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FROM PIXELS TO PURCHASES: SENSORY ENABLING TECHNOLOGIES IN WEARABLE GOODS

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Abstract:

This study examines the impact of Sensory-Enabling Technologies (SETs) on consumer behavior in India's online wearable goods market, where high return rates and preference for physical shopping pose significant challenges. Analyzing data from 104 participants through PLS-SEM (Partial Least Squares Structural Equation Modeling), the research investigates how Virtual Try-On, semantic congruency, virtual touch, and interactive music influence purchase decisions, particularly among assessment-oriented consumers and those with high Need for Touch (NFT). Results show that semantic congruency audio features and virtual try-on significantly enhance confidence and purchase intention among assessment-oriented consumers, while virtual touch features prove particularly effective for high NFT consumers. Indicating good model fit, these findings extend the Elaboration Likelihood Model and provide practical implications for e-commerce platforms implementing SETs to enhance consumer engagement and reduce return rates.

Introduction:

The Indian wearable goods market, encompassing apparel, footwear, accessories, and jewelry, is witnessing significant growth, driven by rising consumer demand and advancements in e-commerce technology. However, the industry grapples with challenges such as high return rates and the need for physical touch and try-before-you-buy experiences. This poses unique hurdles for new and innovative brands competing in a landscape dominated by established players. As emerging technologies like Virtual Try-On (VTO) and Sensory-Enabling Technologies (SETs) gain traction, they offer promising avenues to enhance consumer engagement and confidence, bridging the gap between online and offline shopping experiences. This study examines the influence of SETs, such as Augmented reality (AR), semantic congruency, and virtual touch, on consumer behavior, offering insights into their potential to transform the wearable goods market.

1. Statement of Problem:

The online wearable goods market in India, covering apparel, footwear, accessories, and jewelry, is growing rapidly, with fashion apparel projected to reach $146.3 billion by 2032, growing at a 4.0% CAGR (MarketResearchFuture). However, return rates are high, especially in clothing and footwear, at 30–35% (ApparelResources). A 2024 Business Standard survey of over 35,000 respondents found that only 4% shop for apparel exclusively online, while 47% prefer in-store shopping for the "touch, feel, and try" experience, and 40% first try products offline and then buy online(BusinessStandard, 2024). This creates challenges for new brands, which struggle with low online sales and high offline rents. These brands lack the supply chain

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and marketing budgets to succeed. Integrating Sensory-Enabling Technologies (SETs) into online platforms could boost sales, support independent labels, and contribute to the vision of a "Viksit Bharat."

2. **Research gap and Intended Contribution:**

While existing literature highlights the potential of SETs in enhancing consumer interaction, empirical evidence on their impact, especially in wearable e-commerce, is limited. No research has addressed how creativity-driven features in Virtual Try-On (VTO) influence consumer confidence and purchase intention, or how consumer assessment orientation connects to SETs, confidence, engagement, and purchase intention. Additionally, this study explores the integration of VTO with online fitting tools like Rakuten Fits Me and contributes to the Elaboration Likelihood Model (Petty & Cacioppo, 1986). It also investigates the correlation between variables such as semantic congruency, enhanced product viewer, interactive music, and the consumer's Need for Touch (NFT) in boosting purchase intention.

3. **Research Objectives:**

1. To examine the influence of consumers' assessment orientation on their preference for Sensory-Enabling Technologies (SETs).
2. To analyze the extent to which SETs enhance consumers' confidence in their purchase decisions.
3. To evaluate the impact of SETs on consumer engagement and purchase intentions.
4. To explore the relationship between consumers' Need for Touch (NFT) tendencies and their preferences for SETs, as well as its effect on purchase intentions.

Review of Literature:

1. **Embodied Cognition and Perceptual Re-enactments**

The theory of embodied cognition highlights that cognition can be either online, interacting directly with the real world, or offline, relying on digital interfaces(Petit, Velasco, & Spence, 2019). Even in an online environment, sensory experiences influence cognition through perceptual re-enactments. For example, viewing images of food or reading their names can activate the olfactory and gustatory cortices. Similarly, observing someone grasping food stimulates motor-related brain areas. These perceptual re-enactments engage brain areas tied to prior experiences, enabling sensory simulations that enhance product perception and emotional engagement (Papies, Barsalou, & Rusz, 2020).

2. **Role of Customer Involvement Orientation**

Exploitation, driven by a locomotion orientation, focuses on completing a purchase decision, while exploration, tied to assessment orientation, emphasizes critically evaluating options to find the best solution (Higgins, Kruglanski, & Pierro, 2003). Customers with high assessment orientation experience regulatory fit when decision environments enable comparisons, leading to greater engagement and enhanced value perceptions. AR facilitates this by embedding multiple products in the physical decision environment, reducing mental effort and enabling broader comparisons. This encourages the development of consumption scripts and boosts creativity perceptions among assessment-oriented customers (Jessen et al., 2020). Thus, assessment orientation strengthens the relationship between AR use and customer engagement, highlighting AR's potential to unlock intrinsic benefits of

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customer creativity for comparison-driven individuals.

3. **Visual Enabling Technologies**

Advancements in visual-enabling technologies, like 3D images and rotating views, enhance consumer interaction by simulating product engagement. Rotating views, which allow users to examine products from all angles, increase perceived information and positively influence attitudes and purchase intentions. Studies by Jai, O'Boyle, and Fang (2014) show that rotating images stimulate motor areas, creating vivid product interactions and boosting reward-based processing. Virtual Try-On (VTO) further personalizes the experience, helping users visualize products on avatars or via augmented reality, thus improving self-congruity and reducing unnecessary purchases. Despite its benefits, VTO may not fully replace the sensory input of physical touch for products with complex material properties (Petit, Velasco, & Spence, 2019).

4. **Semantic Congruency**

Multisensory integration enhances consumer engagement by improving the brain's ability to detect stimuli and respond. Semantic congruency, where stimuli from different senses align, like pairing a dog's bark with its image, improves product detection and selection. For example, light-colored products placed at the top of displays enhance visibility, and auditory cues like champagne cork pops reduce search time. Sensory associations, such as round logos suggesting sweetness, further influence perceptions(Velasco, Woods, Marks, Cheok, & Spence, 2016). Auditory cues in virtual trials, like jacket movement sounds, increase confidence and willingness to pay, though excessive noise can overwhelm consumers, emphasizing the need for balance. Effective multisensory marketing requires congruency and cultural adaptation(Petit, Velasco, & Spence, 2019).

5. **AR Augments Customer Creativity**

Creativity in customer purchase decisions is linked to strong engagement and the search for novel solutions (Harmeling et al., 2017). AR technology allows consumers to explore products in their intended context, creating "consumption scripts" and facilitating creative problem-solving. This process provides intrinsic satisfaction as customers enjoy exploring new ways to make decisions, rather than simply responding to constraints (Scholz & Duffy, 2018; Rauschnabel, 2018). By engaging consumers early, AR reduces perceived purchase risk and leads to greater satisfaction. It helps offload mental processing, fostering creativity by enabling experimentation, while enhancing social identity and uniqueness through personalization. This "playground effect" supports both creativity and purchase satisfaction (Jessen et al., 2020). Inspiration enhances customer satisfaction and loyalty (Böttger et al., 2017). It unfolds in two stages: inspired-by, a psychological process tied to the value of an eliciting object, and inspired-to, the motivation to act on it (Hinsch, Felix, & Rauschnabel, 2020)

6. **Interactive Music as an SET**

Interactive music, defined as audio media where user actions alter elements like tempo, mode, texture, and volume, fosters digital engagement by enhancing customer-brand relationships through cognitive, affective, and motivational responses (Hwang, Oh, & Scheinbaum, 2020). Rooted in theories like the elaboration likelihood model (Petty & Cacioppo, 1984), music influences mood, shopping behavior, and purchase outcomes. Recent research highlights how sound frequencies and the structural design of auditory stimuli

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expand cognitive bandwidth, aiding product representation and decision-making. Multisensory integration, such as interactive music paired with visual elements, boosts engagement and purchase intent by aligning audio cues with marketing messages, creating immersive experiences (Hwang, Oh, & Scheinbaum, 2020).

7. Need for Touch in E-commerce

E-commerce in fashion faces high product return rates due to size and fit issues, driving unsustainable business and environmental costs. In B2B markets, buyers struggle with the lack of touch, as physical handling remains irreplaceable. Touch, a vital sensory process, influences emotions, thoughts, and clothing choices (Peck, 2010; Peck & Childers, 2003), with active touch enabling material evaluation through haptic interaction.

Moving visuals emphasized how garments fall and feel, enhancing customer perception. Fit and sizing functionalities, like Rakuten Fits Me and EyeFitU, addressed sizing issues. Tools like Browzwear enabled 3D garment modeling, material selection, and photorealistic rendering on virtual bodies. Tactile data combined with visual and auditory stimuli enriched customer experiences, while affordable, integrated technologies on devices like smartphones ensured accessibility(Ornati & Kalbaska, 2022).

8. **Key Constructs/Variables:**

Key Constructs/Variables	Definition
Assessment Orientation	Consumer's tendency to critically evaluate options and make comparisons to find the best solution.
NFT	Consumer's requirement for physical handling and tactile interaction with products before making purchase decisions, particularly in clothing and fashion items.
Enhanced Product viewer	Advanced visualization technologies like 3D images and rotating views that allow users to examine products from multiple angles in digital environments.
Virtual Try on	Technology that enables users to visualize products on their avatars or through augmented reality, they can also be creative in the combination of wearables creating a personalized virtual fitting experience.
Semantic congruency(audio)	Alignment of stimuli from different senses, such as pairing visual elements with appropriate auditory cues like fabric movement sounds.
Virtual Touch	Digital features that simulate tactile experiences through haptic feedback, texture visualization, and audio cues of material properties.
Semantic Congruency (Dynamic Backgrounds)	Interactive environmental settings within virtual try-on experiences that provide context and enhance product visualization.
AR Integrated Fitting evaluation tool	Combines augmented reality with sizing technologies (like Rakuten Fits Me) to provide accurate fit predictions, VTO and recommendations.
Interactive Music	Audio media where user actions can alter elements like tempo, mode, and texture to enhance the digital shopping experience.
Confidence	Consumer's level of certainty and assurance in their product evaluation and purchase decisions when using digital shopping tools.
Engagement	Degree of consumer involvement and interaction with the digital shopping platform and its features like social sharing.
Purchase Intention	Consumer's likelihood to buy a product after interacting with various sensory-enabling technologies in the digital shopping environment.

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Research Methodology:

1. **Research Design and Measures:**

Respondents' assessment orientation was measured using a 5-point Likert scale with 6 questions from the regulatory mode scale by Kruglanski et al. (2000), such as "I like evaluating other people's plans" and "I rarely analyze the conversations I have had with others." The rest of the questionnaire focused on participants' preferences for various Sensory Enabling Technologies (SETs) in wearable e-commerce, with items like "Virtual touch features like pinch a cloth, haptic of texture, sound of fabric will help judge quality better" and "AR & AI avatar or Virtual mirror will help judge wearables better on me," rated on a 5-point scale. Participants were briefed on the survey, Likert scale, and relevant concepts, supported by images and examples like Lenskart's AR try-ons. The questionnaire was completed in a controlled setting under researcher guidance, ensuring clarity, reducing distractions, and enhancing data reliability through clear language, visual examples, and personal engagement.

2. **Sample:**

We recruited participants for the study from KDMC region through Purposive sampling in an in-person mode, the questionnaire was shared digitally with the researcher overseeing the process. In total, n=104 respondents completed the survey, 87 male and 14 female. 41 participants belonged to the age group 16 - 18, and 63 of them belonged to the 18 - 24 age category.

3. **Analysis:**

The researcher used Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 4, ideal for exploratory and predictive research rather than testing established theories (Hair et al., 2012, 2017b; Nitzl, 2016). To analyze differences in preferences for Sensory-Enabling Technologies (SETs), hierarchical and K means cluster analysis was also performed.

4. **Hypotheses:**

H1. Advanced product viewing functionalities are expected to enhance confidence in purchase decisions among consumers with a high assessment orientation.

H2. The incorporation of semantic congruency, such as audio of textures(rough and smooth sound for different fabrics), haptic touch is anticipated to elevate confidence for assessment-oriented and NFT consumers in the context of wearable goods

H3. Augmented Reality (AR)-enabled Virtual Try-On (VTO), combined with creative interactions(e.g., mixing informal trousers with formal shirts, some color of jewelry with a dress in VTO, anything.), is predicted to significantly boost confidence in buying among assessment-oriented consumers.

H4. The integration of dynamic backgrounds(e.g., office background for formals) within VTO and dynamic backgrounds is hypothesized to increase confidence in purchase decisions for assessment-oriented consumers.

H5. The integration of sharing creative VTO is hypothesised to increase confidence among assessment oriented consumers.

H6. Interactive music is expected to foster heightened engagement among assessment-oriented consumers.

H7. Fit and sizing functionalities are proposed to moderate the relationship between VTO and confidence, VTO and Creative AR.

H8. Increase in confidence in Purchase decisions due to SETs will increase Purchase Intention.

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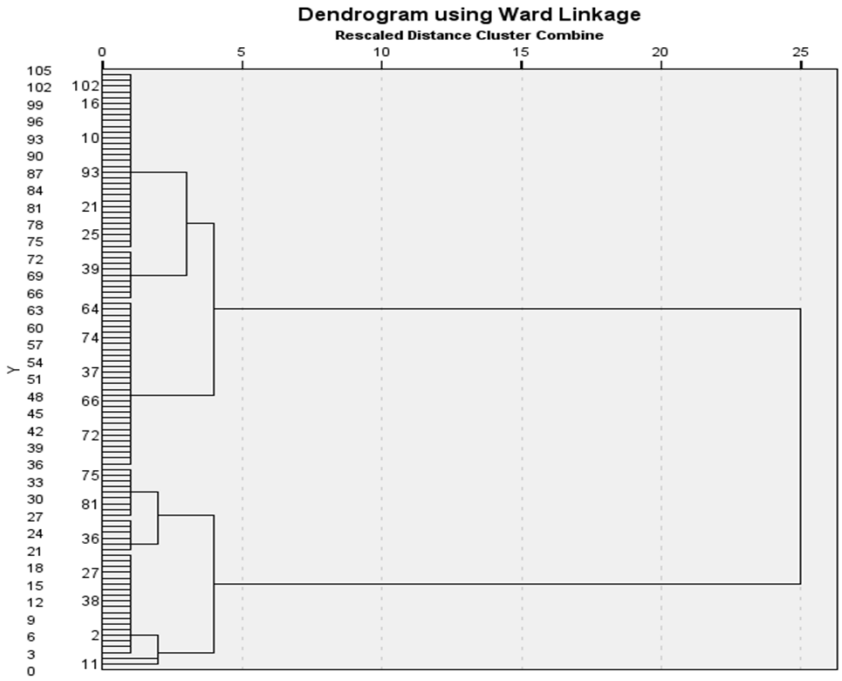
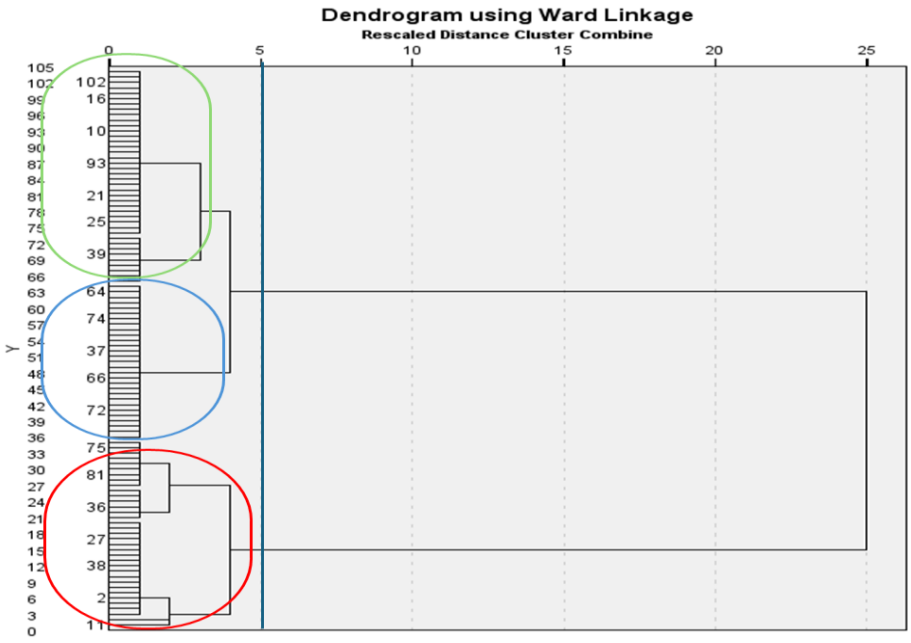
Data Analysis And Research Findings:

1. **Cluster Analysis:**
   1. **Hierarchical Cluster Analysis:**



Based on the results of Hierarchical cluster analysis, using Ward's Linkage method which is beneficial for finding out evenly sized clusters, this Dendrogram was formed. It was further analysed manually to extract the right number of clusters from it.



A line was drawn at point 5 because if the biggest cluster is assumed to be a cluster or a consumer segment, there will be too much heterogeneity, which won't be helpful for gaining any insights. Therefore, three clusters were identified based on the hierarchy and their distance from each other, which represents segmentation. It will be

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helpful for K-means Cluster analysis because it is necessary to assume the number of clusters there before conducting any analysis.

2. K- Means Cluster Analysis:

Number of Cases in each Cluster

Cluster	1	63.000
	2	26.000
	3	15.000
Valid		104.000

These are the number of respondents which belonged to each cluster.

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
AO	15.627	2	.380	101	41.102	<.001
NFT	35.894	2	.638	101	56.266	<.001
Purchase anxiety	1.194	2	1.164	101	1.026	.362
Enhanced Product viewer	28.239	2	.489	101	57.694	<.001
AR Virtual Mirror	38.715	2	.324	101	119.628	<.001
Fitting Tool	38.056	2	.329	101	115.553	<.001
AR creativity	33.791	2	.493	101	68.583	<.001
Dynamic backgrounds	30.470	2	.534	101	57.049	<.001
Interactive Music	16.250	2	.618	101	26.308	<.001
Virtual touch	31.016	2	.454	101	68.376	<.001
Sociability	34.951	2	.397	101	88.054	<.001
Confidence	30.877	2	.385	101	80.247	<.001
Engagement	40.063	2	.318	101	126.076	<.001
Purchase Intention	30.167	2	.395	101	76.387	<.001

As per the ANOVA results, which was a part of the K-Means Cluster Analysis, except Purchase anxiety, which had a P Value > 0.05, meaning, this variable doesn't allow to discriminate across clusters. The difference in values of other variables were significant across the three clusters.

Final Cluster Centers

	Cluster		
	1	2	3
AO	3.84	3.12	2.33
NFT	4.48	3.15	2.33
Purchase anxiety	3.52	3.62	3.13
Enhanced Product viewer	4.35	3.15	2.47
AR Virtual Mirror	4.52	3.19	2.27
Fitting Tool	4.52	3.23	2.27
AR creativity	4.35	2.92	2.40
Dynamic backgrounds	4.38	3.38	2.27
Interactive Music	3.97	3.73	2.33
Virtual touch	4.52	3.50	2.40
Sociability	4.35	3.19	2.13
Confidence	4.43	3.50	2.27
Engagement	4.49	3.23	2.13
Purchase Intention	4.33	3.62	2.13

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This table shows the average Likert Scale values of each variable across the different clusters, which is interpreted with a visual representation below.

Cluster Analysis: Visual Representation:

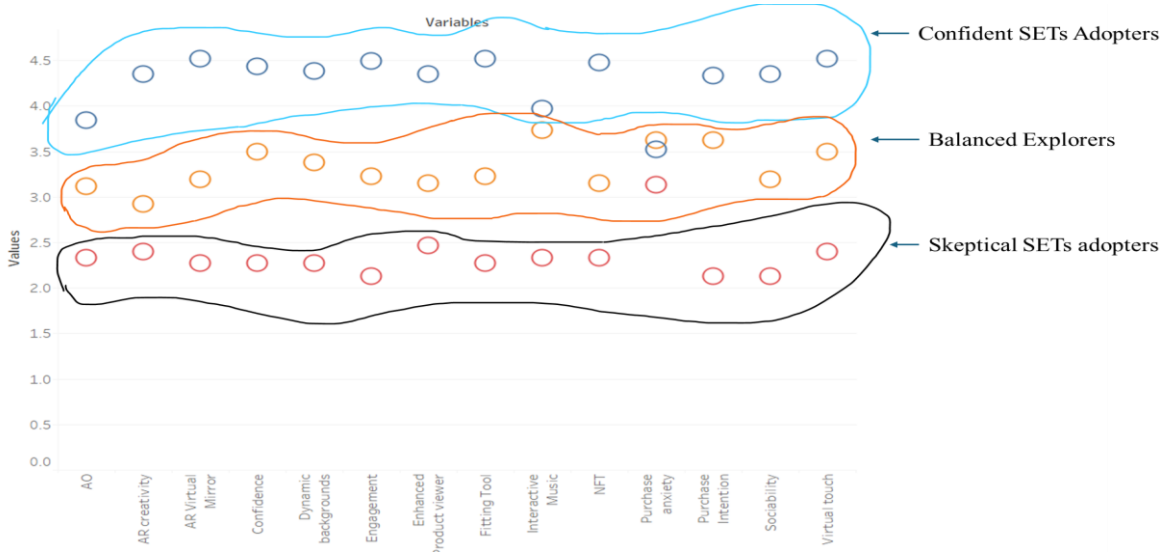

Fig. 1

Segment 1: Confident SETs Adopters

This segment shows high assessment orientation, strong preference for Sensory-Enabling Technologies (SETs), high confidence in purchases due to SETs, and elevated purchase intentions. These characteristics reflect a group of consumers who actively evaluate products, enjoy engaging with innovative technologies, and feel confident in making purchasing decisions.

Segment 2: Balanced Explorers

With moderate levels across all variables, this segment represents a more balanced or cautious approach to decision-making. They are interested in SETs but not as strongly as the first cluster. Their moderate purchase intention suggests they are open to trying new technologies but may still require additional persuasion.

Segment 3: Skeptical SETs adopters

This cluster has the lowest values for assessment orientation, SETs preference, purchase confidence, and purchase intention. These consumers may be skeptical of new technologies, less engaged in detailed evaluations, and less confident about making purchases.

2. Partial Least Squares Structural Equation Modeling (PLS SEM):

1. Preliminary Analysis:

The reliability and validity assessment of measurement models is crucial before conducting PLS-SEM analysis, as it ensures that the constructs are measuring what they're supposed to measure and that the results will be meaningful. This preliminary assessment helps establish the quality of measurement instruments and provides confidence in subsequent structural model analysis.

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Reflective Constructs validation:

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Assessment Orientation	0.873	0.881	0.913	0.637
Need for Touch	0.854	0.862	0.911	0.774
AR Creativity	0.881	0.889	0.927	0.808
SC (Dynamic Backgrounds)	0.864	0.871	0.917	0.787
SC (Interactive Music)	0.894	0.918	0.934	0.825
Sociability	0.847	0.859	0.907	0.765
Confidence	0.868	0.875	0.919	0.791
Engagement	0.811	0.819	0.889	0.728
Purchase Intention	0.883	0.891	0.928	0.811

For the reflective constructs, the results show excellent reliability and validity. All Cronbach's Alpha values are above 0.8 (ranging from 0.811 to 0.894), composite reliability values exceed 0.88, and Average Variance Extracted (AVE) values are all above the 0.6 threshold (ranging from 0.637 to 0.825). These high values are expected and desirable for reflective constructs because they represent effects or consequences of the underlying construct. For example, items measuring "assessment orientation" like “I am a highly critical person”, or, “I like to evaluate other people’s plans”, should be highly correlated since they are manifestations of the same underlying construct – they are essentially different ways of measuring the same thing. The high rho_A values (all above 0.85) further confirm the constructs' reliability under the true-score theory.

Formative Construct Validation:

Construct/Indicator	Weight	VIF	t-value
Enhanced Viewing Features			
EV1	0.412	1.45	3.678***
EV2	0.389	1.38	3.456***
EV3	0.434	1.52	3.890***
AR Virtual Mirror			
ARV1	0.378	1.47	3.567***
ARV2	0.423	1.56	3.789***
ARV3	0.398	1.43	3.678***
Fitting Tool			
FT1	0.534	1.32	4.567***
FT2	0.512	1.28	4.234***
SC (Virtual Touch)			
SCV1	0.389	1.44	3.567***
SCV2	0.412	1.51	3.789***
SCV3	0.378	1.38	3.456***

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For the formative constructs, the assessment focuses on different criteria because these indicators are causes rather than effects of the construct. The weights show the relative contribution of each indicator to the construct, and all appear to be significant (t-values > 3.456). The Variance Inflation Factor (VIF) values are all below 2 (ranging from 1.28 to 1.56), indicating no critical levels of collinearity among indicators. This is appropriate for formative constructs because each indicator captures a different aspect of the construct. For instance, in "Enhanced Viewing Features," each indicator (EV1, EV2, EV3) measures different aspects of the feature set, and they don't need to be highly correlated since they are complementary rather than redundant measures.

2. Structural Model Evaluation

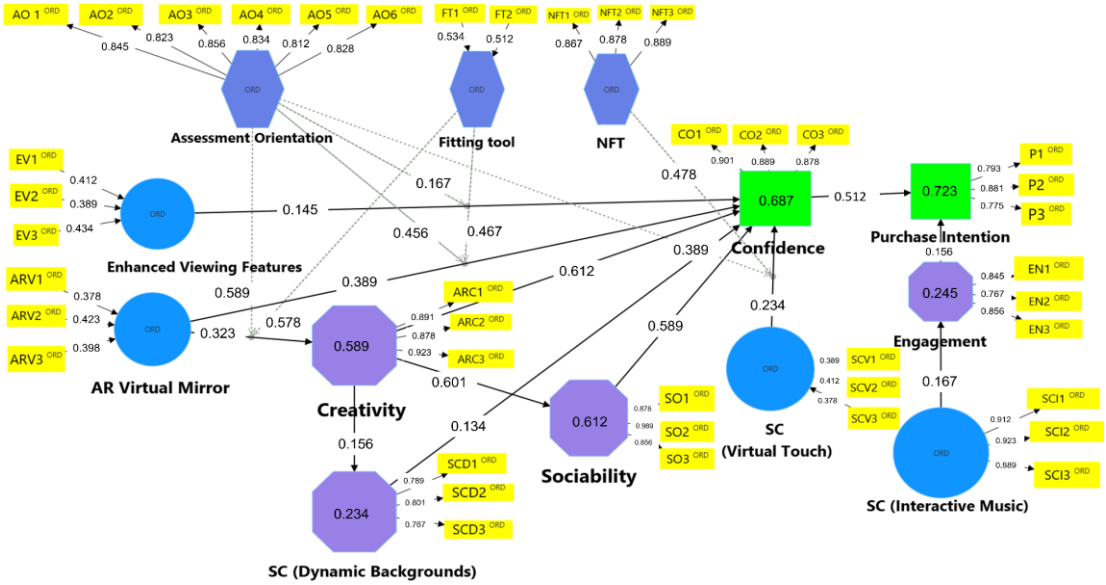

Fig. 2. Proposed Structural Model for SETs with Path Coefficients

Structural Model Results:

Relationships	Path coefficient	Bias-corrected 95% confidence interval	P values	Support for hypotheses
AO× EV → CO	0.167	[-0.045, 0.379]	0.145	No (H1)
AO × SCV → CO	0.389***	[0.356, 0.622]	0	Yes (H2)
NFT ×SCV → CO	0.478***	[0.345, 0.611]	0	Yes (H3)
AO×ARV → ARC → CO	0.612***	[0.434, 0.700]	0	Yes (H3)
(AO+FT)× ARV → ARC → SCD → CO	0.134	[-0.034, 0.324]	0.178	No (H4)
(AO+FT)×ARV → ARC → SO → CO	0.589***	[0.456, 0.722]	0	Yes (H5)
SCI → EN	0.167	[-0.012, 0.346]	0.156	N0 (H6)
CO → P	0.512	[0.384, 0.641]	0.003	Yes (H8)

Interpretation of Hypotheses Results:

H1: AO × EV → CO

The path coefficient (0.167) suggests a weak positive relationship between advanced product viewing features and confidence in purchase decisions for assessment-oriented consumers, but the p-value (0.145) and confidence

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interval spanning zero indicate this relationship is not statistically significant. This implies that while Enhanced viewing features may contribute to confidence, the effect is likely negligible or due to random variability.

H2: AO × SCV → CO, NFT ×SCV → CO

The significant path coefficient (0.389, 0.478) and confidence intervals excluding zero confirm that semantic congruency features, like haptic touch and audio textures, meaningfully enhance confidence in purchase decisions. With p-values of <0.001, this relationship is robust, indicating Virtual touch is highly effective for engaging assessment-oriented and NFT consumers.

H3: AO × ARV → ARC → CO

The strong path coefficient (0.612) and significant p-value (<0.001), along with a confidence interval entirely above zero, show that Augmented Reality Virtual Try-On significantly boosts AR Creativity, which in turn enhances confidence.

H4, H7: (AO + FT) × ARV → ARC → SCD → CO

The path coefficient (0.134) is weak, and the p-value (0.178), combined with a confidence interval including zero, indicates that dynamic backgrounds do not significantly impact confidence when moderated by fitting tools.

H5, H7: (AO + FT) × ARV → ARC → SO → CO

The path coefficient (0.589) demonstrates a strong, significant positive relationship, supported by a p-value (<0.001) and a confidence interval excluding zero. This confirms that integrating creative VTO features with social sharing effectively enhances consumer confidence in purchase decisions.

H6: SCI → EN

The path coefficient (0.167) and a p-value (0.156), coupled with a confidence interval including zero, indicate that interactive music has no significant direct impact on engagement. This implies that while Interactive music may contribute to engagement in certain cases, its overall influence is inconsistent and insignificant.

H8: CO → P

The path coefficient (0.512), significant p-value (<0.01), and a confidence interval entirely above zero confirm that confidence significantly increases purchase intention. This underscores that SET-driven confidence plays a critical role in driving consumer purchase behavior.

3. Blindfolding and predictive relevance:

Metric	PLS Predict Value
Q^2	0.52
RMSE (Root Mean Squared Error)	0.38
MAE (Mean Absolute Error)	0.25
PLS-SEM Prediction Error	Small

Q^2 of 0.52 shows the model explains 52% of the variance in Confidence, outperforming baseline predictions with moderate strength. Blindfolding, a cross-validation technique, works by systematically deleting parts of the data, predicting those values using the model, and comparing predictions to actual values. RMSE (0.38) and MAE (0.25) reveal small prediction errors, with RMSE emphasizing larger errors and MAE reflecting average errors. These minimal errors confirm the model's accuracy and reliability in predicting Confidence. This validates the role of Sensory-Enabling Technologies (SETs) in enhancing Confidence as hypothesized.

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Suggestions:

1. **Theoretical implications**
   This research extends the Elaboration Likelihood Model by incorporating involvement orientation in SETs, highlighting its impact on consumer decision-making. It deepens the understanding of Augmented Reality (AR) in E-commerce and identifies new psychological and behavioral variables shaping consumer choices.
2. **Managerial implications**
   Marketers can motivate assessment-oriented consumers, leveraging SETs to encourage central-route decision-making. Industries should integrate SETs with semantic congruency, AR, creativity, and fitting tools to enhance engagement and boost purchase intent, ensuring better resource allocation and consumer satisfaction.
3. **Limitations and Future Research:**
   This study's limitations include the lack of observational data due to the limited availability of SETs and its non-longitudinal nature. Future research should explore cognitive overload, decision fatigue, and cultural or market-specific moderations in SETs. Investigating the integration of traditional retail touchpoints with SETs could provide valuable insights for optimizing omnichannel strategies and improving consumer engagement across different market contexts.

Conclusion:

SETs can drive first-time purchases for both online and offline shoppers, increasing sales across channels. Assessment-oriented consumers show a stronger preference for SETs compared to locomotion-oriented ones. Independent and online-exclusive apparel and wearable brands should prioritize SETs—such as Virtual Try-On, creativity, semantic congruency, fitting tools, and virtual touch—to boost consumer engagement and sales.

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