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Generational Dynamics and the Bandwagon Effect in Consumer Electronics E-Commerce

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Abstract

Background: Online purchasing of consumer electronics has expanded rapidly, and differences between Generations X and Y, as well as social contagion phenomena such as bandwagoning and herding, may shape how consumers form online purchase intentions.

Purpose: To assess how microeconomic bandwagon/herding effects interact with social influence and effort expectancy, moderated by generational groups (Gen X vs. Gen Y), to shape online purchase intention for consumer electronics in an extended UTAUT framework.

Study design/methodology/approach: The authors modified the Unified Theory of Acceptance and Use of Technology (UTAUT) and have implemented Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to validate the research model as well as to research the generational groups' influence. Furthermore, the authors imposed the microeconomic theoretical bandwagon effect and herding behavior to clarify if there are statistically significant results in the e-commerce landscape for consumer electronics products.

Findings/conclusions: The paper's major findings showed a direct and indirect (via effort expectancy) social influence on Generation X's consumer intention to purchase consumer electronics products online. However, such influence was not identified for Generation Y, suggesting that e-commerce forms a stronger bandwagon effect on the generation that was not born with the e-commerce technology, unlike Generation Y.

Limitations/future research: The limitations of the paper are seen in the unequal generational groups' data size. The potential for further research is evident in capturing a longer time frame, conducting cross-cultural comparisons, and including new generational groups.

Keywords

technology acceptance model; UTAUT; consumer electronics; e-commerce; Generation X&Y

Introduction

This paper explores the differences in the bandwagon effect on Generation X and Y. The specific topic on which these differences are tested is e-commerce in the purchase of consumer electronics; it is not uncommon that consumers base their decisions on the actions of others, particularly when there is uncertainty or a lack of personal knowledge, according to Gurtner et al., 2024; Banerjee (1992). Furthermore, customer satisfaction with the purchased product or service is the key determinant in online shopping. The risk of negative comments is much higher in online shopping due to the easier information dissemination than in traditional retail, and thus, customer support before and after the purchased product or service becomes more important (Boruah et al., 2021).

At the same time, the COVID-19 pandemic can be considered an external factor that significantly influenced the use of online shopping (Ali, 2020; OECD, 2021). Environmental changes, such as those caused by the COVID-19 pandemic, greatly influenced online shopping development (Grashuis et al., 2020).

Companies are always seeking answers on approaching each generational group as their online shopping preferences vary (Optimonk, 2024; Iskiev, 2022). Due to the big demand, the research community has researched mainly one generational group (Pavlić et al., 2021; Nguyen et al., 2022), while some research a combination of two or more groups in the e-commerce landscape (Feng et al., 2023). Additionally, very few have explored the moderating effect of generational groups X & Y on consumer electronics online buying, especially in the Republic of Croatia, which is the main topic of this paper. This is mainly due to the general research focus on determinants that directly impact the intention to adopt new technologies. Age has been used as a moderator in the shopping motivation context (Kumar et al., 2021), acceptance of mobile payment (Liébana-Cabanillas et al., 2015; Sung et al., 2015), anxiety of using online shopping (Celik, 2016), and similar. Generation groups have proved to be a significant model moderator on the technology usage topic (Calvo-Porral et al., 2019). Therefore, this research focuses on Generation X and Generation Y. Generation Y, or "millennials", were born between 1981 and 1996. They are characterized as consumers with significant purchasing power, desire, and willingness to accept new technologies and gain new personal experiences (Cabeza-Ramírez, 2022). On the other hand, Generation X includes consumers born between 1965 and 1980 who grew up in a time of technological development, but are not necessarily "addicted" to using the Internet like Generation Y (Gurau, 2012). Furthermore, both generation groups either grew together with technology development or adapted to it and have therefore accepted Internet usage for business and private purposes.

To be able to show the impact of the generational groups on the consumers' intention to purchase online electronic products, the Unified Theory of Acceptance and Use of Technology (UTAUT) is used as a foundation. In this paper, the UTAUT model is further modified to include generational groups and determinants that have an impact on the paper's research focus. Due to its strength and flexibility, the UTAUT model has been used in many previous studies to investigate technology acceptance and usage behaviors. UTAUT is more useful than other information technology adoption and acceptance models since it explicates a broader comprehension of a problem and allows for more variation concerning context and parameters. In this paper, a research question (RQ) - Is it possible to indicate a moderating generational group influence on the research model determinants relation? has been implemented. The model has rarely been used in the online shopping context for consumer electronics, especially with an additional component of generational age groups moderating influence in the Republic of Croatia. With this paper analysis, the aim is to contribute to the existing literature by expanding the moderating generational groups' influence in the online consumer electronics shopping environment. By implementing such an analysis, it can be researched which determinants influence the intention to use online shopping, leading to an expanded consumer behavior, thereby providing new knowledge in this research area.

For this paper analysis, the authors gathered responses from consumers in the Republic of Croatia at the end of the COVID-19 pandemic, when consumer habits had already been influenced by the COVID-19 pandemic shift in the way of purchasing online consumer electronics and therefore have been changed indefinitely (Gu et al., 2021). Structural Equation Modeling (SEM) is used to examine the moderating generational impact on the model variables, which are formed as latent variables consisting of manifest variables (Mueller et al., 2018), while Confirmatory Factor Analysis (CFA) is used for model validity. The observed variables' factor structure is analyzed by the proposed method (Hoyle, 2000).

The structure of this article is as follows. The following part presents the literature review. The third section provides a detailed research methodology review. The fourth part of the research represents the research findings. The final section of the paper contains the concluding remarks, limits, and suggestions for future research.

1. Literature review

Researchers have developed theory-driven models that specify the determinants of technology-use intention. The theory of reasoned action (TRA) proposed by Fishbein and Ajzen suggests a relationship between user attitude and behavior, assuming rational user decision-making as a prerequisite for behavior (Ajzen et al., 1969). The theory is limited to "willed" user behavior, and in 1985 it was expanded into the theory of planned behavior (TPB) (Ajzen, 1985). The TPB theory introduces the perceived behavioral control notion, which significantly determines users' behavioral

intention (Armitage et al., 2001). Encouraged by the mentioned research and new knowledge, Davis (1989) develops a Technology Acceptance Model (TAM) directed towards the insight into technology acceptance user determinants. The main model determinants are Perceived Usefulness (PU), which represents the more efficient task execution from the user perspective, and Perceived Ease of Use (PEU), which represents the new system's ease of use from the consumer perspective. Both determinants affect the Attitude Toward Using (ATU), which further affects the Actual System Usage (ASU). The TAM model has been changed and upgraded a large number of times from its initial form through various scientific and professional papers. Thus, the TAM2 technology acceptance model was created in 2000 in collaboration between Davis and Venkatesh (Venkatesh et al., 2000), from which UTAUT was developed (Venkatesh et al., 2003) and the TAM3 technology acceptance model (Venkatesh et al., 2008).

Through the UTAUT model, four determinants were introduced, performance expectancy, effort expectancy, social influence, and technology usage facilitating conditions (Venkatesh et al., 2003). The paper subject will not be facilitating conditions, although it is one of the UTAUT model determinants. The research interest is directed towards generation groups moderating influence on the intention to buy consumer electronics online, and thus, this determinant does not contribute to explaining the purchase intentions like the three determinants previously mentioned (Lim et al., 2016).

Performance expectancy (PE), indicates the benefit that a consumer realizes when adopting a new technology. By buying consumer electronics products online, the customer potentially makes a more efficient purchase (Chen et al., 2021). This variable is the main predictor that affects the intention to buy consumer electronics online, as it has the greatest impact on all the independent variables of the UTAUT model (Van Droogenbroeck et al., 2021). Ademi et al., 2024 also show that brand-related cognitions can translate into higher purchase intention among younger cohorts, underscoring the role of perceived value benefits.

Effort expectancy (EE) refers to the ease and simplicity of usage for online consumer electronics shopping (Venkatesh et al., 2000). Swift product search, as well as a dedicated e-commerce platform, is one of the main determinants of purchase decisions. The new technology's ease of use greatly increases its wider application and acceptance speed (Wei et al., 2021). The design, main menus, and simple shopping flow in the case of online shopping contribute greatly to its prevalence and more efficient use (Scaria et al., 2020).

Social influence (SI), such as colleagues, family, and wider and close environment opinions, influences the personal decision to use new technology (Venkatesh et al., 2003). A new technology user can play a pioneering role within their group of family and friends. Such users are important because of the information they transmit to other potential users. A positive comment from such users increases the possibility of a positive attitude of other users towards new technologies and the purchase itself (Saprikis et al., 2018). Evidence from Gen Z contexts shows that sponsorship disclosure can lift purchase intention indirectly via brand awareness and influencer credibility (Sesar et al., 2023), while “connected consumers” (Generation C) rely on social-media information during evaluation and are more prone to impulsive purchases (Vuković et al., 2023). These patterns align with SI’s pathways and with social-proof mechanisms in digital environments. Furthermore, there might be indirect effects through other variables, such as performance expectancy and effort expectancy, on the consumer's intention to purchase. If consumers are influenced by their close friends or family and receive greater benefits in using e-commerce platforms, their intention to purchase will also increase. Additionally, there is a similar case with effort expectancy, where consumers tend to understand that if the e-commerce platform is easy to use, they will have a higher intention to purchase products online.

According to Prospect Theory, consumers evaluate outcomes relative to a reference point and assign greater weight to losses than to comparable gains. Under online uncertainty, this asymmetry amplifies the impact of reviews, ratings, and Q&A on purchasing. Various research papers report that better review quality reduces perceived risk and increases purchase intention, most notably for cross-border and high-involvement products. Furthermore, multiple electronic word of mouth channels co-vary with sales, aligning risk framing with UTAUT via performance and effort expectancies (Phamthi et al., 2024; Feng et al., 2023; Wang et al., 2022; Dobos et al., 2024).

Given the strong COVID-19 pandemic impact on the global economy, there is a need to research its impact on online shopping and consumer habits. Various variables such as age, education, geographic location, and similar potential influences have been used in papers on the online shopping topic (Colaço et al., 2021; Mofokeng (2021)). For European e-commerce in consumer electronics specifically, fuzzy c-means clustering reveals distinct generational patterns across countries in the COVID period (Jajić et al., 2025). Beyond the pandemic context, research in other domains also shows that generation expectations systematically shape intentions (for example, Gen Z job seekers' expectations predicting job-pursuit intentions in a transition/emerging economy) (Nguyen et al., 2022). Fewer papers have taken age as a moderating variable. Due to that, Generation Y & X are ideal generation groups for studying the influence of the relationships within the research model variables and gaining insight into the online consumer electronics shopping intention.

According to Leibenstein (1950), the bandwagon effect occurs when individuals adopt behaviors or make purchasing decisions based on observing others, driven by a desire to conform to the majority. In e-commerce, this effect is amplified by features like "top-rated" badges, customer reviews, and popularity rankings, which act as social proof (Chen et al., 2021). For consumer electronics products, such cues simplify decision-making and reduce perceived risks by leveraging the credibility of others' choices. Similarly, herding behavior occurs when individuals follow the decisions of others due to the belief that a group makes a more informed decision than the individual. In the e-commerce segment, this can be seen in a special sale action of a product in high demand, where individuals join the group because they think this product is worth more (Pavlović-Höck (2021); Ali et al., 2021). Therefore, these microeconomics concepts are included in the research analysis to show if similar patterns are happening in the generational groups' online consumer electronics purchasing field, as there is a lack of such approaches in the current research literature.

This paper's goal is to show the determinants' impact on the consumer intention to buy online consumer electronics, as well as the influence of generation groups (Generation X and Y) on those determinants' relations in the research model. Various determinants that impact online consumer electronics shopping intention during the COVID-19 pandemic will be shown. The same will be achieved by implementing the UTAUT model with certain modifications. Although some variables are similar to other models, such as TAM, they lack the internal structure necessary to investigate the moderating effects of generational differences in detail and have a lower explanatory power (Rondan-Cataluña et al., 2015). Due to this gap in the other models and for the goals of this research in determining the generational groups' moderating influence on online consumers' intention to purchase consumer electronics in the Republic of Croatia, the modified UTAUT model has been used. Thangavel et al. (2021), Sharma et al. (2023), and Hakim (2024) papers are the inspiration for this research regarding the generational groups' component. Thangavel et al. (2021) compare Generation Y and Z to find their similarities or differences, with the conclusion that Generation Z emphasizes more enjoyment when purchasing online. Furthermore, Sharma et al., (2023) compared Generations X, Y, and Z in purchasing online, but for a specific type of products, branded ones. Their findings indicate that Generation Z is much more interested in this aspect than the other two generations. Lastly, Hakim, 2024 compared Generation X, Y, and Baby Boomers and how they respond to peer behavior. The results showed that Generation X follows their peers' advice, and is influenced by product reviews much more than other generations before making a purchase.

Building on the literature, authors expect (1) performance expectancy and (2) effort expectancy to relate positively to purchase intention in both generations; (3) social influence to increase performance and effort expectancy (and thus indirectly relate to purchase intention), and (4) the direct effect of social influence on purchase intention to be stronger for Generation X than for Generation Y. Authors assess these expectations with a multi-group model (Gen X vs. Gen Y) and report between-group differences and indirect effects.

To test the mentioned relations and potential moderating influence, the authors utilize SEM, a method that includes latent variables in the model and quantifies them using manifest variables. Further validity testing will be imposed by the Chi-square and Goodness-of-fit indicators. Normally, a sample size of 10 participants per manifest variable is minimally required for this type of statistical analysis (Wolf et al., 2013). Given that the initial research instrument has 14 manifest variables, and multi-group analysis will be used to investigate the

age-moderating impact, the required sample is set at 280 respondents. A multi-group analysis will be conducted to investigate the moderating age influence expressed through customers belonging to Generation X and Y.

2. Methodology

The empirical part of this research uses CFA, SEM, and multigroup analysis for model evaluation. Furthermore, goodness-of-fit indicators are implemented in this part of the paper as well.

2.1. Research instrument

The primary research includes Generation Y and X respondents in the Republic of Croatia, and responses were gathered by using an online questionnaire. Generation Y includes respondents born between 1981 and 1996, while Generation X includes respondents born between 1965 and 1980.

The research instrument consists of two parts. The first part refers to the research instrument questions, grouped into three dimensions containing 14 manifest variables and one elimination question. In the first part, the questions are formed in a Likert scale type format (1 – strongly disagree, and 5 - strongly agree), which is often used and suitable for data analysis using the SEM method (Bouranta et al., 2009). The last part of the questionnaire contains questions about the respondents' demographic characteristics.

The survey questionnaire was constructed by comparing several scientific papers. It is used to examine the determinants that influence consumer electronics online buying intention during the COVID-19 pandemic and the moderating influence of generation groups (Venkatesh et al., 2012; Venkatesh et al., 2003; Driediger et al., 2019; Thangavel et al., 2021). The original questionnaire was adapted from Venkatesh et al., (2003) and Venkatesh et al., (2012), who in the aforementioned papers developed and refined the Unified Theory of Acceptance and Use of Technology model. Papers by Driediger et al., (2019) and van Droogenbroeck et al., (2021) were used as an inspiration to create a model for examining consumer electronics online shopping intention during the COVID-19 pandemic. The moderating generational groups' influence with the associated Generations X and Y was added due to a lack of age influence representation in previous papers, and inspired by the work of Thangavel et al., (2021). Furthermore, it is possible to define three groups of consumer electronics: business, communication, and leisure (Bali, 2007). The mentioned product groups are classified in the Croatian Bureau of Statistics Industrial Products Nomenclature - NIP 2020, and for the purpose of this research, business and communication groups are the paper focus.

Respondents were asked to participate in the research through social media such as Facebook/Meta and LinkedIn. The questionnaire was distributed at the end of the COVID-19 pandemic period. According to research by Gasman (2016) and Burrus et al., (2021), today's research distribution is mostly based on the use of the Internet and social networks, with additional third-party software usage in collecting respondents' answers having seen an increase in usage.

A pilot study was conducted to test the initial research instrument's correctness and comprehensibility. After the pilot study, there was no need for additional questionnaire modification, and it was used to collect respondents' answers for this study. The research elimination question was included for better customer response segmentation. The research authors wanted to gain only the intentional consumers in their research sample, for those who will buy consumer electronics in the future. By having such a consumer response base, it can be more beneficial to determine the intention determinants than from the others.

Dependent and independent variables are explained through manifest and latent categories as well as through the item measurement. The dependent variable, Online consumer electronics shopping intention (BI) reflects the consumers' intentions to purchase electronics online, incorporating items that measure both future purchasing intentions and the frequency of past online purchases. Performance expectancy (PE), Effort expectancy (EE), and Social influence (SI) are the independent variables of this analysis. The PE variable reflects the perceived benefits associated with online shopping for consumer electronics. This variable is based on the assumption that consumers perceive the online shopping experience as offering greater selection, better pricing, and time efficiency (Venkatesh et al., 2012). The EE variable captures the ease with which consumers navigate online platforms for purchasing consumer electronics. This variable, also taken from the UTAUT model (Venkatesh et al., 2012), emphasizes how the user-friendly nature/ease of use of e-commerce platforms affects purchasing behavior. The SI variable, another key

factor, evaluates the impact of close friends and family on the individual consumer and their online shopping behavior. This variable foundation is in social influence theories, which suggest that individuals often base their decisions on the behaviors of others (Venkatesh et al., 2012). Lastly, respondents' age serves as a demographic control variable, categorizing participants into two generational groups: Generation X (ages 42–57) and Generation Y (ages 26–41). This categorization, based on a multiple-choice question, allows for an examination of how generational differences affect the intention to purchase consumer electronics online, considering the broader context of post-pandemic e-commerce behavior.

The research phases were carried out in several stages. In the first step, CFA analysis was performed. The statistical program JASP with the lavaan R package was used for this purpose (Rosseel 2012). Also, in addition to JASP, the statistical program SPSS 13.0 was used for the additional statistical analysis. The CFA analysis was conducted for the research model according to the generation groups (Hurley et al. 1997). In the second step, the SEM was used to test the relation between the model variables. Variable research is carried out through the SEM validity evaluation and the latent variables' statistical significance (Mueller et al. 2018).

2.1. Statistical analysis

Construct validity is needed for establishing research accuracy. It is to what extent the theoretical assumptions meet the latent research constructs (Hair, 2010). Firstly, sample characteristics are denoted for easier understanding of the research respondents' base. Secondly, the research instrument validity will be determined by the CFA. To determine the CFA goodness-of-fit validity, Chi-square, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), Tucker-Lewis Index (TLI), Goodness of fit Index (GFI), and Standardized Root Mean Squared Residual Index (SRMSR) indicators will be used (Hurley et al. 1997). The CFA is followed by the SEM method, which is used to examine if the measurement instrument represents the research model variables, which are formed as latent variables consisting of manifest variables (Mueller et al., 2018). The CFA analysis serves to confirm the observed variables' factor structure (Hoyle, 2000).

Finally, multigroup analysis is used to investigate the moderating age influence defined by the consumers' Generation X or Generation Y group on the online consumer electronics shopping intention in the context of the research model (Mueller et al., 2018). In doing so, the research sample is divided into two subgroups, and the SEM part is repeated separately for each age group, i.e., Generation X and Y. The moderating age influence is examined by comparing the estimated parameters of the regression coefficients for the research variables. In this way, two SEMs are used to test the research variables, with the first model testing research model variables on a Generation X respondents' sample, and the second model testing the same variables on a Generation Y respondents' sample. To perform the proposed statistical analysis, JASP and SPSS 13.0 software are used.

3. Research findings

The research distributed a questionnaire and gathered 352 responses. The respondents' demographics sample showed a higher number of Generation Y to Generation X participants. Most of the respondents, 258 (73.3%), belong to Generation Y (26-41 years old). Generation X (between 42 and 57) includes 94 respondents (26.7%) out of the total number of 352. The majority of respondents completed secondary education, 141 of them (40.1%). Furthermore, 94 of them (26.7%) completed graduate studies, 75 (21.3%) college, 39 (11.1%) postgraduate studies (MBA, PhD), and three of them (0.9%) primary school. A slightly higher number of respondents are female, 191 of them (54.3%), while the number of male respondents is slightly lower, 161 of them (45.7%). According to the questionnaire, 158 respondents (44.9%) are employed by their employer, followed by 123 students (34.9%), 38 self-employed respondents (10.8%), 24 retired (6.8%), and 9 unemployed respondents (2.6%). To make online consumer electronics purchases, most respondents, 142 to be precise (40.3%), use laptops, 136 (38.6%) use smartphones, and 72 (20.5%) respondents use personal desktop computers.

All manifest variables are statistically significant according to the Shapiro-Wilk test results at 1% probability, which indicates that the data are not normally distributed. Accordingly, Mann-Whitney U non-parametric tests were used. The manifest variables that comprise the latent variable EE are statistically significant at 1% and 10% probability. Other statistically significant

differences were recorded for manifest variables PE2 and SI1, with a statistical significance at 5% probability, while differences in other manifest variables are not statistically significant. Cronbach's alpha is also shown for each latent model variable's mean values. All values are above 0.8, which indicates that the model's latent variables are reliable (Kline, 1999). Authors assessed potential common-method bias using an unrotated Harman single-factor test, a common latent factor (CLF) within CFA/SEM, and full collinearity VIFs for latent variables. These diagnostics did not indicate a dominant single factor or material model distortions, and VIFs were within conventional thresholds (Podsakoff et al., 2003; Kock, 2015).

Furthermore, the research model is shown in Figure 1.

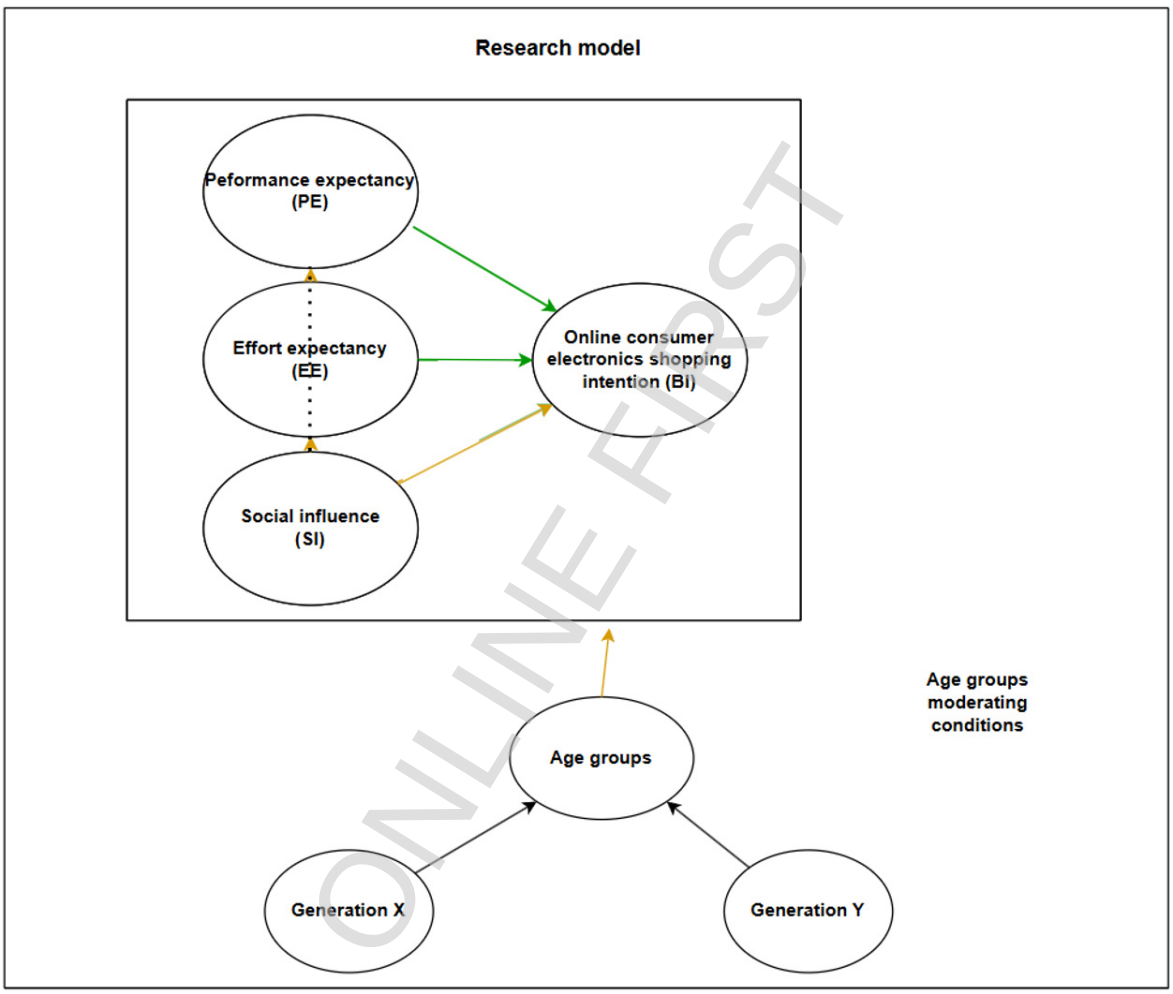

Figure 1 Research model
Source: The authors' work

The research model CFA results with the influence analysis of the generation groups were performed using the JASP programming tool and the lavaan R software package (Rosseel, 2012) shown in Table 1 (size). The number of observations is 352, and the representativeness of the model is shown through several parameters. The Chi-square for the basic model is 223.431 with 71 degrees of freedom (df) and is statistically significant at 1% probability, which indicates the statistical significance of the proposed model compared to the null model. Furthermore, the observation number is 258 for Generation Y and 94 for Generation X, and the model representativeness was tested through several parameters. The Chi-square for research model by generation group's influence is 324.092 with 142 degrees of freedom and is statistically significant at 1% probability. To additionally examine the research model instrument on the entire sample, it is necessary to conduct a representativeness analysis through the

most important indicators, such as CFI, TLI, GFI, RMSEA, and SRMSR, shown in Table 2.

Table 1 Sample sizes (CFA)

Group	n
Overall sample	352
Generation Y	258
Generation X	94

Source: The authors' analysis

The comparative fit index is the most used representativeness index and is used to compare the null and proposed models (Savalei 2018). It is recommended that the CFI index values be greater than 0.9. The research model shows a value of 0.921, while generation groups show a value of 0.942, which is higher than the usual value, and it can be concluded that the model is representative according to the CFI indicator.

The Tucker Lewis index compares the normalized chi-square values for the null and the proposed model, taking into account the complexity of the model (Taasoobshirazi et al., 2016). If the value is above 0.9, the representativeness is excellent, while the value of 0.8 is the lower acceptable limit. The research model shows a value of 0.903, while the generation group influence shows a value of 0.925, which indicates the excellent model representativeness measured by the TLI index.

The Root Mean Square Error of Approximation index represents (Savalei 2018) a deviation measure according to the degree of freedom between the presented covariance and the existing model covariance. The recommendation for the RMSEA value is as low as possible (below <0.08, but results below <0.10 are also recognized), which indicates better representativeness. The research model shows a value of 0.078, while the generation group's influence shows a value of 0.085, which indicates representativeness according to the RMSEA index.

The Standardized Root Mean Square Residual index is a supplement to the RMSEA index and represents a standardized index of the average residual value, calculated by the difference between the presented matrix covariance and the presented model matrix covariance (Taasoobshirazi et al., 2016). As with the RMSEA index, the lower the value of the SRMSR index (below <0.08), the better the representativeness. In this case, the value of the SRMSR index is 0.054, while the generation group's influence shows a value of 0.060, which is lower than the acceptable limit, so this index confirms the representativeness. Considering the mentioned representativeness indicator values, it can be concluded that the specified model is representative.

Table 2 Model fit indices

Model / Grouping	χ^2 (df)	p	CFI	TLI	RMSEA	SRMSR
Basic CFA (overall)	223.431 (71)	< .01	0.921	0.903	0.078	0.054
Multi-group CFA (Gen X & Gen Y)	324.092 (142)	< .01	0.942	0.925	0.085	0.060

Source: The authors' analysis

The next CFA step refers to the latent constructs and manifest indicators relationship assessment (Shevlin et al. 1998). Standardized factor loadings (λ) and estimated coefficients of determination (R^2) for each basic research model manifest variable are tested here. According to Hair et al. (2010), the values should be greater than 0.5 and above 0.7 ideally. Results below 0.5 are not satisfactory. The results indicate that all the research basic model manifest variables are satisfactory, because no value is below 0.5. Statistical significance is present for all manifest variables at 1% probability. Furthermore, with the coefficient of determination (R^2), this research shows how much variance is explained by the corresponding factor. The manifest variable EE1 is the only one that has a slightly lower R^2 (0.355) than the others, which mostly have a coefficient of determination above 0.5. This proves that the manifest indicators explain the latent factors' variance well enough. All basic research model manifest variables are satisfactory, as no value is below 0.5 at a 1% probability. For Generation X, the manifest variable PE2 has a slightly lower R^2 (0.434) than the others, which mostly have a coefficient of determination above 0.6. Therefore, it indicates that the manifest indicators explain the latent factors' variance sufficiently well. For Generation X, the manifest variable EE1 has a slightly lower R^2 (0.309) than the others, which mostly have a coefficient of determination above 0.6. Therefore, it can be concluded that the manifest indicators explain the latent factors' variance well, as shown in Table 3.

Table 3 Model fit indices

Group	Indicator	R^2
Overall sample	EE1	0.355
Generation X	PE2	0.434
Generation X	EE1	0.309

Source: The authors' analysis

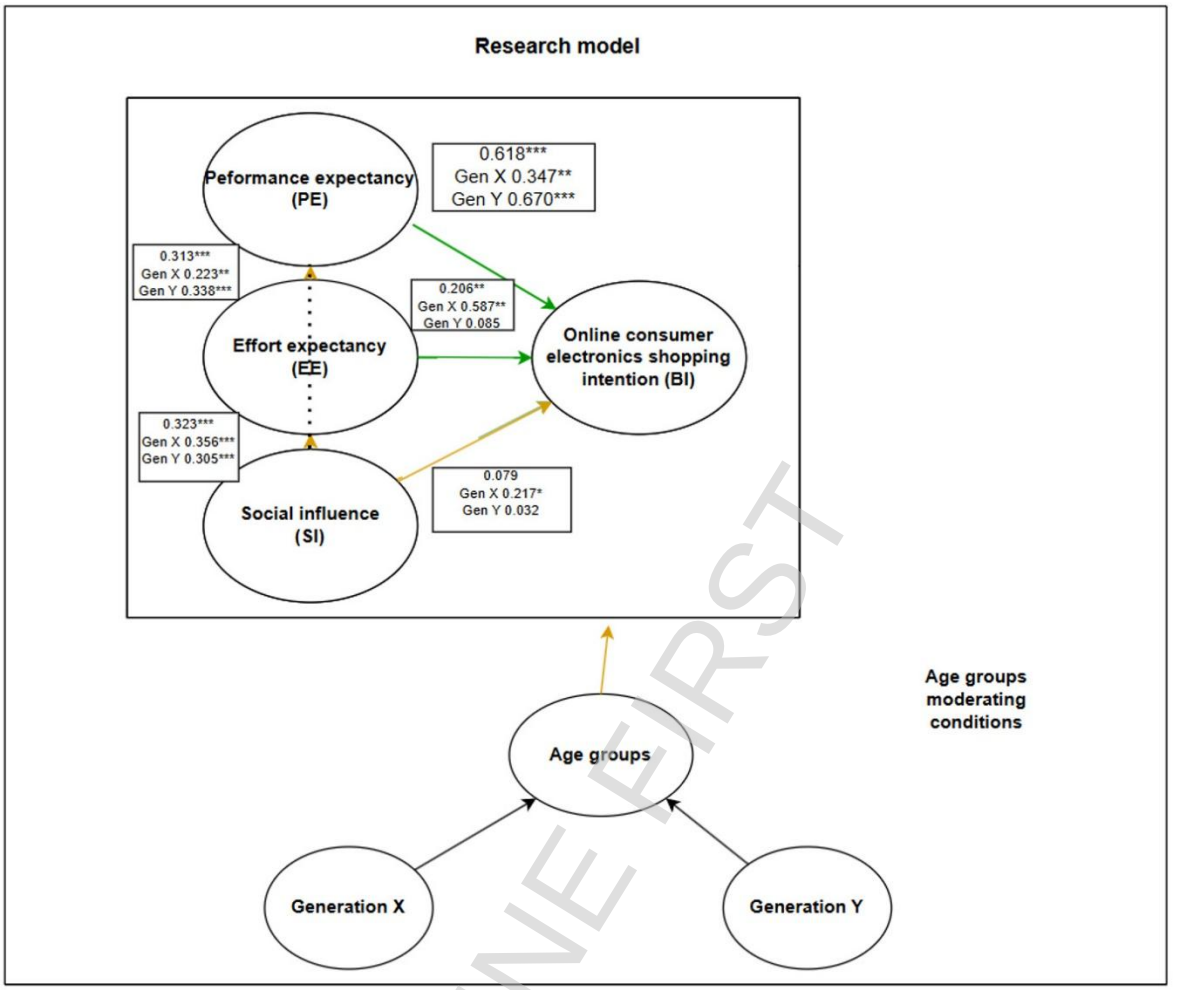

Figure 2 Research model coefficients with generation groups influence – SEM (β coefficients)
Source: The authors' work

Figure 2 shows the research model and the influence of generation groups on regression coefficients using the SEM method. Variable PE has the greatest impact on BI, where an increase in PE of 1 increases BI by 0.618 with a statistical significance at 1% probability. This means that consumers tend to benefit from online purchases of consumer electronics. The least statistically significant impact is visible in the EE and BI relationship, where a 1-unit increase in EE results in a 0.206-unit increase in BI, with a 5% probability of statistical significance. Therefore, consumers tend to use e-commerce platforms to purchase consumer electronics due to ease of use. The SI and BI relationship is statistically insignificant, meaning that there is no statistically significant social influence on the consumers in the online purchase of consumer electronics. The main differences between generations X and Y are visible in the relationship between the two pairs of variables. The pairs SI – BI and EE – BI are significant in Generation X, while they are not in Generation Y. The results prove that the older generations make a greater effort and question the environment more before deciding to buy consumer electronics online.

Table 4 shows the research model by generation groups (X and Y) chi-square values. The research model and the same model with the generation groups have a statistically significant chi-square difference at a 5% probability. The results indicate that there is a difference in the SEM research model estimation when considering the influence of the generation groups, compared to the standard SEM research model. In other words, the multigroup analysis indicates that there is a statistically significant and positive age influence on certain relationships between the SEM model's latent variables.

Table 4 Research model by generation groups (X and Y) chi-square values

Category	All respondents' research model – SEM1	Research model by generation groups (X and Y) (multigroup analysis) - SEM1-multigroup	Difference	p-value
Chi-square (χ2)	223.431	324.092	100.66	0.011835**
Degrees of freedom (df)	71	142	71	

Note: Statistical significance at ***1% probability and ** 5% probability

Source: The authors' analysis

The following part of the paper shows the theoretical and managerial implications. The subsections were created for easier understanding of the research results.

3.1. Theoretical implications

The research findings are mostly aligned with the Driediger et al., 2019 and van Droogenbroeck et al., 2021 papers, except for the social influence role. The case of non-aligning with the specified papers through the social influence on consumer intention to buy online consumer electronics might be in the research sample itself (the majority of Generation Y respondents) and in the specific product segment, which this research was focusing on. On the other hand, the Generation X social influence variable has a significantly positive relation towards the online consumer electronic behavioral intention, while Generation Y does not. This suggests a generational difference in buying patterns, where Generation X is more oriented to product reviews, ratings, and peer advice, while Generation Y is more direct in making online purchases of consumer electronics. The positive and statistically significant relationships support Sung et al.'s (2015) findings, confirming that social influence positively affects performance expectancy and effort expectancy. However, the rejection of direct social influence suggests that social influence alone is not enough to predict behavioral intention to buy consumer electronics, especially without considering generational differences. Therefore, this is a contribution of this paper due to the emergence of the bandwagon effect, following the indirect social influence impact on online consumer electronic behavioral intention, especially for Generation X. Furthermore, it is aligned with Banerjee's 1992 and Hakim's, 2024 research. Following other opinions drives the demand in Generation X participants to make an online consumer electronics purchase.

3.2. Managerial implications

In practice, companies selling consumer electronics online should tailor cues to generational differences. For Generation X, emphasize credible social proof to reduce perceived risk, surface verified reviews and reviewer profiles, highlight expert badges and "most bought" labels, and make returns, warranty, and repair options prominent on product and checkout pages. For Generation Y, focus on utility and frictionless flow: foreground key specifications and performance benefits, provide guided comparisons, and enable fast checkout (wallets, pay-later) to strengthen performance and effort expectancies. On high-involvement stock keeping units, pair popularity and review-quality indicators with transparent delivery and price-match policies to resolve hesitation quickly; position the most informative review content ("top questions answered") above the fold. After purchase, solicit photo/video reviews and reward helpful Q&A to maintain a steady stream of high-quality electronic word of mouth that supports both generations.

Conclusion

The paper's goal was to show various determinants that affect consumer online intention to purchase consumer electronics, as well as to indicate the moderating generation groups (Gen X and Gen Y) influence on the variables in the research model. The modified UTAUT model has been used for this purpose. Performance expectancy, Effort expectancy, and Social influence were independent variables, while the Online consumer electronics shopping intention was the dependent variable of the research model. The strongest impact has been recorded for the personal consumer benefit of using e-commerce platforms to purchase consumer electronics, seen through the performance expectancy variable relation with the dependent model variable. Furthermore, the findings indicate that the impact of Social influence variable on the dependent variable was only significant for Generation X, while there was also an indirect social influence through effort expectancy toward online consumer electronics purchase intention for both generations. Furthermore, there is a stronger connection between the bandwagon effect and herd behavior for Generation X compared to Generation Y. Therefore, this paper's findings confirm that Generation X consumers are keener on product

reviews, ratings, and peer advice before making a purchase. Due to that, Generation X is making more online consumer electronics purchase decisions based on other consumers' intentions. In other words, the social influence variable alone is not able to determine consumer intention to purchase consumer electronics online, and therefore, a moderating role of generational groups was needed for better consumer understanding as shown in this paper. Furthermore, the research question - "Is it possible to indicate a moderating generational group influence on the research model determinants relation? "was confirmed as there is an evident moderating influence of generational groups on the model variables.

This paper has limitations as well. They are seen in the non-equal sample size for both generational groups, as well as the reliance on self-reported data. Participants might not always accurately recall how easy or useful they find online shopping, or they might be influenced by a desire to present themselves in a certain way. Therefore, a real-case scenario where consumers would purchase online consumer electronics in real time would be potentially more useful. By doing so, the dataset could be enlarged with the specific web metrics as well. The potential usage of eye-tracking technology would be interesting. On the other hand, to capture a longer time frame, longitudinal studies would be needed. Cross-cultural comparisons could illuminate how cultural factors interact with generational differences in online shopping behavior, as the research authors focused on the Republic of Croatia only, and therefore would be interesting to compare the results with other European countries. It would be interesting to distinguish both generations, Gen X and Gen Y, into two parts, where younger and older participants of both generation groups would be questioned. Furthermore, another comparison with Gen Z would be interesting with the addition of applications used for online shopping. On the other hand, prospective business owners might find this research interesting due to the distinction between generational groups and their way of online shopping. By knowing the consumer habits and preferences, it will be easier for them to market and distribute consumer electronics products to their consumer base. Future research can move beyond the current findings and offer a broader understanding of how different generations navigate the ever-evolving online shopping landscape.

Declarations

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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