



Structured Abstracts of 'Tech-Enhanced Consumer Behavior: Navigating the Digital & Offline Paradigms' session

The Impact of Food Waste on Environmental, Economic, and Social Issues: A Study on Consumer Behavior in Hungary

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Background and introduction: Food waste is a pressing global issue with severe environmental, economic, and social consequences, including resource depletion, greenhouse gas emissions, and food insecurity. In Hungary, households account for a significant share of total food waste, yet limited research has examined the sociodemographic and behavioral factors driving it.

Objective: This study aims to explore the relationships between consumer behavior, demographic characteristics, and household food waste patterns in Hungary, with the goal of identifying key drivers and potential intervention points for waste reduction.

Methodology: A quantitative survey was conducted with 798 Hungarian respondents, using a structured questionnaire to capture food purchasing habits, disposal frequencies across specific food categories, environmental attitudes, and demographic data. Data analysis employed descriptive statistics, variance analyses (F-tests), and correlation measures to assess the influence of gender, age, education, income, and place of residence on waste behaviors.

Results: Baked goods, leftovers, dairy products, and fresh produce emerged as the most frequently discarded items, whereas canned goods, frozen products, and spices were rarely wasted. Higher education levels and stronger pro-environmental attitudes were associated with lower waste levels, while younger respondents and higher-income households reported more frequent disposal. Urban residents wasted more than rural households, where composting and leftover reuse were more common.

Conclusions: Household food waste in Hungary is strongly shaped by demographic and behavioral factors, suggesting that targeted interventions are needed. Strategies such as environmental education, improved food planning tools, expanded composting infrastructure, and support for food rescue initiatives should be tailored to specific population segments. The findings offer actionable insights for policymakers, NGOs, and industry stakeholders to promote more sustainable consumption and reduce household waste.

Limitations and future research directions: The study employed a non-representative, convenience-based sampling approach, which limits the generalizability of the findings to the entire Hungarian population. Additionally, cultural, psychological, and seasonal factors influencing food waste behaviors were not examined and warrant further investigation in future research.

Keywords: food waste, sustainability, consumer behavior, environmental awareness, demographic factors

WHERE IS POLAND NOW WITH THE ADOPTION OF UNMANNED STORES?

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Background and introduction: In recent years, there has been an increase in the number of unmanned stores, although the global growth rate has not yet reached the level of expansion that was predicted. The expansion of unmanned stores exhibits varied dynamics across the countries in which they are present. A notable instance is Żabka Nano's expansion in Poland, where 48 stores are currently operational and have been steadily expanding since 2021. The company is also making inroads into the German market.

Objective: The study examines the acceptance of cashierless technology in Poland. The aim of the research was to reveal which factors affect the attitude toward cashierless transactions within the extended unified theory of acceptance and use of technology.

Methodology: The survey conducted in Poland (n = 341) constituted a segment of a broader investigation into the technological adoption of unmanned retail establishments across multiple countries (Hungary and Croatia). The development of the questionnaire incorporated the utilisation of validated scales, with Generation X being the targeted demographic for completion of the survey. Partial least squares structural equation modeling was used to analyze data and test research model.

Results: The findings indicate that behavioural intention is positively influenced by performance expectancy, effort expectancy, social influence, and price sensitivity. Conversely, no significant relationship was found between behavioural intention and atmosphere or between behavioural intention and hedonic motivation. No statistical evidence was found that behavioural intention has an impact on use behaviour.

Conclusions: Generation Z shows the strongest interest in cashierless technology, with generally positive attitudes toward its use. Shop atmosphere appears unimportant, and enjoyment doesn't significantly influence their intention to use it. Despite the technology's availability—mainly in Poland's capital and large cities—actual usage remains low, likely due to limited access. These findings can inform policymakers and practitioners, and future research can explore factors influencing real-world adoption.

Limitations and future research directions: Despite the considerable magnitude of the sample size, it is not possible to extrapolate the study's findings to the broader Polish population. With the progression of the analysed technology, the incorporation of new variables will become imperative. The uptake of unmanned technology varies from country to country, therefore it is worth comparing the factors influencing use and identifying the differences.

Keywords: unmanned stores, cashierless stores, retail, technology acceptance, regression model



Differences Between the Influence of Consumer and Political Behavior in the Relevant Hungarian Literature

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Background and introduction: The study's hypothesis is that, within the context of Hungarian societal conditions, tools of manipulation are applied in the influence of both consumer and political behavior. However, due to the regulations and ethical norms in force in the country, during the influence of consumer behavior, it is not permissible to portray and discredit competing products in a negative light.

Objective: It is a common notion in Hungary that politicians should be marketed during elections the same way as detergent. This presentation and study explore whether this statement has any validity based on relevant Hungarian literature.

Methodology: From a methodological perspective, the study conducts a literature analysis and does not involve primary data collection.

Results: The hypothesis proposed was confirmed during the analysis. A difference between the influence of political and consumer behavior is that, based on domestic and international regulations and ethical norms, it is not permissible to portray a competing product in a negative light in Hungary either.

Conclusions: A difference between the influence of political and consumer behavior is that, based on domestic and international regulations and ethical norms, it is not permissible to portray a competing product in a negative light in Hungary either. Further research into the topic may require additional analysis and primary data collection, which could take place following the conference.

Limitations and future research directions: Further research into the topic may require additional analysis and primary data collection, which could take place following the conference.

Keywords: consumer behavior, political manipulation, character building, Hungary



Willingness to Change Shopping Habits in Hungary: Consumer Preferences amid Inflation and Sustainability Challenges

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Background and introduction: Recent global crises, including the COVID-19 pandemic and the 2022 inflationary surge, have significantly influenced consumer food purchasing behaviors in Hungary. Once seasonally limited goods are now widely available, yet growing awareness of sustainability and economic uncertainty challenge established patterns. This study explores how these external pressures shape preferences toward local and seasonal food consumption.

Objective: This study investigates Hungarian consumers' willingness to prioritize sustainability over convenience and cost during periods of inflation and economic crisis. It examines whether households favor domestically produced goods despite their seasonal availability and higher prices. The research also explores consumers' readiness to modify established shopping habits and identifies the key factors influencing purchase decisions, based on data from 674 respondents.

Methodology: The study employed a quantitative survey conducted between November 2022 and May 2023 among 674 Hungarian respondents. Data collection, executed by economics students through randomized interviews, used a structured, Likert-scale questionnaire. Responses were anonymous and GDPR-compliant. Statistical analysis was performed using SPSS to explore consumers' willingness to favor local, sustainable products despite inflation.

Results: The findings indicate that Hungarian consumers predominantly purchase food from discount stores (36.7%) and hypermarkets (30.2%), with only 18.3% opting for local markets or producers. While awareness of sustainability is increasing, it remains a secondary consideration compared to price and convenience. Products such as poultry and pork are selected primarily based on value for money.

Conclusions: This study reveals that while awareness of sustainability is increasing among Hungarian consumers, its impact on purchasing behavior remains limited. Only a minority regularly shop at markets or from local producers. Although some products, like home-style meats and wine, attract consumers prioritizing sustainability, price and convenience still dominate decisions. Economic factors continue to outweigh environmental considerations in shaping consumer habits.

Limitations and future research directions: Although the study offers relevant insights, limitations must be acknowledged. The sample was non-representative, skewed toward younger, urban, and educated respondents. Its cross-sectional design restricts causal inference and temporal analysis. Future research should adopt longitudinal methods and include focus group interviews to examine deeper motivations behind indifference to sustainability, especially regarding meat purchases. Broader samples would enhance generalizability.

Keywords: consumer behavior, sustainability, ethical purchasing, consumption



Youth at the Crossroads: Navigating Present Needs and Sustainable Aspirations Through Conscious Consumption

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Background and introduction: The United Nations defines sustainability as meeting the needs of the present without compromising the ability of future generations to meet their own needs. This leads to a complex dilemma confronting today's youth, who must navigate the tension between addressing immediate needs and pursuing long-term aspirations for a sustainable future. The young generation is aware of sustainability, it even may cause so-called anxiety among them, the pressure of choosing between personal or collective aims.

Objective: The main aim of this research is to understand and structure what actions young people are ready to take for a more sustainable presence and future. Our focus is primarily on consumption habits because it is important to manage needs effectively given the scarcity of resources. After a broad literature review, two primary studies were conducted.

Methodology: We conducted qualitative research using 78 international semi-structured interviews and 58 Hungarian student diaries. Data were analyzed in NVivo14 with auto- and inductive coding. The interview data explored what participants would or wouldn't give up for a better future. The diaries captured reflections on sustainable habits. Coding identified key patterns and was compared with literature insights.

Results: Despite strong awareness of SDGs, actions focus mainly on environmental aspects like waste, transport, or food choices. Real-life sustainability involves trade-offs—comfort, safety, and finances often outweigh ideals. Emotional (empathy, self-image) and rational (cost, health) motives both influence actions. Four patterns—Change, Stop, Decrease, Start—show how individuals engage with sustainability at different levels of personal transformation.

Conclusions: Young people are increasingly aware and willing to act for sustainability, but compromises are inevitable. Their reflections reveal varied depths of engagement—from conscious, value-driven changes to occasional, rational choices. Sustainability must be seen as a complex, multifaceted concept that blends emotional commitment and practical action. True impact requires both mindset shifts and systemic support for sustainable lifestyles.

Limitations and future research directions: Our young, low-income sample may limit generalizability. Retrospective self-reporting risks social desirability bias, as respondents might overstate sustainable behaviors. Still, the method allowed rich reflection. Future research could use longitudinal or observational approaches to better capture sustainable practices and refine behavioral categories.

Keywords: Sustainable presence, customer behaviour, collective needs, consumption habits



Implicit responses as a potential source of information in advertising literacy research: case studies using biometric methods

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Background and introduction: Advertising literacy is a key prerequisite for young people to critically navigate a digital environment that is increasingly saturated with hidden, personalised and emotionally-attuned advertising. However, traditional research approaches, mainly based on questionnaires and verbal responses, provide only partial insights into the actual processing of advertising stimuli.

Objective: This study aims to demonstrate how biometric and behavioural methods can reveal implicit emotional responses to advertising that remain hidden in traditional research, offering a deeper understanding of adolescent advertising literacy.

Methodology: Methodology: The study presents four case studies using a combination of biometric (GSR, facial coding) and behavioural tools to analyse adolescents' unconscious reactions to audiovisual advertisements. The aim is to identify what layers of ad perception remain hidden with traditional methods and what their relevance is for a comprehensive understanding of ad literacy.

Results: Results: The research showed that participants' implicit responses often contrasted with their stated attitudes. For example, we found higher emotional responses to environmental product labeling or gender differences in the processing of affectively tuned ads that would otherwise go unnoticed.

Conclusions: Conclusion: The study confirms that consumer neuroscience has the potential to bring new insights to advertising literacy research and to explore the hidden dimensions of advertising reception, thus significantly complementing traditional research tools.

Limitations and future research directions: The study is exploratory in nature and based on small sample sizes, which limits the generalizability of the findings. Biometric methods capture only certain dimensions of emotional responses and require contextual sensitivity in interpretation.

Keywords: Advertising literacy, eye-tracking, neuromarketing, visual communication.



Hungarian films – do sociodemographic characteristics impact viewers' willingness to watch?

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Background and introduction: Hungarian film production has undergone significant transformation since the regime change. This change was felt not only on the service provider's side but also in terms of consumers. Domestic consumers have become less enthusiastic about Hungarian films over the past decade compared to international, American films. However, the films released last year, such as "Gone running" and "How Could I Live Without You?", can be considered counterexamples to this phenomenon.

Objective: The aim of the research is to explore what sociodemographic characteristics potential Hungarian film consumers have and what impact they have on their openness to consuming domestically produced films.

Methodology: During the secondary research, the state of domestic film production and consumption in Hungary was examined. This formed the basis for the next step, which involved conducting individual and triad in-depth interviews with viewers - across mixed genders and age groups - of the aforementioned films, which have had the highest number of viewers since the regime change.

Results: In addition to the overall film consumption habits of the in-depth interview subjects, their age, education level, and cable television viewing habits have a significant impact on the consumption of Hungarian films. Those who have a cable TV subscription and regularly watch domestically produced content are much more open to Hungarian films as well.

Conclusions: The openness to consuming Hungarian films varies among different domestic social groups. Therefore, there is a need for filmmakers to communicate with consumers effectively via various channels. For example, while one age group with cable television subscriptions is more exposed to actors on domestic TV, another age group with solely streaming service subscriptions are not. Hence, both groups should be reached through a unique use of various platforms.

Limitations and future research directions: The limitation of the research lies in the characteristics of the in-depth interview methodology, which, due to its qualitative nature, does not allow for general conclusions to be drawn from. Furthermore, in the case of triad interviews, the responses of one of the two subjects may have dominated the other. In the future, it would be worthwhile conducting more in-depth interviews with various additional qualitative measures, such as creative groups.

Keywords: Hungarian film consumption, film consumption habits, consumer behavior



Visual and verbal aspects of marketing communication and their parallels with trends influencing the promotion of truffle consumption

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Background and introduction: Brand communication built around truffle consumption today conveys a complex system of meanings, combining sustainability, closeness to nature, luxury and hedonism. The aim of the research is to explore the visual and verbal tools used to promote truffle consumption in brand communication, in connection with current trends that determine consumption.

Objective: The analysis reveals the connections between content and colour associations, contributing to a deeper understanding of truffle marketing communication.

Methodology: The research covers the websites and social media platforms of 20 foreign and domestic brands that sell truffle products. Qualitative content analysis is performed using NVivo software, enabling the joint examination of text and image content. During coding, the analysis is based on two main trends: sustainable-natural and luxury-hedonism.

Results: Verbal expressions such as 'local', 'organic', "premium" and 'curiosity' 'luxury' are compared with the use of colours by brands, such as green, brown, natural or gold, black and white, which are visual elements of marketing communication and fundamentally determine consumer attitudes towards the brand. The results show that in many cases, parallels can be drawn between the visual and verbal levels of marketing communication and the trends influencing truffle consumption.

Conclusions: The results show that in many cases, parallels can be drawn between the visual and verbal levels of marketing communication and the trends influencing truffle consumption.

Limitations and future research directions: The study is limited to brand websites and social media, so it does not take into account other channels (stores, offline advertising). Cultural differences result in different marketing communication solutions. Further research opportunity: Comparison of truffle marketing communication in different countries (e.g. Italy, France, Japan, USA), with particular regard to different cultural backgrounds.

Keywords: marketing communication, consumer behavior, truffle