PROMOTING CUSTOMER ENGAGEMENT THROUGH ARTIFICIAL INTELLIGENCE -A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The study aims to examine the present state of research related to artificial intelligence in customer engagement. The review is based on 20 articles published during 2019-2022 from the various databases. It follows a systematic approach for reviewing AI in CE literature and presents research contexts, antecedents, consequences, moderators, mediators and AI uses to engage customers. The synthesis draws upon various antecedents (AI quality, Time convenience, perceived ease of use, performance expectancy etc.) and its consequences (Unpaid brand endorsement, Purchase intention, Satisfaction, customer engagement etc. and mediators (parasocial interaction, customer engagement etc.,) and moderators (Customers emotional intelligence, customer ability readiness etc.,) and some research context and uses. To the best of the authors' understanding, this is the first attempt to provide a really thorough and collective body of literature on this topic. A wide future research agenda is also offered.

Keywords: Artificial intelligence, Customer engagement, Systematic literature review, SLR.

INTRODUCTION

AI has grown immensely in our everyday life. Businesses and customers are now rapidly adapting to the new reality as AI has made every day easier for them. AI is a system that mimics human intelligence attributes and indirectly communicates with humans (Sung et al, 2021). "AI is an information technology innovation that infiltrated the commercial world to facilitate business operations and customer transactions". It's a powered service that helps an organisation perform functions effectively and efficiently (Prentice et al, 2020). AI has advanced quickly from performing basic activities to more highly complex activities like identifying consumer sentiments for later intervention. It is also utilised for training and development employing robotics, 'visual scanning technologies, and wage appraisal using neural network functioning' (Bansal et al. 2022). Personnel recruiting use a combination of face recognition and natural language processing technology during interviews (Liu et al, 2021). AI tools are routinely used to analyse customer data and customer products (Jain and Gandhi, 2021). Over the past 10 years, customer engagement research has grown in prominence as one of the most important marketing tactics for achieving client retention and loyalty. AI will continue to expand in intellect and complexity to serve human thought, and it will be ready for further humanization, eventually surpassing creative potential (Chuang, 2020). In this SLR, the author attempts to evaluate futuristic topics such as artificial intelligence in customer engagement by synthesizing the research across the identified research contexts; this SLR aims to identify the existence of AI in the engagement of customers.

RESEARCH GAP

An in-depth review of the literature on Artificial intelligence and Customer engagement was done. The research gap is that no previous systematic literature review on the relationship between AI and CE was found.

RESEARCH QUESTIONS

This investigation was set across four questions:

RQ1 What is the present state of research on artificial intelligence in customer engagement?

RQ2 What are artificial intelligence's antecedent, mediating, and moderating variables in customer engagement?

RQ3 What are artificial intelligence's eminent applications/uses for engaging customers?

RQ4 What are the gaps in existing research and the futuristic scope of analysis?

METHODOLOGY

The first and foremost step under systematic literature review is identifying the gap, framing objectives priorly, and then setting the inclusion and exclusion criterion. This research started with identifying the keywords related to artificial intelligence in customer engagement. The keywords related to Artificial intelligence in Customer engagement were" Natural language processing, Machine learning, Machine vision, Deep learning, Chatbots and Neural networks, Customer engagement, Consumer engagement, Customer engagement, Customer brand engagement". The data was extracted and gathered by applying searched keywords with a name string search across *Database sources* such as Scopus, Web of Science, EBSCO, and Emerald. These databases were chosen because articles published in recognised academic journals are regarded as credible because they go through peer-review processes and thus enhance the quality of systematic literature review and their extensive coverage of multidisciplinary published articles. *For keywords and search criteria,* Boolean operators "OR" and "AND" was adopted to search in the field of "title", "topic", "abstract", and "keywords". The search formula used was:

• **Database:** Web of Science, Scopus, EBSCO, Emerald
• **Search string:** ("Artificial intelligence" OR "Natural Language Processing" OR "Chatbot*" OR "Machine Vision" OR "Machine Learning" OR "Deep Learning" OR "Neural Networks") AND ("Customer engagement" OR "Consumer engagement" OR "Customer brand engagement")

The inclusion and exclusion criteria used to search documents were as follows:

Inclusion Criterion

IC1. Only Empirical papers were chosen.

IC2. Articles that were written in the English language.

IC3. Articles that were published in journals.

IC4. Only articles published in 2019-2022.

Exclusion Criterion

EC1. Conceptual papers.

EC2. Non- English publications.

EC3. Book chapters, Dissertations, Conference proceedings, etc.

EC4. Year restrictions.

The screening of relevant data was done using the PRISMA model. Systematic reviews typically do not stick to accepted standards that make them reliable and sufficient from a scientific standpoint. PRISMA offers a common, widely acknowledged technique that closely adheres to a checklist of rules. In this work PRISMA model is strictly followed in order to contribute to quality assurance Figure 1.
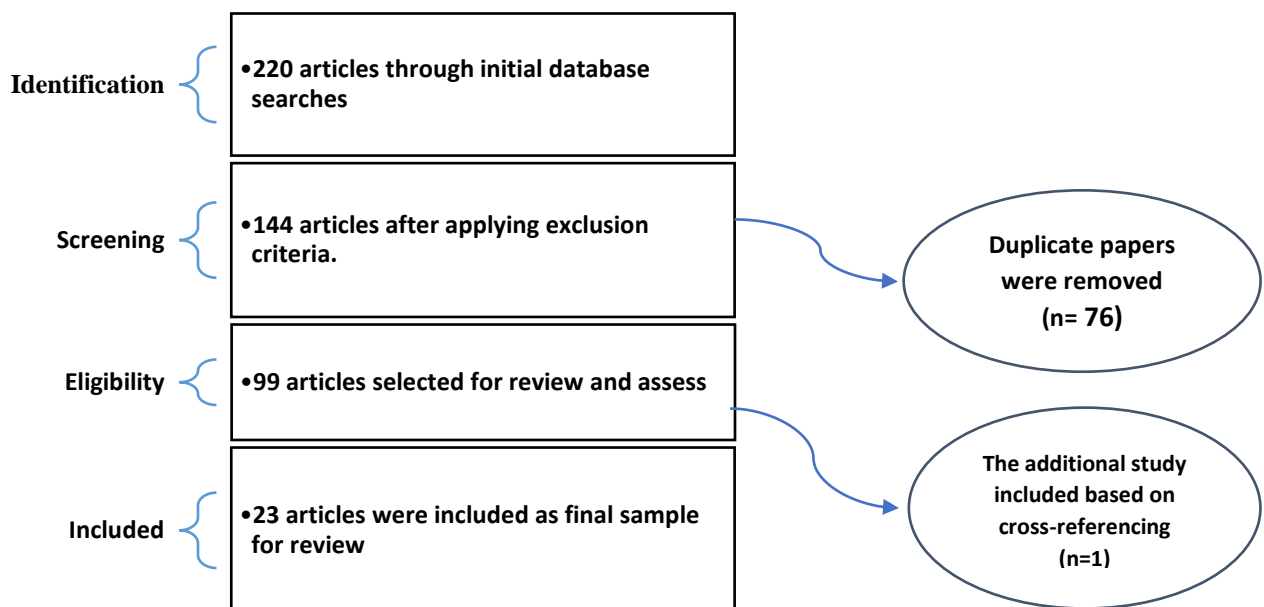

FIGURE1
INITIAL RESULT REFINING USING (PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSIS) PRISMA

The above-mentioned search string was used to build a comprehensive database of artificial intelligence in customer engagement literature. A list of 220 papers was produced by utilising the inclusion and exclusion criterion, i.e., excluding book chapters, conference proceedings, conference reviews, and language in English only to get the set of most relevant manuscripts related to the topic under study. The papers were reduced to 144. After manually reading the titles and abstracts of all identified articles, 144 studies were against the fit-for-purpose criteria, some duplicate articles were removed, and the result was 99 studies. After cross-referencing one paper relevant to the study, full-text screening was conducted. Therefore, 23 articles were found fit for purpose, i.e., where artificial intelligence was explicitly linked to customer engagement.

RESULTS

RQ1. What is the present state of research on artificial intelligence in customer engagement?

In order to create a stock of knowledge that is free from prejudice, this study uses a systematic literature review methodology that is consistent, reproducible, and scientific. This study critically evaluated academic articles on artificial intelligence in customer engagement. To the author's knowledge, this is the first systematic literature review studying artificial intelligence in customer engagement. The synthesised research data have aided in formalising, communicating, and connecting the study evidence to the research goals as well as establishing the potential for future research growth. It is observed that the most used framework is Stimulus, organism, response (S-O-R) and Diffusion of innovation. The most used data collection tool is questionnaire and survey. SEM is the most used tool for data analysis. Research on artificial intelligence in the engagement of customers is found primarily in the year (2019-2022). The most cited research paper is by (Liu et al, 2021) with 83 citations and the second most cited paper is by (Moriuchi, 2019) with 60 citations. The study also provides precise, practical insights and profound understandings of this area for both scholars and practitioners Table 1.

Table 1
LIST OF CURRENT RESEARCH ON ARTIFICIAL INTELLIGENCE IN CUSTOMER ENGAGEMENT ORGANISED BY RESEARCH CONTEXT

S.No	Research context	Number of Papers in corresponding Literature
1	Retail	2
2	Hospitality & Tourism	5
3	Banking	1
4	E-Commerce	4
5	Service sector	2
6	Healthcare	1
7	Technology	6
8	Social Media	2

From the above classification of the selected literature, it can be noticed that hospitality & tourism, e-commerce and technology are the most researched context. It is observed that banking, service sector, healthcare and social media have displayed minimal interest.

Table 2
LIST OF JOURNALS INCLUDED IN THE STUDY

S.No	Research field	Name of the journal	No. of Articles
1	Retail	International Journal of Management	1
2	Banking	International Journal of Human-Computer Interaction	1
3	Tourism & Hospitality	International Journal of Hospitality Management	1
4	Service Sector	Journal of Retailing and Consumer Services	1
5	E-Commerce	European Journal of Marketing	1
6	E-Commerce	Frontiers in Psychology	1
7	Service sector	Journal of Research in Interactive Marketing	1
8	Technology	Journal of Research in Interactive Marketing	1
9	Health care	Journal of Contingencies and Crisis Management	1
10	E-Commerce	Psychology and Marketing	1
11	Tourism & Hospitality	Psychology and Marketing	1
12	Technology	Journal of Services Marketing	1
13	Technology	Journal of Research in Interactive Marketing	1
14	E-commerce	International Journal of Innovation Science	1
15	Tourism & Hospitality	Journal of Innovation and Entrepreneurship	1
16	Tourism & Hospitality	Journal of Mathematics	1

17	E-Commerce	Benchmarking: An International Journal	1
18	Tourism & Hospitality	International Journal of Contemporary Hospitality Management	1
19	Social Media	Industrial Management & Data Systems	1
20	Technology	Journal of Business Research	1
21	Technology	IEEE Transactions on Engineering Management.	1
22	Social media	Journal of Business Research	1
23	Technology	Journal of Sustainability	1

The above table 2 shows that most of the articles are published in the journal of research in interactive marketing (n=3), Journal of Psychology & marketing (n=2), Journal of business research (n=2) and rest of the journals were published one paper each.

RQ2 What are artificial intelligence's antecedent, mediating, and moderating variables in customer engagement?

Table 3
ESSENTIAL ANTECEDENTS AND CONSEQUENCES OF ARTIFICIAL INTELLIGENCE AND CUSTOMER ENGAGEMENT LITERATURE

Antecedents	Consequences	Effect
Artificial intelligence Quality	Unpaid brand endorsement, Purchase intention.	+
Time Convenience	Satisfaction, Brand usage intention	+
Interactivity	Satisfaction, Brand usage intention	+
Compatibility	Satisfaction, Brand usage intention	+
Complexity	Satisfaction, Brand usage intention	-
Observability	Satisfaction, Brand usage intention	+
Trialability	Satisfaction, Brand usage intention	+
AI service performance	Customer engagement	+
Compatibility	Initial trust	+
Perceived ease of use	Initial trust	+
Performance expectancy	Initial trust	-
Social influence	Initial trust	+
Initial chatbot trust	Customer usage intention, Customer engagement	+
AI attributes	Customer brand engagement	+
Technology attributes	Customer brand engagement	+
Situational attributes	Customer brand engagement	+
Utilitarian benefits	Customer brand engagement	+
Hedonic benefits	Customer brand engagement	-
Distrust	Customer brand engagement	-
Cognitive social identity	Behavioural engagement	+
Affective social identity	Behavioural engagement	+

From Tables 3 & 4 it is clearly observed that there are so many antecedents like AI quality, time convenience, compatibility, interactivity, complexity, observability, trialability, AI service performance, social influence, initial chatbot trust, AI attributes, Technology attributes, Situational attributes, utilitarian attributes, hedonic benefits and trust. Observed consequences are customer brand engagement, customer usage intention, customer engagement, initial trust, satisfaction, unpaid brand endorsement, Purchase intention.

Table 4
KEY MEDIATORS IN THE ARTIFICIAL INTELLIGENCE AND CUSTOMER ENGAGEMENT LITERATURE

Independent	Mediators	Dependent	Relationship
Artificial	Mixed reality	Customer	The significant effect of artificial intelligence on

intelligence		engagement	customer engagement is mediated by mixed reality spatial immersion.
Perceived personalisation	Customer engagement	Customer participation behaviour	The positive effect of perceived personalisation on customer participation behaviour is mediated by customer engagement.
Community identification	CE	Customer citizenship behaviour	The positive effect of community identification on customer citizenship behaviour is mediated by customer engagement.
Perceived interactivity	Customer engagement	Value Co-creation	The positive effect of perceived interactivity on value co-creation is mediated by customer engagement.
Perceived personalisation	Customer engagement	Value Co-creation	The negative effect of perceived personalisation on value co-creation is sequentially mediated by customer engagement.
Intention	Attitude	engagement	The partial effect of intention on engagement is mediated by attitude
Social presence communication	Parasocial interaction	User engagement	The positive effect of social presence communication on user engagement is mediated by parasocial interaction.
Social presence communication	Perceived dialogue	User engagement	The positive effect of social presence communication on user engagement is mediated by perceived dialogue.
Customer engagement	Corporate communication	Mutual trust	The negative effect of customer engagement on mutual trust is sequentially mediated by corporate communication.

Table 5
KEY MODERATORS IN ARTIFICIAL INTELLIGENCE AND CUSTOMER ENGAGEMENT LITERATURE

Independent	Moderators	Dependent	Relationship
Service experience	Customers emotional intelligence	Customer engagement	Customer emotional intelligence positively strengthens the relationship between service experience and customer engagement.
Artificial intelligence stimuli	Customer ability readiness	Customer engagement	Customer ability readiness positively strengthens the relationship between AI stimuli and CE.
Personalised interactivity	Customer ability readiness	Customer engagement	Customer ability readiness positively strengthens the relationship between PI and CE.
Interaction experience level	Gender voice	Customer engagement	Gender voice positively strengthens the relationship between interaction experience level and customer engagement.
Interaction experience level	Product smartness	Customer engagement	Product smartness positively strengthens the relationship between interaction experience level and customer engagement.
Subject norm	Localisation of voice assistant	Customer engagement	Localisation positively strengthens the relationship between SUB and CE (only for non-transactional activity)
Social presence communication	Anthropomorphic	user engagement	Anthropomorphic positively strengthens the relationship between social presence communication and user engagement.
Adoption Intention of AI-powered Chatbots for travel planning	Stickiness to Traditional Travel agents/ planners	Actual Usage of AI-powered Chatbots for travel planning	STT is negatively affected by AIN customers do AUR
Social identity factors	Psychological engagement	Behavioural engagement	Psychological engagement is positively affected by social identity factors and behavioural engagement

Perceived usefulness	Trust	Information search	Trust is positively affected by perceived usefulness and information search
Perceived usefulness	Frequency of use	Task function	Frequency of use is positively affected by perceived usefulness and task function

From Table 5 we can gain a deeper knowledge of phenomena by investigating mediating and moderating effects. We thus urge more study into additional factors that could function as mediators and moderators to be done in the future between artificial intelligence and customer engagement. Important mediators investigated previously were mixed reality, customer engagement, attitude, para-social interaction, perceived dialogue, and corporate communication. Significant moderators examined in the past are Customer emotional intelligence, Customer ability readiness, Gender voice, product smartness, localisation of voice assistant, anthropomorphic, and stickness to traditional travel agents/planners.

RQ3 What are artificial intelligence's eminent applications/uses for engaging customers?

After a review of the literature, it is found that the use of artificial intelligence is enormous and proliferating. To engage customers, AI is used by various industries in various contexts. Artificial intelligence is used in entertainment and retail complexes to promote customer engagement. These days, chatbots are in vogue and used by various sectors like banks and e-commerce companies for crisis management, mental health, consulting with a doctor, in hospitality & tourism as a means of communication as it saves time and make ease for customers' queries and helps various organisations to promote engagement with customers. Smart speaker objects like Alexa, Siri, Cortana, Ok Google etc., also help to engage customers by enhancing gender voice and product smartness. E-outlet is one of the modern technologies for Indian online shoppers as it makes it easy for customers to shop and thus promotes customer engagement. AI is also used for image analysis of social media.

RQ4 What are the gaps in existing research and the futuristic scope of analysis?

- Researchers have majorly focused on Chatbots and Smart speakers/ voice assistants. Future researchers can focus on other tools of AI such as Fraud prevention, personalised learning, Automated aid educators etc. to promote customer engagement.
- Researchers can explore Artificial intelligence and customer engagement from other perspectives as well.
- Majorly S-O-R framework and DOI has used in previous studies future researchers can explore AI and CE relationship by using other frameworks.
- Data has been collected majorly from students' perspectives. Future researchers can look for data collection employees as well.
- Previous work has been done in very limited research contexts like hospitality & tourism, E-commerce etc. future researchers can explore other contexts as well.

CONCLUSION

Artificial intelligence contributes immensely to improving poor customer interactions. This review study highlighted not only research contexts but also applications of artificial intelligence for engaging customers. This study also identified important antecedents, consequences, moderators and mediators of artificial intelligence in customer engagement. The present SLR was formulated to provide a complete picture of AI in CE research seeking to create further research options. This review study is intended to stimulate research on AI in

CE and promote knowledge of the relevant literature. This study will be useful for organisations to promote customers using artificial intelligence.

LIMITATIONS

This study has several restrictions. First, only English-language publications that have been published in peer-reviewed journals are susceptible towards this screening. Second, four electronic databases were consulted, including EBSCO, SCOPUS, WEB OF SCIENCE, and EMERALD. Even though they are the most renowned and cover the broadest range of scientific databases, they may have overlooked pertinent items. This led to the exclusion of potentially pertinent work including book chapters, conference proceedings, dissertations, and other grey literature. Third, it's possible that not all potentially pertinent studies were found using the search terms and filtering method that were utilised. However, we are sure that our systematic review's rigorous process and careful reference checks have given us a significant collection of papers and decreased the probability that missed articles would have materially changed our results.

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