A STUDY OF AI ENABLED CUSTOMER SUPPORT TOOLS BY E-COMMERCE APPLICATIONS AND ITS USE AMONG THE YOUNG AND MIDDLE-AGED CUSTOMERS

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Abstract:

The study tries to understand applicability of AI Enabled Customer Support Tools by selected E commerce applications and Its Use Among the Young and Middle-Aged Customers. The sample consist of young adults, salaried individuals, businesspersons and homemakers between 18 years to 65 years. A simple survey method is used to collect the data through structured questionnaire. AI powered customer service tools make the interactions with the customers seamless by providing personalized experience to them. The tools like Chatbots, Voice Agents or Virtual Assistants are providing the resolutions any time of the day, filling the gap of lost connectivity between the company and customers when the human agents are unavailable. The study predicted that the use of AI powered customer service tools is more among the young and middle-aged customers to resolve the issues at the preliminary level. The study predicted that young and middle-aged customers are satisfied with the query resolution tools provided by E-Commerce applications by embedding AI in their traditional customer service platforms.

Keywords: *AI powered customer service, E-Commerce applications, query resolution*

Background of the study:

AI and E-Commerce:

Artificial Intelligence (AI) allows the machines to do the functions like predicting, reasoning, learning and deciding like human does. AI in E-Commerce uses the data which is already shared by the customers or collected by the company by the virtue of recording their past purchases, to provide shopping assistance, customer service and fraud prevention in future. The use of AI in E-Commerce is a collection of different types of technologies which enhance customer experience.

The major types of **technologies** used in E-Commerce includes:

1. **Large Language Models** – It helps to convert the product related data into the specific information customers look for. It includes Search engine optimization (SEO) efficient product descriptions, chatbots which are available 24/7 to help and recommend products to the customers, and send personal emails, SMS and promotional campaigns.

2. **Computer vision and visual Search** – The images or videos shared by the customers are used by the machines to show the related products to customers and also to help the companies to find damaged products or returns and replaces.

3. **Predictive Analysis** – It uses the market trends, weather conditions, culturally significant events and site traffic to predict the future demands. It avoids the stock out conditions on retailers' part and boost conversions by adjusting with the current trends.

Following are the **main areas** in which AI is used in E-Commerce:

1. **Personalized product recommendations** – With the help of natural language processing (NLP) technology and computer vision the AI powered systems are able to use the past purchase data and the specific descriptions used by the customers; to suggest the products they are most likely to buy in future.

2. **Conversational commerce and AI assistants** – The human customer service representatives are often substituted by Chatbots and virtual assistants. Chatbots are used for purposes like customer interactions, handling enquiries, providing shipping information, handling queries and issues.

3. **Fraud detection and prevention** – Machine Learning models help the companies create a customer profile based on their past purchase data which include the purchase patterns, locations of ordering, frequency and method of payment and verifies it with the present transactions. It helps to identify any malicious transactions or unusual purchase behaviours and prevent frauds in future.

4. **Predictive inventory management** – It helps the company plan the stocks in advance to avoid understocking or overstocking.

5. **Dynamic pricing and revenue optimization** – Instead of analysing the factors such as site traffic, competitor prices, customer behaviour, inventory levels individually and coming up with the solution, it provides a comprehensive solution by integrating all the factors together and analysing their impact. Thus, adjusting prices on multiple selling platforms becomes easier with AI.

6. **Customer retention and lifetime value prediction** – AI enables the companies to retain the customers based on their purchase behaviours. It uses *Churn alerts* – providing loyalty perks to the customers who are seen to be buying with long gaps, *Smart Upsells* – offering a complementary product with the purchased product and *Win back campaigns* –

motivating the at-risk customers with personalised mails and SMS

7. **Generative AI for content creation** – Creating Marketing Collaterals such as Blog posts, Web pages, Videos, Emails, Case studies and digital presentations.

AI in Customer Service;

AI in customer service is a win-win situation for the company and the customers. On one hand it helps the company to cut down on the costs on human assists, on the other hand it provides seamless, 24/7, prompt solutions to the customers handling their queries effectively.

Some of the benefits of AI powered customer service includes:

- Real time fast responses to the queries
- Any time assistance irrespective of working hours, weekends or holidays
- Reduces human costs
- Consistent, dependable and accurate customer support
- Customised solutions making the customers feel valued
- Large no. of queries handling especially during high site traffic days
- Specific and relevant customer data to improve the operations in future
- Avoiding human errors

Future of AI in customer service:

- Agentic AI – Unlike traditional AI tools which require specific prompts and scripted responces, the agentic AI can handle complex workflow related issues and solve them.
- Self Service Content – The future AI will continue and update the chatbots to interact with customer's social media platforms and collect the relevant information for quick problem solving.
- Interactive voice responces and conversational AI – The future AI will assist the human agents by

providing summary of past conversations, sentiment analysis to suggest the response to the customer, understanding the emotional tone of the customers and reply accordingly.

- Generative AI – It uses the past purchase history, and conversations with the customers to prepare analystical charts suggesting the exact resolution for customer queries

- Hyper personalization – The future AI will incorporate real time data of the customers such as behaviour, sentiment, tone and context to generate personalized interactions.

- Predictive Analysis – This will dignose the issues of the cutomers proactively and divert the customer sentiment before it escalates.

Future of AI in customer service
- Predictive Analysis — dignose the issues of the cutomers proactively
- Hyper personalization — behaviour, sentiment, tone and context
- Agentic AI — handle complex workflow related issues
- Self Service Content — interact with customer's social media platforms
- interactive voice responces and conversational AI — providing summary of past conversations, sentiment analysis
- Generative AI — prepare analystical charts suggesting the exact resolution

Review of literature;

Slow adoption of AI in E-commerce:

According to the analysis done by Morning Consult, the use of AI tools by people in e-commerce is static or growing slowly due to multiple reasons. It was observed that in late 2023 22% of survey respondents said they'd used an AI chat bot on a retailer's website, in 2025 that number is 25% [1]. The interaction with AI tools had been less due to reasons like concerns related to personal data privacy, comfort to speak with human customer service representative and accuracy related to the issue.

AI powered customer service and its impact on user experience and decision making:

There are many studies conducted exploring various facets of using AI enabled tools in e-commerce.

However, the studies explored the adoption of AI in e-commerce in fragmented manner. Crucially, there is a lack of research that systematically examines the entire customer journey, from initial expectations to post-adoption behaviours, and how these stages are interconnected. [2] The study by science direct tried to have an integrated approach to AI customer service experience in Vietnamese market, from pre-adoption expectations to post-adoption satisfaction and behavioural outcomes. [3] The study analysed the behaviour of people before the adoption of AI tools and explained the effort expectancy and performance expectancy in shaping the customer engagement and satisfaction. It measured the customer satisfaction and experience on the basis of the parameters such as Responsiveness, Perceived Ease of Use, Expected

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Confirmation, Perceived Usefulness, Customer Satisfaction, Continuance Usage Intention, and Online Purchase Intention. The core finding of this study was that perceived usefulness and expectation confirmation are the paramount determinants of customer satisfaction with AI-powered customer service in Vietnamese e-commerce. [4]

Generational differences in AI adoption among fashion curation platform users [5]

The study analysed the perceived usefulness, ease of use, satisfaction and behavioural intension in use of AI tools on fashion platforms across generation Z, millennials and generation X. AI curation technology refers to systems that integrate behavioural signals (e.g., clicks, purchases), product attributes (e.g., style, compatibility), visual content (e.g., images, videos), and contextual cues to produce coordinated outfits, bundled product sets, dynamic sequencing, and visually guided, conversational support tailored to users (Guo et al., 2023). [6] The study was conducted using an integrated framework of Technology Acceptance Model (TAM) and Task–Technology Fit (TTF) for identifying perceived usefulness and perceived ease of use with perceived utility and performance among Korean users of digital fashion platforms. The study concluded that TTF results in strong positive influence on Perceived Usefulness and Perceived Ease of Use. Also Perceived Ease of Use influence the Satisfaction but not Behavioural Intention. The Behavioural Intention are affected by the useful and satisfactory recommendations rather than ease of using the AI-based fashion curation.

Method: The survey method was used to collect the sample responses. 64 respondents were surveyed comprising of young adults, salaried individuals, businesspersons and homemakers and divided between two age groups; 25-45 years (identified as young and middle age adults) and 46-65 years (identified as senior adults). The study predicted:

Customers' age and Awareness about AI enabled customer support tools (H1)

Null Hypothesis: There is no relationship between age of the customers and the awareness about AI enabled customer support tools by E-Commerce applications

Alternate Hypothesis: There is a significant relationship between age of the customers and the awareness about AI enabled customer support tools by E-Commerce applications

Customers' age and Relevance and usage of AI enabled customer support tools (H2)

Null Hypothesis: There is no relationship between age of the customers and the relevance and use of AI enabled customer support tools by E-Commerce applications

Alternate Hypothesis: There is a significant relationship between age of the customers and the relevance and use of AI enabled customer support tools by E-Commerce applications

Customers' age and Satisfaction from use of AI enabled customer support tools (H3)

Null Hypothesis: There is no relationship between age of the customers and the satisfaction from use of AI enabled customer support tools by E-Commerce applications

Alternate Hypothesis: There is a significant relationship between age of the customers and the satisfaction from use of AI enabled customer support tools by E-Commerce applications

Procedure:

An online questionnaire was sent to the participants. The responses were recorded and analysed by simple bar graph and pie charts. The responses were analysed using non parametric chi-square test to study the strength of relationship between variables.

Limitations:

1. The study is limited to selected E-commerce Applications.

2. The study does not investigate the technical aspects related with use of AI customer support tools.

3. The study is focusing on the sample who are or have been using the online platforms or shopping, not considering those who don't shop online but are aware about the AI enabled customer support tools on E-commerce applications.

4. The study does not investigate the relationship between income levels and shopping patterns of the sample which in turn may influence the use of AI customer support tools on E-commerce applications.

5. The sample collected was small in size and also not proportionately distributed among the categorical variables under consideration due to time constraint.

Results:

Sample Demographics

Out of the total 64 respondents, 69% belonged to the age group of 25-45years while 31% belonged to the 46-65 years. 56 respondents are salaried and self-employed while only 8 respondents are either retired or homemakers.
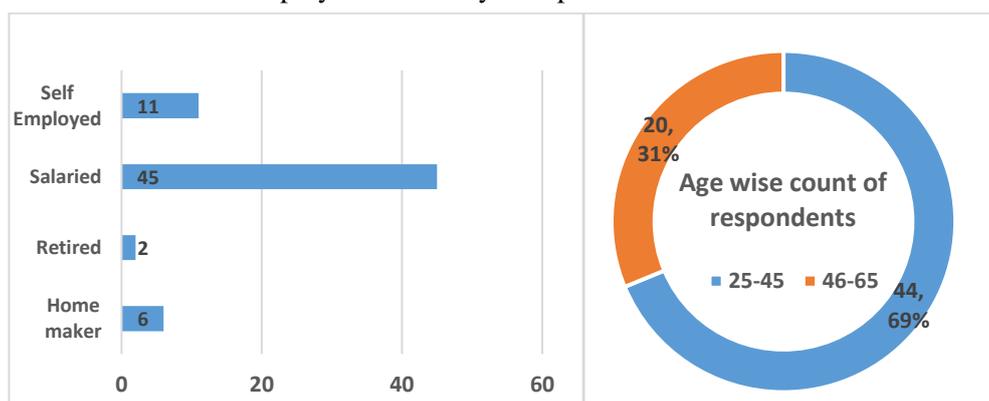
Online shopping behaviour and frequency

It was observed that 94% of the respondents shop online while only 6% don't. The respondents were asked about the e-commerce applications they use among the options given as Amazon, Meesho, Myntra, Flipkart and other. 32 respondents were observed to be using more than 1 online application, 13 using two applications while 19 were found to be using only one application. Among the options given to the respondents Amazon is the most popularly used e-commerce application. It was also observed that 52 of 64 respondents are shopping at least twice in a month, while 6 shoppers shop at least twice in a week and only 9% i.e. 6 respondents never shop in month.

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Frequency of online shopping
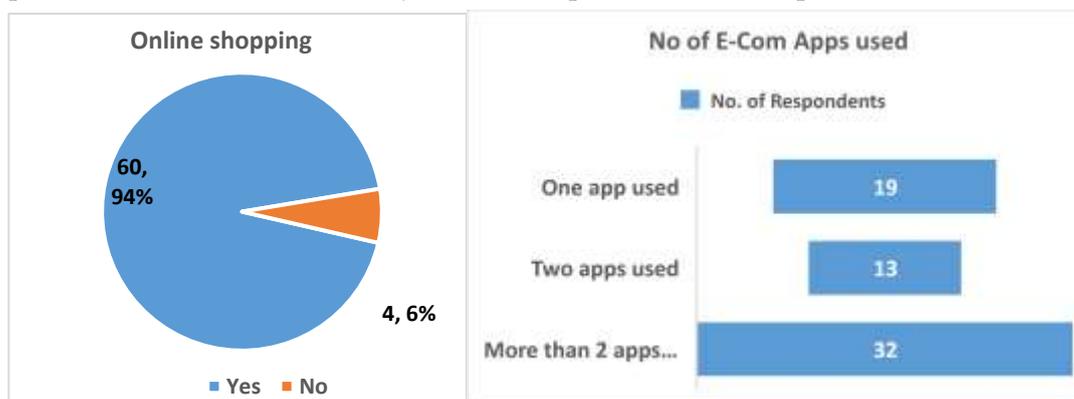
Online shopping related issues and Customer support tools

The respondents were asked if they have faced any issue while shopping online and also the types of issues they have faced. 62% of the total respondents have faced some issues related to their online purchases while 38% responded that they have not faced any issues. Regarding the types of issues faced 59% of the total shoppers have faced product related and refund and replacement related issues while 31% have faced product related issues alone.

The participants were asked about their source of information about the AI enabled customer support tools provided by e-commerce applications. 39 out of 64 respondents replied that they came to know about these tools either while exploring the application, watching on the application screen or while searching for some help through the application. 18 participants came to know about these tools from their friends or relatives while 7 shoppers came to know from other sources.
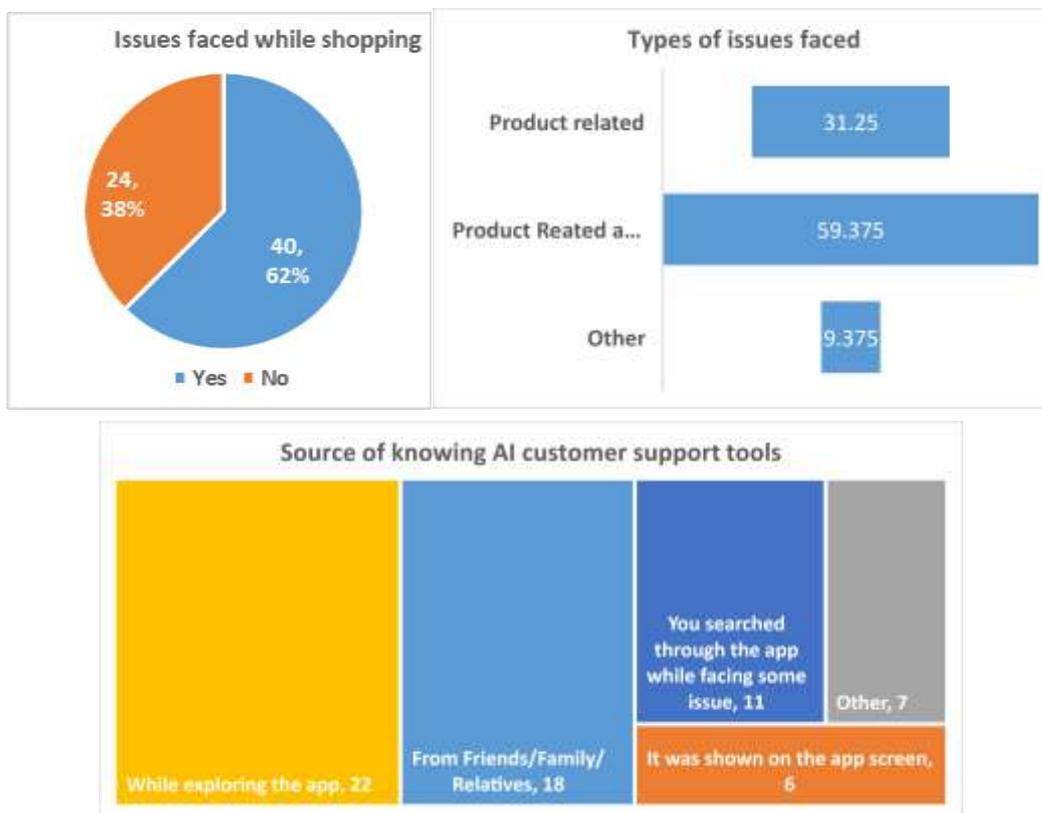
Customers' age and Awareness about AI enabled customer support tools (H1)

Likert scale is used to analyse the relationship between age of the respondents and their awareness about the AI enabled customer help tools provided by the e-commerce applications. The participants were asked to rate –

a) the visibility and accessibility of the customer help links/ tools on the application

b) the list of help/support topics if exactly matches with the issues faced by them

c) the awareness about chatbot option to solve simple issues through chat

Easy Visibility and Accessibility of customer support tools						
Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25-45	Count	2	5	12	23	2
	Expected Count	1.375	6.1875	13.0625	21.3125	2.0625
46-65	Count	0	4	7	8	1
	Expected Count	0.625	2.8125	5.9375	9.6875	0.9375
Total	Count	2	9	19	31	3
	Expected Count	2.00	9.00	19.00	31.00	3.00
p value = 0.67 >0.05; Fails to reject the null hypothesis						

Customer Help Links Matching the Exact Issue Faced by the Customer						
Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25-45	Count	1	4	14	23	2
	Expected Count	0.6875	3.4375	14.4375	23.375	2.0625
46-65	Count	0	1	7	11	1
	Expected Count	0.3125	1.5625	6.5625	10.625	0.9375
Total	Count	1	5	21	34	3
	Expected Count	1.00	5.00	21.00	34.00	3.00
p value = 0.94 >0.05; Fails to reject the null hypothesis						

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Awareness about Chatbots					
Age		**Unaware**	**Neither Aware or Unaware**	**Aware**	**Very Aware**
25-45	Count	3	3	32	6
	Expected Count	4.125	4.8125	29.5625	5.5
46-65	Count	3	4	11	2
	Expected Count	1.875	2.1875	13.4375	2.5
Total	Count	6	7	43	8
	Expected Count	6.00	7.00	43.00	8.00
p value = 0.27 >0.05; Fails to reject the null hypothesis					

It was observed that the P values are greater than 0.05, thus failing to reject the null hypothesis. Thus, there is no significant relationship between age of the customers and the awareness about AI enabled customer support tools by E-Commerce applications.

Customers' age and Relevance and usage of AI enabled customer support tools (H2)

Likert scale is used to analyse the relationship between age of the respondents and the relevance and use of the AI enabled customer help tools provided by the e-commerce applications. The participants were asked to select –

a) the frequency of use of customer support links on the e-commerce applications

b) the frequency of use of chatbots on the e-commerce applications

c) whether they are convinced that the chatbots are able to understand their issues perfectly

Frequency of use of customer support links on e-commerce applications						
Age		**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
25-45	Count	1	9	18	5	11
	Expected Count	2.0625	11.6875	15.125	5.5	9.625
46-65	Count	2	8	4	3	3
	Expected Count	0.9375	5.3125	6.875	2.5	4.375
Total	Count	3	17	22	8	14
	Expected Count	3.00	17.00	22.00	8.00	14.00
p value = 0.18 >0.05; Fails to reject the null hypothesis						

Frequency of use of chatbots on e-commerce applications

Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
25-45	Count	4	8	15	6	7	4
	Expected Count	6.1875	9.625	12.375	5.5	5.5	4.8125
46-65	Count	5	6	3	2	1	3
	Expected Count	2.8125	4.375	5.625	2.5	2.5	2.1875
Total	Count	9	14	18	8	8	7
	Expected Count	9.00	14.00	18.00	8.00	8.00	7.00
p value = 0.22 >0.05; Fails to reject the null hypothesis							

whether Chatbots are able to understand the issue perfectly

Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
25-45	Count	2	8	14	11	0	9
	Expected Count	2.0625	6.875	13.75	10.3125	0	11
46-65	Count	1	2	6	4	0	7
	Expected Count	0.9375	3.125	6.25	4.6875	0	5
Total	Count	3	10	20	15	0	16
	Expected Count	3.00	10.00	20.00	15.00	0.00	16.00
p value = 0.86 >0.05; Fails to reject the null hypothesis							

It was observed that the P values are greater than 0.05, thus failing to reject the null hypothesis. Thus, there is no relationship between age of the customers and the relevance and use of AI enabled customer support tools by E-Commerce applications

Customers' age and Satisfaction from use of AI enabled customer support tools (H3)

Likert scale is used to analyse the relationship between age of the respondents and the satisfaction they derive from use of AI enabled customer support tools. The participants were asked to rate –

a) whether Chatbots are able to solve the issue related to the specific product and respond accurately

b) whether the Customer Support links offer step by step process or small video to resolve the issue

c) whether the Customer Support links provide solution in very easy and understandable language

d) whether AI tools replacing human representatives to solve the issues

whether Chatbots are able to solve the issue related to the specific product and respond accurately

Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
25-45	Count	3	8	15	9	0	9
	Expected Count	2.0625	8.25	13.75	7.5625	0.6875	11.6875
46-65	Count	0	4	5	2	1	8
	Expected Count	0.9375	3.75	6.25	3.4375	0.3125	5.3125
Total	Count	3	12	20	11	1	17
	Expected Count	3.00	12.00	20.00	11.00	1.00	17.00

p value = 0.24 >0.05; Fails to reject the null hypothesis

The Customer Support links offer step by step process or small video to resolve the issue

Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25-45	Count	1	9	16	18	0
	Expected Count	0.6875	9.625	16.5	16.5	0.6875
46-65	Count	0	5	8	6	1
	Expected Count	0.3125	4.375	7.5	7.5	0.3125
Total	Count	1	14	24	24	1
	Expected Count	1.00	14.00	24.00	24.00	1.00

p value = 0.51 >0.05; Fails to reject the null hypothesis

The Customer Support links provide solution in very easy and understandable language.

Age		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
25-45	Count	1	6	18	17	2
	Expected Count	0.6875	6.1875	17.875	17.1875	2.0625
46-65	Count	0	3	8	8	1
	Expected Count	0.3125	2.8125	8.125	7.8125	0.9375
Total	Count	1	9	26	25	3
	Expected Count	1.00	9.00	26.00	25.00	3.00

p value = 0.97 >0.05; Fails to reject the null hypothesis

AI tools replacing human representatives to solve the issues						
Age		**Very Unlikely**	**Unlikely**	**Neutral**	**Likely**	**Very Likely**
25-45	Count	2	12	17	12	1
	Expected Count	1.375	11.6875	17.188	11.6875	2.0625
46-65	Count	0	5	8	5	2
	Expected Count	0.625	5.3125	7.8125	5.3125	0.9375
Total	Count	2	17	25	17	3
	Expected Count	2.00	17.00	25.00	17.00	3.00
p value = 0.61 >0.05; Fails to reject the null hypothesis						

It was observed that the P values are greater than 0.05, thus failing to reject the null hypothesis. Thus, there is no significant relationship between age of the customers and the satisfaction from use of AI enabled customer support tools by E-Commerce applications

Conclusion and Findings:

The study expected a correlation between age of the customers shopping online with e-commerce applications and the awareness, usage and satisfaction derived by them from the AI enabled customer support tools. The sample collected was dominated by the age group of 25 to 45 years considered as young and middle-aged adults (44 out of 64) compared to 46 to 65 years considered as senior adults (20 out of 64). In spite of the dominance of young and middle-aged sample in the total sample collected, the results revealed that there is not significant relationship between the age and the awareness, usage and satisfaction derived by the customers from the AI enabled customer support tools. While most of the digital platforms are incorporating AI embedded services to the customers, e-commerce applications are way ahead to develop a customer-centric platform not only to cater to the purchasing needs of the customers but for escalating the overall experience and satisfaction while using the applications. It was expected that the young and middle-aged adults are frequent shoppers and often rely on the AI enabled customer support tools on online platforms due to their technology centric approach and ease and adaptability towards it. However, when the results were analysed, it was found that there is no significant relationship showing a strong interdependence between age of the shopper and the awareness, usage and satisfaction of using AI enabled customer support tools provided by e-commerce applications.

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