AI) is the business and science of creating smart machines and smart computer programs. Artificial intelligence is unlike from psychology because it stress on computation and is different from computer science because of its emphasis on observation, way of thinking, perception and action. AI has the strong ability to acquire a huge amount of data and also to interpret consumer decisions for actions. AI in e-commerce helps the companies to collect data and stimulate the individual to buy more and increase the sales in retail industry. AI helps every industry with innovative and smart business works. AI has pushed the users with the many technological experiences ranging from physical stores to websites and from chat bots to voice assistants. The study has identified various factors regarding the consumer perception towards e- commerce and its areas of applications like personalized shopping experiences for online buyers, real time product targeting, visual search, AI based hiring process, voice powered search, assortment intelligence tool, conversational commerce, customer service, virtual personal shoppers, virtual assistants, AI fake reviews detection, AI based sales process, customer centric advertisements.

Personalized shopping experiences for online buyers: AI helps the online buyers in a way to remember the products which are frequently bought by them, according to customer's interest, based on real time web browsing habits and shopping data.

Real Time Product Targeting: Machine learning can help to present online shoppers with personalized product recommendations, discounts and offers.

Visual search: Image recognition platforms can help e-commerce websites visitors search by image, instead of text, and match relevant products to specific images.

AI based hiring processes: The task of screening applications, reaching out, scheduling face-to- face interviews, and finding matches can be automated through Restless Bandit, software as a service product. This reduces the work of HR by providing the potential candidate for the job.

Voice Powered Search: Voice is slowly replacing text based search in online shopping. Voice recognition accuracy is improved than before.

Assortment Intelligence Tool: Assortment Intelligence tool can assist retailers to have 24/7 visibility and insights into their market competitor and change their pricing accordingly to compete in the market. Retailers can analyze

their competitor's product mix and prices by the tool.

Conversational commerce: Chat software can help the shoppers make purchases in a conversational text format using natural language processing. Chat bots are already being used to facilitate online transactions for the big brands, with TacoBot.

Customer Service: AI can influence customer service through the use of chat bots. Chat bots are computer program developed for conversational commerce. Chat bots interact in natural human language to give the customer a personal and satisfied customer service.

Virtual personal shoppers: Virtual personal shopper can assist the people in making the smart decision about their shopping.

Virtual Assistant: E-commerce virtual assistant is a software agent skilled in business support services and technical services. It can also perform tasks or services for an individual. The term "Chabot" can also be used to refer to the virtual assistant. Recently Lenovo has also announced its virtual assistant to compete with Google now and Cortana.

AI fake reviews detection: Customer reviews have become important for consumer trust in the online shopping AI can be used to manage this problem. Amazon also uses AI to combat fake product reviews. Amazon's AI machine-learning system ensures that only verified customer purchase reviews are boosted.

AI based sales process: Integration of AI with the customer relationship management system is an effective solution to manage sales.

Customer-Centric Advertisements: Artificial intelligence programs can be created to deliver customer-centric advertisements.

The above factors were considered for the study which has a high impact towards the applications of AI in E-commerce. The three factors identified in this study are highly significant to the applications of AI.

2. Review of Literature

Vincent Conitzer (2019) has conducted a study on "Designing Preferences, Beliefs, and Identities for Artificial Intelligence" has identified the well found theories of, and methodologies and algorithms for, how to design preferences, identities, and beliefs. This paper lays out an approach to address these problems from a rigorous foundation in decision theory, game theory, social choice theory, and the algorithmic and computational aspects of these fields.

Vanessa Putnam, Cristina Conati (2019) in their study "Exploring the Need for Explainable Artificial Intelligence (XAI) In Intelligent Tutoring Systems (ITS)" has identified student attitudes towards incorporating explanations to an ITS, by asking participants for suggestions on the type of explanations, if any, that they would like to see. Their results indicate an overall positive sentiment towards wanting explanation and suggest a few design directions for incorporating explanation into an existing IT.

Haluk Demirkan, James C. Spohrer, Ralph Badinelli (2019) Human- centered smart service systems for business and society can be characterized by: the types of offerings to their customers and/or citizens, the types of jobs or roles for people within them, and the types of returns they offer investors interested in growth and development, through improved use of technology, talent, or organizational and governance forms, which create disincentives that (re)shape behaviors. An important trend in smart service systems is the increasing availability of cognitive assistants.

Pat Langley (2019) principles in a proposed course that teaches students not only about component methods, such as pattern matching and decision making, but also about their combination into higher-level abilities for reasoning, sequential control, plan generation, and integrated intelligent agents. We also present a curriculum that instantiates this organization, including sample programming exercises and a project that requires system integration. Participants also gain experience building knowledge-based agents that use their software to produce intelligent behavior.

Nadimpalli M (2017) the concept of artificial intelligence is valuable in several domains, and it is receiving vast attention. Many researchers from different fields now understand the effects of AI to the different daily human lives. They went ahead to outline its influence on but not limited to retail, health care, crime investigation, and employment.

Shyna K and Vishal M (2017) in their study **"A Study on Artificial Intelligence in E-Commerce"** has identified the applications in the e-commerce sector such as real time product targeting, visual search, AI based hiring process, voice powered search, assortment intelligence tool, conversational commerce, customer service, virtual personal shoppers, virtual assistance, AI fake reviews detection, AI based sales process, customer centric advertisements.

2.1 Research Gap

There are several studies pertaining to AI which explain the operating activities, the pros and cons, the specifications and also the various fields of specializations. There is very

few research studies related to consumer awareness and consumer preference. Many research studies have focused on the AI Applications in devices for many uses but very little research study has been done on e-commerce. There were no research studies based on the consumer's aspect towards AI technology over the e-commerce. This study has looked into the consumer's perception towards the artificial intelligence.

2.2 Objective of the study

To determine the Consumer preference towards the applications of AI in different areas of e-commerce to better understand their customers for their improvement in the competitive business.

2.3 Research methodology

The methodology adopted for this study is simple random sampling based on structured questionnaire. Primary data questionnaire from the sample size of 100 respondents were selected from various part of Bhopal city. Questionnaire consisted of various areas of performance of AI and applications of AI in e-commerce. Secondary data are collected from various research papers, books, journals, reviews and websites. SPSS version 20.0 statistical software is used and the results obtained thereby have been analyzed and interpreted. Regression analysis and factor analysis were carried out to analyze the objective.

3. Hypotheses for the study

HO1- There is no significant relationship between the gender and the usage factors.

HO2- There is no significant relationship between the gender and the recompenses factors.

Data Analysis and Interpretation

Table 1- Demographic profile			
Particulars		Freq.	%
Age	Below 18 years	39	39.0
	18-25 years	45	45.0
	25-30 years	8	8.0
	Above 30 years	8	8.0
	Total	100	100.0
Gender	Male	36	36.0
	Female	64	64.0

	Total	100	100.0
Qualification	Below UG	12	12.0
	UG	20	20.0
	PG	60	60.0
	Professional course	4	4.0
	Diploma	4	4.0
	Total	100	100
Occupation	Private sector	56	56.0
	Public sector	12	12.0
	Own business	16	16.0
	Semi-Public	16	16.0
	Total	100	100.0
Income	Below Rs.20000	72	72.0
	Rs.20000-Rs.30000	16	16.0
	RS.30000-Rs.40000	8	8.0
	Above Rs.40000	4	4.0
	Total	**100**	**100.0**

Interpretation: Table1 shows that out of total 100 respondents in which 39% fall under the age group of 18-25 years where as 45% fall under the age group of 25-35 years 8% of the respondents were from the age group of 35-45 years and the remaining respondents were above 45 years. There were 36% male respondents taken for the study and 64% of the study was done with female respondents. Out of 100 respondents, 12% of the respondents were from below under graduation, 20% belong to under graduation, 60% were under post graduation, and 4% belong to professional course and the remaining 4% belong to diploma courses. There were 56% respondents who are working in private sectors and 12% respondents were working in public sector, 165 of the respondents were from semi-public sectors and the remaining respondents were having their own business. Out of 100 respondents, 72% of the respondents have monthly income of below Rs.30000, 16% of the respondents have monthly income between Rs.30000-Rs.40000, 8% of the respondents have monthly income between Rs.40000-Rs.50000 and 4% of the respondents have a monthly income of above Rs.50000.

4. Factor Analysis

Table 2- KMO and Bartlett's test		
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.731
Bartlett's Test of Sphericity	Approx. x^2	298.490
	Df	78
	Sig.	.000**
Significant level at 0.01** levels.		
Source: Primary data Analysis		

Interpretation: In Table 2, a KMO score of 0.731 is an acceptable score and factors with the score of 0.6 and above were selected for the study.

Table 3- Communalities Table		
	Initial	Extraction
Personalized Shopping Experiences for Online buyers	1.000	.876
Real time product targeting	1.000	.816
Visual Search	1.000	.941
AI based hiring process	1.000	.842
Voice powered search	1.000	.663
Assortment Intelligence tool	1.000	.884
Conversational Commerce	1.000	.763
Customer Service	1.000	.629
Virtual Personal Shoppers	1.000	.697
Virtual Assistants	1.000	.735
AI fake reviews detection	1.000	.822
AI based sales process	1.000	.670
Customer centric advertisements	1.000	.603
Extraction Method: PCA		
Source: Primary data Analysis		

Interpretation: Table 3 communalities explains the initial Eigen values of the above 13 factors which are considered

to be the areas of applications of AI in E-commerce. It is observed from the above table that customer centric advertisements has the least value of 0.603 which is less than 73% which implies that customer centric advertisements is the least preferred applications factor in the areas of E-commerce. It is also observed that Visual Search has the highest value of 0.941 which is higher than 73% which implies that customer centric advertisements is the highly preferred applications factor in the areas of E-commerce. The above factors contribute 62% to 94% which implies these factors have greater preference among the applications of AI in the areas of e-commerce.

5. Conclusion

India is the fastest growing country in the e-commerce where many technologies and inventions are used. AI has a broader scope for widening in many aspects and areas. Nowadays people are more and more aware of the AI technology and they are using it. The study highlights the areas of applications of AI in e-commerce. The research results show there has been a wider scope for the AI technology to increase in various fields. Since AI has been moving in an upward scenario that paves way for many new inventions in many areas. AI many create a new revolution and also gives way for new data sciences and machine learning.

6. Suggestions

AI will have a significant effect on the way e-commerce businesses attract and retain customers. AI revolution in e-commerce will create plenty of new data science, machine learning and engineering.AI based e-commerce will also generate IT jobs to develop and maintain the systems and software. But the new inventions may result in demand for skills and also for unemployment in the upcoming years. People should not only be aware of the AI, but the individuals should know how to use and construct them and also to bring about the broad range abilities associated with human intelligence.

7. Scope for further research

This research work may form a basis for the future researchers, as the study has identified only the perception factors of the AI and also has identified the awareness factors. Future researchers can widen their research on the risk and the challenges or the disadvantages faced by the users. The research can also be widened on the inner operating activities or the data used by the technicians can also be studied.

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