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ORIGINAL

INVESTIGATING THE IMPACT OF ARTIFICIAL INTELLIGENCE ON ENHANCING CUSTOMER LOYALTY IN E-COMMERCE FOR SPORTS NUTRITION AND FITNESS PRODUCTS AMONG COLLEGE ATHLETE GRADUATES

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ABSTRACT

Background: As artificial intelligence (AI) increasingly permeates online commerce, understanding how AI algorithms influence customer trust becomes crucial for companies, particularly in the sports nutrition and fitness industries. **Objective:** This research aims to identify factors influencing digital economy consumers' trust in AI-powered recommendation systems and to deeply analyze elements that enhance safety perceptions of AI products and services among college athlete graduates. **Method:** Non-probabilistic convenience sampling was employed to gather data from 486 students at a public institution, focusing on opinions regarding the use of AI in purchasing sports nutrition and fitness products online. **Results:** The study found that transparency and the enhancement of AI capabilities play pivotal roles in fostering consumer trust. The academic disciplines of the students correlated significantly with their trust in AI, as demonstrated through an ordinal logistic model and chi-square tests. These findings suggest that for businesses in the digital economy, particularly those targeting sports and fitness markets, it is crucial to emphasize the creation and maintenance of trust in AI technologies to ensure their widespread acceptance and integration. **Conclusion:** The complexities of trust in AI algorithms among digital economy consumers, especially college athlete graduates, were elucidated in this study. The results underscore the importance of transparency, consistency, and the perceived efficacy of AI systems in building trust among consumers of sports nutrition and fitness products. These insights are critical for companies looking to leverage AI to enhance customer

loyalty and retention in this niche market.

KEYWORDS: Transparency; Artificial intelligence (AI); User trust; digital economy; e-commerce; online shopping

1. INTRODUCTION

The digital commerce landscape has been dynamically transformed by the advent and integration of artificial intelligence (AI). In an era where personalized consumer experiences are not just valued but expected, AI stands as a cornerstone technology that enables e-commerce platforms to deliver highly customized shopping experiences. These advancements are particularly pertinent in sectors such as sports nutrition and fitness, where the specificity of customer needs demands sophisticated technological solutions (Fast, Schnurr, & Wohlfarth, 2023; C. Li, Li, & Tao, 2023; Yuniarti, Ramli, Rosadi, & Budhijanto, 2023). AI's ability to analyze vast amounts of data in real time allows for the tailoring of product recommendations and marketing messages to individual preferences, potentially revolutionizing how businesses engage with their customers. For college athlete graduates, the decision-making process in purchasing sports nutrition and fitness products is influenced by a myriad of factors including past training regimes, dietary advice received during their athletic career, and goals for maintaining fitness post-graduation. AI can play a critical role in this context by providing insights and recommendations based on not only general consumer trends but also personalized health and fitness data (Firmansyah, Wahdiniwaty, & Budiarti, 2023; MITCHELL, 2021; RUDNICKA, KACZOROWSKA-SPYCHALSKA, REICHEL, & KULIK, 2023). This level of customization can help bridge the gap between general consumer products and the specific needs of former athletes, enhancing satisfaction and loyalty. Trust in AI systems is paramount, especially in fields where product choice can directly impact personal health and well-being. For e-commerce platforms, establishing and maintaining this trust is crucial. It involves not only demonstrating the accuracy and helpfulness of AI recommendations but also ensuring privacy, security, and transparency in how consumer data is used. For college athlete graduates, who may be particularly sensitive to how their personal information is handled, these factors can significantly influence their trust and, by extension, their loyalty to a platform (POSTOLACHE44 & BRANAȘCO45; Salazar et al., 2023; Yao & Sun, 2023). This study aims to dissect these complex dynamics by identifying the factors that most significantly influence trust and loyalty among college athlete graduates when interacting with AI-driven e-commerce platforms. Specific research questions include: What are the key elements that influence the trust of college athlete graduates in AI systems within e-commerce platforms? How does this trust impact their loyalty to these platforms, particularly in the context of purchasing sports nutrition and fitness products? What AI features or functionalities are perceived as most beneficial or concerning by this demographic? Employing a mixed-

methods approach provides a comprehensive view, combining the empirical rigor of quantitative methods with the depth of qualitative insights. This approach will enable the capture of nuanced attitudes and perceptions that might otherwise be overlooked in more traditional research setups (Ekici & Özbölük, 2023; Skare, de Obesso, & Ribeiro-Navarrete, 2023; Stofkova, Laitkep, & Stofkova, 2022). The insights derived from this study could inform future AI implementations, not just in sports nutrition but across diverse e-commerce segments. Understanding how to effectively build and maintain trust in AI systems could lead to broader applications of these technologies, potentially setting new benchmarks for consumer engagement and retention in digital commerce. This exploration thus holds significant implications for how e-commerce businesses can harness AI to meet the evolving demands of the modern athlete and leverage these insights to enhance customer loyalty and market competitiveness.

1.1 Contribution of the study

This research aims to demonstrate the significance of responsible AI deployment in protecting rights of customers while preserving confidence in the digital economy.

2. Related works

Table 1 shown in literature review in consumer trust in digital economy role on AI.

Table 1(a): Literature review

REFERENCES	OBJECTIVES	SUMMARY OF FINDINGS
(ANSER, TABASH, NASSANI, ALDAKHIL, & YOUSAF, 2023)	The study was to demonstrate the association between customer loyalty to digital research libraries and consumer perceptions of service value and trust in online transactions. The research was determined whether there was a link between quality of e-services and e-loyalty, and if therefore, the extent of a role e-trust performed as mediators.	The results indicate that e-trust in the digital economy is positively connected to e-service. Trust is a leading indicator of e-loyalty in the online marketplace. E-trust was shown to be a mediator between the value of an e-service and its effect on customer loyalty.
(BAPAT & KHANDELWAL, 2023)	The study primary objective was to learn more about whether customers' levels of confidence affects the connection between marketing and brand value qualities that support app-based digital payment platforms.	According to moderated mediation analysis, consumers' expectations are affected and their use patterns across all degrees of trust but had no effect on their dedication across all involvement levels.

Table 1(b): Literature review

REFERENCES	OBJECTIVES	SUMMARY OF FINDINGS
(LESMANA, AFIFUDDIN, & ADRIYANTO, 2023)	The study found that when new digital economy technologies and features were produced, an integration of digital technology in economic development. Understanding the risks and hazards to the national economy throughout the digital economic transformation.	Cyber dangers in digital economy requires an integrated approach to risk analysis that takes into account all economic processes and, in particular, the interactions between the many players participating in those processes.
(HUMPHERY, JORDAN, & LEKAKIS, 2023)	The study analyzed and relating research from the fields of digital activity and the digital economy, this study offers a fresh perspective on the politics of digital consumption. Through the analysis of three case studies, they investigate the impact of digital media on agency and the transformation of consumer meanings and behaviors in the digital marketplace.	The result demonstrates that is can be to foster agency when consumer action transfers online. Similarly, the case studies highlight the difficulties built into consumer politics, which poses challenges to the capitalist economy in the real world but leaves it largely unchallenged in the virtual world since it relies on digital platforms devoted to private earnings.
(DEWA, SAFITRI, PRADIATININGTYAS, KISWATI, & HADI, 2023)	The study was to estimate the success of commerce businesses' efforts to digitally transform in the hopes of identifying a promising digital platform that may assist in the maximization of marketing efforts and the continued satisfaction of consumer demand even in the face of the impending pandemic of Covid 19.	Based on the findings, it's clear that consumers' expectations about making purchases during the Covid19 pandemic are heavily influenced by social media, app stores, web stores, and marketplaces.
(YANG & NGO, 2023)	The investigation into the causes and effects of shoppers' trust consider factors such shoppers' opinions of businesses' ethics, the kind of products they choose, and their online buying habits and philosophies. The study expands the antecedents-trust-consequences paradigm by studying Vietnamese consumers who have made purchases on a business-to-consumer electronic commerce (EC) websites.	According to the findings, there are three distinct forms of trust at play in B2C EC. In addition to acting as an antecedent and a result of consumer trust, consumers' impressions of merchants' ethics and Consumer repurchase intention (CRI) play these roles as well.

Table 1(c): Literature review

REFERENCES	OBJECTIVES	SUMMARY OF FINDINGS
(SINGH ET AL., 2023)	The study was to provide light on the manner in which these variables affect customers' purchase decisions across various platforms. This in turn helps to create a more comprehensive understanding of the complexities of online buying dynamics, which in turn helps to build strategies for enhancing customer trust and their overall online shopping experiences.	The study looked at how factors including perceived risk, perceived value, trust, and unfavorable media attention affected the rapidly expanding social cross-platform buying industry in India.
(WU, WANG, DING, & MO, 2023)	The research examined at how trust regarding a business's ability to provide goods and services that online media develops over time. Consumers' cognitive and emotional confidence in the seller is influenced by factors such as their level of familiarity with the platform, the commonality of the transaction, and their ability to engage with other users of the platform.	The research contributes to the existing cognitive-emotional trust framework and sheds light on the supplementary sources of trust, both of which are useful for modeling consumers' social purchasing intents.
(ANANTHARAMAN, PRASHAR, & VIJAY, 2023)	The study explores the impact of numerous variables, namely social presence and trusting views, on the reliability of salespeople.	According to the results, trust and purchase intent are significantly affected by social connection and the bandwagon effect. The findings may inspire e-commerce social media managers to improve their methods of connecting with customers.
(X. LI, MA, ZHOU, & YUAN, 2023)	The study examined in view of the trust of purchasers, the framework climate, sites/applications, and stage organizations, this exploration recognizes and classifies the factors that add to the improvement of client certainty.	The exact study utilized the primary condition model and numerous relapses to test the hypothetical speculation and model's fit with the information. If new internet markets for old automobiles are developed, the study's results may be utilized as a standard.

3. Formulating Hypotheses

Hypothesis 1: Online shoppers are more inclined to place their faith in AI

systems if they are provided with clear information about how these systems will affect their shopping experience. Providing precise timelines for when customers' orders will be handled by AI-powered e-commerce platforms inspires more confidence among those customers. Consumers' trust in AI-driven processes including customized product suggestions and targeted marketing is enhanced by open discussions about these processes' workings. Digital economy businesses could improve customers' faith in the AI algorithms they use through efforts to raise the standard of willingness around such algorithms.

Hypothesis 2: Those who have used other AI services before, such as voice/face recognition, translation, chat bots are more inclined to put their faith in digital economy AI algorithms. Consumers that have experienced prior positive experiences with AI could be more inclined to trust the AI algorithms used by online marketplaces, according to this idea. Customers that have used these AI tools before are more likely to have a favorable impression of their use when applied to the context of online purchasing, it is hypothesized. Customers' trust and reliance on AI algorithms in the digital economy context is predicted to increase as they get more acquainted with the advantages and functions of these AI apps.

Hypothesis 3: Trust in digital economy AI algorithms is stronger among consumers who are informed of the way these programs use their confidential data. A digital economy AI algorithm is more trusted by customers if they have a thorough awareness of the way these algorithms interact with their personal data, according to this idea. Consumers' perceptions of data security and privacy can be improved if they have a better understanding of the rules that govern the way AI systems use their information. The importance of openness and data governance in boosting customer confidence in digital economy AI apps is highlighted by the fact that consumers are more probable to trust such applications when they've developed an in-depth understanding of the intricate connection between their personal data and AI algorithms.

Hypothesis 4: Younger customers will show more faith in digital economy AI algorithms than their more senior counterparts There is a possibility that this tendency for trusting digital economy AI algorithms is a result of a greater intrinsic acceptance and comfort with AI-related functions. Younger customers' impressions and confidence in AI technology is influenced by the fact that they are more technologically flexible than their parents were at the same age. However, various trust levels is shown for different reasons, such as differences in technology literacy and views on data protection. Understanding the influence of age on consumers' confidence in digital economy AI algorithms requires a careful consideration of these factors.

Hypothesis 5: Trust in digital economy AI algorithms increases among

consumers that view AI as being a useful in facilitating the discovery of desired items This hypothesis proposes that when people realize AI as a helpful tool for locating certain products, they are more inclined to put faith in the algorithms used by online retailers to make product recommendations. Instilling a positive connotation between AI-driven features and meeting customer wants might be aided by the idea of AI as a useful tool for efficiently navigating a broad assortment of goods and services. Digital economy AI algorithms are expected to gain customers' trust and dependence as they become aware of AI's usefulness in personalizing suggestions and speeding up the search process. To further emphasize the central role of AI in simplifying the discovery and selection of desired goods in the digital economy environment, expectations of the relationship between AI features and the improvement of the shopping experience have increased.

Hypothesis 6: Customers who believe that AI might affect their purchases are less likely to have faith in digital economy AI algorithms Customers who worry that AI would influence their buying habits are unable to believe trust in digital economy AI, according to this concept. Consumers' fears about how AI is affecting their purchasing decisions may cause them to question them neutrality and accuracy of marketing and suggestions generated by AI. Consumers may be wary of the suggestions or guidance offered by digital economy AI algorithms if they believe they may be subject to manipulation, a reflection of their cautious attitude toward AI's influence, which they believe may interfere with their freedom to make independent purchasing decisions. Investigating how consumers' beliefs about AI's influence on their purchasing decisions and their faith in online stores are intertwined Understanding the complex processes that form consumers' trust in AI-powered systems in the digital economy space requires the use of AI algorithms.

4. Research Approach

750 academics and researchers teaches, while 450 staff members and administrators support the more over 16000 students. Engineering, Medicine, the natural sciences, precise sciences, humanities, law, economics, the arts, and religion are just few of the fields represented by these numerous degree programs. The foundation contains 17 resources, each enveloping a different range of scholarly fields. These incorporate trains like artistic expression, structural designing, regulation, authoritative sciences, actual instruction, sports, mechanical designing, sea designing, history, political theories, letters, medication, dentistry, arithmetic, software engineering, brain research, applied sciences, designing, financial matters, and regular and horticultural sciences. Also, undergrad and graduate projects, this establishment gives instructive instructional classes, proficient improvement programs custom fitted for authorized educators, and extensive clinical residency programs. The non-likelihood accommodation test included 486 understudies, of which just 133

answered. It is vital to take note of that none of the respondents from the example were signed up for remote learning or expert's projects. Table 2 shows the demographics of the students who take part in the study; the numbers and percentages reflect the total number and proportion of students who fall into each group, respectively. Women made up a majority of respondents (67.1%), while the bulk of those examined (75.4%) were young adults. Over a third of the group studied economics in college.

Table 2: Demographics of the students

CATEGORIZATION	TOTAL (N)	%
AGE GROUP		
18-25	372	75.4
25-35	44	9.9
35-45	56	12.8
45 OR OLDER	14	4.1
TOTAL	486	100
STUDY AREAS		
INFORMATION	64	12.6
MEDICINE	97	21.2
ECONOMICS	165	33.4
HUMANITIES	75	16.2
ENGINEERING	63	13.5
LAW	22	5.1
TOTAL	486	100
GENDER		
MALE	330	33.9
FEMALE	330	67.3
TOTAL	486	100

This study was to analyze the gathered data using Statistical Package for the Social Sciences (SPSS) 28 (IBM Corp., Armonk, NY, USA) to see what variables were connected with trusting AI algorithms in online shopping. There were two primary stages to the data analysis. In the first phase (bivariate analysis), Pearson Chi-Square statistics were applied to analyze significant differences between two answer groups: students expressing high trust in digital economy AI and students reporting low trust. Digital device utilization was analyzed via cross-tabulations for relations to age, major, and gender. Multivariate analysis, phase two, involved developing an ordinal logistic regression model to pin point factors that predict how much faith millennials have in online shopping algorithms. The model's independent variables were selected using Pearson Chi-Square test findings. The purpose of the ordinal logistic regression model was to determine which of these parameters most affected the degree to which young customer’s trusted digital economy algorithms.

5. Results

5.1 Bivariate test

To all the more likely investigate trust levels; the trust variable was coded as a twofold factor. The table 3 shows the proportion of people from various demographic groups that either have lot of faith in the algorithms that power the digital economy. Figure 1 shows that certain academic disciplines have a more even distribution of low and high trust, despite only some proportion of fluctuation between the two groups. Figure 2 shows the gender difference in how much people trust algorithms used in the digital economy. Table 4 shows a percentage of people have low or high levels of trust.

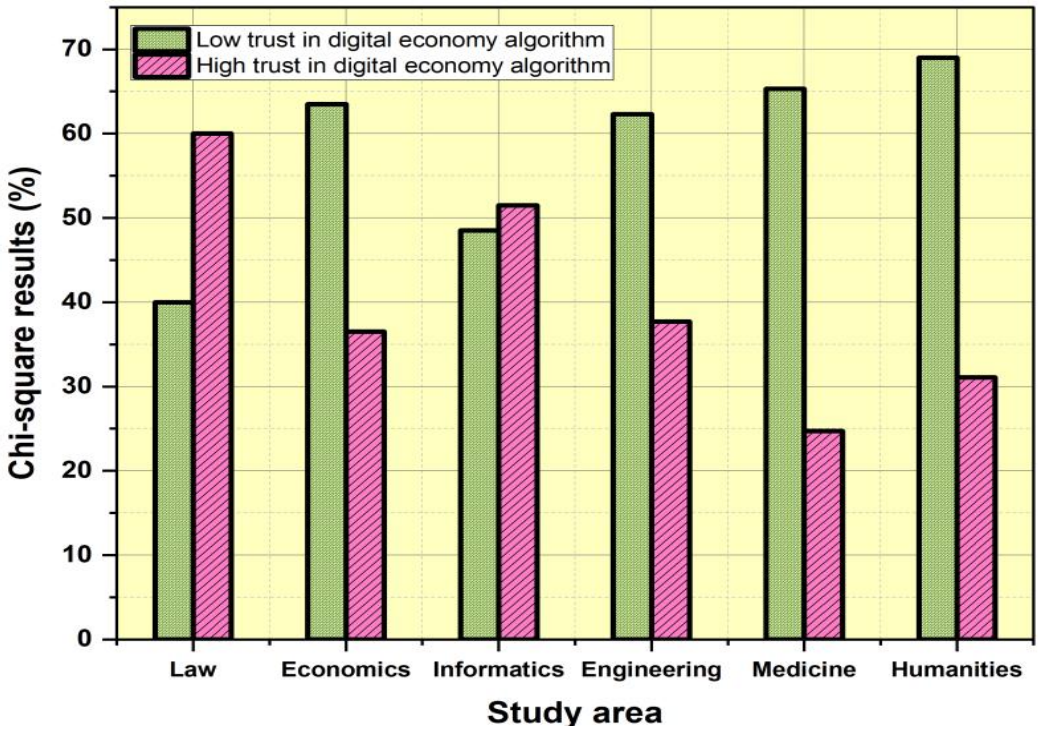

Figure 1: Comparison of study areas

Table 3: Numerical outcomes of study areas

	CHI-SQUARE RESULTS (%)	
STUDY AREA	**LOW TRUST IN DIGITAL ECONOMY ALGORITHM**	**HIGH TRUST IN DIGITAL ECONOMY ALGORITHM**
LAW	40	60
ECONOMICS	63.5	36.5
INFORMATICS	48.5	51.5
MEDICINE	65.3	24.7
HUMANITIES	68.99	31.1
ENGINEERING	62.3	37.7

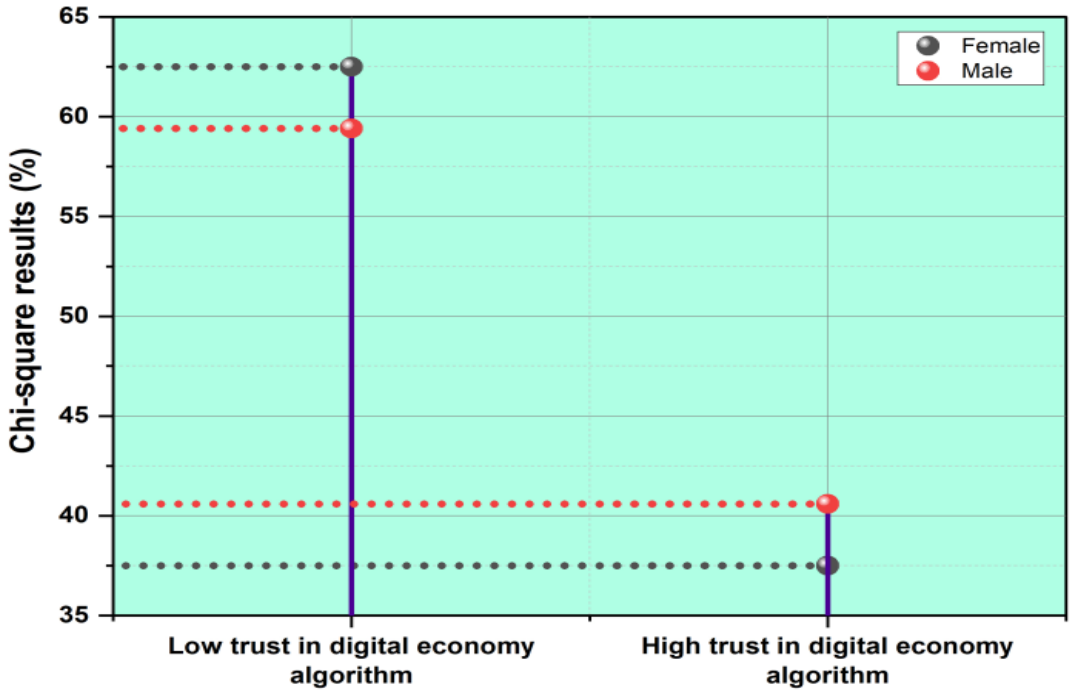

Figure 2: Comparison of digital economy algorithm

Table 4: Numerical outcomes of digital economy algorithm

CHI-SQUARE RESULTS (%)	FEMALE	MALE
LOW TRUST IN DIGITAL ECONOMY ALGORITHM	62.5	59.4
HIGH TRUST IN DIGITAL ECONOMY ALGORITHM	37.5	40.6

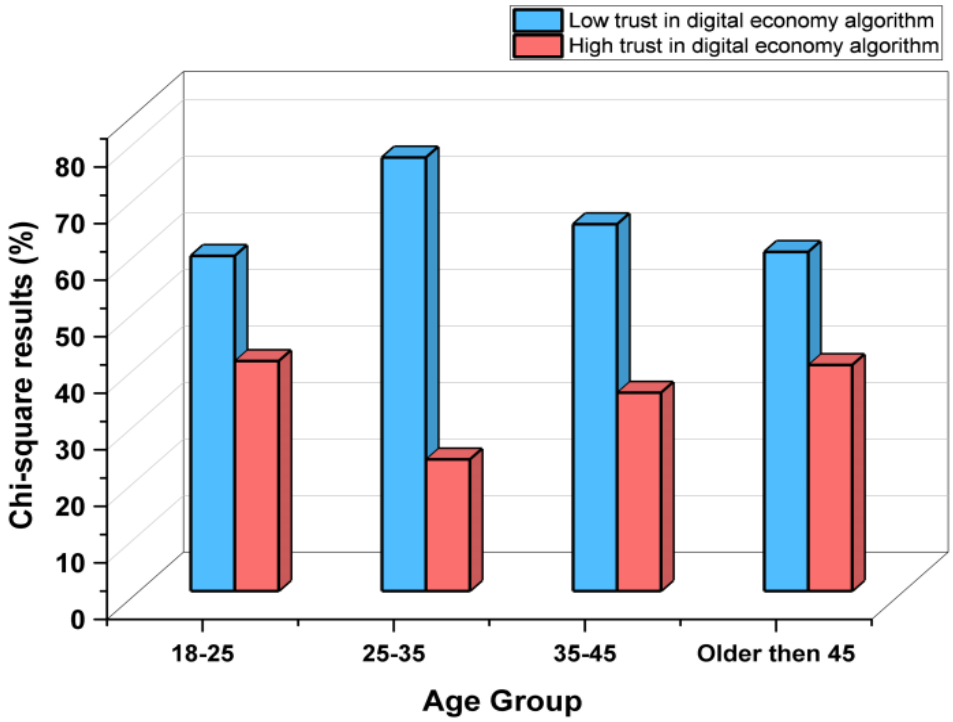

Figure 3: Comparison of digital economy age group

Table 5: Numerical outcomes of digital economy age group

AGE GROUP	CHI-SQUARE RESULTS (%)	
	LOW TRUST IN DIGITAL ECONOMY ALGORITHM	HIGH TRUST IN DIGITAL ECONOMY ALGORITHM
18-25	59.3	40.7
25-35	76.7	23.3
35-45	64.9	35.1
OLDER THEN 45	60	40

Figure 3 presents Chi-square analysis findings that show the age-specific percentage distribution of those with low and high levels of faith in digital economy algorithms. Table 5 suggests a diverse levels of trust across age groups, highlighting the significance of understanding the dynamics of age in determining trust decisions in the context of digital economy algorithms. While contrasting understudies' degrees of trust across segment gatherings, we utilized Pearson's Chi-Square insights to look for measurably huge contrasts. Socioeconomic aspects and their impacts on online shopping with the use of AI algorithms were studied. Table 6 shown in group of variables.

Table 6: The set of variables included

VARIABLES	DESCRIPTION
1	Monthly average of times spent doing internet shopping
2	Money invested in monthly purchases
3	Consumers' understanding of the interdependence of the algorithms powering the sites they visit
4	The extent that consumers believe algorithms improve product identification
5	Quantity of times a person’s like sales consultant is simulated by an algorithm

Step 1: Bivariate Analysis: Chi-Square significance level is used in this study to determine the distribution of pupils among groups. Furthermore, we utilize Cramer's V, which may vary from 0 to 1, to evaluate the robustness and significance of associations across categories.

Step 2: Socio-Demographic Factors: The second step involves thinking about demographics. Students of all ages and genders showed similar levels of faith in AI. Nonetheless, we did find a correlation between area of research and confidence in AI. Those majoring in law and informatics, in particular, showed more trust than those majoring in other disciplines.

Step 3: Familiarity and Expertise: Identifying areas of competence and comfort is the next step. Higher confidence in AI algorithms was correlated with students' familiarity with how these algorithms affect their own consumer profiles. Another thing that people who have used AI technologies before are more likely to trust them, whether it be voice recognition (like Siri), face

recognition (like Smartphone software), or translation services (like Google Translate). The number of times students buy online or the total amount they spend is not correlated with their faith in AI, as was expected.

Step 4: Perceived Usefulness of Recommenders: In the fourth stage, we investigate the helpfulness people think their recommenders were. We found that students who reported high levels of confidence in AI were more likely to have had positive outcomes when engaging with AI algorithms on digital economy sites to locate desired items.

Step 5: Transparency: The importance of transparency is discussed in Step 5. Trust in AI was shown to be greater among students who were told about their interactions with an AI system when shopping online compared to those who were not. Trust in AI was shown to be lower among students who did not receive transparency messages.

Step 6: Insights and Implications: The data presented in Sections 2–5 sheds light on what students' value most in AI. Knowledge of AI technology, confidence in AI recommendation tools, and the effect of online retailers' honesty pledges are all factors. These findings may guide efforts to increase students' confidence in AI systems.

5.2 Multivariate test

We used ordinal logistic regression to investigate at whether the variables in Table 7 influenced people's trust in AI-powered suggestions for the digital economy.

Table 7: Variables Describing Consumer Trust in Digital Economy Algorithms

S.NO	ELEMENTS	DESCRIPTION
1	Knowledge of Interaction	Consumers' familiarity with the role played by profiling algorithms on the sites they frequent
2	Product Identification	The extent to which engaging with algorithms helps in locating relevant goods
3	Virtual Sales Consultant	Virtual sales consultant use frequency throughout the last 30 days
4	Informed By Site	Despite whether the digital economy site advised the customer that they would be interacting with an AI system,
5	Used AI Software	Working knowledge of various AI applications like Google Translate or facial/voice recognition software.
6	Influence trust	Customers' perceptions of the impact of AI algorithms on their spending habits

The bivariate related autonomous factors were remembered for the calculated model to act as prescient signs of confidence in man-made

intelligence frameworks. The point of this exploration was to disentangle the mind boggling transaction of different elements that aggregately influence clients' trust in computer based intelligence frameworks inside the advanced economy. The following were some of the aims analysis: Understand how different demographic groups' perceptions of AI-powered digital economy recommendations disagree. Analyze how one's level of comfort with other AI technologies influences one's faith in digital economy AI. Investigate the connection between openness and confidence in AI-powered digital economy recommendations. Analyze whether the widespread acceptance of AI's purported ability to influence consumer spending impacts the effectiveness of AI in online stores. Ordinal logistic regression findings are shown in Table 8, indicating that confidence in AI is expected to rise.

Table 8: Parameter Estimates for Ordinal Logistic Regression

ELEMENTS	CATEGORIZATIONS	p	WALD	EXP(B)	B
INFORMEDBYSITE	No	0.016	5.83	0.57	−0.56
USEDAISOFTWARE	No	0.015	5.98	0.47	−0.76
STUDY AREAS					
	Economics	0.07	3.28	1.82	0.60
	Medicine	0.006	7.61	2.91	1.07
	Law	0.005	7.94	5.12	1.63
	Information	<0.001	11.71	4.64	1.53
	Engineering	0.024	5.13	2.50	0.92
PRODUCT IDENTIFICATION					
	1	0.006	7.59	0.10	−2.30
	2	<0.001	23.19	0.03	−3.40
	3	0.003	9.12	0.15	−1.88
	4	0.036	4.40	0.28	−1.28

The results indicate that various variables influence the likelihood that college students would trust AI algorithms used in online retailers. The level of arrangement among understudies about man-made intelligence's job in working with the revelation of wanted items, the exposure of artificial intelligence calculation cooperation’s by computerized economy stages, understudies' knowledge of other man-made intelligence advances like voice acknowledgment programming or computer-based intelligence interpreters, and the picked field of concentrate all arise as basic elements for assessment. Furthermore, compared to students who considered AI very valuable in discovering desired items, those who found AI minimally useful were 90% less inclined to trust AI. The investigation also found significant disparities in students' faith in AI according to their major. According to the statistics, students majoring in medicine are three times as likely to trust AI-driven digital economy as the control group, while students majoring in engineering and economics are

around twice as likely. According to hypothesized factors, the greatest levels of confidence are shown by students majoring in informatics, which have shown a comprehension of AI principles and are often early users of modern technology like voice and face recognition apps. Trust has been shown to correlate significantly with both of these factors.

6. Discussion

The findings highlight the fact that consumers are more likely to create a favorable impression of these systems when digital economy platforms provide transparent information regarding the employment of AI algorithms (Kluiters, Srivastava, & Tyll, 2023). In particular, the research found that when people were told by the digital economy site about their engagement with AI algorithms, trust in the site increased significantly. The importance of transparent communication in shaping consumers' expectations and comfort levels with AI-driven procedures in the online retail setting is highlighted by these findings (G. Sun, Sun, Li, Wang, & Johnson, 2022). The consequences of transparency's emergence as a significant element affecting customer trust highlight the need of ethical and informative practices in establishing a reliable and interesting online retail space (Chawla & Kumar, 2022). To build long-lasting, trustworthy connections with clients, it's crucial to strike this equilibrium and focus on their needs while also emphasizing the ethical and responsible use of AI. We found that being open about how data is collected and how algorithms make decisions is crucial for establishing confidence in these systems (X. Sun, Chen, Shi, Yang, & Yang, 2022). It's apparent that customers place a premium on having easy access to transparent information and a deep comprehension the behind AI systems (Zhou, 2022). This focus on openness and clarity in AI operations reinforces the idea that educated customers are more likely to build a feeling of confidence in the AI-driven systems used in digital economy settings when they are given access to this information (Saura, Ribeiro-Soriano, & Palacios-Marqués, 2022). This is consistent with other studies that have shown that people's subjective sense of transparency in AI decision-making has a beneficial effect on their emotional reactions. Transparency increases not only promotes trust but also encourages a more receptive attitude toward the data offered by AI systems. Therefore, it is essential for AI systems to emphasize transparency initiatives, as they may considerably contribute to the general acceptability and usability of AI-driven solutions among consumers (Triwahyuni, 2022). Increased consumer awareness and understanding could be promoted via improved education and communication methods. The value of informing customers about the consequences of complex algorithmic interactions has been emphasized (Pristiyono, Juliana, & Prayoga, 2022). This highlights the importance of educating the public and communicating openly about algorithms so that consumers may have faith in their use and see them as useful tools for enhancing their digital interactions (Auer et al., 2022).Additional research on

the correlation between fields of study and trust is required to establish the generalizability and consistency of these findings (Juliana, Lemy, Pramono, Djakasaputra, & Purwanto, 2022). This type of research would assist us get a better grasp on the complex ways in which different educational experiences impact consumers' faith in AI-related products and services.

7. Conclusion

The findings of this study highlight the critical role of artificial intelligence (AI) in shaping customer loyalty within the digital economy, particularly in the context of e-commerce for sports nutrition and fitness products. As AI becomes more integrated into online commerce platforms, its impact on trust and consumer behavior among college athlete graduates becomes increasingly significant. The research demonstrated that transparency, enhanced AI capabilities, and consistency are fundamental in cultivating trust, which in turn influences customer loyalty. For businesses operating within the sports nutrition and fitness sectors, the implications are clear: there is a vital need to invest in advanced AI recommendation systems that are not only sophisticated but also transparent and user-friendly. These systems should be designed to provide personalized, relevant, and valuable product recommendations to athlete consumers, who often have specific and nuanced needs and preferences. Moreover, the study underscores the importance of education and clear communication regarding the use of AI technologies.

Providing college athlete graduates with understandable information about how AI systems work, and the benefits they offer, can alleviate concerns and enhance trust. This approach is essential for ensuring the broad adoption of AI-driven platforms and for leveraging these technologies to improve customer engagement and retention. Future research should focus on longitudinal studies to track changes in consumer trust and loyalty as AI technologies evolve and become more deeply embedded in our everyday online interactions. Additionally, exploring the differential impacts of AI across various demographics within the athlete community could provide deeper insights into how personalized AI applications can be developed to meet diverse needs. This study not only advances our understanding of AI's role in enhancing customer loyalty in e-commerce but also provides actionable insights for companies looking to harness AI technologies to meet the specific demands of the athletic market, thereby supporting sustained business growth and customer satisfaction.

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