

Analysis Report

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Sample Characteristics

In the present analysis, the dataset comprises responses from a sample of 441 participants, distinctively categorized by gender and educational attainment, reflecting a diverse demographic profile. A significant majority of the participants are female (57.4%), with males constituting 40.1% and non-binary/third gender making up 2.0% of the sample. An additional 0.5% of participants preferred not to disclose their gender.

Educationally, participants predominantly hold a Bachelor's degree (42.6%), followed by those with some college experience (24.3%). The sample also includes participants with Master's degrees (16.1%) and high school diplomas (14.5%). Very few participants reported having a Doctorate (0.7%) or having educational attainment less than high school (0.5%). A minimal number reported 'Other' educational backgrounds (0.9%), and a similar small proportion preferred not to specify their educational level (0.5%).

Category	Level	Count	Percentage
Gender	Female	253	57.4
	Male	177	40.1
	Non-binary / third gender	9	2.0
	Prefer not to say	2	0.5
Education	Bachelor's Degree	188	42.6
	Doctorate	3	0.7
	High School	64	14.5
	Less than high school	2	0.5
	Master's Degree	71	16.1
	Other	4	0.9
	Prefer not to say	2	0.5
	Some College	107	24.3

The distribution of participants across different personalization levels and recommendation agents was evenly spread, indicating a balanced experimental design for subsequent analyses. Participants interacting with AI and Brand agents were almost equally divided between high and low personalization levels, with 16.1% and 17.0% in high and low personalization settings for AI, respectively, and 17.5% and 16.8% for Brand. Human agents also showed a similar distribution with 16.6% in high and 16.1% in low personalization conditions.

Agent	Personalization	Count	Percentage
AI	High	71	16.1
	Low	75	17.0
Brand	High	77	17.5
	Low	74	16.8
Human	High	73	16.6
	Low	71	16.1

Data Screening

The first step was to eliminate respondents who failed to pass on the attention checks or failed to consent to the survey. This step reduced the sample from 467 to 441. Data was processed and entered in RStudio to proceed for reliability analysis.

Manipulation Check

The manipulation check assessed participants' perceptions of recommendation personalization, specifically focusing on whether the recommendations were perceived as more personalized under conditions of high versus low personalization. Responses to various statements indicated a clear distinction between the two levels.

For instance, participants rated recommendations in the high personalization condition as more directly relevant to them personally, with mean scores increasing from approximately 5.59 in the low personalization setting to 6.05 in the high personalization setting. Similar trends were observed across other statements, including recognition of personal situations and accommodation of specific problems faced by participants, where responses were consistently higher in the high personalization condition.

Overall, these results confirm the effectiveness of the high personalization manipulation, demonstrating that participants perceived these recommendations as significantly more tailored to their individual needs and situations compared to those in the low personalization condition.

Variable	Agent				Level of Personalization					
	Brand		AI		Human		Low		High	
	M	SD	M	SD	M	SD	M	SD	M	SD
This recommendation is directed to me personally.	5.815	1.230	5.842	1.252	5.799	1.221	5.586	1.327	6.050	1.084
I recognize my personal situation in this recommendation.	5.642	1.251	5.685	1.137	5.639	1.120	5.486	1.211	5.824	1.104
This recommendation takes into account the problem I faced.	5.444	1.384	5.397	1.316	5.264	1.274	4.891	1.299	5.846	1.173

This recommendation takes into account my personal situation.	5.331	1.300	5.363	1.264	5.194	1.270	5.027	1.257	5.566	1.244
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Reliability Analysis

The reliability analysis of the dataset was conducted to evaluate the internal consistency of various psychometric scales using Cronbach's Alpha and item-total correlations (ITC). The results are pivotal for confirming the reliability of scales in measuring constructs such as "Sense of Uniqueness," "Perceived Vulnerability," "Competence," "Benevolence," "Integrity," "Emotional Trust," "Cognitive Trust," and "Purchase Intention."

The method employed involved calculating the mean, standard error of measurement (SEM), and standard deviation for each item and scale to provide a comprehensive understanding of scale performance. Item-total correlation was used to assess the extent to which each item correlates with the sum of the other items on the scale, offering insights into each item's relevance to the construct. Cronbach's Alpha was computed to estimate the internal consistency of the scales, with values approaching 1.0 indicative of high reliability.

Variable	Mean	SEM	StDev	ITC	Alpha
Q10_1	5.424	0.052	1.091	0.634	
Q10_2	4.930	0.067	1.397	0.817	
Q10_3	4.460	0.069	1.452	0.656	
Q10_4	4.873	0.056	1.180	0.776	
Q10_5	4.909	0.065	1.362	0.707	
Sense of Uniqueness	4.919	0.044	0.933		0.762
A_PV_1_5_1	4.361	0.084	1.764	0.846	
A_PV_1_5_2	3.771	0.080	1.677	0.903	
A_PV_1_5_3	4.023	0.078	1.631	0.850	
A_PV_1_5_4	3.211	0.074	1.547	0.874	
A_PV_1_5_5	3.345	0.078	1.637	0.859	
Perceived Vulnerability	3.742	0.068	1.430		0.916
CMPT_1_5_1	4.361	0.076	1.590	0.853	
CMPT_1_5_2	4.671	0.071	1.492	0.906	
CMPT_1_5_3	4.893	0.066	1.387	0.869	
CMPT_1_5_4	5.027	0.066	1.396	0.818	
CMPT_1_5_5	4.764	0.070	1.464	0.871	
Competence	4.743	0.060	1.266		0.914
INTG_1_3_1	4.086	0.075	1.567	0.905	
INTG_1_3_2	4.442	0.063	1.324	0.919	
INTG_1_3_3	4.224	0.069	1.439	0.906	
Integrity	4.251	0.063	1.313		0.893
Cognitive Trust	4.559	0.056	1.170		0.920
BNVL_1_3_1	4.853	0.071	1.495	0.888	
BNVL_1_3_2	5.302	0.059	1.238	0.890	
BNVL_1_3_3	5.202	0.061	1.291	0.806	
Benevolence	5.119	0.055	1.157		0.823
ET_1_3_1	4.313	0.074	1.553	0.954	
ET_1_3_2	4.308	0.073	1.526	0.962	
ET_1_3_3	4.358	0.072	1.518	0.947	
Emotional Trust	4.327	0.070	1.462		0.951
PI_1_5_1	4.528	0.069	1.447	0.930	
PI_1_5_2	5.054	0.063	1.329	0.888	
PI_1_5_3	4.751	0.067	1.408	0.915	
PI_1_5_4	4.524	0.070	1.466	0.922	
PI_1_5_5	4.642	0.072	1.506	0.885	
Purchase Intention	4.700	0.062	1.300		0.946

- **Sense of Uniqueness:** This scale achieved a Cronbach's Alpha of 0.762, suggesting acceptable internal consistency. Individual items on this scale showed ITCs ranging from 0.634 to 0.817, indicating satisfactory correlations between items and the total score.
- **Perceived Vulnerability:** Exhibited excellent internal consistency with a Cronbach's Alpha of 0.916. The ITC values for items ranged from 0.846 to 0.903, denoting strong item correlations contributing to the scale's robustness.

- **Competence:** This construct also demonstrated high reliability, with an Alpha of 0.914. ITC values were notably strong, ranging from 0.818 to 0.906, affirming the items' collective contribution to measuring the construct.
- **Benevolence:** Recorded a slightly lower but adequate Alpha of 0.823. ITC values for this scale ranged from 0.806 to 0.890, supportive of a reliable scale but suggesting possible room for refinement.
- **Integrity:** Presented an Alpha of 0.893, indicating high internal consistency. The ITC for items remained high (above 0.905), illustrating strong individual contributions to the overall scale.
- **Emotional Trust:** Showcased exceptionally high reliability with an Alpha of 0.951. ITC values were exceedingly high, ranging from 0.947 to 0.962, demonstrating excellent item cohesion.
- **Cognitive Trust:** Achieved an Alpha of 0.928, underscoring outstanding internal consistency.
- **Purchase Intention:** Also showed excellent reliability, with an Alpha of 0.946. ITC values ranged from 0.885 to 0.930, indicating that each item robustly measures the intent to purchase.

Validity Analysis

Scale	Variable	Factor Loading
Sense of Uniqueness	Q10_1	0.557
	Q10_2	0.795
	Q10_3	0.487
	Q10_4	0.738
	Q10_5	0.598
Perceived Vulnerability	A_PV_1_5_1	0.783
	A_PV_1_5_2	0.885
	A_PV_1_5_3	0.794
	A_PV_1_5_4	0.860
	A_PV_1_5_5	0.827
Competence	CMPT_1_5_1	0.801
	CMPT_1_5_2	0.900
	CMPT_1_5_3	0.849
	CMPT_1_5_4	0.748
	CMPT_1_5_5	0.832
Benevolence	BNVL_1_3_1	0.811
	BNVL_1_3_2	0.904
	BNVL_1_3_3	0.646
	INTG_1_3_1	0.819
	INTG_1_3_2	0.914
Integrity	INTG_1_3_3	0.854
	ET_1_3_1	0.926
	ET_1_3_2	0.956
	ET_1_3_3	0.910

	PI_1_5_1	0.920
	PI_1_5_2	0.857
	PI_1_5_3	0.894
Purchase Intention	PI_1_5_4	0.906
	PI_1_5_5	0.843
	CMPT_1_5_1	0.811
	CMPT_1_5_2	0.873
	CMPT_1_5_3	0.806
	CMPT_1_5_4	0.762
Cognitive Trust	CMPT_1_5_5	0.818
	INTG_1_3_1	0.635
	INTG_1_3_2	0.721
	INTG_1_3_3	0.705

Scale: Sense of Uniqueness
 Total Variance Explained by Factor: 0.4163213
 Scale: Perceived Vulnerability
 Total Variance Explained by Factor: 0.6902217
 Scale: Competence
 Total Variance Explained by Factor: 0.6846712
 Scale: Benevolence
 Total Variance Explained by Factor: 0.6311915
 Scale: Integrity
 Total Variance Explained by Factor: 0.7451391
 Scale: Emotional Trust
 Total Variance Explained by Factor: 0.8667345
 Scale: Purchase Intention
 Total Variance Explained by Factor: 0.7822959
 Scale: Cognitive Trust
 Total Variance Explained by Factor: 0.5923271

Outlier and Multicollinearity Evaluation

Removing outliers is crucial in preventing skewed results and ensuring the validity of the conclusions drawn from the data. Outliers can disproportionately influence the results of statistical analyses, especially in methods relying on mean values and variance, such as ANOVA and regression analyses. By applying a standardized threshold (z-score of ± 3), the method maintains objectivity, minimizing subjective biases in deciding what constitutes an outlier. This approach is particularly prudent in psychological and behavioral sciences, where extreme values may represent measurement errors, data entry errors, or genuine but non-representative responses.

In this specific case, the method identified three outliers in the "Sense of Uniqueness" scale and one outlier in the "Cognitive Trust" scale. These outliers were removed by setting their values to NA, thereby excluding them from corrupting any statistical interpretations or analyses.

Correlation analysis (Pearson's correlation) was used to identify potential excessive correlations across independent variables. The table below shows the results. Apart from coefficients that would

be expected to be correlated, such as across trust dimensions and subdimensions, none of the other pairs of variables had high correlations that would be cause of concern for multicollinearity.

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Variable	1	2	3	4	5	6	7	8
Sense of Uniqueness	-							
Perceived Vulnerability	-0.071*	-						
Competence	0.162***	-0.134***	-					
Benevolence	0.163***	-0.180***	0.612***	-				
Integrity	0.108**	-0.318***	0.632***	0.581***	-			
Emotional Trust	0.189***	-0.413***	0.612***	0.547***	0.722***	-		
Purchase Intention	0.212***	-0.372***	0.621***	0.487***	0.601***	0.733***	-	
Cognitive Trust	0.194***	-0.218***	0.942***	0.668***	0.846***	0.717***	0.666***	-

Descriptive Statistics

The descriptive statistics presented focus on the mean, standard error of the mean (SEM), and standard deviation (SD) for various psychological scales categorized by agent type (AI, Brand, Human) and the level of personalization (High, Low). These metrics provide insights into the central tendency and variability of the scores under different conditions. The table below shows the statistics for each scale, which were calculated using average scores from their respective survey items.

Sense of Uniqueness displayed marginally higher mean scores in lower personalization settings for both AI and Brand agents, suggesting a differential impact of personalization on perceived uniqueness. Conversely, **Perceived Vulnerability** exhibited lower means in low personalization settings across all agent types, indicating that increased personalization might amplify feelings of vulnerability among participants.

In the assessment of **Competence**, results showed the highest scores in high personalization settings across all agents, with the most pronounced scores observed in the Human - High condition. This trend was similarly observed in **Benevolence**, where higher personalization, especially with AI and Human agents, was associated with greater benevolence scores, indicating that personalization might enhance positive perceptions of agent benevolence.

Integrity and **Emotional Trust** scores generally decreased with lower levels of personalization, suggesting that higher personalization enhances both the sense of integrity and emotional trust in interactions with agents. **Purchase Intention** also tended to be higher in more personalized settings, particularly notable with AI agents in high personalization conditions, which could suggest that personalization effectively increases the likelihood of engagement or purchase.

Finally, **Cognitive Trust** consistently showed higher trust levels in highly personalized scenarios, particularly with Human agents, highlighting that personalization significantly impacts the trust dynamics in agent interactions. These findings collectively underscore the critical role of personalization in shaping user experiences and perceptions in interactions with different types of

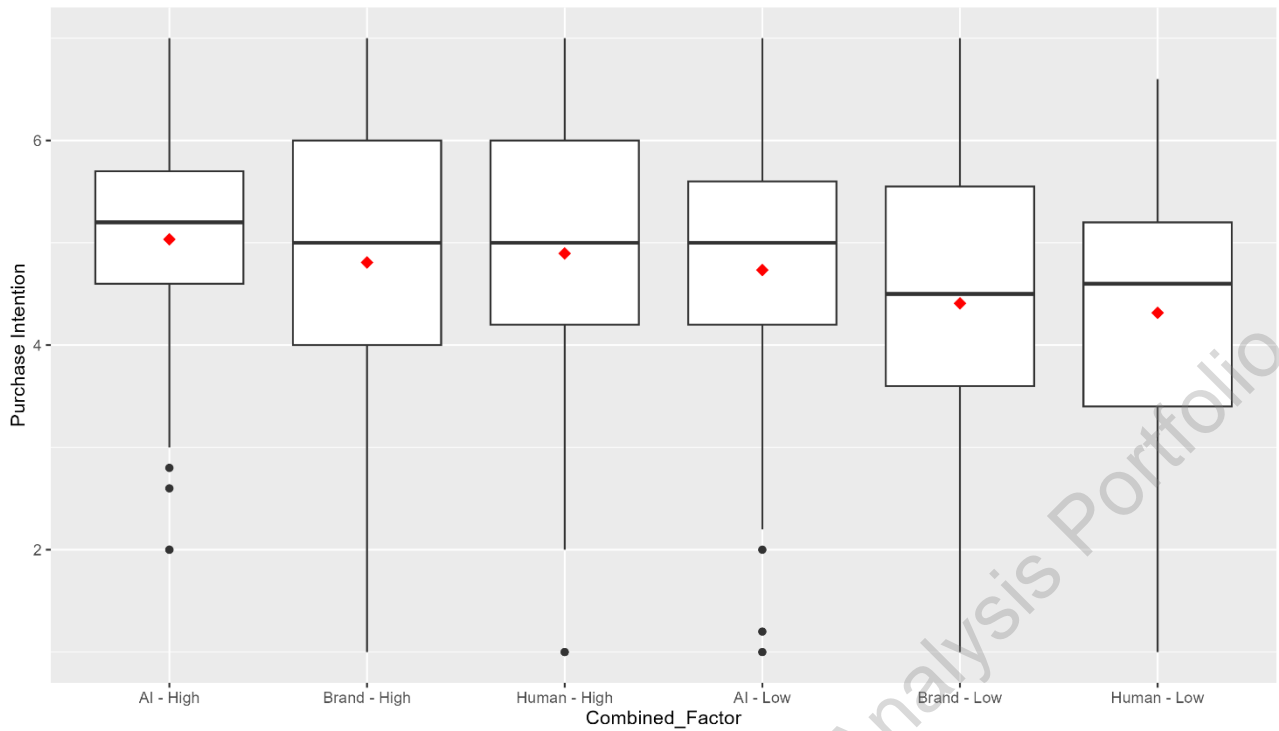
agents, suggesting that strategic personalization can significantly enhance user engagement, trust, and overall satisfaction with the system.

Variable	Agent - Personalization	Mean	SEM	SD
Sense_of_Uniqueness	AI - High	4.966	0.096	0.813
	Brand - High	5.070	0.096	0.846
	Human - High	4.871	0.109	0.935
	AI - Low	5.079	0.095	0.820
	Brand - Low	4.900	0.113	0.970
	Human - Low	4.743	0.117	0.983
Perceived_Vulnerability	AI - High	4.065	0.152	1.280
	Brand - High	3.704	0.172	1.513
	Human - High	3.940	0.173	1.482
	AI - Low	3.285	0.161	1.397
	Brand - Low	3.568	0.178	1.532
	Human - Low	3.921	0.147	1.237
Competence	AI - High	5.180	0.125	1.050
	Brand - High	5.008	0.140	1.226
	Human - High	5.241	0.123	1.052
	AI - Low	4.621	0.149	1.291
	Brand - Low	4.181	0.157	1.349
	Human - Low	4.223	0.140	1.177
Benevolence	AI - High	5.352	0.126	1.066
	Brand - High	5.294	0.129	1.132
	Human - High	5.365	0.121	1.037
	AI - Low	5.089	0.136	1.174
	Brand - Low	5.023	0.119	1.026
	Human - Low	4.685	0.141	1.190
Integrity	AI - High	4.540	0.147	1.243
	Brand - High	4.216	0.136	1.197
	Human - High	4.566	0.152	1.295
	AI - Low	4.329	0.162	1.404
	Brand - Low	3.955	0.149	1.279
	Human - Low	3.901	0.159	1.343
Emotional_Trust	AI - High	4.662	0.164	1.383
	Brand - High	4.494	0.166	1.459
	Human - High	4.479	0.167	1.423
	AI - Low	4.489	0.162	1.401
	Brand - Low	4.050	0.171	1.471
	Human - Low	3.770	0.176	1.486
Purchase_Intention	AI - High	5.034	0.124	1.046
	Brand - High	4.808	0.154	1.352
	Human - High	4.896	0.154	1.314
	AI - Low	4.733	0.148	1.281
	Brand - Low	4.408	0.167	1.438
	Human - Low	4.315	0.144	1.212
Cognitive_Trust	AI - High	4.940	0.121	1.023
	Brand - High	4.810	0.107	0.935
	Human - High	4.988	0.120	1.022
	AI - Low	4.512	0.143	1.242
	Brand - Low	4.139	0.136	1.170
	Human - Low	4.102	0.128	1.082

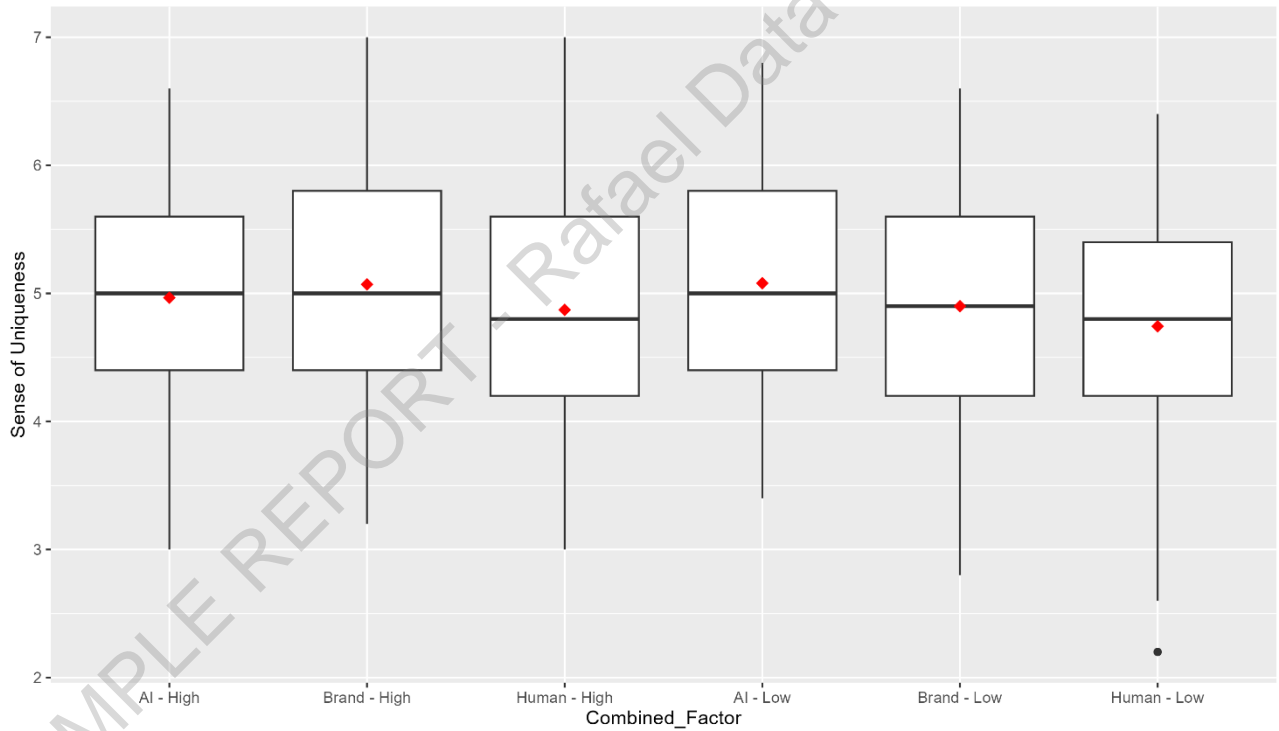
Next, we visually examine each scale separated by agent personalization through boxplots. These plots will be grouped by agent type and personalization level to visually assess the distribution characteristics mentioned above, alongside mean comparisons. This visualization aids in understanding how different levels of agent personalization impact perceptions across various psychological constructs measured in the study. A boxplot is a standardized way of displaying the distribution of data based on a five-number summary: minimum, first quartile (Q1), median, third quartile (Q3), and maximum. It provides a visual summary of several important aspects of a distribution such as center, spread, skewness, and outliers.

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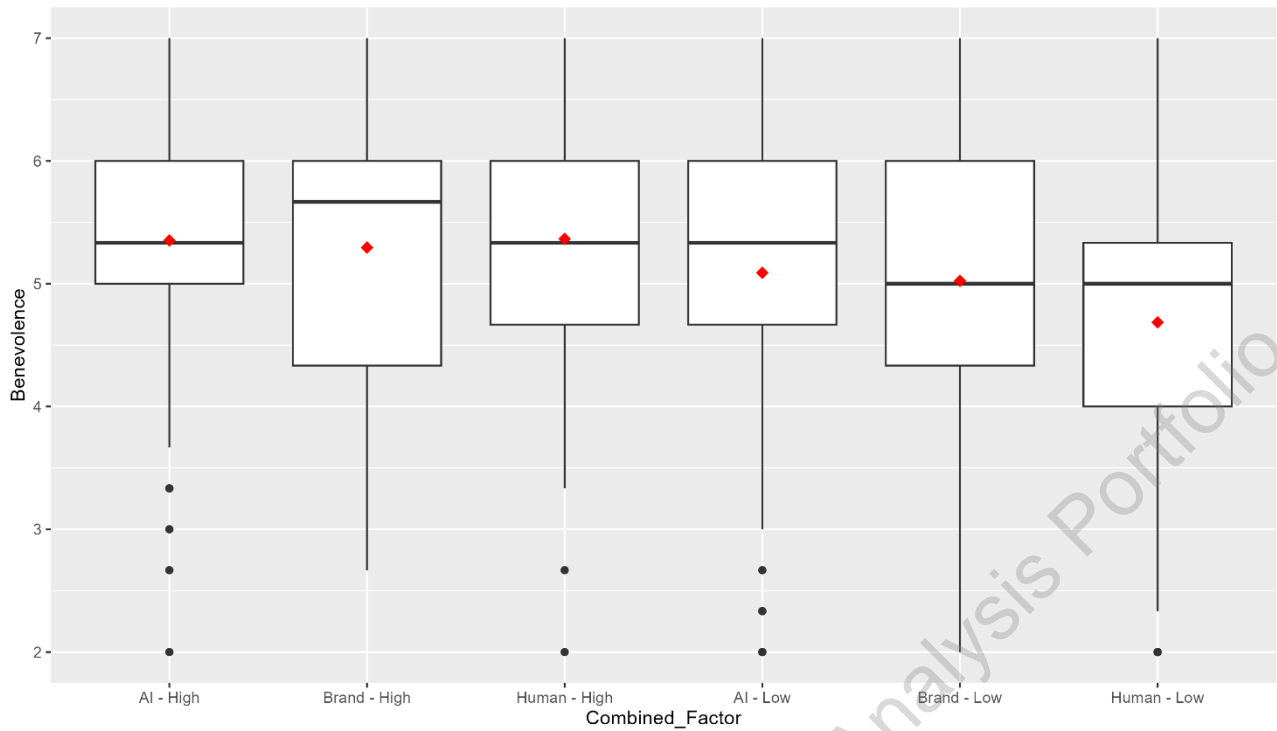
Boxplot of Purchase Intention by Combined_Factor



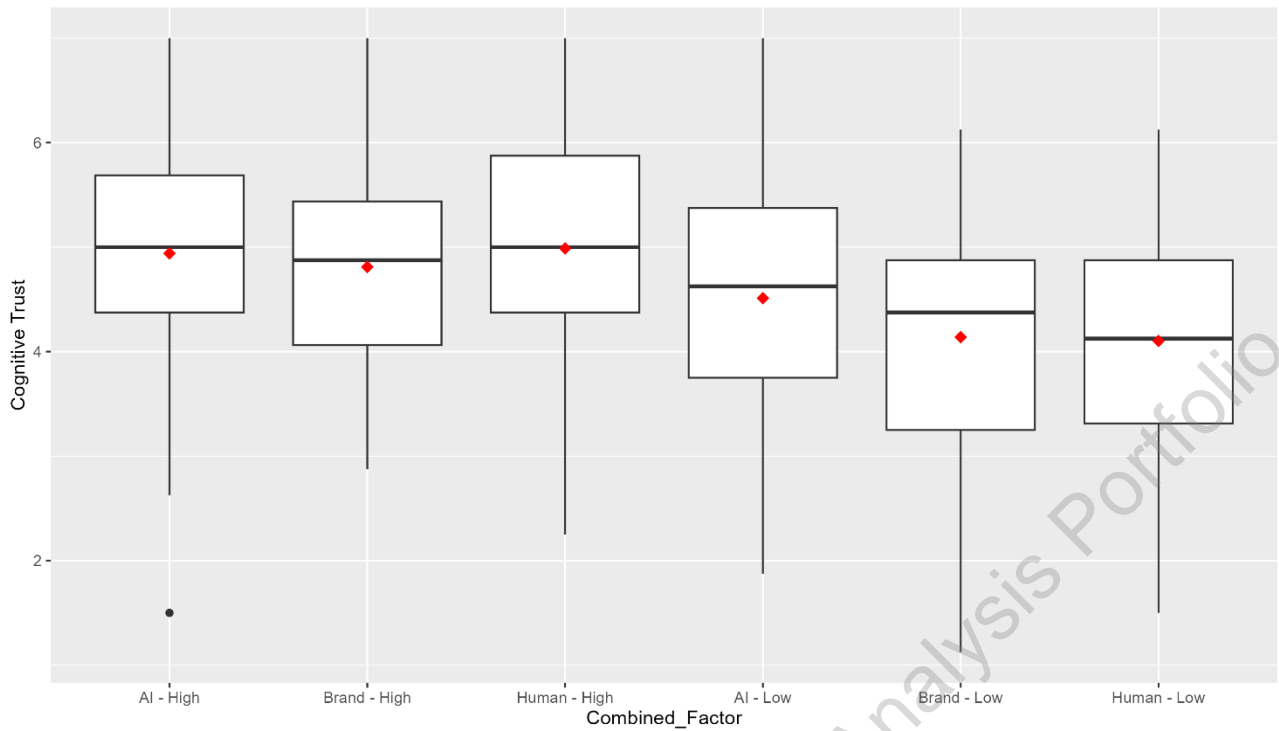
Boxplot of Sense of Uniqueness by Combined_Factor



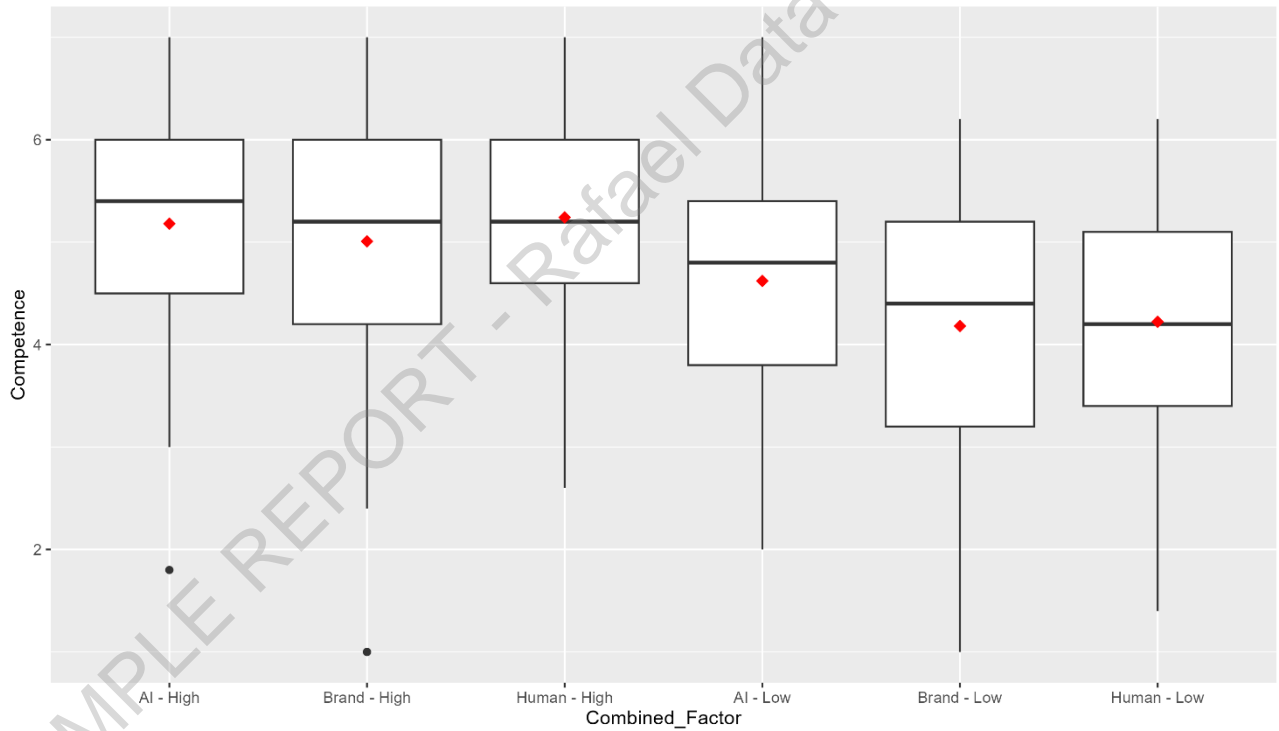
Boxplot of Benevolence by Combined_Factor



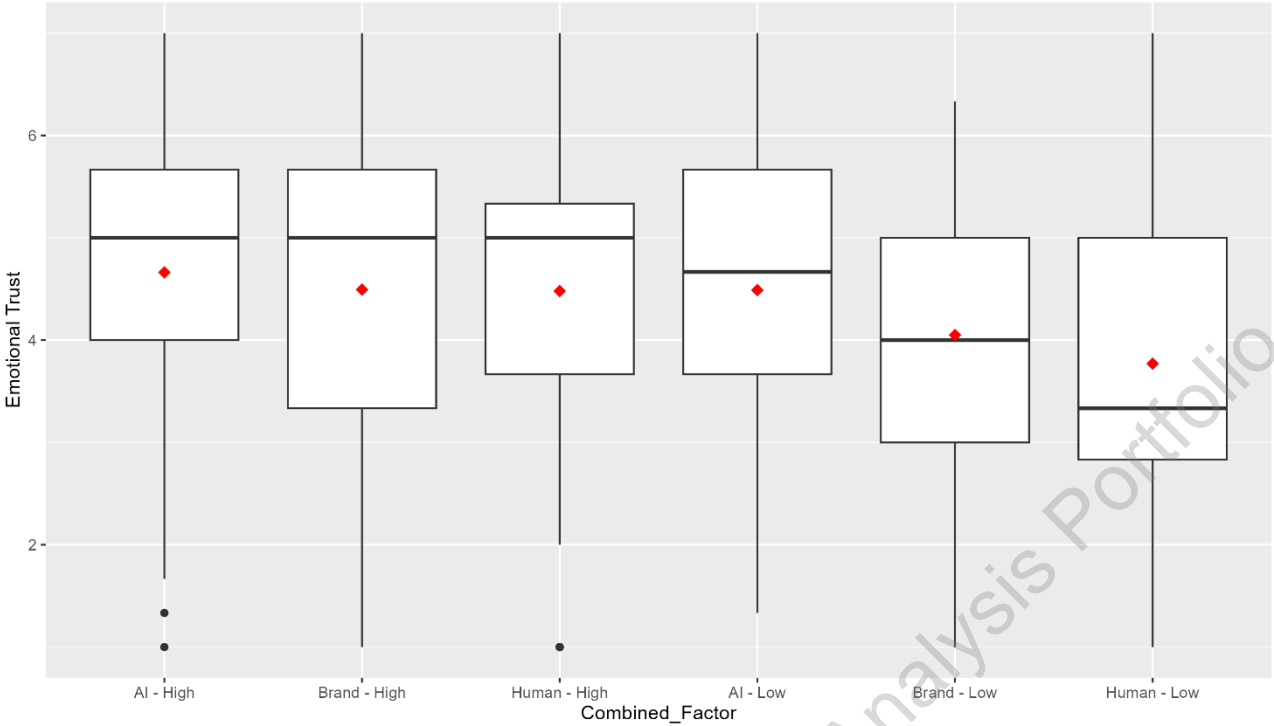
Boxplot of Cognitive Trust by Combined_Factor



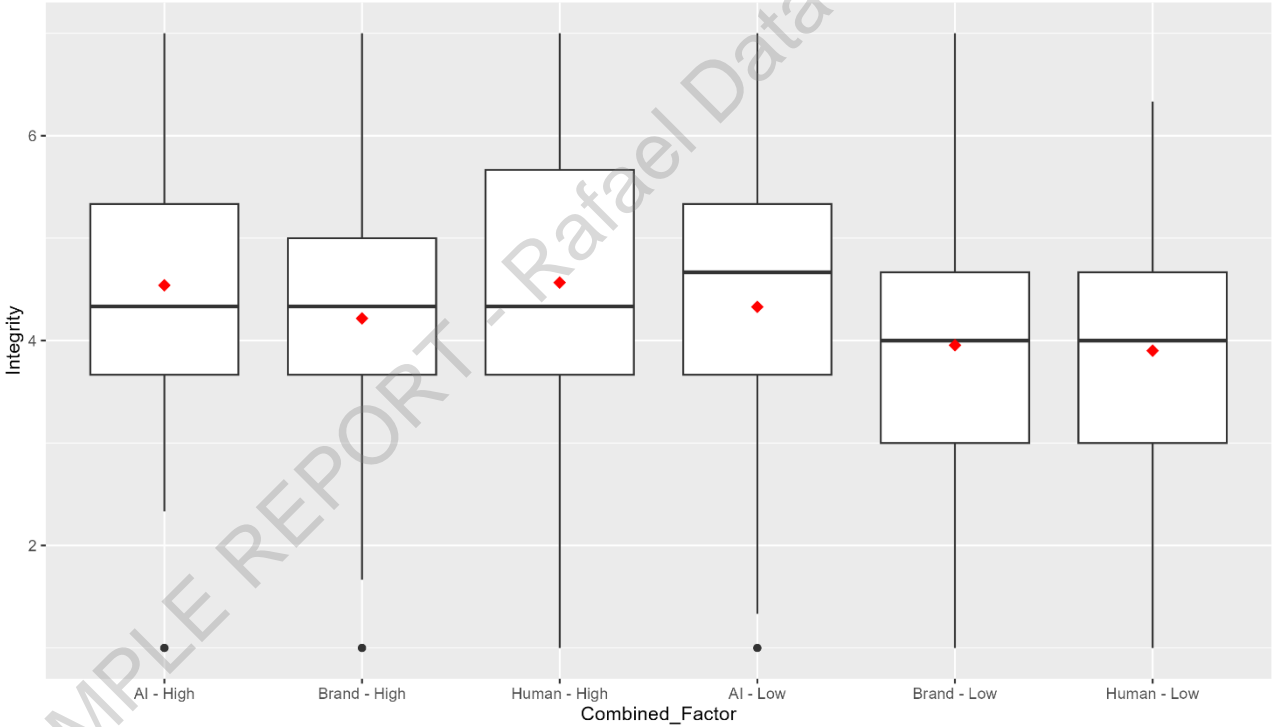
Boxplot of Competence by Combined_Factor



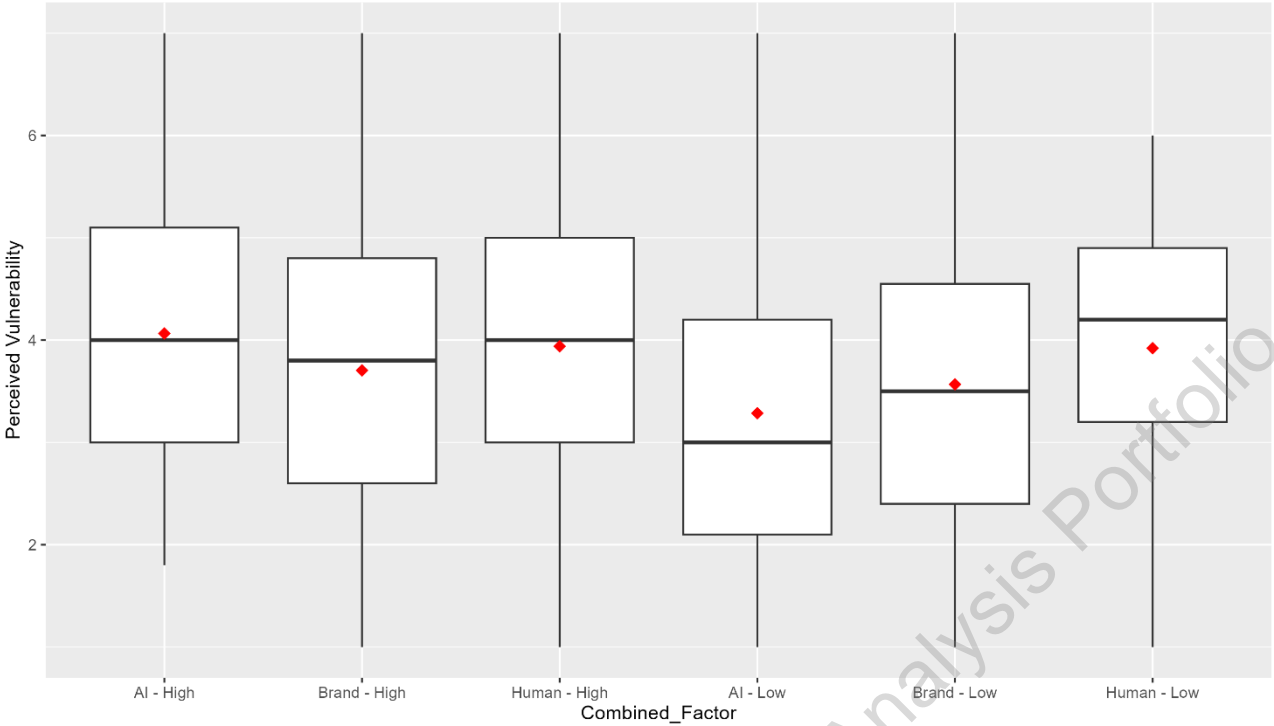
Boxplot of Emotional Trust by Combined_Factor



Boxplot of Integrity by Combined_Factor



Boxplot of Perceived Vulnerability by Combined_Factor



The effect of Agent and Level of Personalization on Purchase Intention

The analytical approach applied to investigate the impact of recommendation agents and the level of personalization on various psychological constructs, including purchase intention, involved a combination of 3x2 ANOVAs and mediation analyses. This comprehensive methodological framework is suitable for several reasons:

3x2 ANOVA: The analysis of variance (ANOVA) is a robust statistical method used to examine the influence of categorical independent variables on a continuous dependent variable. The 3x2 ANOVA specifically allows for the investigation of two factors (in this case, 'Recommendation Agent' with three levels and 'Level of Personalization' with two levels) and their interaction, thus enabling us to discern not only the main effects of each factor but also whether the effect of one factor depends on the level of the other factor.

Mediation Analysis: Mediation analysis helps in understanding the mechanism through which an independent variable affects a dependent variable through a mediator variable. It is particularly useful when exploring complex behavioral relationships, such as how perceptions (like vulnerability or uniqueness) may mediate the relationship between personalized interactions and consumer behaviors (e.g., purchase intention).

The table below shows the 3x2 ANOVA results. The ANOVA results revealed that the type of recommendation agent (AI, Brand, Human) did not significantly influence purchase intentions, as indicated by a p-value of 0.119. However, the level of personalization demonstrated a significant impact on purchase intentions, with a p-value of 0.001, suggesting that higher personalization directly contributes to increased purchase intentions. The interaction between agent type and personalization level did not significantly affect purchase intentions ($p=0.642$), indicating that the influence of personalization on purchase intentions is consistent across different types of agents and does not depend on the specific agent involved.

Term	df	Sum of Sqs	Mean Sqs	F	p
Recommendation_Agent	2	7.047	3.523	2.143	0.119
Level_of_Personalization	1	19.987	19.987	12.158	0.001
Recommendation_Agent:Level_of_Personalization	2	1.459	0.729	0.444	0.642
Residuals	435	715.118	1.644		

The mediation analyses focused on perceived vulnerability and sense of uniqueness as potential mediators. The findings showed that neither perceived vulnerability nor sense of uniqueness significantly mediated the effect of agent type and personalization level on purchase intentions. Specifically, the Average Causal Mediation Effect (ACME) for perceived vulnerability was -0.096

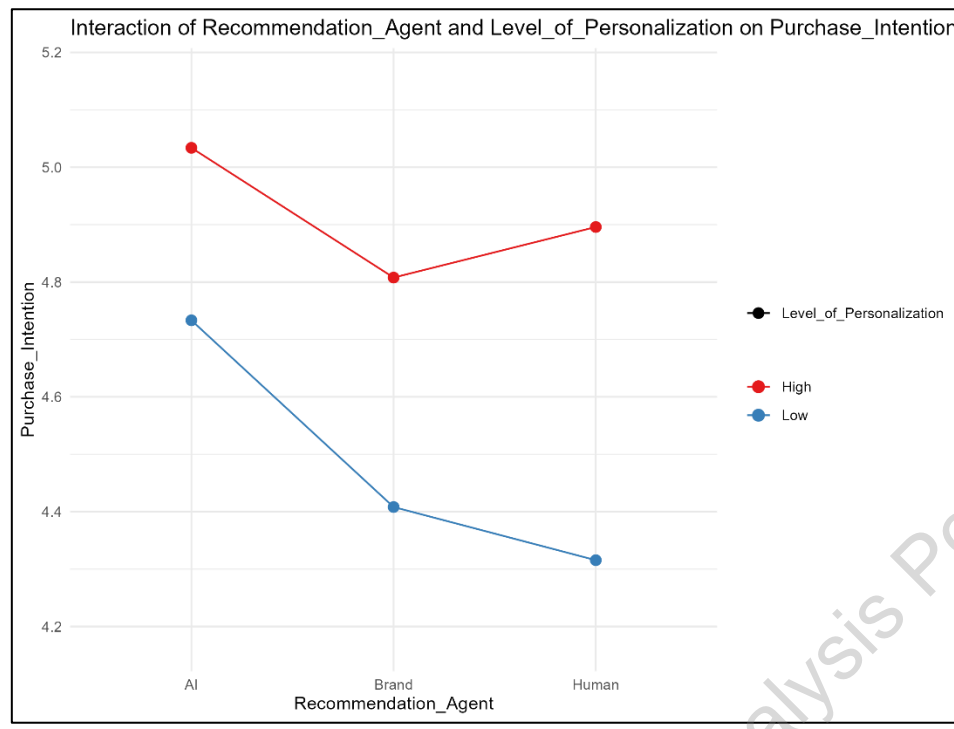
with a p-value of 0.088, and for sense of uniqueness, it was -0.061 with a p-value of 0.364, both indicating non-significant mediation effects. The Average Direct Effects (ADE) and Total Effects were also non-significant for both mediators, suggesting that the direct and overall impacts of agent type and personalization on purchase intentions are not mediated by these psychological constructs.

The mediation effect of Perceived Vulnerability

Metric	Estimate	Lower CI (95%)	Upper CI (95%)	p
ACME (Average Causal Mediation Effect)	-0.096	-0.244	0.012	0.088
ADE (Average Direct Effect)	0.393	-0.059	0.774	0.064
Total Effect	0.297	-0.116	0.660	0.144
Proportion Mediated	-0.257	-3.633	1.967	0.192

The moderation effect of Sense of Uniqueness

Term	df	Sum of Sqs	Mean Sqs	F	p
Recommendation_Agent	2	8.393	4.197	2.866	0.058
Level_of_Personalization	1	18.810	18.810	12.845	0.000
Sense_of_Uniqueness	23	92.259	4.011	2.739	0.000
Recommendation_Agent*Sense_of_Uniqueness	39	73.514	1.885	1.287	0.125
Level_of_Personalization*Sense_of_Uniqueness	17	28.632	1.684	1.150	0.305
three_way_interaction	29	32.167	1.109	0.757	0.815
Residuals	326	477.387	1.464		



The separation between the high and low personalization lines, especially in the Human agent category, visually suggests that the level of personalization might have a more pronounced impact when human agents are involved, compared to AI or Brand agents where the lines are closer together. This visual gap underscores potential differences in how personalization is perceived across different types of agents, highlighting the importance of adapting personalization strategies to the nature of the agent delivering the service or information.

The effect of Agent and Level of Personalization on Emotional Trust

In the exploration of emotional trust, the analysis via a 3x2 ANOVA provided significant insights into how both the type of recommendation agent and the level of personalization influence trust. Specifically, the type of recommendation agent had a statistically significant effect on emotional trust ($F=3.591$, $p=0.028$), suggesting that emotional trust varies depending on whether the agent is AI, a Brand, or Human. This variability implies that users might respond with differing levels of trust based on the perceived characteristics or reliability associated with different agent types.

Further, the level of personalization emerged as a particularly influential factor, showing a more pronounced effect ($F=10.372$, $p=0.001$) on emotional trust. This finding indicates that higher levels of personalization are likely to enhance users' trust, potentially due to a more tailored and relevant interaction experience that personalization typically offers.

However, the interaction between the type of recommendation agent and the level of personalization did not show a significant effect on emotional trust ($F=1.261$, $p=0.284$). This non-significant interaction suggests that while both factors independently affect emotional trust, the combined effect of agent type and personalization level does not significantly differ from what might be expected based on their individual impacts.

Term	df	Sum of Sqs	Mean Sqs	F	p
Recommendation_Agent	2	14.843	7.421	3.591	0.028
Level_of_Personalization	1	21.436	21.436	10.372	0.001
Recommendation_Agent:Level_of_Personalization	2	5.213	2.607	1.261	0.284
Residuals	435	899.044	2.067		

The mediation effect of Perceived Vulnerability

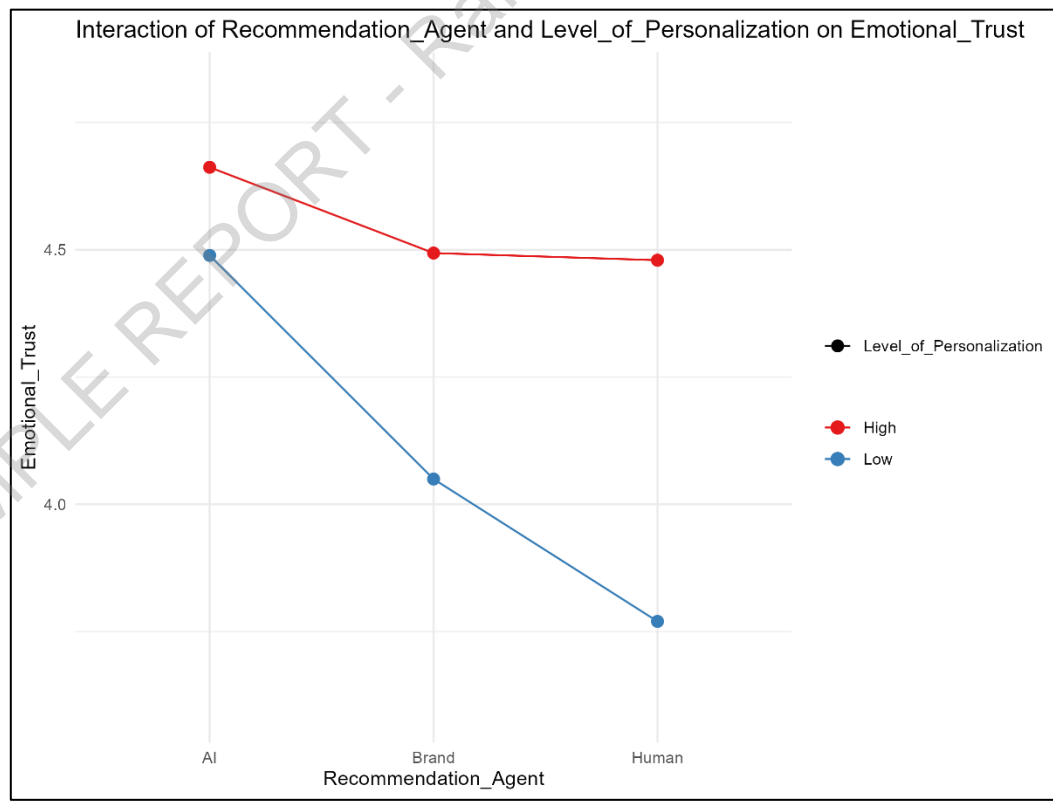
The mediation analysis concerning perceived vulnerability revealed that it significantly mediates the relationship between the factors studied and emotional trust, as indicated by the Average Causal Mediation Effect (ACME) being -0.219 with a p-value of 0.000. This strong mediation effect suggests that perceived vulnerability can decrease emotional trust, particularly when users feel exposed or at risk in highly personalized settings. Despite this, the Average Direct Effect (ADE) was not significant ($p=0.084$), and the total effect also remained non-significant ($p=0.456$), indicating that while vulnerability significantly mediates the relationship, the direct influence of agent type and personalization on trust might not be strong.

Metric	Estimate	Lower CI (95%)	Upper CI (95%)	p
ACME (Average Causal Mediation Effect)	-0.219	-0.426	-0.073	0.000
ADE (Average Direct Effect)	0.385	-0.051	0.752	0.084
Total Effect	0.166	-0.254	0.624	0.456
Proportion Mediated	-0.720	-12.555	14.595	0.456

The moderation effect of Sense of Uniqueness

Term	df	Sum of Sqs	Mean Sqs	F	p
Recommendation_Agent	2	17.135	8.567	4.535	0.011
Level_of_Personalization	1	21.796	21.796	11.538	0.001
Sense_of_Uniqueness	23	86.373	3.755	1.988	0.005
Recommendation_Agent*Sense_of_Uniqueness	39	106.335	2.727	1.443	0.048
Level_of_Personalization*Sense_of_Uniqueness	17	24.765	1.457	0.771	0.726
three_way_interaction	29	53.622	1.849	0.979	0.500
Residuals	326	615.832	1.889		

The figure below shows the different levels of emotional trust for each agent and level of personalization.



The contrast between the stability of the red line and the decline of the blue line suggests that personalization plays a more crucial role in agent-based interactions where the agent is perceived to have higher cognitive or social capabilities (e.g., Human agents). Users may have higher expectations of personalization from human agents, and failing to meet these expectations can lead to significantly lower satisfaction or trust levels.

The effect of Agent and Level of Personalization on Cognitive Trust

The type of recommendation agent, whether AI, Brand, or Human, did not significantly impact cognitive trust, as evidenced by the non-significant p-value of 0.149. This suggests that cognitive trust might be broadly consistent across different agent types, highlighting that factors other than the agent's identity influence trust levels.

Conversely, the level of personalization showed a profound and significant effect on cognitive trust with a p-value less than 0.001, indicating that more personalized interactions substantially enhance trust. This finding underscores the critical role of personalization in trust dynamics, where tailored interactions likely help in fostering a stronger reliance and confidence in the system or service provided.

The interaction between agent type and personalization level did not significantly influence cognitive trust, suggesting that the simple additive or synergistic effects of these two factors do not extend beyond their individual contributions. This indicates that while personalization alone significantly boosts trust, combining it with different agent types does not yield additional benefits in the context studied.

Term	df	Sum of Sqs	Mean Sqs	F	p
Recommendation_Agent	2	4.491	2.246	1.911	0.149
Level_of_Personalization	1	47.818	47.818	40.688	0.000
Recommendation_Agent:Level_of_Personalization	2	3.796	1.898	1.615	0.200
Residuals	432	507.701	1.175		

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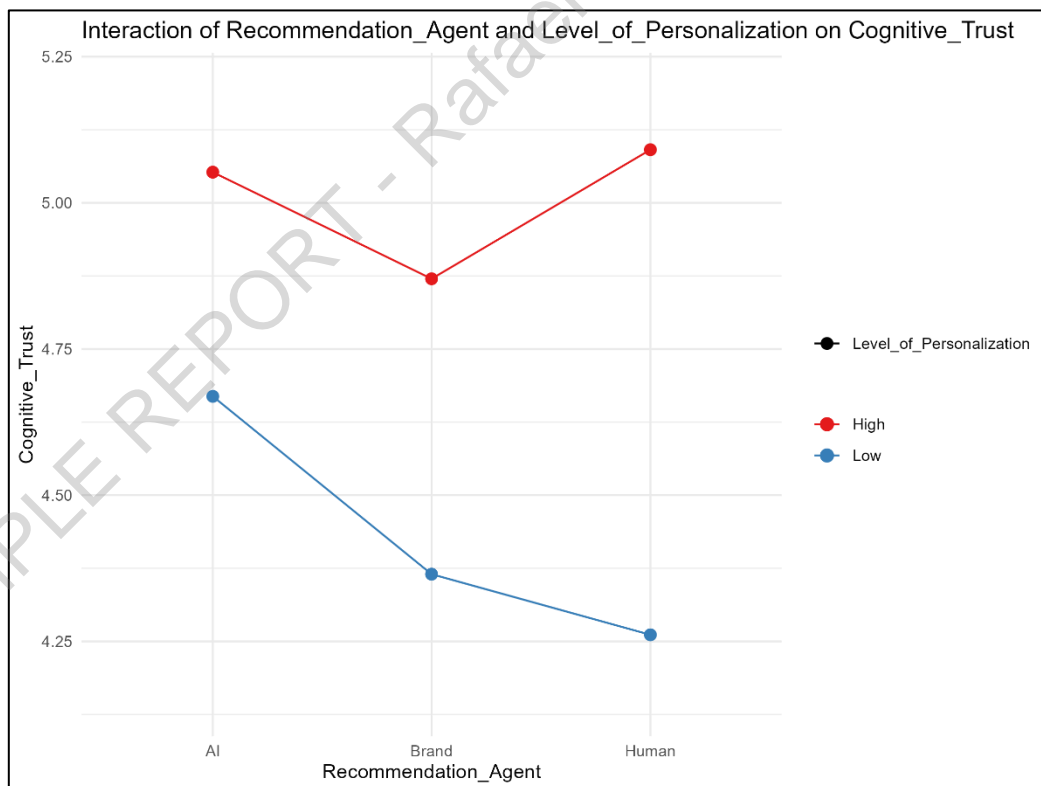
Perceived vulnerability, explored as a mediator, showed no significant mediation effect on the relationship between the studied factors and cognitive trust. However, its direct effects were significant, suggesting that aspects of the interaction not captured purely by agent type or personalization level—perhaps subtleties in how vulnerability is perceived—might influence trust.

The total effect of the model was also significant, hinting at an overarching impact of these factors on cognitive trust.

Metric	Estimate	Lower CI (95%)	Upper CI (95%)	p
ACME (Average Causal Mediation Effect)	-0.070	-0.195	0.039	0.228
ADE (Average Direct Effect)	0.509	0.098	0.908	0.008
Total Effect	0.439	0.063	0.804	0.020
Proportion Mediated	-0.145	-0.940	0.148	0.240

The moderation effect of Sense of Uniqueness

Term	df	Sum of Sqs	Mean Sqs	F	p
Recommendation_Agent	2	5.438	2.719	2.390	0.093
Level_of_Personalization	1	46.954	46.954	41.276	0.000
Sense_of_Uniqueness	23	31.421	1.366	1.201	0.241
Recommendation_Agent*Sense_of_Uniqueness	38	63.602	1.674	1.471	0.041
Level_of_Personalization*Sense_of_Uniqueness	17	15.266	0.898	0.789	0.706
three_way_interaction	29	24.473	0.844	0.742	0.833
Residuals	324	368.570	1.138		



Hypotheses tests

Hypothesis 1: Impact of Agent Type and Personalization on Purchase Intention

Hypothesis 1a: Different types of recommendation agents will significantly affect purchase intention.

Result: Not supported ($p=0.119$), indicating no significant differences in purchase intentions across AI, Brand, and Human agents.

Hypothesis 1b: Higher levels of personalization will significantly increase purchase intentions.

Result: Supported ($p=0.001$), suggesting that increased personalization positively affects purchase intentions.

Hypothesis 1c: There will be an interaction effect between the type of agent and the level of personalization on purchase intentions.

Result: Not supported ($p=0.642$), indicating that the impact of personalization on purchase intentions does not vary with the agent type.

Hypothesis 2: Mediation Effects of Psychological Constructs

Hypothesis 2a: Perceived vulnerability and sense of uniqueness will mediate the effect of agent type and personalization on purchase intentions.

Result for Perceived Vulnerability: Not supported (p-values for ACME and Total Effect were non-significant), implying that perceived vulnerability does not mediate the relationship between agent type, personalization, and purchase intentions.

Result for Sense of Uniqueness: Not supported (p-values for ACME and Total Effect were non-significant), indicating that sense of uniqueness does not significantly mediate the relationship either.

Hypothesis 3: Impact of Agent Type and Personalization on Emotional Trust

Hypothesis 3a: Different types of recommendation agents will significantly affect emotional trust.

Result: Supported ($p=0.028$), indicating that the type of agent influences emotional trust levels.

Hypothesis 3b: Higher levels of personalization will significantly increase emotional trust.

Result: Supported ($p=0.001$), showing that personalization significantly enhances emotional trust.

Hypothesis 3c: There will be an interaction effect between agent type and personalization on emotional trust.

Result: Not supported ($p=0.284$), suggesting that the impact of personalization on emotional trust is consistent across different agent types.

Hypothesis 4: Mediation Effects on Emotional Trust

Hypothesis 4a: Perceived vulnerability will mediate the effect of agent type and personalization on emotional trust.

Result: Supported only for ACME ($p=0.000$), indicating a significant mediation effect where higher perceived vulnerability reduces emotional trust.

Hypothesis 4b: Sense of uniqueness will mediate the effect of agent type and personalization on emotional trust.

Result: Not supported, with non-significant mediation effects.

Hypothesis 5: Impact of Agent Type and Personalization on Cognitive Trust

Hypothesis 5a: Different types of recommendation agents will significantly affect cognitive trust.

Result: Not supported ($p=0.137$), indicating that agent type does not significantly impact cognitive trust.

Hypothesis 5b: Higher levels of personalization will significantly increase cognitive trust.

Result: Supported ($p<0.001$), affirming that personalization significantly enhances cognitive trust.

Hypothesis 5c: There will be an interaction effect between agent type and personalization on cognitive trust.

Result: Not supported ($p=0.166$), suggesting that the impact of personalization on cognitive trust does not vary with agent type.

Hypothesis 6: Mediation Effects on Cognitive Trust

Hypothesis 6a: Perceived vulnerability and sense of uniqueness will mediate the effect of agent type and personalization on cognitive trust.

Result for Perceived Vulnerability: Not supported for mediation but significant ADE ($p=0.012$), indicating a direct influence on cognitive trust.

Result for Sense of Uniqueness: Not supported for mediation, with a marginally significant ADE ($p=0.048$), suggesting a slight direct impact on enhancing cognitive trust.

Conclusion

The data suggest that while personalization consistently enhances both purchase intentions and trust, the type of agent primarily influences emotional trust. Mediation effects by perceived vulnerability

and sense of uniqueness were generally not supported except for a negative impact of vulnerability on emotional trust. These findings underscore the critical importance of personalization in digital interactions and highlight nuanced roles of agent types in shaping consumer psychology and behavior.

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