“The influence of performance expectancy, hedonic motivation, and effort expectancy on mobile augmented reality habits”

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THE INFLUENCE OF PERFORMANCE EXPECTANCY, HEDONIC MOTIVATION, AND EFFORT EXPECTANCY ON MOBILE AUGMENTED REALITY HABITS

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Abstract

The growing use of mobile augmented reality in gaming, e-commerce, education, and social media has influenced user interactions with digital material. The purpose of this study is to assess the technological acceptability and learning transfer theories in India among Gen Z and Millennial smartwatch purchasers using mobile augmented reality. In the months of July to September of 2024, 389 individuals were selected at random from a shopping center in Chennai, India. All of the participants got their hands on a free augmented reality shopping app for their smartwatches. They filled out a Google Form survey after a quick overview of the features of mobile augmented reality. Participants are already actively engaged in purchasing and may be more inclined to employ an Augmented Reality (AR) shopping application in a shopping center. The study results found that mobile augmented reality habits significantly impact Behavioral Intention, Performance Expectancy, Hedonic Motivation, and Effort Expectancy (β = 0.589, p = 0.001-0.871, p = 0.003-0.024). Behavioral intention between Generation Z and Millennials is not moderated by mobile augmented reality habits (β = 0.254, p = 0.227), but Performance Expectancy, Hedonic Motivation, and Effort Expectancy demonstrate significant moderating effects (β = 0.168, p = 0.012, p = 0.029, p = 0.000, β = 0.261, p = 0.005). This model states that Mobile Augmented Reality habits influence Millennials' performance expectancy, hedonic motivation, and effort expectancy. Age negatively moderates Habit using Mobile Augmented Reality on Performance Expectancy and Behavioral Intention, indicating Gen Z values quality more.

Keywords digital habits, technology adoption, user behavior, user engagement, continuance intention, Gen Z, millennials, smartwatch shopping

JEL Classification O33, M30, M31, M10

INTRODUCTION

Mobile Augmented Reality (MAR) is a technology that enhances user experiences by integrating digital material with the real environment through the use of mobile devices such as smartphones and tablets (Khashan et al., 2023). The overlaying of interactive features in real-time is accomplished by the utilization of device capabilities such as cameras and GPS. Interactive packaging and virtual try-ons are two examples of such developments (Koutromanos et al., 2024). Because of developments in augmented reality technologies and the possibility of wearable devices, the future of MAR appears to be bright (Hasan & Stannard, 2022). MAR, in general, provides a dynamic method of interacting with both the digital and real worlds and environments (Jusoh & Nor Irvoni Mohd Ishar Nor Irvoni Mohd Ishar, 2023). Smartwatches are wearable gadgets that combine conventional methods of timekeeping with cutting-edge technology. They are extremely adaptable (Park, 2020). As part of their efforts to promote wellness,

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they track health parameters such as heart rate and sleep patterns. A fitness tracking tool assists users in establishing and achieving their activity objectives (Hall et al., 2024). Smartwatches are able to display notifications for incoming calls, messages, and social media, which significantly improves connectivity (Qin et al., 2024). Using calendars and reminders, they provide assistance in managing time. Mobile payments are supported by a variety of models, making transactions more convenient. Music and podcasts can be listened to and enjoyed by users directly from their wrists (Estalagem & Esteves, 2024).Using augmented reality (AR), smartwatches can be viewed in real-world environments, promoting trust in the purchase (Su et al., 2024). Including mobile augmented reality in the smartwatch, purchase process helps to resolve concerns and increase interaction (Hamzah et al., 2023). Meeting the expectations of younger consumers depends on placing augmented reality (AR) first in fields where fit and vision are of significant importance (Sharma, 2024). Mobile Augmented Reality (MAR) is increasingly used in gaming, e-commerce, education, and social media, but little is known about how MAR habits affect smartwatch users' technology acceptance and learning transfer, especially in India (Marto et al., 2023). The age differences in Millennial and Generation Z MAR shopping app behavior are unexplored. This study investigates how MAR habits affect basic technological adoption characteristics including Performance Expectancy, Hedonic Motivation, Effort Expectancy, and Behavioral Intention across generations.

1. LITERATURE REVIEW AND HYPOTHESES

Personalizing customer experiences, enhancing marketing strategies, and automating interactions across multiple channels for consistency and efficiency all rely on artificial intelligence technologies in the digital market. Brands may capitalize on entirely digital solutions, such as supplementary technologies, augmented reality (AR), and virtual reality (VR) (Ketron et al., 2025). AR delivers a more dynamic and immersive experience, which could contribute to the frequent utilization of AR applications in shopping environments. Using AR has psychological impacts, which assist establish regular buying habits like greater curiosity and satisfaction (Riar et al., 2023). AR applications appear as natural learning applications implying that similar ideas can be implemented in online buying, where frequent utilization of AR can improve the shopping experience (Alesanco-Llorente et al., 2023). AR's ability to minimize the apparent threats connected with online buying will help motivate frequent use. The findings suggest that AR can enhance consumer confidence, leading to more frequent use of AR shopping tools (Trinidad et al., 2021). Physical education interventions outside of school using augmented reality mobile learning can improve primary school students' gross motor skills (Partovinia & Abbaspoor, 2024). Augmented reality-based mobile learning interventions in physical education showed improved gross motor skill improvement (Faruk, 2025). In order to effectively integrate augmented reality technologies into their customer interaction strategies and consequently promote a customer-centric approach in their operations, businesses and marketers have the chance to utilize the knowledge (Attri et al., 2024). An augmented reality experience that is both interactive and active may significantly improve the satisfaction of consumers and affect their decision-making processes (Prav. Pandey & Pras. Pandey, 2025).

The connection between performance expectancy and the quality of e-shopping services. The behavioral intentions are highly influenced by performance expectancy, implying that elevated service quality raises performance expectations in online shopping. The research highlights that to increase consumer satisfaction and loyalty, online businesses must improve the quality of their services (Trinidad et al., 2021). Consumers perceive online shopping as useful and efficient, which enhances their intention to shop online, performance expectancy is a critical factor influencing consumers' decisions to engage in online shopping (Tandon et al., 2018). When consumers believe that online shopping will meet their needs effectively, their satisfaction increases, leading to repeat purchases. Online retailers should focus on enhancing performance expectancy to improve overall customer satisfaction (Olaleye et al., 2024). It shows that consumers who perceive it to be helpful and efficient are more willing to frequently shop online; performance expectation significantly influences an individual's online shopping trends (Shah Alam et al., 2023). The interaction between customer satisfaction and online purchase criteria possesses a moderating effect from performance expectation. It draws the conclusion that greater performance expectation increases the positive effects of online shopping features on customer satisfaction, consequently stores should focus on enhancing performance expectation in order to increase consumer satisfaction and loyalty). AI ethics and social influence enhance self-efficacy, trust in AI, performance expectancy, and intention to use AI caring robots. Besides, artificial intelligence trust and performance expectation increase robot adoption intentions (Lin et al., 2025).

The association between hedonic buying motivation and impulse buys on internet shopping. It discovers that hedonistic customers frequently browse for enjoyment, which results in impulsive purchases. It also highlights how customer behavior and pleasure in online purchasing settings are strongly influenced by hedonic incentives, such as emotional satisfaction and enjoyment) (Indrawati et al., 2022). It emphasizes how impulsive shopping inclinations are strongly positively impacted by hedonic motivation, indicating that emotional and experiential components are important when making judgments about online purchases (Ali et al., 2024). Hedonistic consumers like shopping, and they are more prone to make impulsive purchases. The psychological aspects of hedonic shopping emphasize that consumers often seek joy and excitement through their purchases (Widagdo & Roz, 2021). The importance of understanding hedonic motivations for businesses looking to attract pleasure-seeking consumers in the online marketplace. It highlights the impact of these different hedonic motivation factors on consumer behavior and names them, including adventure and pleasure shopping. Hedonic incentives greatly improve the online auction shopping experience and can raise customer satisfaction and participation (Kang et al., 2023). It discusses how hedonic values, such as enjoyment and entertainment, can stimulate purchase intentions and enhance customer loyalty. The online retailers should incorporate hedonic elements into their platforms to cater to consumers seeking pleasurable shopping experiences (Sahli & Lichy, 2024). Technology improves information clarity and interaction, increasing student engagement. Factors such as digital competency and technology assistance affect perceived ease of use, which affects adoption attitudes and intentions. Hedonic motivation acts as a mediator between VR attitude and adoption intention (Sharma et al., 2025).

The ease of using an online buying system, or effort expectancy, affects online shopping intention. Online retailers should focus on user-friendly interfaces and navigation to minimize the perceived difficulty of online purchase (Tandon et al., 2018). Online stores can increase effort expectancies and adoption rates by providing clear instructions, lowering checkout procedures, and offering many payment options (Riar et al., 2023). It indicates that easy-to-use internet shopping increases customers more likely to buy often. The necessity of effort anticipation, especially for older and less tech-savvy shoppers who are put off by complicated online purchasing interfaces. The customer's experience and satisfaction in online shopping rely on effort expectancy. It shows that elderly buyers, who might be less tech-savvy, value effort anticipation and prefer a less complicated shopping experience. Online stores should use age-specific design to satisfy the needs of different consumer groups and improve effort expectations (Lian & Yen, 2014). AI is often used in tourism services, but minimal is known about how it affects consumer involvement and behavior. AI performance, effort expectancy, trust, and anthropomorphism significantly affect perceived value (Rather, 2025).

While intention is a necessary precursor to purchasing behavior, the relationship is not always straightforward. Understanding consumers' intentions in e-commerce settings is important to predict and influence their actual shopping behavior effectively (Tandon et al., 2018). Hedonic motives, such as enjoyment and entertainment, can stimulate impulsive buying tenden-

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cies, while utilitarian motives, like efficiency and convenience, are more likely to lead to planned purchasing intentions (Su et al., 2024). When consumers perceive online shopping as effortless and user-friendly, their intentions to engage in it increase (Li et al., 2024). The importance of creating intuitive and accessible online shopping interfaces to enhance effort expectancy and drive adoption, particularly among older adults and less tech-savvy consumers (Riar et al., 2023). Consumer's intentions to shop online improve when they think it will effectively and efficiently suit their demands (Ramírez-Correa et al., 2023). The assessment underscores the significance of highlighting the benefits and value proposition of e-commerce to stimulate uptake and foster consumer trust (Trinidad et al., 2021). It implies that customers' intentions to shop online are more likely when they sense peer or family pressure to do so. The report highlights how crucial it is to use influencer marketing and social proof to encourage online purchases and foster a feeling of community around a platform or brand (Lian & Yen, 2014). There is limited study on the implementation of augmented reality in education, especially for Arabic language to non-native speaker's colleges. Teachers using augmented reality to teach Arabic to non-native speakers can improve language learning (Sia et al., 2024). It is possible for social influence and favorable environments to have an effect on the behavioral intention and use of augmented reality implemented in classrooms by educators (Almelhes et al., 2025). AI is becoming more essential in education, yet faculty opinions are not frequently recognized. Performance expectancy, effort expectancy, and information quality positively affected attitudes, while behavioral intention had no effect (Habib, 2025). Consequently, this study attempts to fill this gap, as identified in the literature review. The purpose of this research is to evaluate the technological acceptability and learning transfer theories among users of mobile augmented reality smartwatches in India who are belonging to the Generation Z and Millennial generations.

Building on the theories of technological acceptance and learning transfer, the aim of this study is to evaluate how well Gen Z and Millennials integrate mobile augmented reality (MAR) into smartwatch shopping.

H1: Habit using MAR has a positive impact on Behavioral Intention.

H2: Habit using MAR has a positive effect on Performance Expectancy.

H3: Habit using MAR significantly influences Hedonic Motivation.

H4: Habit using MAR effects positively Effort Expectancy.

H5a: There is a significant association between the habit of using MAR and behavioral intention to use MAR is moderated by generational differences (Gen Z vs. Millennials).

H5b: There is a positive association between performance expectancy and behavioral intention to use MAR is moderated by generational differences (Gen Z vs. Millennials).

H5c: There is a favorable association between hedonic motivation and behavioral intention to use MAR is moderated by generational differences (Gen Z vs. Millennials).

H5d: There is a favorable association between effort expectancy and behavioral intention to use MAR is moderated by generational differences (Gen Z vs. Millennials).

In order to determine what variables influence a consumer's behavioral intention towards using Mobile Augmented Reality (MAR) technology, the research model's conceptual framework shows the interconnections of important elements. This model investigates the balancing impact of Performance Expectancy, Hedonic Motivation, and Effort Expectancy on the relationship between Habit Using MAR and Behavioral Intention, including generational differences into consideration (Gen Z vs. Millennials). The conceptual framework is adapted from the original (Schapsis et al., 2024). In Figure 1, the mediating variables are performance expectancy, hedonic motivation, and effort expectancy, the moderating variable is (Gen Z vs. Millennials), the independent variable is habits using mobile augmented reality (HUMAR), and the dependent variable is behavioral intention.

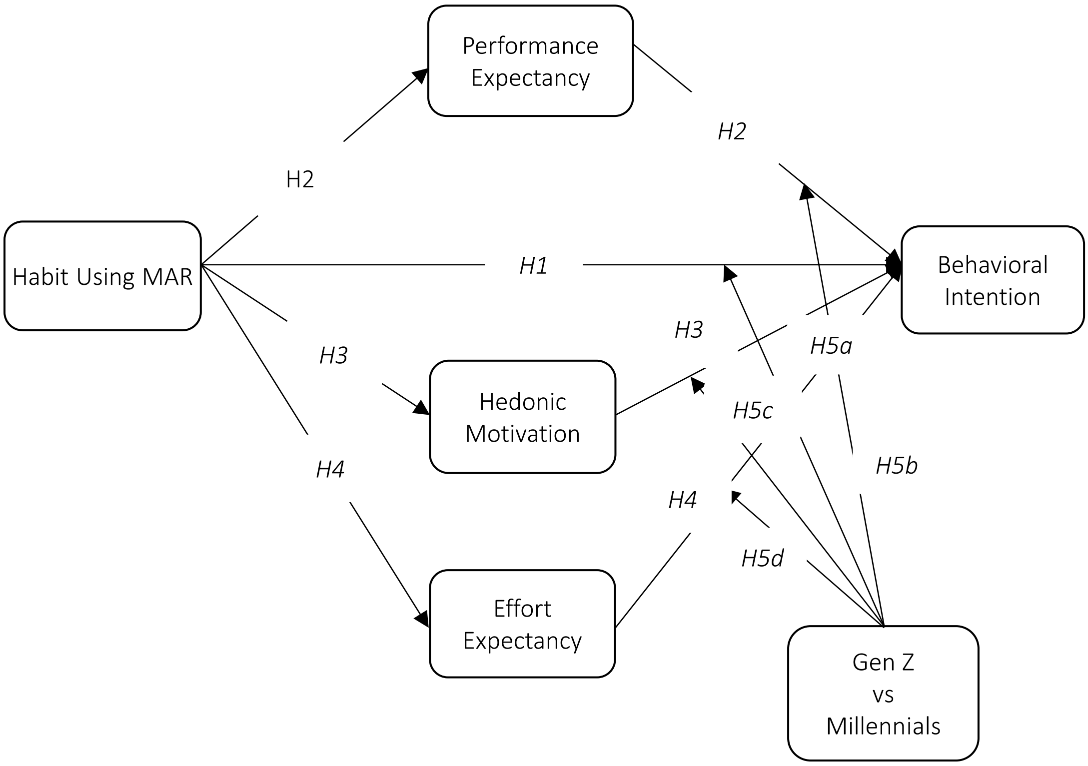

Figure 1. Conceptual framework

2. METHODOLOGY

Various academic fields have studied AR using TAM and UTAUT model variants. In a lot of those researches, users were shown Mobile Augmented Reality applications and then given a questionnaire to investigate the factors that led up to their intentions (Javornik, 2016; Poushneh, 2018; Rese et al., 2014). There were 389 randomly selected individuals from a shopping center in Chennai, India, from July to September 2024. A free augmented reality shopping app was provided to all participants for their smartwatches. Following a brief introduction to the capabilities of mobile augmented reality, they completed a Google Forms survey. Shopping centers are excellent locations to attract people because they are currently shopping and may utilize an AR shopping app. Shopping centers attract a wide range of age, income, and shopping habits, improving generalizability. In a natural shopping environment, participants' AR shopping app interactions are more authentic and reflect customer behavior. Selecting a shopping center at random within that space ensures a certain level of objectivity and reduces selection bias, even though convenience sampling is used. Studying mobile AR behaviors can benefit from examining smartwatch users, who are likely to have a higher level of tech knowledge and be more receptive to trying out new digital buying experiences.

From Table 1, 49.61% of the population is male (193 persons), and 50.39% of the population is female (196 individuals). 233 people, or 59.90% of the participants, are in the 28–43 age range, which is represented by Millennials. Of the sample, 113 individuals, or 29.05%, are in the Gen Z age group (12–27 years old). 43 participants, or 11.05% of the total, are 44 years of age or older, suggesting a lower representation of senior age groups. Freelancers make up the largest category of responders, accounting for 48.33% (188 persons) of the sample. The percentage of people with 9-5 jobs is 43.44%, or 169 people. 32 people, or 8.23% of the sample, are students. No individuals self-identified as retired or housewives. Those earning between Rs. 20,001 and Rs. 40,000 are the largest income category, accounting for 50.39% (196 persons) of the sample. 160 people, or 41.13% of the respondents, make between Rs. 40,001 and Rs. 60,000 a year. Those earning between Rs. 60,001 and Rs. 80,000 (2.57% of 10 individuals), Rs. 80,001 and Rs. 1,00,000 (1.54% of

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Table 1. Demographic profile and characteristics

S. No	Demography variable	Category	Frequency	Percentage (%)
1	Gender	Male	193	49.61
		Female	196	50.39
		Prefer not to say	0	0
		Total	389	100
2	Age group	12-27 (Gen Z)	113	29.05
		28-43 (Millennials)	233	59.90
		44 and above	43	11.05
		Total	389	100
3	Employment status	Fixed employment (9-5)	169	43.44
		Freelancer (anytime)	188	48.33
		Student	32	8.23
		Housewife	0	0
		Retired	0	0
		Total	389	100
5	Monthly income	Less than Rs. 20000	6	1.54
		Rs.20001-40000	196	50.39
		Rs.40001-60000	160	41.13
		Rs.60001-80000	10	2.57
		Rs.80001-1,00,000	6	1.54
		Above Rs. 1,00,000	11	2.83
		Total	389	100

6 individuals), and over Rs. 1,00,000 (2.83% of 11 individuals) are among the smaller income groups. Just 1.54 percent of the sample, or 6 people, make less than Rs. 20,000.

The measurement indicator for the constructs of Performance Expectancy and Effort Expectancy was taken from Schapsis et al. (2024) and Onaolapo and Oyewole (2018). The construct Hedonic Motivation was taken from a study by Schapsis et al. (2024) and Yuensuk (2022). The measurement indicator for the construct Habit Using Augmented Reality from Schapsis et al. (2024) and Söderström et al. (2024). The items for the construct Behavioral Intention taken from Schapsis et al. (2024) and Mtebe and Raisamo (2014). All variables had been evaluated using a 5-point Likert scale. The scale ranges from strongly disagree to strongly agree, with 1 indicating strongly disagree and 5 indicating strongly agree.

3. RESULTS AND DISCUSSION

From Table 2 with a Cronbach's Alpha of 0.843, great reliability is indicated. Thus, the scale's rating of 0.843 shows that its components are extremely consistent with one another, accurately measuring the same underlying construct.

Table 2. Reliability statistics

Reliability statistics	
Cronbach's Alpha	N of items
.843	39

From Figure 2, it is inferred that HUMAR influences constructs directly, Performance Expectancy (PE): Displays a substantial positive influence with a path value of 0.733. HM (Hedonic Motivation): Displaying a high positive influence, with a path coefficient of 0.758. Effort Expectancy (EE): Likewise demonstrating a substantial positive relationship, with a path coefficient of 0.634. Through other constructions like PE, HM, and EE, HUMAR indirectly has a moderately beneficial impact on BI (Behavioral Intention). With a path coefficient of 0.511, PE has a direct impact on BI, suggesting a somewhat positive influence. With a path value of 0.574, HM directly affects BI, suggesting a somewhat positive association. EE's path coefficient of 0.252 indicates that it has a somewhat positive impact on BI. The Age Group and Generation effects on BI display a variety of minor path coefficients, indicating that these factors may not have much of an impact as moderating variables. Overall, BI exhibits a substantial correlation (0.668), with direct contributions from PE, HM, and EE and indirect contributions from HUMAR.

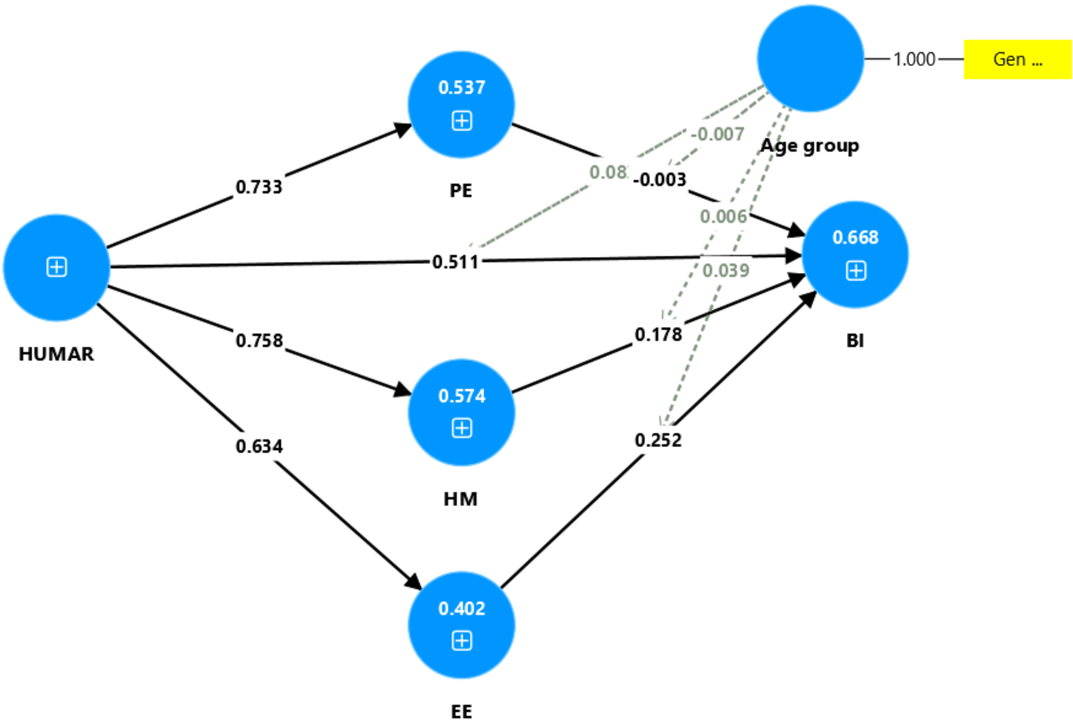

Figure 2. Cumulative result (Gen Z vs Millennials)

Table 3. Hypotheses testing (Gen Z vs Millennials)

Hypothesis	Coefficient	β-value	SD	p-value	Decision
H1: HUMAR → BI	0.589	0.286	0.056	0.001	Supported
H2: HUMAR → PE	0.871	0.267	0.261	0.003	Supported
H3: HUMAR → HM	0.236	0.084	0.065	0.005	Supported
H4: HUMAR → EE	0.024	0.657	0.020	0.003	Supported
H5a: HUMAR → (Gen Z vs. Millennials) → BI	0.254	0.733	0.062	0.227	Not supported
H5b: PE → (Gen Z vs. Millennials) → BI	0.168	0.084	0.067	0.012	Supported
H5c: HM → (Gen Z vs. Millennials) → BI	0.029	0.697	0.065	0.000	Supported
H5d: EE → (Gen Z vs. Millennials) → BI	0.261	0.793	0.014	0.005	Supported

Factors related to age and generation seem to have little effect on BI.

From Table 3, all of the assumptions about how HUMAR directly affects BI, PE, HM, and EE are validated, suggesting that HUMAR has a major impact on these variables. With the exception of the impacts of HM and EE on BI, where generational differences do have an impact, the moderating effects of generational differences (Gen Z vs. Millennials) on the relationship between HUMAR, PE, and BI are not supported.

From the Figure 3, Performance Expectancy (PE) is highly influenced by HUMAR, with a path coefficient of 0.749. This implies that users' expectations of performance rise dramatically as they believe HUMAR to be of a better grade. With a coefficient of 0.830, HUMAR also has a significant positive impact on Hedonic Motivation (HM), suggesting that when HUMAR is seen favorably, individuals derive pleasure and enjoyment from the experience. With a path coefficient of 0.733, the HUMAR effect on Effort Expectancy (EE) is considerable, indicating that users find the technology easier to use when they believe it to be of good quality.

With a value of -0.121, PE has a negative impact on Behavioral Intention (BI), suggesting that other

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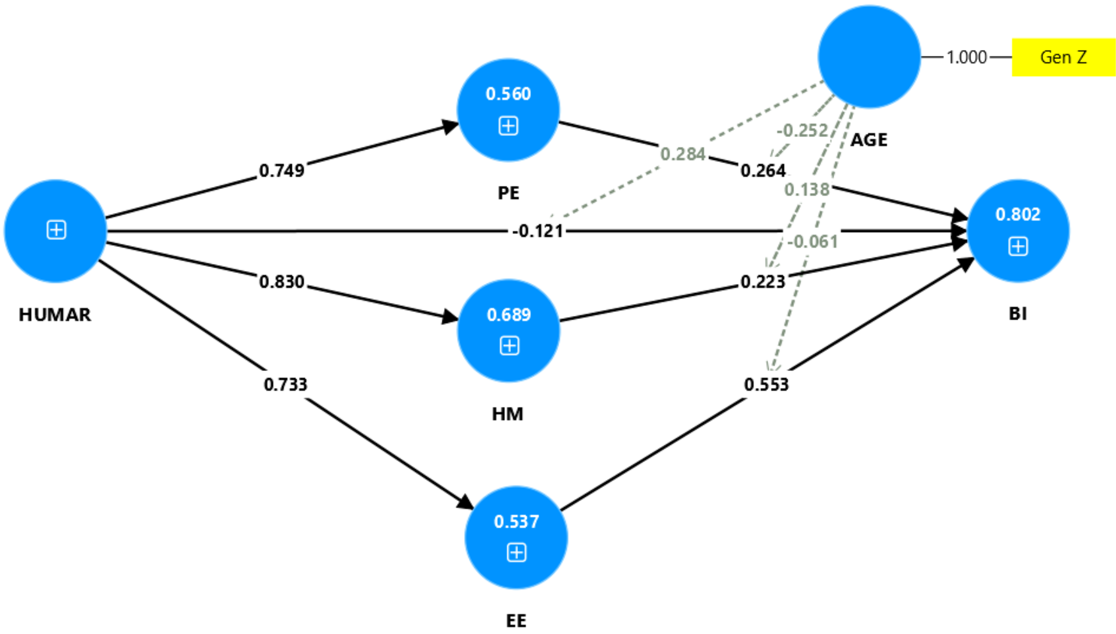

Figure 3. Gen Z output

factors may have a greater influence on intention to use than performance expectations. With a path coefficient of 0.223, HM significantly improves BI, indicating that users' intention to use the technology is influenced by their intrinsic motivation and level of enjoyment. With a coefficient of 0.553, EE has a positive impact on BI, suggesting that user-friendliness plays a crucial role in influencing the desire to adopt a technology. The relationships between EE and BI (0.553), HM and BI (0.061), and PE and BI (0.138) are all favorably moderated by age, indicating that aging contributes to the enhancement of these variables' beneficial impacts on behavioral intention. The association between HUMAR and PE (-0.252), PE and BI (-0.264), and HUMAR and BI (-0.121) is negatively moderated by age, suggesting that HUMAR's impact on behavioral intention and performance expectancy decreases with age. A full correlation (1.000) is found for the Gen Z section, highlighting the study's applicability to this cohort. This implies that Gen Z consumers will find the model's conclusions very relevant.

From Table 4, as far as Gen Z is concerned, HUMAR considerably affects BI and EE but not PE or HM. The results of the analysis confirm all of the moderation hypotheses, suggesting that Behavioral Intention is highly influenced by Performance Expectancy, Hedonic Motivation, and Effort Expectancy among the Gen Z population.

From Figure 4, with a path coefficient of 0.787, HUMAR significantly positively affects Performance Expectancy (PE). This implies that improved HUMAR quality raises user expecta-

Table 4. Hypotheses testing (Gen Z)

Hypothesis	Coefficient	β-value	SD	p-value	Decision
H1: HUMAR → BI	0.191	0.739	0.0084	0.004	Supported
H2: HUMAR → PE	0.101	0.288	0.074	0.158	Not supported
H3: HUMAR → HM	0.353	0.084	0.056	0.020	Supported
H4: HUMAR → EE	0.223	0.777	0.052	0.003	Supported
H5a: HUMAR → (Gen Z) → BI	0.125	0.657	0.065	0.001	Supported
H5b: PE → (Gen Z) → BI	0.076	0.267	0.066	0.000	Supported
H5c: HM → (Gen Z) → BI	0.171	0.697	0.008	0.000	Supported
*H5*d: EE → (Gen Z) → BI	0.103	0.058	0.005	0.002	Supported

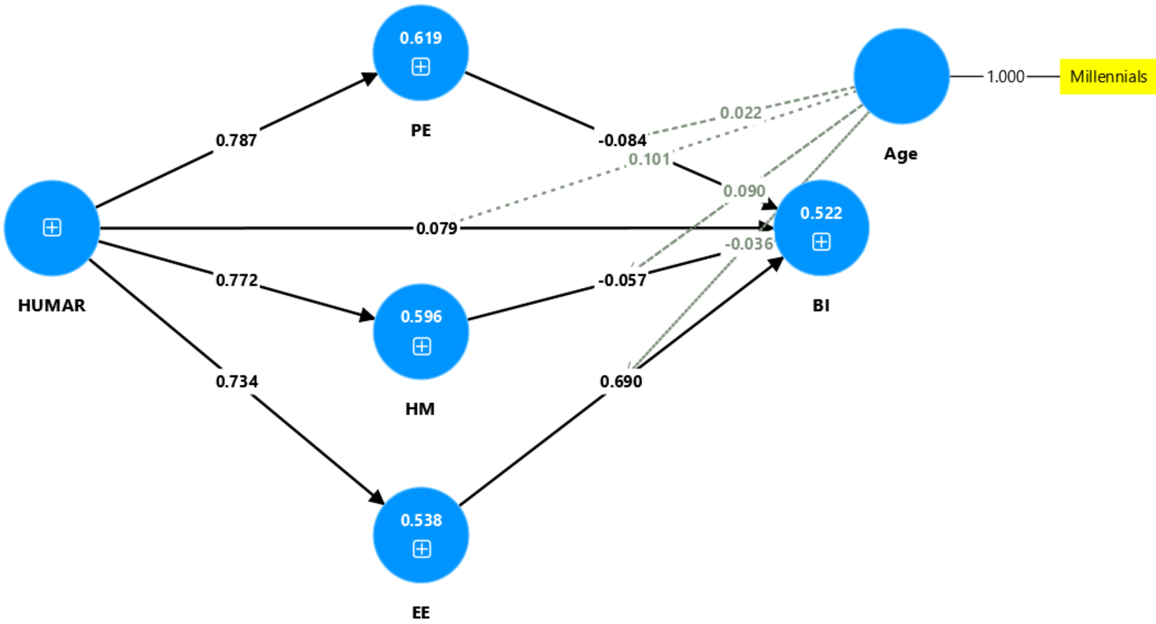

Figure 4. Millennials output

tions for performance. With a coefficient of 0.772, HUMAR also has a substantial impact on Hedonic Motivation (HM), suggesting that consumers experience greater happiness and contentment when they have a positive perception of HUMAR. With a path coefficient of 0.734, HUMAR has a positive impact on Effort Expectancy (EE), indicating that consumers find the technology more user-friendly when they think it is effective. With a coefficient of -0.084, PE has a negligibly modest negative impact on Behavioral Intention (BI), indicating that Millennials' intention to utilize technology may be marginally lowered by greater performance expectations. HM's path coefficient of 0.079 indicates a very slight positive effect on BI. This suggests that although enjoyment has a role, it might not have a significant impact on this group's intention to use. With a correlation of 0.690, EE exhibits a considerable positive impact on BI, demonstrating the importance of ease of use in influencing technology adoption intentions. The link between EE and BI (0.101) and between PE and BI (0.090) is favorably moderated by age, indicating that ease of use and greater performance standards greatly increase older Millennials' intention to adopt the technology. The connection between HM and BI is negatively moderated by age (-0.036), meaning that as Millennials get older, the intrinsic pleasure they experience from HUMAR has less of an influence on their intention to use the technology. The entire correlation (1.000) indicates that the model is focused on the Millennial demographic. When compared to other age groups, this population exhibits unique behavioral tendencies, which highlights the necessity of customizing HUMAR experiences to meet their individual preferences.

From Table 5, BI, PE, HM, and EE are significantly impacted by HUMAR for Millennials, suggesting that HUMAR affects Millennials in a variety of tech-related domains. All of the moderation hypotheses are validated, indicating that Behavioral Intention is highly influenced by Performance Expectancy, Hedonic Motivation, and Effort Expectancy among Millennials.

According to the diagram, hedonic motivation (HM), effort expectancy (EE), and performance Expectancy (PE) are all significantly influenced by the Habit of Using Mobile Augmented Reality (HUMAR). These elements, in turn, play a critical role in determining behavioral intention (BI) with regard to a particular technology or behavior. Habit Using MAR aspects appears to be crucial in influencing users' perceptions and motives, as seen by HUMAR's substantial direct influence on PE, HM, and EE. Hedonic motivation (HM) and performance Expectancy (PE) both exhibit mod-

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Table 5. Hypotheses testing (Millennials)

Hypothesis	Coefficient	β-value	SD	pvValue	Decision
H1: HUMAR → BI	0.038	0.084	0.022	0.000	Supported
H2: HUMAR → PE	0.041	0.058	0.003	0.004	Supported
H3: HUMAR → HM	0.065	0.697	0.017	0.005	Supported
H4: HUMAR → EE	0.035	0.267	0.022	0.001	Supported
H5a: HUMAR → (Millennials) → BI	0.041	0.697	0.030	0.001	Supported
H5b: PE → (Millennials) → BI	0.048	0.058	0.111	0.000	Supported
H5c: HM → (Millennials) → BI	0.065	0.633	0.026	0.000	Supported
H5d: EE → (Millennials) → BI	0.032	0.022	0.017	0.002	Supported

erate to substantial effects on BI, indicating their significance in shaping users' behavioral intentions. While beneficial, EE's impact on BI is less pronounced than those of PE and HM. Age group and generation's modest route coefficients imply that these factors would not have a major impact on how the basic constructs and BI are related. This may suggest that the model holds true for a variety of age ranges and generational cohorts (Lin & Huang, 2024).

The model shows how Habit Using MAR (HUMAR) significantly affects Performance Expectancy, Hedonic Motivation, and Effort Expectancy — three key aspects of users' experiences. These elements also have an impact on behavioral intention, yet there is an unexpectedly inverse link between behavioral intention and performance expectation. Users' intention to employ augmented reality technologies is strongly influenced by their enjoyment of utilizing them, as seen by the substantial positive association found between HUMAR and Hedonic Motivation (Kang et al., 2023). As seen by the negative association between PE and BI, this enjoyment has greater sway than the technology's perceived performance. Age moderates these interactions in a nuanced way. Younger users (i.e., Gen Z) are more likely to be influenced by the quality of HUMAR in their performance expectations and intention to use, according to the negative moderating effect of age on HUMAR's influence on PE and BI. In contrast, older users may need greater performance, motivation, and ease of use to establish their intention to utilize the technology, according to the positive moderating effect of age on PE, HM, and EE's influence on BI. The results are especially pertinent to Gen Z consumers, who are more likely to be impacted by the EE and HM offered by HUMAR technology.

According to this model, Millennials' performance expectancy, hedonic motivation, and effort expectancy are all highly influenced by the quality of their human augmented reality, and these characteristics ultimately affect their behavioral intention. Interestingly, the most important predictor of behavioral intention is effort expectancy, even if hedonic motivation and performance expectancy also have considerable bearing. The Millennial cohort's age-moderating effect suggests that older Millennials may value usability and performance over pure enjoyment when choosing whether or not to employ HUMAR technology. This may indicate that as consumers get older, their attention will move from hedonistic to more utilitarian features. In light of these findings, developers and marketers ought to concentrate on improving usability and making sure that performance lives up to Millennial user expectations. Furthermore, while enjoyment is still important, it becomes less significant as Millennials get older, thus a well-rounded strategy that takes into account the needs of both younger and older members of this generation is required.

Prior research has shown that hedonic motivation (HM), performance expectancy (PE), and effort expectancy (EE) all have more substantial effects on Behavioral Intention (BI) than EE does on its own. That basic constructs affecting BI are consistent throughout generations is supported by this. In addition, it highlights the importance of hedonic motivation in influencing users' intention to engage with AR technology, further supporting the premise that enjoyment is a critical factor in adoption. However, by revealing how age moderates these associations, the author's findings offer a deeper perspective. In particular, HUMAR quality has a greater impact on the PE and BI of Gen Z users than it does on older users, who are more motivated by ease of use, improved performance, and motivation. This is in line with previous research, and it goes beyond that by drawing attention to the generational gap. Furthermore, contrary to what is said in the literature, the author's findings reveal that EE becomes the most important predictor of BI for Millennials, even more important than PE and HM together. The focus moves from hedonic enjoyment to practical utility as we age, and this difference highlights how usability concerns become more significant at that point.

The change in view of new technologies as people get older stands out as an important distinction in these two groups. Although HM and PE are acknowledged in the literature and the author's conclusions, the latter adds an age-moderating effect, implying that priorities change throughout generations. While older Millennials tend to value efficiency and usefulness, Gen Z is more concerned with entertainment and experience-driven elements. Besides, the author's research indicates that age plays a moderating impact in areas other than adoption trends in general. Millennials have a good impact on the impact of PE, HM, and EE on BI, whereas Gen Z has a negative effect on the influence of HUMAR on PE and BI. This suggests that younger users are more open to adopting technology based on enjoyment alone, without needing substantial performance reinforcement. On the other hand, older people need stronger performance and usability reinforcement before they intend to utilize the technology.

CONCLUSION

This study aims to evaluate the degree to which Gen Z and Millennials incorporate mobile augmented reality into smartwatch buying, based on the theories of learning transfer and technology acceptance. According to the analysis, performance expectancy, hedonic motivation, and effort expectancy — all important factors in determining users' behavioral intentions — are substantially influenced by habit using mobile augmented reality model fit indices demonstrate that the model suggested adequately handles the data values. Particularly for users belonging to Generation Z, the model shows the significance of Habit using Mobile Augmented Reality on essential variables, which include Performance Expectancy, Hedonic Motivation, and Effort Expectancy, all of affecting Behavioral Intention. In order to increase user adoption, particularly among younger users, the results provide useful information for marketers and designers of augmented reality technology, showing the need of increasing user enjoyment and ease of use. Insightful data concerning Millennials' use of Mobile Augmented Reality with Habit is given by the model, which highlights the importance of being easy to use and fulfilling performance expectations. The affordability and effectiveness of the technology have a greater influence than hedonistic incentives, which are somehow significant. These findings ought to direct future marketing and design efforts with the goal of satisfying Millennials' desires and needs.

This research discusses the various ways how Millennials and Generation Z interact with mobile augmented reality. Habit development and its impact on motivation and expectations may differ across age groups, as these data indicate. In addition, this study contributes to our knowledge of marketing, consumer behavior, and human-computer interaction through demonstrating how frequent use affects users' intents to interact with mobile augmented reality technology. How habit and other psychological factors affect technology adoption can be clarified with the help of this integrative approach. Marketers should take notice of the study's recommendations about generational differences. Marketing to the younger demographic ought to emphasize how entertaining and simple mobile augmented reality is to use. By concentrating on the technology's usefulness and real benefits — how it may satisfy Millennials' particular desires and exceed their expectations — is essential when marketing to this generation.

This research concentrates on the impact of Habit Using Mobile Augmented Reality on the Millennial and Gen Z generations. Since different age groups utilize technology in various manners, the findings may not be generalizable. Besides, cultural factors can influence user behavior, and the results may not

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be generalizable to other geographies. Future research may use a longitudinal method to investigate the fluctuations in mobile augmented reality use patterns and the influence of these changes on behavioral intentions and actual usage. It may be possible to improve user satisfaction and retention through discovering more about the manner in which habits affect the long-term use of technology. Other elements, such as perceived risk, social impact, and facilitating conditions, might be added to the proposed framework by researchers. By doing so, one may gain an improved awareness of the wider context of mobile augmented reality adoption and the factors influencing user behavior. How mobile augmented reality habits of use evolve over time and how these shifts impact behavioral intentions and actual usage needs to be investigated in future research. User satisfaction and retention might benefit from an improved understanding of the ways in which habits affect the long-term adoption of technology.

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