The Role of Emotions

in Shaping Customer Behaviour in Retail Mobile Apps

the CoRe lab

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Research gap

mobile-assisted showrooming (MAS)
(Alesanco-Llorente et al., 2023)

utilitarian - TAM
(e.g.: Asastani et al., 2018; Esawe, 2022; Kamal & Subriadi, 2021)

CUSTOMER EXPERIENCE

Research gap

mobile-assisted showrooming (MAS)
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utilitarian - TAM
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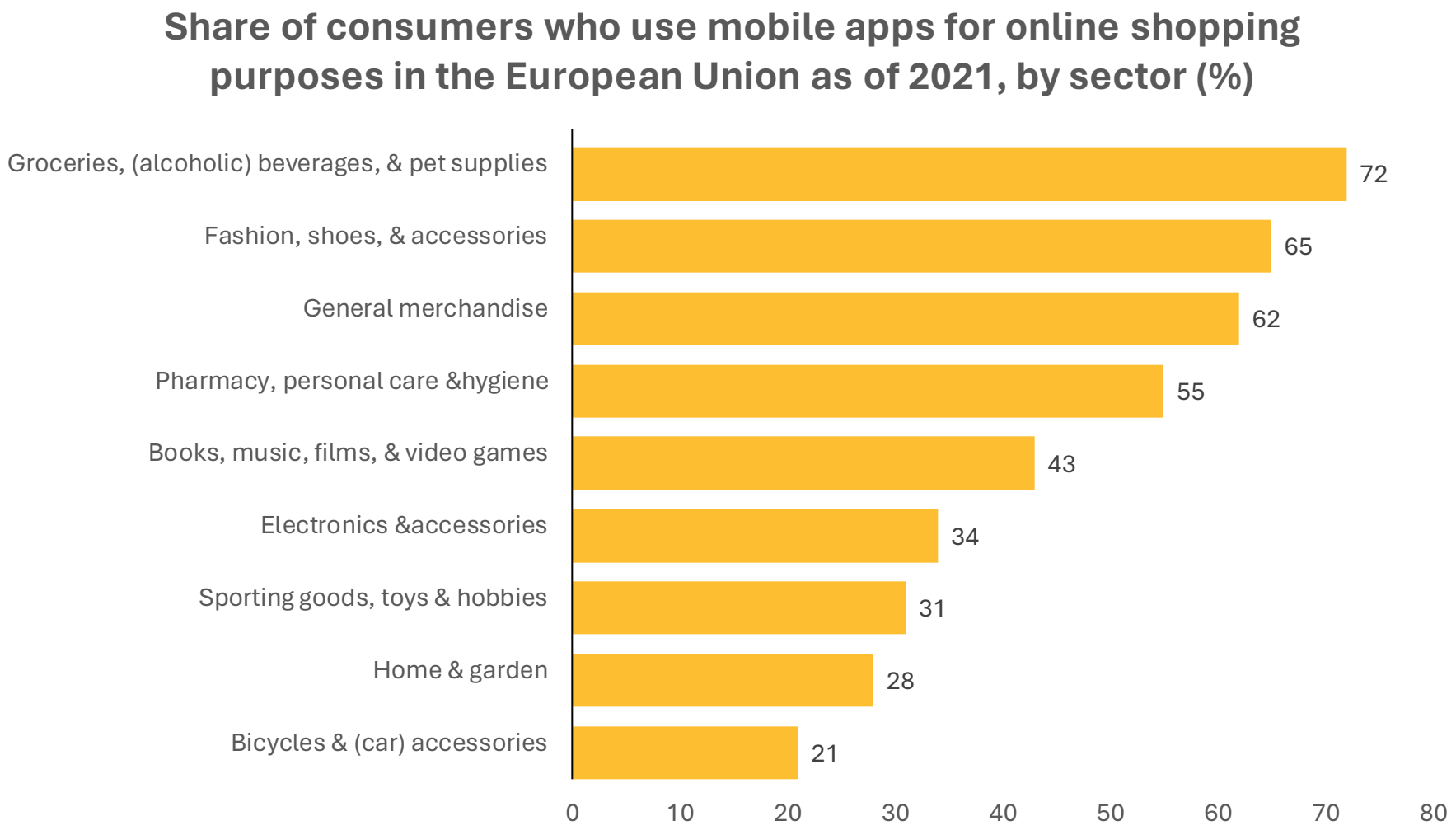
What is the indirect effect of retail mobile application experiences on satisfaction and on customer behaviour (number of visits, basket size, spendings) **by considering not just utilitarian, but also hedonic responses of customers?**

Role of emotions towards using retail mobile applications in the purchase process.

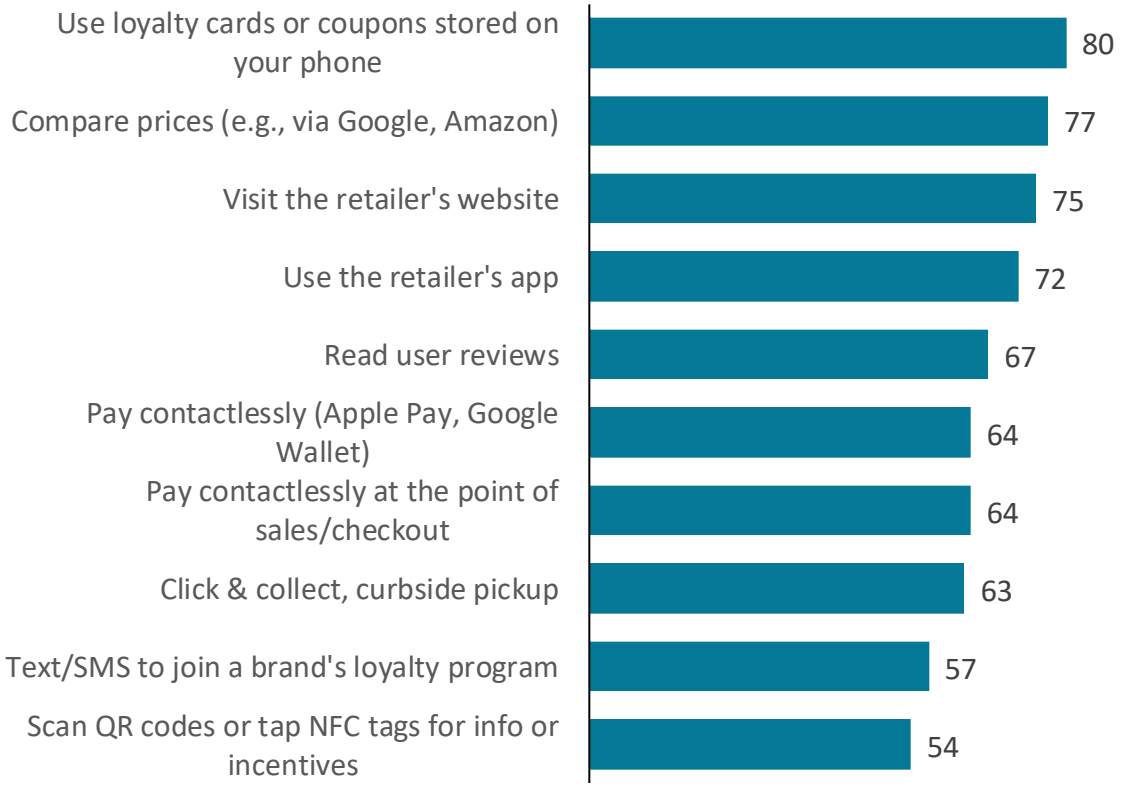
Mobile shopping



Source: European E-commerce Report, 2021

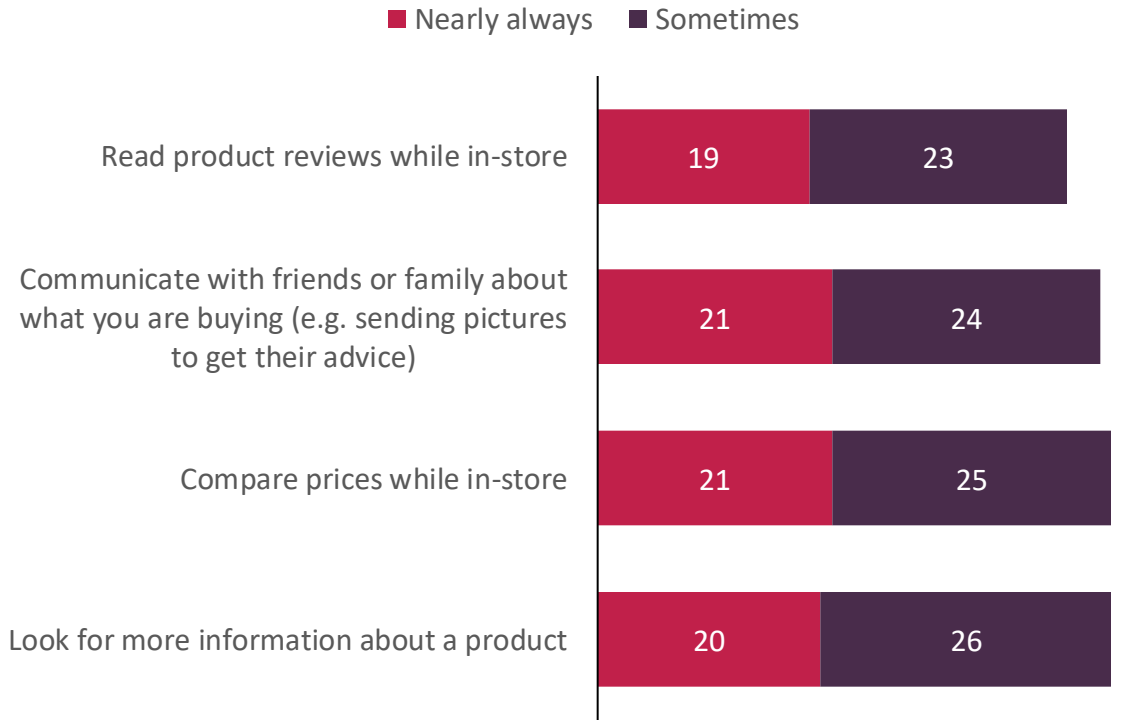
Mobile phone usage in-store

Leading in-store mobile shopping activities in the United Kingdom (UK) in 2023 (%)



Source: businesswire.com, 2023

Share of consumers who used their mobile phone when shopping in-store in the United States in 2021 (%)



Source: statista.com, 2021

Does a frictionless experience generate higher sales?

Starting point: the purpose of mobile app development (on the company side):

- simplify and facilitate shopping,
- increase engagement and loyalty,
- maximize profits.

But do apps really make shoppers happy and satisfied?

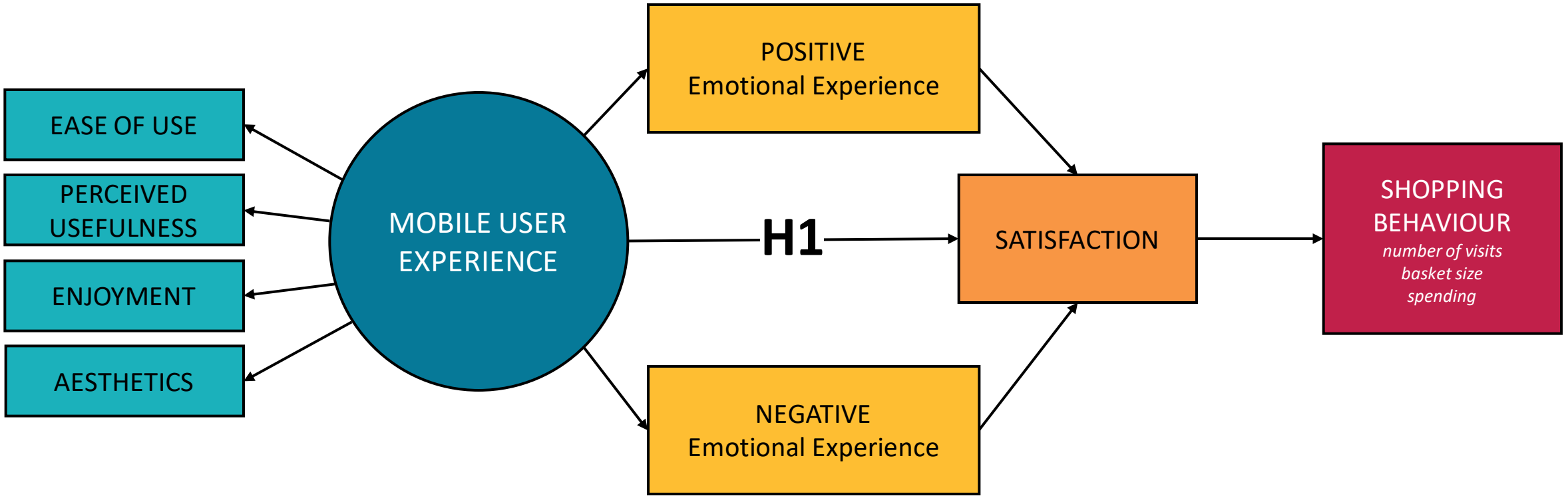
Whether retail apps that aim to make the shopping decisions easier, more convenient and even more enjoyable, will eventually have an effect on shopping behaviour?

Why should we care about our customers' emotions?

- the true value of **consumer experience** is the consumer's perceived or relative preference for a product or service, resulting from interactions with the consumption environment, which supports or inhibits the achievement of consumption goals
- Holistic and multidimensional approaches: **every service exchange leads to a customer experience**, regardless of its nature and form *(Xie et al., 2023)*.
  - **multidimensional CX approaches** focus on five important components: sensory, **emotional**, cognitive, behavioural, perceptual and social *(Lemon & Verhoef, 2016)*.

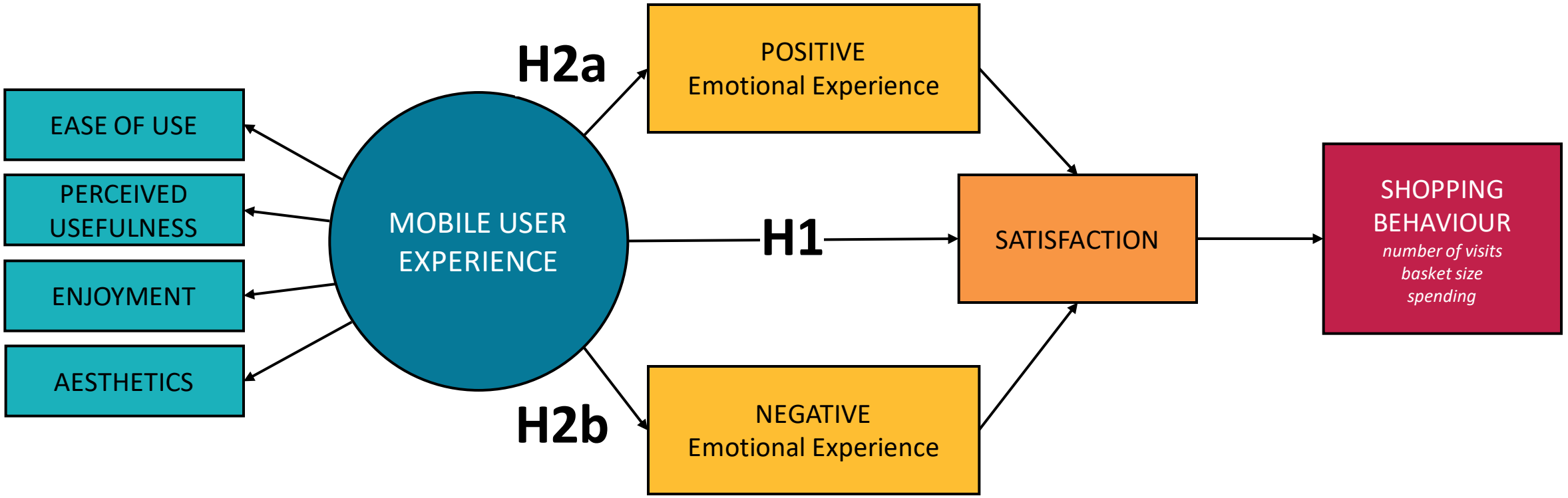
- the impact of mobile apps on emotions is more significant than we might think *(Molinillo et al., 2022)* - a manifestation of the hedonic motivational background of shopping *(Bridges & Florsheim, 2008)*.
- Stein and Ramaseshan (2019) found that the real-time touch point evaluation effects **significantly differ for utilitarian and hedonic motivation orientations**.
- By considering the importance of long-term user experience, Kujala et al. (2011) emphasize the role of hedonistic aspects of user experience, especially enjoyment or aesthetics.
- **Both positive and negative experiences shape the CX** (positive and negative emotions often coexisting, do not inherently guarantee consumption outcomes *(Manthiou et al., 2020)*

Conceptual framework



H1: User experience with retail mobile apps has a direct positive impact on satisfaction with the app.

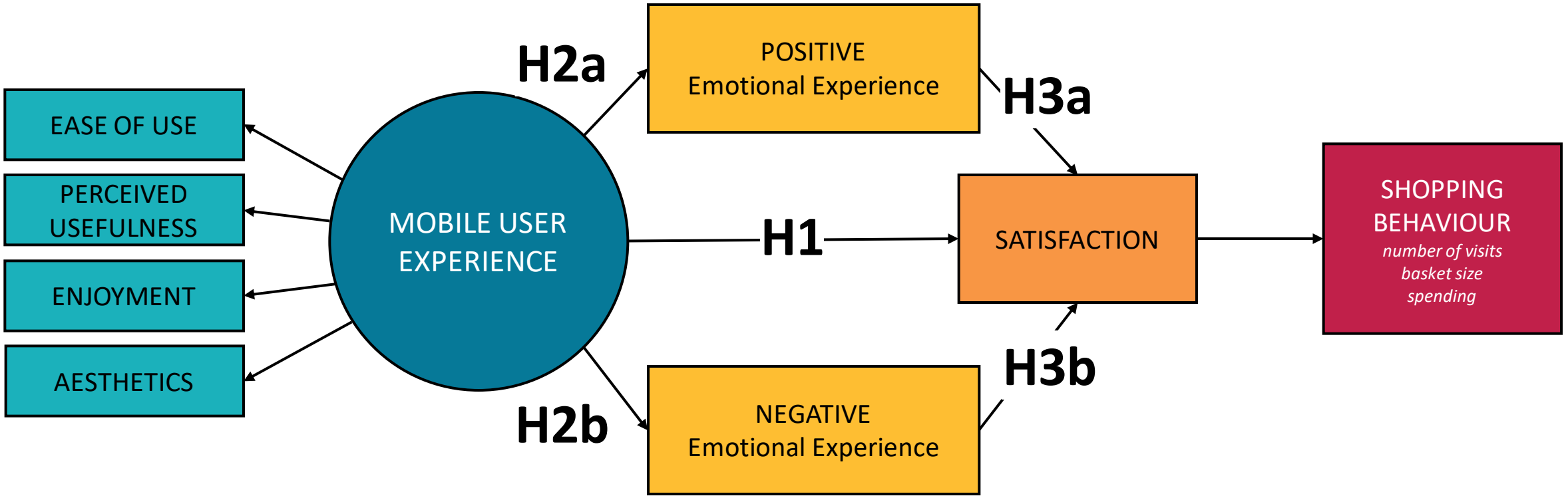
Conceptual framework



H2a: The use of retail mobile apps in the purchase decision process, can trigger positive emotions in the customer.

H2b: The use of retail mobile apps in the purchase decision process, can trigger negative emotions in the customer.

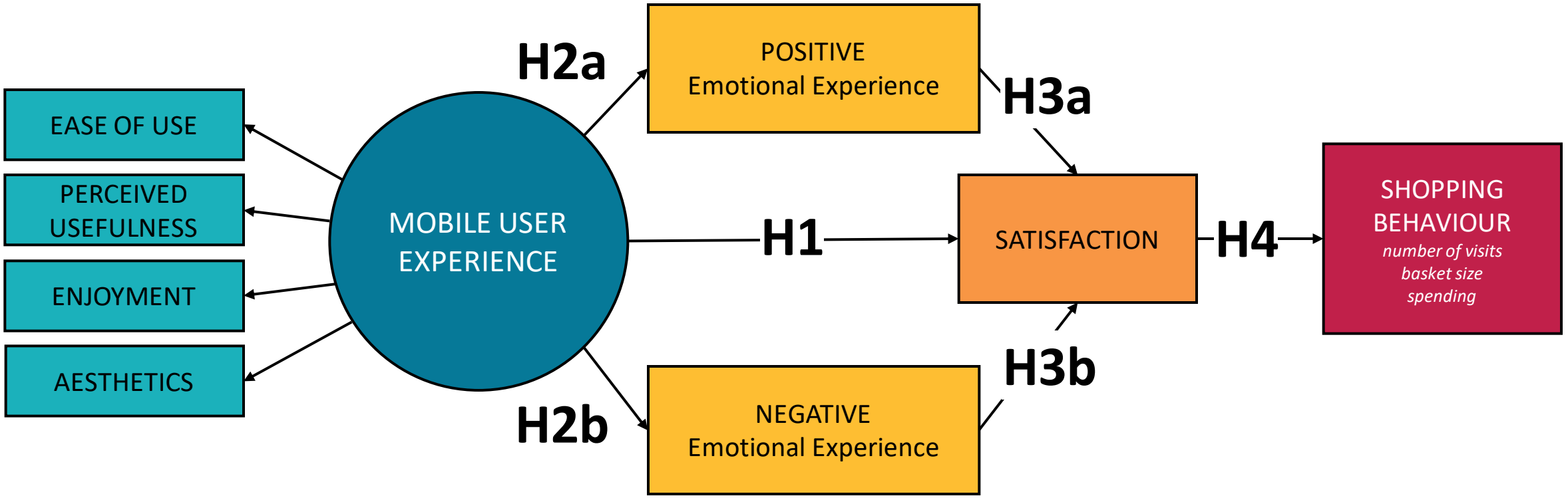
Conceptual framework



H3a: The positive emotions generated by retail apps used during shopping can influence satisfaction with the app in a positive direction.

H3b: The negative emotions generated by retail apps used during shopping can influence satisfaction with the app in a negative direction.

Conceptual framework



H4: User experience with retail mobile applications will have a positive indirect effect on shopping behaviour.

Methods

Partial Least Squares (PLS) method in ADANCO 2.3 (Henseler, 2021)

- seven unidimensional constructs (**aesthetics, enjoyment, positive emotions, ease of use, perceived usefulness, negative emotions, satisfaction**); seven-point Likert metric was employed
- measurements derived from prior validated scales and adapted to fit the studied retail mobile-app context
    - grocery retail setting.
- emergent variable - based on transactional data (**shopping behaviour - customer basket size, spend and number of visits**).
- a multidimensional (second-order) construct (mobile UX) in phase II and an other (utilitarian) in phase III.

brief emotional experience scale by Rogers et al. (2022) was used, which includes three emotional adjective items

- for positive emotion (**happy, calm, and confident**) and
- three for negative emotion (**worried, sad, and afraid**).
- a 4-point response scale with the following meanings: (0) Not at all (1) A little bit (2) Quite a bit (3) A lot

3 phases – 3 studies

Study 1 – Phase I.	Study 1 and 2 – Phase II.	Study 3 – Phase III.

Study 1. – Model development phase I.: an **online survey** with the aim to prepare for a subsequent large sample survey and to test the suggested scales. At this point we collected respondents via social media outreach. 206 Hungarian shoppers responded who use at least one retail mobile app and are at least partly responsible for their own household shopping.

Study 1. and 2. – Model development phase II.: The aim was to look for the **incorporation of the second-order construct (mobile user experience)** and assess its overall effect on the exogenous variables. As well as conducting a **content analysis** based to address the relationships.

Study 3. – Model development phase III.: we repeated the **online survey** described in study 1, using a large sample of customers with the same selection criteria. The data was collected from shoppers registered in the **loyalty programme** of an **international retail chain** operating in three countries (Hungary, Slovakia, Czech Republic). 541 respondents. In addition, **transaction data** – basket size, basket spend and number of visits – for the last 12 months prior to the survey was used to assess shopping behaviour.

Model development

To explore the direct effect of each factor separately on positive and negative emotions and their indirect effect on satisfaction.

- Measurement model: goodness of model fit index (SRMR=0.0631) and the construct reliability (Dijkstra-Henseler's Rho (ρA) between 0.7810 and 0.9281; Jöreskog's rho (ρc) between 0.7754 and 0.9214; Cronbach-alfa (α) between 0.7965 and 0.9208) as well as the discriminant and convergent validity scores are below the threshold (HTMT2<0.9; AVE>0.5).

Construct	**Dijkstra-Henseler's rho (ρ_A)**	**Jöreskog's rho (ρ_c)**	**Cronbach's alpha(α)**
SAT	0,8619	0,8381	0,8356
positive EMO	0,7810	0,7754	0,7805
negativ EMO	0,8203	0,8028	0,7965
EOU	0,8770	0,8726	0,8715
PU	0,9281	0,9214	0,9208
ENJ	0,9190	0,9141	0,9162
AES	0,9116	0,9003	0,9008

Construct	SAT	positive EMO	negative EMO	EOU	PU	ENJ	AES
SAT	0,6388						
positive EMO	0,3646	0,5365					
negativ EMO	0,1411	0,0061	0,5800				
EOU	0,4103	0,2612	0,0741	0,6326			
PU	0,4906	0,1100	0,2959	0,3843	0,6636		
ENJ	0,2944	0,3108	0,0196	0,5281	0,2066	0,7279	
AES	0,5591	0,1764	0,1470	0,3829	0,5086	0,3781	0,6959

Squared correlations; AVE in the diagonal.

Study 1. – Model development phase I.

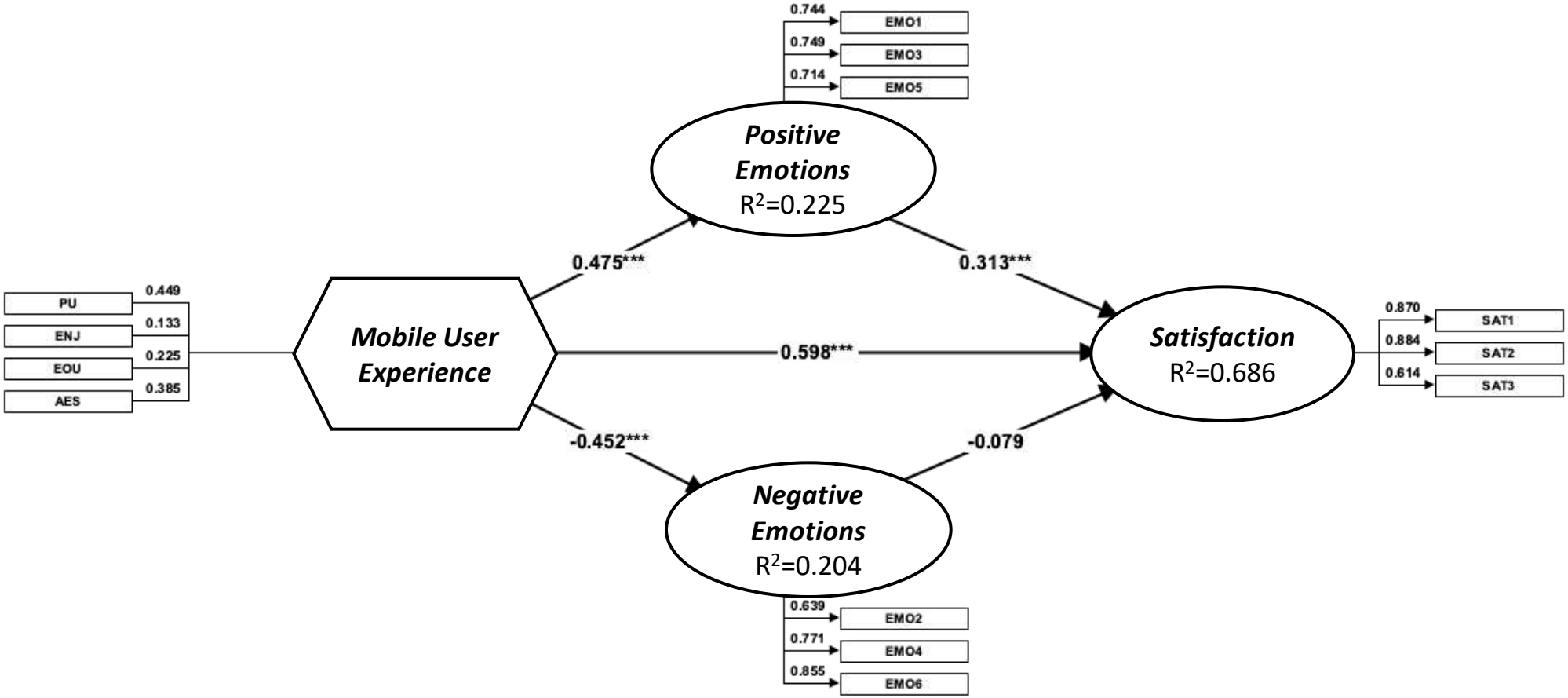
Effect	Beta	Indirect effects	Total effect	Cohen's f^2	t-value	p-value (2-sided)
positive emotions -> satisfaction	**0,3444***		0,3444	0,2783	3,2815	**0,0011**
negative emotions -> satisfaction	-0,0408		-0,0408	0,0041	-0,5422	0,5878
Ease of Use -> satisfaction	0,1333	0,0710	0,2044	0,0226	1,6300	0,1034
Ease of Use -> positive emotions	0,2083		0,2083	0,0239	1,3956	0,1632
Ease of Use -> negative emotions	0,0168		0,0168	0,0002	0,1435	0,8859
Perceived usefulness -> satisfaction	**0,2503***	0,0152	0,2655	0,0790	2,5392	**0,0113**
Perceived usefulness -> positive emotions	-0,0224		-0,0224	0,0003	-0,1763	0,8601
Perceived usefulness -> negative emotions	**-0,5619***		-0,5619	0,1947	-3,6938	**0,0002**
Enjoyment -> satisfaction	-0,1070	0,1195	0,0125	0,0153	0,1149	0,9086
Enjoyment -> positive emotions	**0,3658***		0,3658	0,0831	2,7215	**0,0066**
Enjoyment -> negative emotions	0,1590		0,1590	0,0152	1,2260	0,2205
Aesthetics -> satisfaction	**0,3922***	0,0320	0,4242	0,2086	4,0457	**0,0001**
Aesthetics -> positive emotions	0,0822		0,0822	0,0039	0,5657	0,5717
Aesthetics -> negative emotions	-0,0908		-0,0908	0,0046	-0,5885	0,5563

- **perceived usefulness** affects negative emotions (due to perceived shortcomings of retail apps) and satisfaction, while
- the **enjoyment** of the application is relevant in case of positive emotions,
- whereas **aesthetics** has a direct impact on satisfaction

Overall, **positive emotions** evoked by the application increase satisfaction, while **negative emotions** do not cause dissatisfaction in the customer experience.

Model development

- to combine the **hedonic and utilitarian dimensions** of the customer experience into a second order construct
- reflective-formative measurement and relied on the protocol (van Riel et al., 2017).



Model development

The model also implies that there is a significant indirect relationship between the retail app experience and satisfaction mediated by positive emotions.

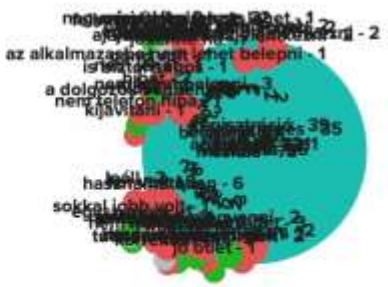
Hypothesis	Results	
H1	the mobile user experience has a significant positive direct effect on satisfaction	✓
H2a/ H2b	positive experiences lead to positive while negative experiences lead to negative emotions	✓
H3a/H3b	However, when it comes to satisfaction, only positive emotions have a significant positive effect (H3a) while the negative relationship with negative emotions is not supported in this model (H3b	X

Content analysis

- Automated content analysis (Zurvey)
- Google Play, AppStore – 566 feedback

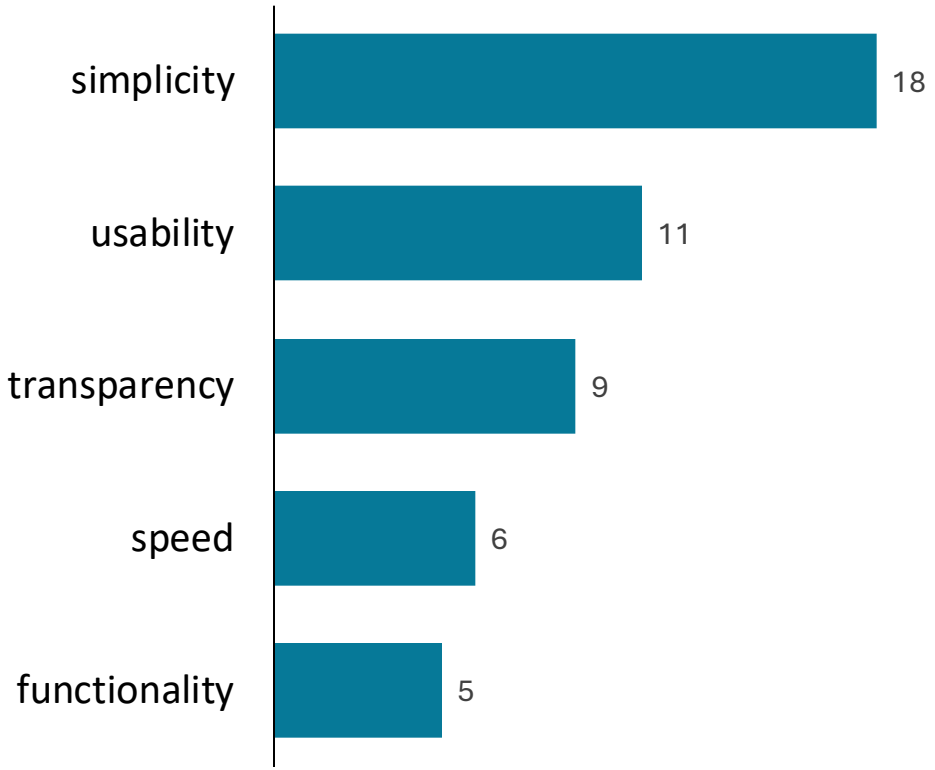
Typical results:

- Polarity of mentions
- Drivers and barriers
- Topic map and topic cloud
- Topic graph and correlations

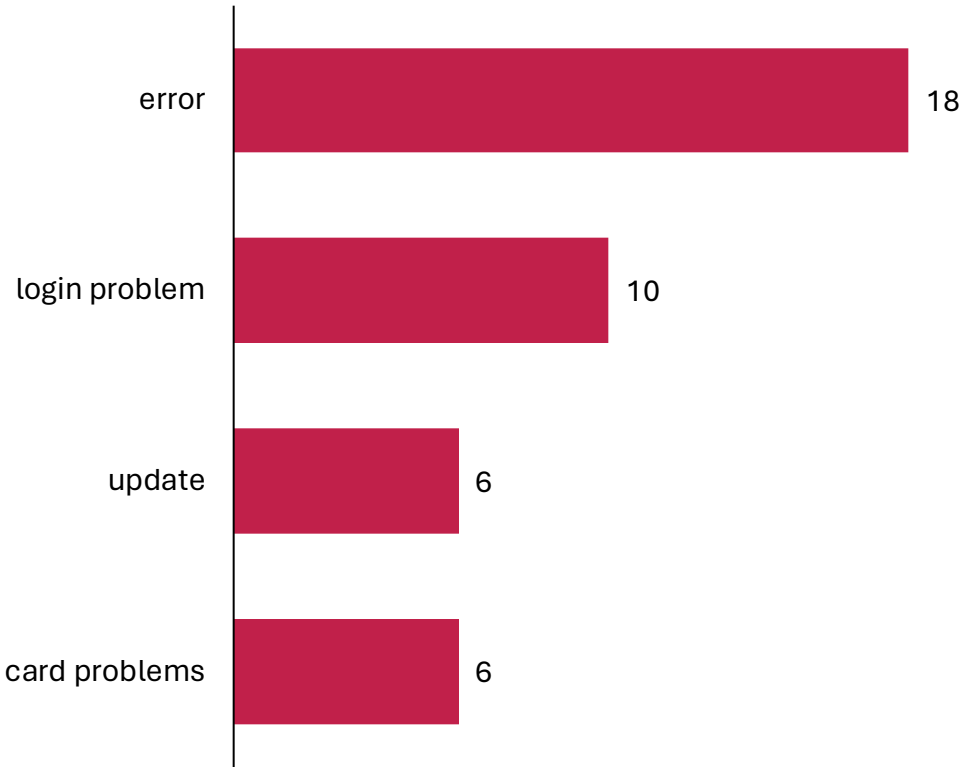


Drivers and Barriers

“Drivers” (frequency)
n=74



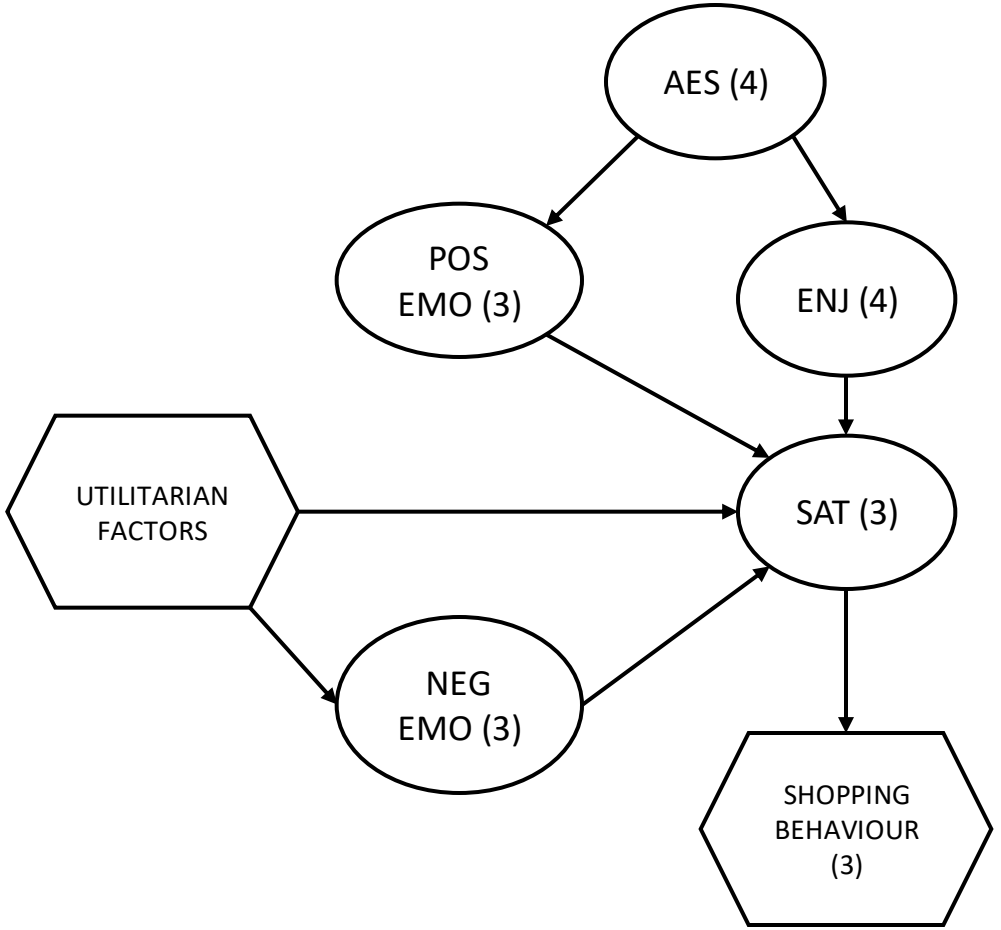
“Barriers” (frequency)
n=240



emotion	frequency	example
sadness	16	"What's the point of an app where you're told by a slightly nonsensical text to let someone else have the option and not let them go any further. Very disappointing."(Tesco app, App Store)
hope	7	"no e-mails will be sent either because of forgetting the password or when registering a new one. It's useless. I emailed customer support for help but got no reply. I don't have much hope for improvement" (Penny Market app, App Store)
desire	6	"I'm really looking forward to more coverage because this is the coolest thing I've seen. It's not a utilitarian Netpincér, it's something that's innovative! So please start developing in that direction"(Tesco app, App Store)
enjoyement	5	„It remembers everything! I just click on the old ones and it comes. I love it!"(Tesco app, App Store)
anger	4	"It doesn't let me open my card, I can't log in, it asks for a password, even though I've given it 10 times, including my email address. I'm missing everything, I don't care, it's just annoying and I have a mobile phone." (Penny Market app, Google Play)
disgust	2	"But before the big update it was usable as it was, but after that it became so awful that I have to write a review..." (Aldi app, App Store)
surprise	1	"You can't change the title, it's been a long time since I've seen such a *** app, it's also incredibly slow, tesco quality, congratulations" (Tesco app, App Store)

Model development

- we aimed at **incorporating shopping behaviour** (customer basket spend, size and number of visits) and assess the detailed relationship of the hedonic components of the retail mobile app experience with satisfaction
- The survey data combined with transactional data not only provided an opportunity to re-test the model relationships, but also to examine the impact on real-world behaviour.
- we have used aesthetics as a first order endogenous variable and **combined ease of use and perceived usefulness** into a second order endogenous variable (UTILITARIAN)
- The direct effect of enjoyment to satisfaction has also been added to the model.



Model development

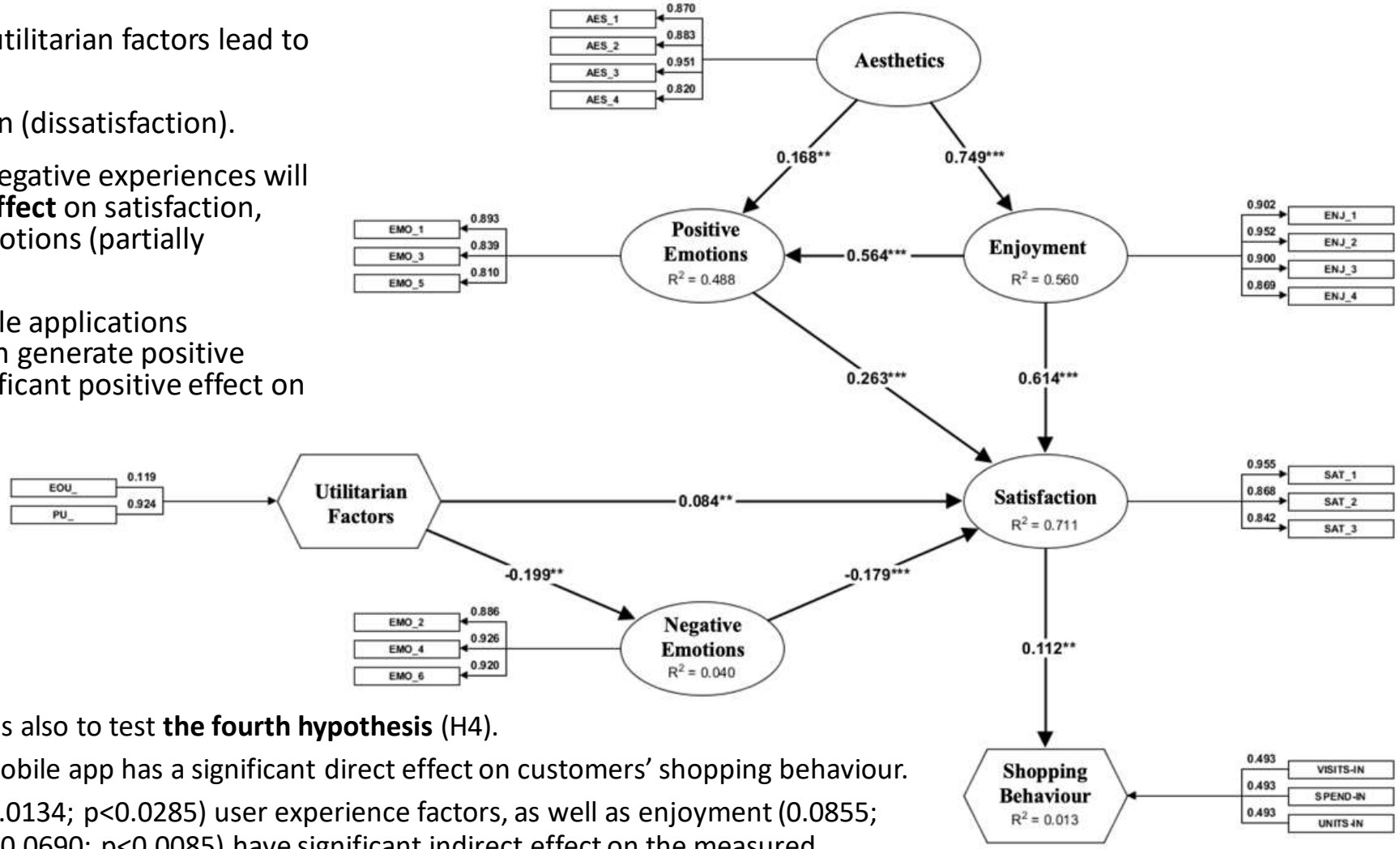
- model is accepted based on the goodness of model fit index (SRMR=0.0704)
- construct reliability (Dijkstra-Henseler's Rho (ρA) between 0.8867 and 0.9499; Cronbach-alfa (α) between 0.8857 and 0.9484)
- discriminant and convergent validity scores are below the threshold (HTMT2<0.9; AVE>0.5).

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's alpha(α)
UTILITARIAN			
SAT_	0,9228	0,9192	0,9202
POZITIV_EMO_	0,8867	0,8847	0,8857
NEGATIV_EMO_	0,9499	0,9357	0,8996
ENJ_	0,9492	0,9482	0,9484
AES_	0,9360	0,9333	0,9336
PURCHASE VALUE			

Construct	UTILITARIAN	SAT_	POZITIV_EMO_	NEGATIV_EMO_	ENJ_	AES_
UTILITARIAN						
SAT_	0,0498	0,7917				
POZITIV_EMO_	0,0108	0,4468	0,7193			
NEGATIV_EMO_	0,0398	0,0196	0,0221	0,8291		
ENJ_	0,0154	0,6412	0,4755	0,0008	0,8207	
AES_	0,0466	0,7428	0,3482	0,0223	0,5605	0,7783
PURCHASE VALUE	0,0013	0,0126	0,0091	0,0021	0,0020	0,0079
Squared correlations; AVE in the diagonal.						

Model development

- negative experience with the utilitarian factors lead to negative feelings (H2b).
- significant effect on satisfaction (dissatisfaction).
- using a retail app and having negative experiences will **not always mean a negative effect** on satisfaction, only if it provokes negative emotions (partially supporting H3b).
- **hedonic aspects** of retail mobile applications (aesthetics and enjoyment) can generate positive feelings and these have a significant positive effect on satisfaction.



An important aim of the analysis was also to test **the fourth hypothesis** (H4).

- satisfaction with a retail mobile app has a significant direct effect on customers' shopping behaviour.
- Furthermore, utilitarian (0.0134; $p<0.0285$) user experience factors, as well as enjoyment (0.0855; $p<0.0075$) and aesthetics (0.0690; $p<0.0085$) have significant indirect effect on the measured shopping outcomes

Discussion, managerial implications

- important not just because it introduces a theoretical model about the **relationships between mobile user experience factors and satisfaction mediated by positive and negative emotions**, but it incorporates the effect on customers' shopping behaviour as well.
- All the introduced models **highlight the role of the hedonic dimensions in shaping satisfaction and** resulting in greater **customer spend**.
- We could demonstrate the **indirect impact of feelings** arising from the use of an app on satisfaction and, through this, **on the size of the shopping basket.**
- confirms that retailers in their pursuit of maximizing profits, make bold decisions by **introducing retail mobile applications** to enhance the customer experience and offer a frictionless customer journey.
- Although positive and negative emotions often coexisting during the consumption experience (Manthiou et al., 2020) we could demonstrate that **the effects of affective experiences on satisfaction are more relevant compared to the effect of the cognitive experience.**
- in the development process of retail mobile applications **greater focus must be paid toward the aesthetic and enjoyment dimensions**. Moreover, it will be increasingly important in the future, as indicated by previous findings (Molinillo et al., 2022; San-Martín et al., 2015) younger users tend to have more hedonic motivation when making purchases.

Limitations and future research directions

- Research focuses on a specific element of the complex customer experience concept, namely the emotional experience. Consequently, it **does not deal with** others (e.g.: environmental, contextual factors, other TAM or UTAUT elements) highlighted in previous research *(Stein & Ramaseshan, 2019).*
- The models also do not **control** for the socio-demographic background *(Alesanco-Llorente et al., 2023; San-Martín et al., 2015)* of customers and their attitudes towards app usage *(Ho et al., 2022)* or takes into account any other **potential moderator**.
- The use of **online surveys** has enabled the testing of the models and hypotheses. However, underlying reasons for the implied behaviours remain to be seen.

Thank you!