

IMPACT OF PERSONALIZED RECOMMENDATION SYSTEMS ON USER BEHAVIOUR AND TRUST IN DIGITAL PLATFORMS

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Abstract:

This paper examines the impacts of personalized recommendation systems on user trust and user behaviour on online platforms. Platforms today have artificial intelligence and suggest content and products based on what users are searching, watching or purchasing. Although this simplifies and makes platforms interesting to use, it also influences the level of trust users have on this platform.

To understand this, a survey with active users of digital platforms was carried out. Statistical analysis was performed to identify a relationship between the measures of personalization, trust, and behaviour.

The findings indicate that users have a higher trust in the platform when they believe that the recommendations suit them. Increased trust also results in increased engagement, including increased time on the platform or engagement in content. This research finds that personalization is most effective when it is ethical and transparent. Thoughtfully, it can foster long-term credibility and can contribute to sustainable online development.

Keywords: *Personalized Recommendation Systems, User Behaviour, User Trust, Digital Platforms, Digital Synergy*

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Introduction:

The blistering development of digital platforms has transformed the personal communication, education, purchasing and decision-making patterns. The streaming sites, online shops well as social media sites have contributed to the overburden of information to the user. This has been responded to by the emergence of personalized recommendation systems in an attempt to achieve synergy between technologies and human beings in order to come up with interactive, effective, and efficient digital space. Such recommendation systems can help users to get interesting and relevant contents, as well as to rank it by the personal preference of the user, to enhance responsiveness of the user. (Bourahli et al.) demonstrated that recommended systems became user responsive and user interactive by several folds and (Ricci et al.) demonstrated how data-based algorithm founded on browsing history, clicking, viewing time, shopping behaviour can provide the user with superior services offered by recommendation systems (2024, 2022).

Recommender algorithms have been heavily applied on major platforms like Netflix, Amazon as well as YouTube to control and guide user experience. Customer experience and satisfaction can be predicted by modelling predictive analytics and big data to offer more of what their clients prefer (Dwivedi et al. 2021). As

an example, Netflix will recommend movies and shows that a user has already viewed, and Amazon clients will be shown 'Customers who bought this also bought' which will affect the buying choice.

In addition to the engagement and convenience issue, there is also the issue of user trust which is influenced by personalization. The user trust refers to the confidence the users provide to an information system on reliability, integrity and security (Dinev and Hart 2006). This trust plays the role of a mediating force in the decision-making process by the users in their propensity to provide personal information or to engage in an online transaction. Transparency and explainability are also essential in improving the trust of the users when interacting with AI systems (Shin 2021).

Personalized experiences can lead to trust because, when users feel that personalization provides something of value to them, and are conscious of that, they might also create privacy concerns because it is invasive (Binns 2020; Martin 2021).

The recommendation systems form types of innovations as the intersection of technology and user experience in the context of the whole digital transformation. However, an unaccountable innovation may lead to privacy concerns, algorithm bias and lack of confidence. Thus, non-sustainable in the digital world is sustainable long-term growth, which can only be attained through technological advancement and a good relationship with the users.

The current paper explores the relationship between personalization, trust and user behaviour. With such correlated factors in mind, this study attempts to answer how the use of AI-related systems can influence the online behaviour of consumers. The research is useful to build on the growing discussion on the subject of responsible AI and digital sustainability, highlighting the need to balance the technical efficiency and transparency and ethic.

Statement of Problem:

Nowadays digital platforms are constantly relying on personalized recommendation system for increase user engagement and to stay competitive. While these systems help by recommending the right content to the user with convenience, its implication on user trust and behaviour is not well documented and examined. Currently most digital platforms aim at increasing the user engagement and have failed to understand the psychological perception, such as trust, transparency and fairness resulting from the personalized recommendations.

With increase concern about data privacy, algorithmic discrimination, and filter bubble issue further add complexity in the entire topic. Though users may gain benefits from personalized content, they may also feel constantly tracked and manipulated. Eventually loss of trust may lead to problem in maintaining long term engagement and sustainability of the digital platforms.

Therefore, there is a need to systematically examine the relationship between personalized recommendation systems, user trust, and user behaviour in digital platforms.

Significance:

The importance of this research lies in bridging the gap between the impact of personalized recommendation system on users trust and their online behaviour. While previous research tends to highlight the accuracy or

technical merits of recommendation systems, this study shifts its focus on how humans behave and feel on a personalized platform and the relationship between personalized platforms and human trust. The relationship between personalization and trust is vital for the sustainable growth of digital platforms.

For platforms and startups in the digital sphere, recommendation systems are effective in maintaining user engagement. However, an enduring user engagement cannot be sustained by the system without the existence of users' trust. In fact, this research indicates that ethical and responsible personalization can lead to a robust and durable relation between platforms and users.

The study has also underscored the significance of transparency and fairness when it comes to deploying AI. Thus, it would be helpful to business owners, developers and policymakers when designing new AI products. The long-term success and growth of digital technology hinges on human trust and values.

Limitations:

There are limitations to the present study that warrant consideration. The participants were conveniently sampled, primarily consisting of students and young people; this sample's perspective is likely not representative of all user types, particularly older or less digitally proficient users. Therefore, the extent to which the results are generalisable to a larger user population are diminished.

The present study adopted a cross-sectional design; therefore, the findings are a snapshot of user trust and behaviour. User trust and behaviour will invariably fluctuate with the continuous development and improvement of digital systems. Consequently, the long-term effect of personalized recommendation systems was not evaluated.

The present study adopted a survey-based method; participants' answers were based on their own opinion and perceptions rather than observed behaviours. No objective behavioural data such as tracking user usage patterns on digital platforms was considered in this research.

Correlation analysis was utilized which, does not establish causal relationships between variables. Also, the idea of digital synergy was spoken about conceptually, however it was not used as an explicit variable that was being measured in this investigation.

Objectives for the Study:

1. To analyse the effect of personalized recommendation systems on user trust.
2. To examine the impact of personalized recommendation systems on user behaviour in digital platforms.
3. To study the relationship between user trust and user behaviour.
4. To evaluate how personalized recommendation systems contribute to sustainable digital engagement and digital synergy in innovative digital platforms.

Hypothesis Testing Summary:

Based on the statistical analysis:

- The null hypothesis stating that there is significant relationship between personalization and user trust was rejected.
- The null hypothesis stating that there is no significant relationship between personalization and user

behaviour was rejected.

- The null hypothesis stating that there is no significant relationship between user trust and user behaviour was rejected.

Therefore, all alternative hypotheses were supported.

Literature Review:

The personalized recommendation systems have evolved tremendously. In the past they were mere tools whereby products or content were proposed to them, based on very rudimentary filtering. They are now sophisticated AI systems that are significant in the digital platforms. At a very early-stage researchers were primarily concerned with ensuring that these systems were more accurate. However, nowadays, the role of personalization on the user behaviour, trust, and ethical concerns are also researched. Recommendation systems are becoming not only technical devices, but also highly influential ones that dictate the behaviour of users on the digital platforms.

In modern recommendation systems, machine learning and deep learning are applied to analyse user information and know preferences (Zhang et al., 2020). These systems are learnt by user behaviour like clicks, searches and purchases. They enhance their suggestions with time depending on responses. Bourahli, Ghezal, and Garti (2024) describe that recommendation systems are used to assist users to overcome large volumes of information on the internet. They present the relevant content which makes it easier to access what one needs and makes it more engaging on social media.

Numerous research indicates that personalization influences user behaviour. As Sun et al. (2022) discovered, personalized suggestions lead to better interaction frequency and duration of time spent on the platform. Nguyen et al. (2022) established that customized recommendations have the potential to grow the purchase intention since customers are presented with alternatives that fit their interests. In the same manner, the article *Analysing the Impact of Information Features on User Continuance Intent in Recommendation Systems* (2024) demonstrates that in case there is clarity in recommendations and utility, the users will be more inclined to remain on the platform. This will imply that personalization does not only assist users but also directs them in their actions and decision-making.

Nevertheless, there are also dark sides of personalization. Eslami et al. (2020) elaborate that algorithms determine what people are shown and not everyone has an accurate idea of how it is selected. According to Narayanan (2021), algorithms can be used to manipulate the preferences of users by determining the first or more frequent appearances. This has the potential to form "filter bubbles" whereby the user is largely exposed to similar content. Other issues such as bias in the algorithms and lack of transparency are also cited by Bourahli et al. (2024). These problems demonstrate that personalization can at times restrict freedom or fairness of the user.

In personalized systems trust is very crucial. Users will have confidence in the platform, which will lead to its continued use. Rader and Gray (2021) discovered that users are more confident when they are told the reasons as to why some content is shown on the platforms. Alamdari et al. (2022) also demonstrate that trust and further use are enhanced by transparency. According to the research article *The Moderating Role of Personalized*

Recommendations in the Trust -Satisfaction-Loyalty Relationship (2025), when the users believe that the recommendations are useful and sincere, personalization can be used to enhance loyalty. Trust, therefore, enhances personalization.

Meanwhile, lack of privacy may decrease trust. Martin and Murphy (2017) demonstrate that trust is lower when users believe that their personal information is abused. According to Susser et al. (2022), specific recommendations may sometimes be perceived as surveillance or spying by users. Thus, the accuracy is not sufficient, fairness, privacy, and transparency are valued as well.

Digital startups and innovation also require personalization. According to Nambisan et al. (2019), digital technologies are used to enable businesses to grow and become innovative. According to Autio et al. (2021) and George et al. (2021), sustainability and social responsibility should be supported also with the help of digital innovation. Individualized systems are useful in assisting startups to compete and develop but should be applied in an ethical manner.

In general, numerous research are based on user behaviour and trust, transparency and innovation separately. Nevertheless, not many studies combine two notions of user behaviour and trust in a single framework. The other research on personalization and its connection with digital synergy, in which the technology, human values and sustainability collaborate, is also minimal. This gap reveals that the research in this field should be researched further.

Research Methodology: The research focuses on the effects of the personalized recommendation systems on user behaviour and user trust on digital platforms through a quantitative research approach. A quantitative method was selected because the study aims to measure relationships between variables using numerical data. The study follows a descriptive and correlational research design. The perceptions of personalized recommendation systems by the users were understood using a descriptive design. A correlational design was applied to examine the relationship between personalization, user trust, and user behaviour.

There is no manipulation of variables observed in the study. This design is appropriate since the purpose of the study is to detect relationships and not intended to prove a cause-and-effect relationship.

In this research, cross-sectional survey was conducted. The information was gathered at a single time, among the participants who are active users of digital platforms such as Netflix, Amazon, YouTube and other online services. The cross-sectional approach is suitable as it allowed the researcher to gather data from multiple participants in a short duration. A structured questionnaire was used in the collection of primary data using Google Forms. A structured questionnaire is useful in ensuring consistency in the responses as well as simplified statistical analysis. The questionnaire was composed of mostly closed ended and Likert scale questions. The respondents were asked to respond on a five-point Likert scale between strongly disagree and strongly agree asking their opinions on the following factors:

1. Personalization level experienced.
2. Trust in digital platforms
3. Engagement, repeat usage and purchase intention behavioural response.

The Likert scale questions are appropriate since they assist in measuring the attitudes and perceptions in a simple and systematic manner. The sample size is limited to a given group, but it provided adequate information to establish patterns and the relationship among the variables. This research employed convenience method of sampling. The respondents were chosen based on their availability and willingness to become part of the study group. The sample population consisted of students and young adults who are frequent users of digital sources. There are three key variables used in the study:

- Independent Variable: Personalization
- Dependent Variables: User Trust, User Behaviour

The data obtained was prepared and analysed with the help of Google Sheet. The descriptive statistics were determined first to summarise the data. The quantity of measures like mean and standard deviation were employed to comprehend the average level of personalization, trust and behaviour of the respondents. Pearson correlation analysis was done to investigate the linear relationship between the variables. The measure of the strength and direction of the relationship between was obtained in Pearson correlation coefficient (r).

The statistical significance of the relationships was also established by calculating the p-value. In this study, the level of significance was taken to be 0.05. In case the p- value < 0.05, it was assumed that the relationship was statistically significant. As the data were gathered with the help of Likert scale, which is ordinal in nature, Spearman rank correlation was performed as well. Pearson correlation was done to ensure consistency the results achieved through the application of Spearman Rank correlation. This increases the validity of the results. The research was conducted using ethical guidelines. Response to the survey was voluntary. No personal identifiable data was gathered. Responses were not disclosed and were ensured that they were used with an academic purpose.

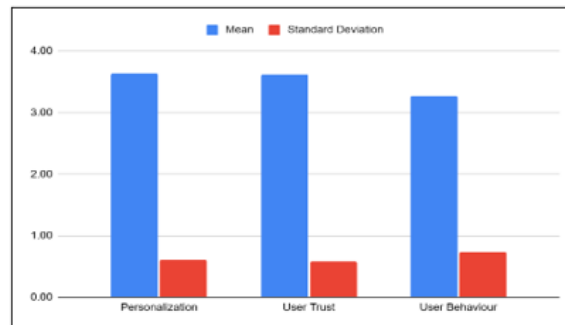
Data Analysis and Results: The two variables that are analysed in this paper are the relationship between personalization, user trust and user behaviour on digital space. Parametric and non- parametric statistical tests were used to test the hypothesis put forward. Pearson conducted a correlation analysis to test linear relation between the averaged values of the constructs and Spearman to test monotonic relation between the data in the form of rank. All the tests that were conducted against statistics were significant at a level of 0.05.

Descriptive statistics were computed to get to know the general trend of responses. The values obtained were the average and standard deviation of the three primary variables namely, Personalization, User Trust, and User Behaviour.

The standard deviation is used to show the extent of variability in the responses of the respondents whereas the mean values reflect the average perception of respondents.

Variable	Mean	Standard Deviation
Personalization	3.64	0.61
User Trust	3.63	0.58
User Behaviour	3.27	0.73

The results show that general respondents gave moderate to high-level of personalization, trust, and behavioural engagement. The standard deviation points to the fact that the answers were rather uniform, and no extreme measurements were observed.



To examine the relationships between the variables, Pearson correlation analysis was conducted

Variables	1	2	3
1. Personalization	1	0.45	0.55
2. User Trust	0.45	1	0.44
3. User Behaviour	0.55	0.44	1

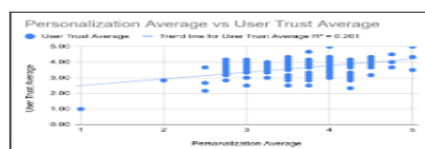
Note: $p < 0.001$

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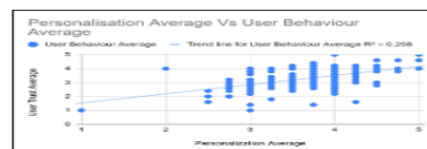
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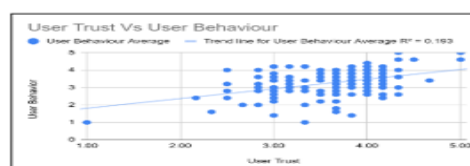
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Personalization Vs User Trust



Personalization Vs User Behaviour



User Trust Vs User Behaviour

Since the data was collected using a five-point Likert scale, Spearman rank correlation was also conducted to confirm the reliability of the findings.

Relationship	Spearman's ρ	p-value
Personalization – User Trust	0.61	< 0.001
Personalization – User Behaviour	0.7	< 0.001
User Trust – User Behaviour	0.64	< 0.001

Pearson results were consistent with Spearman results of correlation. All the relationships were statistically significant and positive. This confirms the fact that relationships are not volatile, but the relationships are not affected by the scale of measurement.

Conclusion:

This research reveals that personalization recommendation systems lead to increased user trust and subsequent behaviour on digital platforms. A positive and statistically significant relation was identified between personalization, trust and user engagement. If the users find recommendations personalized and relevant and are helpful, they are most likely to trust and increase their engagements with the platforms.

Balanced and sustainable growth on digital platforms needs innovative technology to be paired with responsible practices. Issues like privacy, fairness, and transparency should be paramount in developing personalization recommendation systems to sustain user trust. Human values should be at the core of all personalized systems. Properly used recommendation systems in AI would further help the users and build strong relations over the time.

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