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Enhancing a Car Change Through Emotion: A Mixed Methods Approach

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Abstract

Emotional product attachment comprises multiple dimensions, and the significance of these dimensions can change over time. Cars can evoke a wide range of emotions in their owners, particularly during an event in which an owner changes cars. This may be characterized by user sadness over the loss of the previous car and their memories associated with the car, as well as a pleasant anticipation or uncertainty regarding the upcoming car. Apps may help users to overcome such an emotional dilemma. This study investigates and reports on the impact of prototypical app variants on users' emotional perception of changing cars. The app variants were explicitly designed to address user memories and pleasure. This study employed a mixed-methods approach, combining qualitative questions and quantitative measurements. The sample consisted of $N = 43$ participants who exhibited varying levels of emotional attachment to their cars. Our results indicate that the app variants succeeded in their intended goals. A variant focusing on memories stored users' memories of the car, leading to both facilitating and hindering the emotional handling of the car change. A variant focusing on pleasure stimulated users' anticipation for the upcoming car, proving to be the most effective strategy to support positive feelings during a car change. Notably, the perceived helpfulness of the app variants was independent of users' level of emotional attachment.

This study demonstrates that digital interventions can influence emotional attachment to cars, providing new insights into the complex relationship between users and their possessions. The findings have implications for designing user experiences that aim to enhance emotional attachment and long-term use of products like cars.

Keywords

emotions, product attachment, car change, memories, pleasure, app, user experience

Introduction

Emotional Product Attachment

People can develop attachments with brands or objects as they do with other people (Page, 2014; Park et al., 2010). These attachments have been shown to emerge from ongoing interactions between users and specific products, influencing consumers' decisions, including continued product use intention, purchasing behavior, and brand loyalty (Diefenbach & Hassenzahl, 2017; Fournier, 1998; Park & Macinnis, 2006). Emotions, amongst others, have consisted of two components: valence and arousal. Valence reflects the direction of the emotional response (negative or positive), whereas arousal indicates the intensity of the emotion (calming or exciting) (Bhandari et al., 2017; Deng & Poole, 2010; Kensinger, 2004).

Hassenzahl (2005) distinguished between hedonic and pragmatic product qualities. Both influenced product evaluation and attachment. Yet pragmatic qualities, such as usability and utility, directly supported task completion. Hedonic qualities, considered to intensify emotional user experiences, were shown to encompass: (1) stimulation, evoking emotional responses through novelty and excitement; (2) evocation, triggering personal memories and emotions; and (3) identification, allowing users to express their identity through the product (Hassenzahl, 2005). Winder (2006) found a strong correlation between the prominence of hedonic qualities and the depth of emotional attachment formed with a product. Both product qualities contributed to an overall judgment regarding the appeal of a product, leading to an assessment (good or bad). This was shown to result in behavioral consequences (such as increased usage frequency) and emotional outcomes (including joy or satisfaction) (Sandweg et al., 2000). For example, Wang and Wang (2022) demonstrated that hedonic and pragmatic quality perceptions mediate the impact of emotional arousal and valence on smartwatch usage intention. They concluded that product developers should fulfill emotional needs and consider the hedonic experience alongside pragmatic issues.

Mugge's (2007) model of emotional product attachment aligned partly with Hassenzahl's (2005) framework for hedonic product qualities. According to Mugge (2007), four key dimensions fostered emotional attachment between users and products; (1) self-expression, pertaining to users' desire to distinguish themselves from others and convey their identity through a product (which partially aligns with Hassenzahl's (2005) concept of identification); (2) memories, describing the product's capability to evoke positive memories and emotions in the user (paralleling Hassenzahl's (2005) evocation dimension); (3) pleasure, referring to the immediate enjoyment and positive feelings experienced by users when interacting with a product (Hassenzahl's (2005) stimulation can be seen as an aspect of pleasure); and (4) Mugge's (2007) group affiliation*,* describing the user's need to feel connected to a social group and gain recognition and acceptance through the product. This dimension was not directly represented in Hassenzahl's (2005) model but can be interpreted as an aspect of the identification concept.

The Importance of Time for Emotional Product Attachments

Users' perceptions of a product's qualities evolve over time. Hedonic qualities can fluctuate more than the relatively stable pragmatic qualities (Wilamowitz-Moellendorff et al., 2007). According to Kujala et al. (2011), the most significant shift in a product's attractiveness has occurred during its initial stages of use. Their observation aligned with Pettersson's (2016) findings, highlighting that first impressions are crucial for shaping long-term product loyalty. At the beginning of using a product, or even before its purchase, users have been shown to experience a phase of anticipation during which expectations about the product are formed. Hassenzahl (2005) showed that the novelty of a product generated curiosity and excitement about exploring its new features, which stimulated and elicited pleasure in the user. However, this stimulation was shown to diminish over time as the user became familiar with the product, unless other methods, such as regular updates, continually stimulated it. Habituation led to a decline in the attractiveness of a product (Hassenzahl, 2006). Conversely, attractiveness perception also grew as a product became more familiar and better understood (Hassenzahl, 2006). Over time, memories and a stronger identification with a product can accumulate (Karapanos, 2013). Through repeated interactions, positive associations, and evoked memories, lasting positive feelings toward a product have been shown to develop over time (Norman, 2005). Positive memories have been shown to be important for fostering product loyalty (Mugge et al., 2005). Given the positive correlation between product-related memories and the degree

of attachment to a product, it is reasonable to infer an increase in product loyalty over time (Mugge et al., 2005).

According to Hassenzahl and Monk (2010), products—particularly technologies and their functionalities—gained significance only through users' experiences with them. They proposed "putting experience before the product" (Hassenzahl & Monk, 2010, p. 63). This experience-oriented approach emphasized individual and personal interactions, creating a narrative with the product that generated emotions and meanings, which could then become integral aspects of the product (Hassenzahl, 2001).

Application in the Automotive Context

The car has been a product that commonly elicits emotions, and it is used over extended periods (Sheller, 2004; Steg, 2005). Beyond its functional role as a mode of transportation, cars have served as a means of self-expression and personal identity for many individuals. This has become evident in car models and customization options that allow users to convey their personality and values. Furthermore, cars have often been tied to memories of significant life events and experiences. Using a car was shown to evoke excitement and pleasure, particularly when integrating modern technologies and the thrill of driving (Grund et al., 2024b; Steg, 2005). The attachment between users and their cars can strengthen over time. Initially, Grund et al. (2024b) showed users felt anticipation and uncertainty, which became trust and affection over time as they became more familiar with their cars. Special memories and experiences associated with cars were the primary reason for building an emotional attachment (Grund et al., 2024b). A survey in the United States corroborated this emotional attachment: 64% of participants considered their car a friend, and over one-third would rather take a scratch themselves than see their car get one (SWNSDigital, 2019).

Farewell to a car can be a challenging experience for many users. It has often been accompanied by negative emotions such as grief and loss, both for the car itself and the memories and experiences it represented (Fraine et al., 2007; Grund et al., 2024b). The U.S. survey found that over 10% of owners would rather break up with their partner than part with their car. Nearly half of the participants admitted to shedding tears when saying goodbye to their car. Moreover, over half of the participants still regretted giving up a car they loved, as they associated so many deep memories with it (SWNSDigital, 2019).

Grund et al. (2024a) researched how to emotionally support users with emotional attachment to their cars during their farewell to the car. Users desired a memory repository allowing them to preserve their memories associated with the car when parting with it. They described it as the brain of the car that could be taken with them, providing a sense of continuity. Therefore, we formed our first research question as "Can storing memories and experiences with the previous car help users emotionally during the car change?"

Furthermore, generating pleasant anticipation for the upcoming car has been shown to help alleviate negative emotions during a car change (Grund et al., 2024a). Users desired to get familiar with the upcoming car and create new memories and experiences that would stimulate positive emotions. Therefore, we formed our second research question as "Can stimulating anticipation for the upcoming car help users emotionally during the car change?"

Because changing cars is an emotional process, it offered potential for intervention. This study aimed to implement and validate approaches to support users who emotionally struggle to part with their cars. To address the user's desire for a portable memory of car-related experiences, we operationalized the ideas developed by Grund et al. (2024a) through a mobile application. This approach avoided physical modifications to the car to influence emotional attachment. To address the research questions, three different variants of an app prototype were developed:

1. A memories app variant aimed to store memories of the previous car (evocation according to Hassenzahl (2005), and memories according to Mugge (2007)).
2. A pleasure app variant aimed at stimulating anticipation of the upcoming car (stimulation, according to Hassenzahl (2005), and pleasure according to Mugge (2007)).
3. A pragmatic app variant without emotional functions was integrated into the evaluation tests as a baseline.

To answer the first research question, we postulated the following hypotheses:

- H1: A memories app variant will better preserve memories with the previous car than pleasure and pragmatic app variants.
- H2: The overall car change is perceived more positively with a memories app variant than with a pragmatic variant.
- H3: The farewell of the previous car is perceived less negatively with a memories app variant than with a pragmatic variant.

To answer the second research question, we assumed the following:

- H4: A pleasure app variant leads to more pleasant anticipation for the upcoming car than memories and pragmatic app variants.
- H5: The overall car change is perceived more positively with a pleasure app variant than with a pragmatic variant.
- H6: The receipt of the upcoming car is perceived more positively with a pleasure app variant than with a pragmatic variant.

However, Grund et al. (2024a) only surveyed users with an emotional attachment. Past research indicated that users with weaker emotional attachments to their cars primarily mentioned pragmatic aspects leading to positive emotions (Grund et al., 2024b). An app targeting the emotional aspects of attachment to the car may not have the desired effect on users who do not associate so many emotions with the car. Therefore, we assumed the following:

- H7: A memories and a pleasure app variant show stronger effects among emotionally attached users than among less attached users.
- H8: The overall app is rated more positively by emotionally attached users than by non-emotionally attached users.

This study advanced our understanding of which dimensions of product attachment can be used to facilitate the emotional aspects of car changes. Our research moved beyond acknowledging the emotional attachment to cars by developing and testing app-based approaches.

Our work offers novel theoretical insights into the practical application of attachment theory in a transitional consumption context. It examines how leveraging product attachment through digital interventions can mitigate negative emotions during product farewell and foster positive feelings toward new acquisitions.

This research provides insights for UX practitioners in automotive and other industries by demonstrating effective app functionalities that address users' emotional needs during product changes. The prototypes we developed can serve as a blueprint for future interventions to enhance user wellbeing during product lifecycle changes.

Methods

Prototype Design

The prototype features were based on the ideation results of six focus groups, which covered different user groups (Grund et al., 2024a), and two additional workshops that included six employees from the automotive industry. The focus groups and workshops generated ideas for features while evaluating technical feasibility. We (the authors) determined that assigning their ideas to Hassenzahl's (2005) and Mugge's (2007) dimensions would help develop the ideas into distinct concepts; distinctiveness would allow for the separate assessment of the dimensions' effects on emotional attachment and helpfulness during a car change. Therefore, we asked 11 UX researchers to assign the ideas to their respective dimensions. Ideas that were not clearly assigned to one dimension were then excluded. In the next step, we asked 19 employees from various departments in the automotive industry to assess the potential of the remaining ideas to enhance user satisfaction by using the Kano Model (Kano et al., 1984). The model, which describes the relationship between user requirement fulfillment and satisfaction, aids in evaluating ideas based on their relevance and impact on satisfaction, although the model was designed initially to help identify user requirements and expectations during product

development (Kano et al., 1984). Then, we selected ideas such as enthusiasm factors, which were identified as a means to increase satisfaction, for development into prototype features.

The prototype was a smartphone application, as it was easiest to implement and most likely to meet user requirements for personalization and transferability between cars. We created the prototype in Figma™ (2023) and followed interaction principles of DIN EN ISO 9241-110 (Deutsches Institut für Normung e.V., 2020) and usability heuristics for user interface design (Nielsen, 2024). The prototype app was presented on an iPhone® 7. Start pages of the variants are shown in Figure 1.

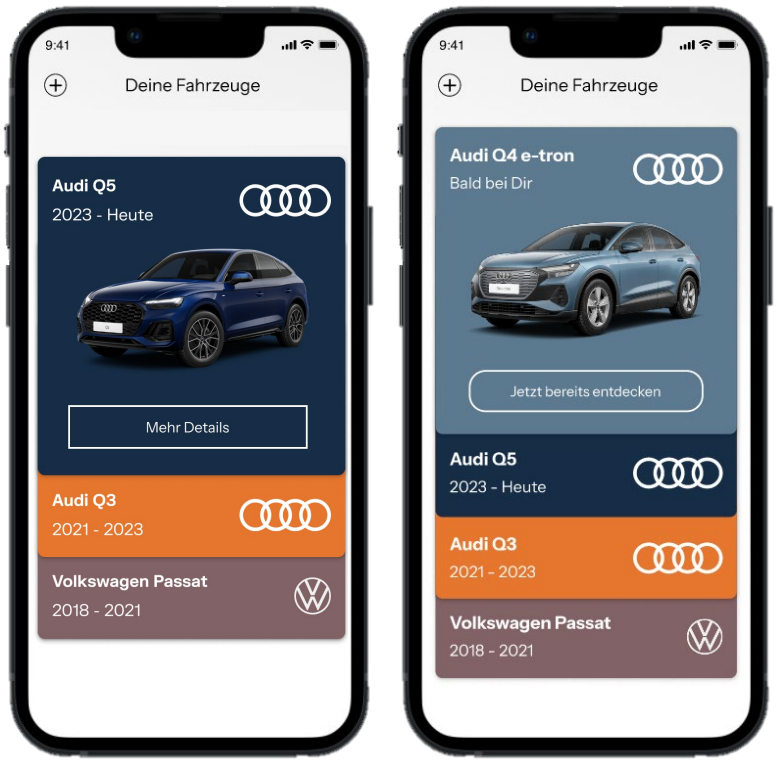


Figure 1. Start pages of the memories and pragmatic variant (left) and the pleasure variant (right). The start pages showed the previous cars, the current car, and, the pleasure variant, additionally, the upcoming car.

Clicking the Further Details button directed the participant to the overview pages (Figure 2) of the respective car, where short overviews and links to features of the corresponding variant were integrated.

Figure 2. Overview pages of the memories variant (left), pleasure variant (middle), and pragmatic variant (right). Call-outs (1), (5), and (9) show the 3D model of the respective car in

memory. The pages include: (2) links to the photo album, (3) navigation to the records, and (4) an excerpt of the heatmap and links to further travel details for the pleasure variant; (6) opens the real-time tracking and live image, (7) directs to more video clips, and (8) provides explanations of new features in the car in the pragmatic variant; (10) opens the digital car manual, and (11) provides a help function.

Memories Variant

The memories variant allowed users to store memories of their previous car. The following features, which can be primarily attributed to the evocation dimension, were integrated for each car:

- 3D model: A 3D car model, including personalization, could be rotated to view all sides, interior, and exterior.
- Photo album: The photo album displayed photos of users' cars like gallery apps. Participants were informed that artificial intelligence (AI) would recognize cars in pictures and videos taken by users and automatically add them to the app, though this functionality was not implemented. Users could view photos in overview or detail, mark favorites, and share them with friends. Users could access photo information, including recognized people, location, and AI-generated tags. Filtering allowed users to select cars from their history to view specific photos.
- Records: The records feature showed statistics and records of individual cars. Statistics included average fuel consumption, total distance traveled, and average speed, with possible car comparisons. Records showed the highest values achieved with each car, such as the most kilometers driven daily, the most trips taken, or countries visited. Users could access detailed information and filter records for selected cars.
- Traveling: A heatmap showed trip frequency to various locations. An overview of vacation trips was provided, where an AI algorithm supposedly distinguished between daily commutes and vacation travels. The overview included trip dates and distances. Selecting a trip displayed the route, stops, and photos, allowing users to retrace each day's journey.

Pleasure Variant

The pleasure variant was designed to stimulate anticipation for the upcoming car. We integrated features that evoked pleasure and curiosity. The start page differed from the memories variant only in an additional tile displaying the upcoming car for user selection. Users could access details about each car, including 3D models of the interior and exterior. For the upcoming car, we implemented these features:

- 3D model: The upcoming car was displayed as a 3D model designed to match the ordered car.
- Countdown: Above the 3D model, a countdown displayed the days until car delivery.
- Real-time tracking and live imaging: The tracking feature allowed users to monitor their car's production process in real-time. Users could access a detailed production log to track progress. Live images were displayed during specific production milestones, such as painting.
- New feature highlights: An overview covered innovative features, including operation and technical implementation, helping users understand and anticipate the car's capabilities.
- Video clips: Promotional videos and clips showcasing the car were accessible to users anytime.

Pragmatic Variant

The pragmatic variant served as a baseline, avoiding features that could evoke emotions and focusing on functional benefits. The start page matched the memories variant without featuring the upcoming car to prevent anticipation.

- 3D model: A 3D car model, including personalization, could be rotated to view all sides, interior, and exterior (the same as the memories variant).
- Digital car manual: The manual was digitally stored with hyperlinks between contents and pages for easy navigation.
- Help function: Users could access the help function for questions about car operation and receive intelligent explanations.

Research Design

We used a mixed-method approach. Our qualitative approach informed a deep understanding of the background, why each app variant can help with the car change, and where problems may arise. The quantitative approach identified statistically significant effects of the apps on emotional experiences. Therefore, we supplemented semi-structured interviews with quantitative questionnaires at several points. One experienced interviewer conducted all interviews. A student assistant was also present on-site or remotely to take notes and keep records.

We based our study on a 2 x 3 mixed within- and between-subjects design. The two-level between-subjects variable Emotional Attachment (to the car) distinguished between the manifestations Emotional Attachment (E+) and No Emotional Attachment (E-). This classification was based on selective questions during recruitment to obtain approximately equally-sized groups. The three-level within-subjects variable, App Variant, corresponded to the three different variants of the app—memories, pleasure, and pragmatic—with the presentation order randomized to minimize potential biases of the participants during the study. The participants were unaware of both the different goals of the app variants and the fact that different groups were considered in terms of emotional attachment to the car.

Quantitative Measurements

This study was conducted in Germany. Hence, all communication was conducted in the German language. To integrate our English questionnaires, the questions and items were translated into German. For this study, all questions and items are shown in English, which is either the original English wording or translated from German to English.

Emotional Attachment

- Inclusion of Other in the Self (IOS) scale. The single-item IOS scale, developed by Aron et al. (1992), measures the closeness that a participant feels to another person, group, or object. Participants were presented with seven pairs of circles overlapping to varying degrees, ranging from two separate circles that only touched (1), which indicates no or a very weak emotional attachment, to two circles that almost completely overlapped (7), which reflects the strongest attachment to the car. The participants expressed their perceived attachment to the car by choosing one picture of the two circles.
- Product Attachment Scale (PAS). The PAS, developed by Mugge et al. (2005), measures product attachment based on these dimensions: memories, pleasure, self-expression, and group affiliation. The participants expressed their agreement on a 7-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (7). The scale was adapted to the automotive context. The items were presented in a randomized order.

Emotionality in the Scenario of a Car Change

- Self-Assessment Manikin (SAM) scale. The SAM scale (Bradley & Lang, 1994) was used to measure valence (unhappy to happy) and arousal (calm to stressed) during the car change, the farewell to the previous car, and when receiving the upcoming car. SAM uses a nonverbal pictorial assessment technique using cartoons on a 9-point scale.

Evaluation of the App

- Questions on app effects. We created a questionnaire on the app effect using the following questions to test whether the app variants reached their intended goals:
  1. How well can you retrieve memories from the car using this variant?
  2. How strongly do you experience anticipation for your upcoming car through this variant?
  3. How well can this variant emotionally help you during a car change?

  The questions were answered on a 5-point Likert scale ranging from Not at All (1) to Completely (7).
- User Experience Questionnaire (UEQ). The UEQ, developed by Laugwitz et al. (2008), evaluates the user experience of interactive products across pragmatic quality aspects (perspicuity, efficiency, and dependability), hedonic aspects (stimulation and novelty), and attractiveness. The items were presented as semantic differentials, each consisting of two opposing adjectives. The order of the terms in each item was randomized. A seven-point scale was used, with items from -3 (most negative response) to +3 (most positive response). Values between -0.8 and 0.8 were considered neutral (Schrepp, 2015). We compared the data we collected to a benchmark for other interactive products.
- Net Promoter Score (NPS). The NPS® (Reichheld, 2003) is a single-item questionnaire that measures customer loyalty by assessing the likelihood of users recommending a product to others. Based on their answers ranging from very unlikely (0) to very likely (10), the respondents can be categorized into three groups:
  - Promoters (scores of 9 or 10) were the most satisfied users who were very likely to recommend the product.
  - Passives (scores of 7 or 8) were users who were satisfied with the product but would not recommend it.
  - Detractors (scores between 0 and 6) were the most dissatisfied users who might even advise their friends and acquaintances against the product.

  Analogous to Reichheld (2003), the NPS was calculated by subtracting the percentage of detractors from the percentage of promoters.

Recruiting and Sample

We conducted interviews from November to December 2023 in a separate testing room in our office buildings in Berlin and Munich. Each session lasted about 75-90 minutes. All interviews were recorded with the participants' consent for data analysis. Participants could withdraw from the study without fear of negative consequences. We recognized no ethical concerns.

The study included $N = 43$ participants; $n = 22$ in Munich and $n = 21$ in Berlin. Initially, a sample of 44 was planned, but one participant had fallen ill at short notice and could not be replaced. With this sample size, we followed the recommendations of Budiu and Moran (2021). A recruitment agency recruited and incentivized the participants. They were contacted by email and asked about the inclusion criteria. All participants had owned or leased a car they used regularly (at least 5,000 km/year) and either planned to change their car within the next six months or had changed it in the last six months. All participants spoke fluent German and owned a smartphone. Participants' ages were collected in categories ranging from 18 to 65 years of age (Table 1).

Table 1. Age Distribution of the Sample

Age Category	Number (*n*)
18–29	3
30–39	12
40–49	9
50–59	11
60–65	8

We assessed emotional attachment to the car during the recruitment process using the questions developed by Grund et al. (2024b) to ensure similar group sizes. Participants responded to seven questions, expressing their agreement on a 4-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (4). The questions included, for example, "I simply love this car," or (inverted) "I primarily see my car as a means of transportation." Participants who responded with a score of 3 or 4 on at least 5 of 7 questions (or 1 or 2 on inverted questions) were assigned to the E+ group (n = 23), and the others were assigned to the E- group (n = 20). The gender-specific distribution is shown in Table 2.

Table 2. Gender Distribution by User Group

Age Category	**Number (*n*)**	
	E+	**E-**
Male	13	14
Female	9	7

Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

Procedure

Upon arrival, the participants were informed about the procedure and presented with the three mobile application variants designed to provide emotional support while changing cars. The specific goals of each variant were not disclosed to avoid bias. Participants were assured of data anonymization and asked to consent to audio recording. The interview commenced thereafter. The interview consisted of six thematic blocks, each comprising qualitative questions and quantitative questionnaires:

1. Emotional attachment to cars. The first part introduced the topic. Participants were asked about their general experiences with car usage, emotional attachment, and memorable events related to their car. They rated their emotional attachment to their current car or, if they had recently changed cars, their previous one using the IOS scale and the PAS.
2. Car change. Participants identified factors influencing their decision to change cars and described their emotions when leaving their previous car, during the change process, and notable emotional moments. They explained what helped them cope emotionally and evaluated their emotions' valence and arousal using the SAM.
3. App Variant 1. In parts 3, 4, and 5, participants interacted with the different variants of the app. Participants could operate independently with the app. They were informed they would use a prototype that might have technical issues and would show example cars instead of personal vehicles. They were asked to imagine the app displaying their car history. Participants completed test tasks to explore all features. They were encouraged to explore freely and think aloud. After exploring each variant, they completed questionnaires on the app's effects and rated their emotions using SAM regarding their previous car farewell, upcoming car receipt, and overall change.
4. App Variant 2. The procedure was the same as for variant 1.
5. App Variant 3. The procedure was the same as for variant 1.
6. Summary and overall concept. In the last part of the study, participants evaluated which variant would best help them during a car change. They were informed that the three variants would be integrated into one app. Participants were then asked about their intentions to use such an app. Following this, they evaluated the overall concept using the UEQ. Next, participants completed the PAS again, assuming they had access to such an app. Then, they responded to the NPS and suggested potential improvements for the app. Finally, the participants were thanked and escorted to the exit.

Data Analysis

To maintain privacy, participants were assigned labels like M22, in which the first letter indicated the study city (M for Munich, and B for Berlin). We analyzed the quantitative data using descriptive statistics with Microsoft® Excel™ 2016 and IBM® SPSS® Statistics (Version 27). Due to the small sample size ($N < 50$), we tested normality distribution using the Shapiro-Wilk test ($p > .05$). We checked the homogeneity of variance using the Levene test ($p > .05$). We checked sphericity using the Mauchly test ($p > .05$). And we calculated using a repeated ANOVA or mixed ANOVA if the requirements were met. Because ANOVA is very robust against violations of normality (Vasey & Thayer, 1987), we still calculated it if normality was not given. If sphericity was not met, we performed a Greenhouse-Geisser correction, as this is the most conservative correction option. We used contrasts for directed hypotheses to calculate differences between the app variants, as these have high statistical power and an interpretable effect size. For non-directed hypotheses and only if Emotional Attachment was included in the analysis, we performed *t*-tests, employing a Bonferroni-Holm correction when needed. We calculated effect size using an online calculator (Hemmerich, 2015).

We had the audio recordings transcribed verbatim and compared them to the observer's notes. We analyzed qualitative data using MAXQDA™ software (VERBI Software, 2018). The qualitative content analysis followed the recommendations of Kuckartz (2016). We used a deductive-inductive approach to code and categorize the data. The first author established a preliminary category system based on semi-structured interview guideline themes, product quality dimensions (Hassenzahl, 2005), and previous research (Grund et al., 2024a). We refined this system inductively by analyzing relevant text passages, adding additional categories, and developing a hierarchical structure. Our iterative process continued until the category system reached saturation, meaning that no further modifications were required. An experienced student assistant independently developed a category system, which was compared with the first author's system. Discrepancies were discussed to create a final system, which the second author reviewed.

Results

Review of Grouping

Based on the recruiting questionnaire, participants were divided into two groups, E+ and E-. This classification was validated using the IOS scale and the PAS. We expected the E+ group to score higher than the E- group. The E+ group reported a high attachment to their car on both scales. In contrast, the E- group scored in the middle range (Table 3). An independent samples *t*-test revealed a statistically significant difference between the E+ and E- groups regarding their emotional attachment to their car on the IOS scale ($t(41) = 2.90$, $p = .003$, $d = .89$) and the PAS ($t(41) = 3.84$, $p < .001$, $d = 1.20$). According to Cohen (1988), this represents a large effect size, indicating the group assignment was successful.

Table 3. Means (*M*) and Standard Deviations (*SD*) for the IOS and the Product Attachment Dimension of the PAS by User Group

Scale	**E+**		**E-**	
	M	***SD***	***M***	***SD***
IOS	5.35	1.40	4.10	1.41
PAS	5.90	0.90	4.69	2.39

Effect of the App Variants

We analyzed the questions on the app effect to examine whether the self-designed app variants achieved the intended goals. The results showed participants reported being able to retrieve memories very well when using the memories app variant ($M = 6.53$, $SD = 0.59$), which was significantly higher than the values for the pleasure variant ($M = 3.33$, $SD = 1.67$) and the pragmatic variant ($M = 2.60$, $SD = 1.29$). The results are shown in Figure 3.

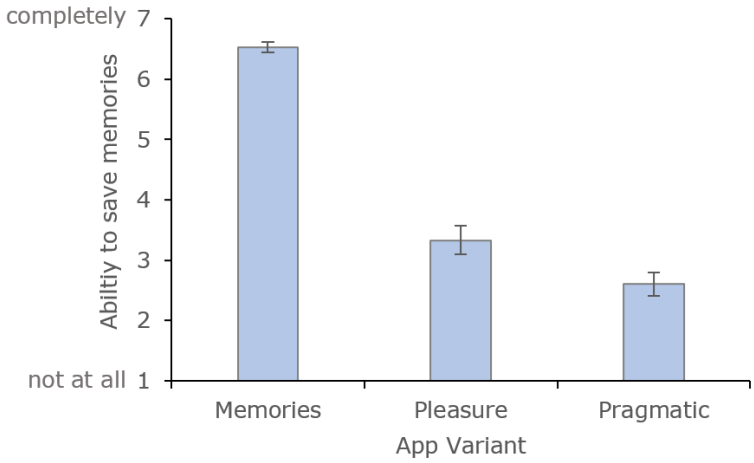


Figure 3. Means and standard errors (*SE*) for how well the app variants can save memories.

The differences between the app variants in terms of their ability to support memory retrieval were significant ($F(2, 82) = 140.26$, $p < .001$). The memories app variant was rated highest, with a mean difference of 3.58 ($SE = 0.19$, $p < .001$, partial $\eta^2 = .90$).

The participants reported experiencing pleasant anticipation for the upcoming car when using the pleasure app variant ($M = 6.51$, $SD = 0.67$). This was less pronounced for the memories ($M = 4.07$, $SD = 1.91$) and pragmatic ($M = 2.58$, $SD = 1.26$) app variants. The results are depicted in Figure 4.

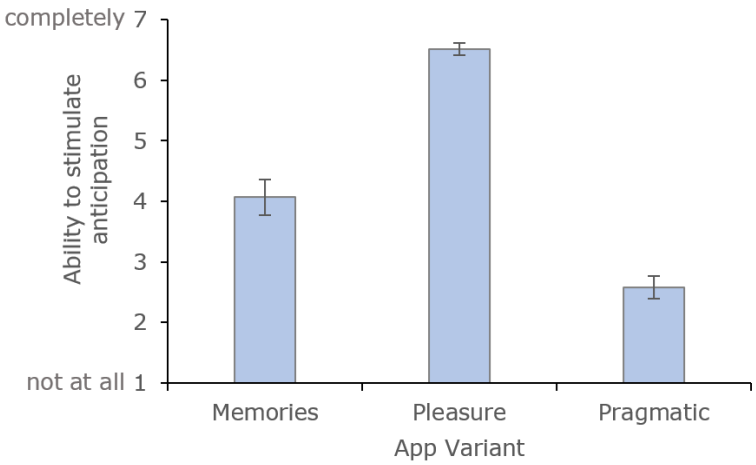


Figure 4. Means and standard errors (*SE*) for how well the app variants can stimulate anticipation for the upcoming car.

The differences between the app variants were significant ($F(2, 82) = 120.02$, $p < .001$). The pleasure app variant was rated highest, with a mean difference of 3.16 ($SE = 0.21$, $p < .001$, partial $\eta^2 = .85$).

The qualitative data supported these results. We counted the participants who spontaneously mentioned that the respective app variant could store memories or trigger anticipation for the upcoming car. Table 4 presents these results compared to the other variants.

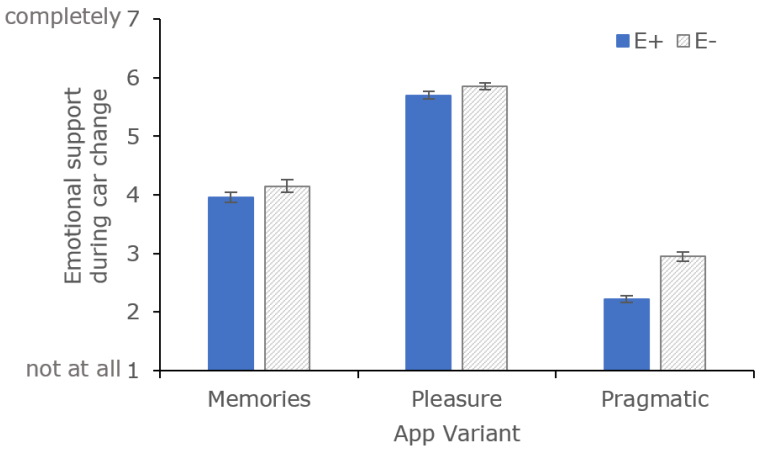
Table 4. Number of Participants Who Spontaneously Said the Variant Can Save Memories or Create Anticipation

Age Category	Memories	Pleasure	Pragmatic
Save memories	32	2	4
Create anticipation	10	28	5

It can be assumed that the participants felt they could retrieve memories of their car using the memories variant better than the other variants, which was consistent with H1. The pleasure variant triggered more pleasant anticipation for the upcoming car than the other app variants, which was consistent with H4. Thus, the results suggest the app variants achieved the intended goals.

Evaluation of the App Effect

The third question of the questionnaire on app effect was to investigate whether the process of changing cars is perceived more positively through the feeling of being able to store memories or experiencing anticipation for the upcoming car. Overall, participants rated the pleasure variant as most helpful during the car change process (M = 5.77, SD = 1.25), followed by the memories variant (M = 4.05, SD = 2.08), and last the pragmatic variant (M = 2.56, SD = 1.44). Figure 5 presents the group-specific results.



Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

Figure 5. Mean values and standard errors (SE) of the assessment of emotional support by app variant and user group.

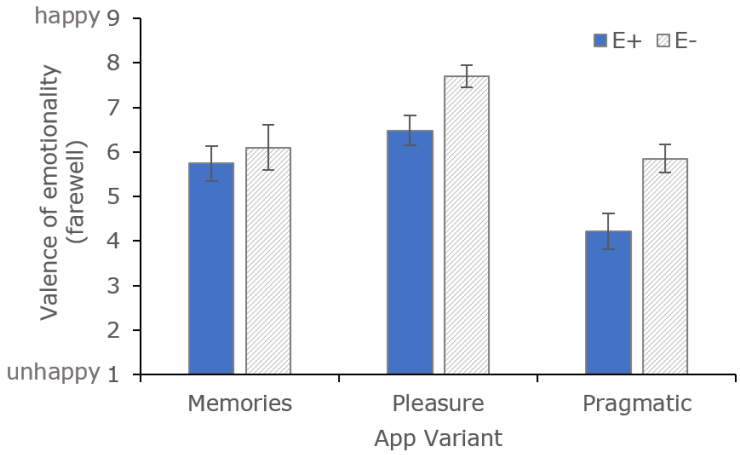
The mixed ANOVA revealed the differences between the variants were significant (F(2, 82) = 44.42, p < .001, partial η^2 = .52). The pleasure variant was rated as the most helpful (Table 5). The memories variant was rated as more helpful than the pragmatic variant. The results are consistent with H2 and H5. There were no indications of differences between the E+ and E- groups (F(1, 41) = 0.84, p = .366). The interaction was insignificant (F(2, 82) = 44.42, p = .636).

Table 5. Contrast Calculation for the Emotional Support During the Car Change to Compare the App Variants

Contrast	*F*	*p*	Partial η²
Memories vs. pragmatic	18.63	< .001	.30
Pleasure vs. pragmatic	114.04	< .001	.73
Memories vs. pleasure	22.99	< .001	.35

Evaluation of the Emotional Valence

Valence Regarding the Farewell to the Previous Car: Emotionally attached participants experienced fewer positive feelings during the farewell from the car (*M* = 4.22, *SD* = 1.91) than emotionally unattached participants (*M* = 5.85, *SD* = 1.42). Using the memories variant, the feelings in both groups became more positive (E+: *M* = 5.74, *SD* = 1.89; E-: *M* = 6.1, *SD* = 2.27). With the pleasure variant, the feelings in both groups became even more positive (E+: *M* = 6.48, *SD* = 1.59; E-: *M* = 7.70, *SD* = 1.13). This is shown in Figure 6.



Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

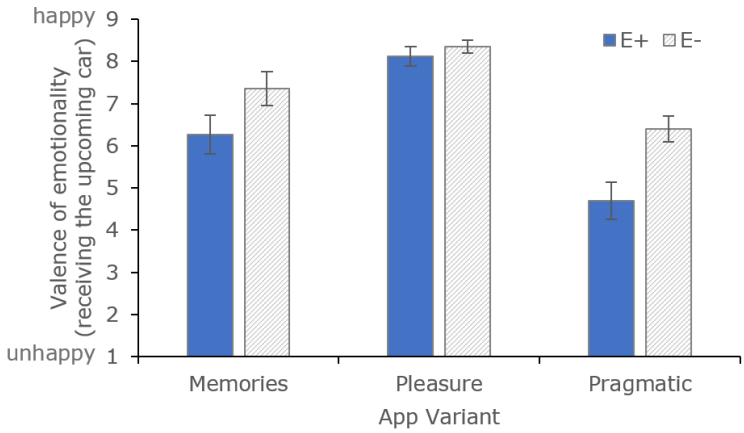
Figure 6. Mean values and standard errors (SE) of the valence of emotionality regarding the farewell to the previous car by app variant and user group.

The assumption of sphericity was not met (*p* = .012). Therefore, a Greenhouse-Geisser correction was performed. Because Box's M-test indicated the covariance matrix was not equal, we cannot interpret the interaction effect. Significant differences were found between the user groups (*F*(1, 41) = 10.207, *p* = .003, partial η² = .199). Group differences were found in the app variant pleasure (*t*(41) = 2.862, *p* = .014, *d* = 0.875) and pragmatic (*t*(41) = 3.141, *p* = .009, *d* = 0.960). Additionally, the within-subjects factor App Variants showed significant differences (*F*(1.67, 68.39) = 16.46, *p* < .001, partial η² = .286). The contrast calculation revealed significant differences between all variants, with the largest effect between the pleasure and pragmatic variants (Table 6). Nevertheless, the farewell of the previous car was perceived less negatively with memories than with pragmatic, which is consistent with H3.

Table 6. Contrast Calculation for the Valence Regarding the Farewell to the Previous Car to Compare the App Variants

Contrast	*F*	*p*	Partial η²
Memories vs. pragmatic	4.28	.045	.095
Pleasure vs. pragmatic	49.75	.000	.548
Memories vs. pleasure	11.47	.002	.219

Valence Given Receiving the Upcoming Car: With the baseline pragmatic variant, emotionally attached participants exhibited feelings in the medium range given receiving the upcoming car (M = 4.70, SD = 2.10). In contrast, emotionally unattached participants were more positive (M = 6.40, SD = 1.39). When using the memories variant, feelings in both groups became more positive (E+: M = 6.26, SD = 2.22; E-: M = 7.35, SD = 1.79) than with the pragmatic variant. The pleasure variant further increased positivity in both groups (E+: M = 8.13, SD = 1.10; E-: M = 8.35, SD = 0.67). This is illustrated in Figure 7.



Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

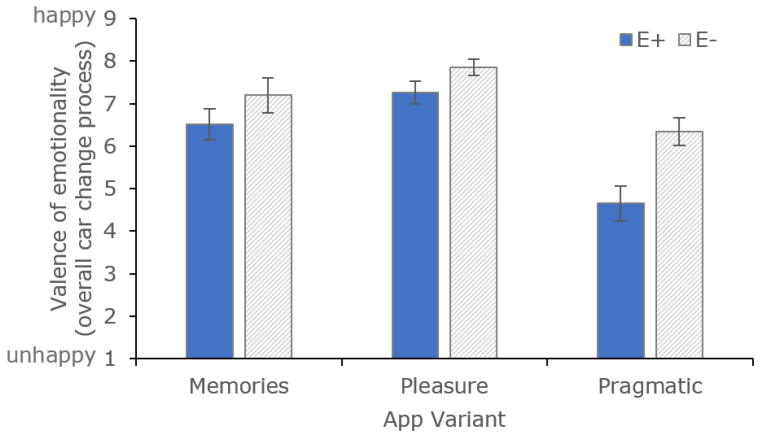
Figure 7. Mean values and standard errors (SE) of the valence of emotionality in view of receiving the upcoming car by app variant and user group.

The assumption of sphericity was not met (p = .041). Consequently, a Greenhouse-Geisser correction was applied. Since Box's M-test indicated a lack of equality in the covariance matrices (p = .009), we cannot interpret the interaction effect. Significant differences were observed between the user groups (F(1, 41) = 7.97, p = .007, partial η² = .163). These effects are due to group differences in the pragmatic app variant (t(41) = 3.087, p = .012, d = 0.944). Furthermore, significant differences were found for the within-subjects factor of App Variants (F(1.743, 71.482) = 37.18, p < .001, partial η² = .476). Contrast analysis revealed significant differences between all variants, with the largest effect observed between the pleasure and pragmatic variants (Table 7). This is consistent with H6.

Table 7. Contrast Calculation for the Valence Given the Upcoming Car to Compare the App Variants

Contrast	*F*	*p*	Partial η²
Memories vs. pragmatic	11.72	.001	.222
Pleasure vs. pragmatic	95.91	< .001	.701
Memories vs. pleasure	24.98	< .001	.379

Valence Regarding the Overall Car Change Process: Given the overall car change with the baseline pragmatic variant, emotionally attached participants' feelings were in the medium range (M = 4.65, SD = 1.97), while emotionally unattached participants were more positive (M = 6.35, SD = 1.46). When using the memories variant, feelings in both groups became more positive (E+: M = 6.52, SD = 1.75; E-: M = 7.20, SD = 1.85). The pleasure variant further increased positivity in both groups (E+: M = 7.26, SD = 1.29; E-: M = 7.85, SD = 0.88). This is illustrated in Figure 8.



Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

Figure 8. Mean values and standard errors (*SE*) of the valence of emotionality regarding the overall car change process by app variant and user group.

Significant differences were found for the within-subjects factor of App Variants (F(2, 82) = 25.173, p < .001, partial η² = .380). Contrast analysis revealed significant differences between all variants, with the largest effect observed between the pleasure and pragmatic variants (Table 8). This, again, is consistent with H2 and H5.

Table 8. Contrast Calculation for the Valence Regarding the Overall Car Change Process to Compare the App Variants

Contrast	***F***	***p***	**Partial η²**
Memories vs. pragmatic	16.97	< .001	.293
Pleasure vs. pragmatic	53.47	< .001	.566
Memories vs. pleasure	6.67	.014	.140

Furthermore, significant differences were observed between the user groups (F(1, 41) = 8.163, p = .007, partial η² = .166). These effects are due to group differences in the pragmatic app variant (t(41) = 3.171, p = .009, d = 0.970). The interaction effect was not significant (F(2, 82) = 2.18, p = .119), which is inconsistent with H7.

Evaluation of the Qualitative Data

Participants were asked which variant would help them emotionally during the car change. The majority (n = 22) indicated the pleasure variant to be the most helpful, as it increased their anticipation of the upcoming car the best. Participant B23 reported: "I think the variant with the upcoming cars helps me the best because I already have a sense of anticipation for the upcoming car. That outweighs everything and helps me let go of the previous one." Other participants highlighted that following the "birth of the car" (M03) would increase the

attachment to the car from the start: "You can already be attached to the car from the beginning. Yes, that would increase the attachment to the upcoming car." (M02).

The memories variant was rated as the most helpful by n = 13 participants, as it allows memories to be preserved:

> *I have the photos and can recall the memories again. Yes, it is not gone, is it? (…) You can look at the previous car's photos, which is a wonderful thing. Above all, everything is in one place (M03).*

However, some participants also reported the memories variant would make the car change more difficult, as it would increase their emotional attachment to the previous car: "That would make it worse for me, all of it. (...) Because it emotionally increases the attachment with the previous car, so I cling to it" (M07).

Some participants could not decide and explicitly wished for a combination of both variants (n = 7) to utilize the advantages of both. Only one participant rated the pragmatic variant as the most helpful.

Overall User Experience of the App

The UEQ scales were examined to investigate the app's overall user experience. The raw data were transformed so that the most positive value corresponded to +3 and the negative value to -3. Both groups rated the overall app positively on all scales, as the values were > 0.8. In the benchmark, attractiveness, perspicuity, stimulation, and originality were rated excellent, meaning the overall app belongs to the top 10% of product ratings. The scales' efficiency and dependability achieved a good result, indicating that 10% of the results were better and 75% were worse. The mean values by group are presented in Table 9.

Table 9. Means (*M*) and Standard Deviations (*SD*) for the Dimensions of the User Experience Questionnaire (UEQ) by User Groups and Results of a Test of Between-Subjects Effects

Scale	E+		E-					
	M	***SD***	***M***	***SD***	***df***	***t***	***p***	***d***
Attractiveness	2.23	0.70	1.94	0.64	41	1.40	.084	.427
Perspicuity	2.24	0.61	2.10	0.47	41	0.82	.207	.250
Efficiency	1.76	0.75	1.44	0.64	41	1.51	.070	.461
Dependability	1.73	0.74	1.40	0.59	41	1.60	.059	.488
Stimulation	2.05	0.70	1.69	0.61	41	1.82	.038*	.556
Novelty	2.01	0.87	1.99	0.64	41	0.10	.461	.031

Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car; * indicates a significant result; $p < .05$

To check for significant differences between the groups in their ratings on the scales, we calculated a *t*-test for independent samples for each scale. Although the E+ group tended to rate the overall variant of the app higher, the difference was significant only on the stimulation scale. The other dimensions did not show significant differences, which is inconsistent with H8. Stimulation and novelty, which belong to hedonic qualities, were rated slightly better (M = 1.94, SD = 0.66) than pragmatic qualities such as perspicuity, efficiency, and dependability (M = 1.79, SD = 0.51), with both qualities being rated very positively.

Additionally, the NPS was used to examine whether participants would recommend the overall app to friends and family. An overall NPS score of 58.14 was achieved (E+: 60.87; E-: 55.00), which is rated as great (Raileanu, 2024). In both groups, the majority could be identified as promoters and would recommend the app. The number of participants by NPS category and group is presented in Table 10.

Table 10. Number of Participants According to the NPS Categories by User Group

NPS Category	E+	E-
Detractors	0	1
Passives	9	7
Promoters	14	12

Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

Qualitative data aligned with these findings. Almost all participants (n = 37) reported that they would like to use the overall app. "But I think what it offers is genius. It is really funny and enjoyable. Yes, it cannot get any better" (M03). The novelty of this app was particularly appreciated: "It's quite innovative, I don't know of any apps like it. I think it is really cool that you can store the past, but also the new. (…) it is a very positive app" (B08). Some participants (n = 11) emphasized their desire to use such an app across different brands, allowing them to switch between car manufacturers without giving up the app's features.

> *It needs to be clarified who offers it, and it would need to be promoted accordingly, and it would be more attractive worldwide if it would not be limited to just one brand. If it is only limited to one brand, it is okay, it promotes the brand. But if I would buy a BMW next and previously had a Hyundai, I would not use a VW app* (M08).

Influence on Product Attachment

How product attachment changed through interaction with the app was investigated exploratively. The PAS was applied both before the interaction with the app and once at the end. The mean values by group are presented in Table 11. To test the results for significance, a repeated ANOVA was conducted for each dimension with the within-subject factor Time and the between-subject factor Emotional Attachment.

Table 11. Means (M) and Standard Deviations (SD) of the Dimension of the Product Attachment Scale (PAS) Before and After the Interaction With the App by Group

Scale	E+				E-			
	Before		*After*		*Before*		*After*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Product attachment	5.90	0.90	6.01	0.93	4.69	1.55	4.92	1.25
Memories	4.59	1.88	5.62	1.53	4.61	1.73	5.48	1.32
Pleasure	6.41	0.60	6.39	0.67	5.35	1.09	5.37	1.23
Self-expression	4.73	0.99	4.61	1.24	3.62	1.37	3.87	1.48
Group affiliation	3.77	1.75	4.16	1.80	3.67	1.43	4.23	1.63

Note. E+: Participants with emotional attachment to their car; E-: Participants without an emotional attachment to their car

Product Attachment: Box's M-test indicated the assumption of equality of covariances was not met (p = .017), hence the interaction term cannot be interpreted. Also, the assumption of equality of error variances for product attachment before the interaction was not met (p = .022). There was no evidence that product attachment was higher after the interaction (F(1, 41) = 2.09, p = .156). As previously discussed during the recruitment check, the group differences were significant.

Memories: The statistical assumptions for this analysis were met. After the app interaction, participants were able to recall memories of their car better (F(1, 41) = 28.33, p < .001, partial

η^2 = .409). There was no evidence of an interaction effect (F(1, 41) = 0.23, p = .635) or group effect (F(1, 41) = 0.02, p = .899).

Pleasure: The assumption of equality of covariances was met (p = .054). However, the assumption of equality of error variances for pleasure before the app interaction was not met (p = .022). There was no evidence of differences before and after the app interaction (F(1, 41) < 0.01, p = .987) nor of an interaction effect (F(1, 41) = 0.06, p = .811). The groups differed significantly (F(1, 41) = 14.45, p < .001, partial η^2 = .261).

Self-Expression: The statistical assumptions were met. There was no evidence of differences before and after the app interaction (F(1, 41) = 0.35, p = .557) nor of an interaction effect (F(1, 41) = 2.94, p = .094). The groups differed significantly (F(1, 41) = 6.13, p = .018, partial η^2 = .130).

Group Affiliation: The statistical assumptions were met. After the app interaction, participants felt more affiliated with a group than before (F(1, 41) = 9.86, p = .003, partial η^2 = .194). There was no evidence of an interaction effect (F(1, 41) = 0.33, p = .569) or group effect (F(1, 41) < 0.01, p = .978).

Discussion

This study investigated whether storing memories of the previous car and creating anticipation for the upcoming car can emotionally support users during a car change. Previous research identified the car change as particularly emotional, as predominant feelings include sadness over parting with the previous car, pleasant anticipation, and uncertainty regarding the upcoming car (Grund et al., 2024a). Two app variants were designed to address product attachment dimensions (memories and pleasure), besides a baseline variant without emotional triggers. We examined the potential of the memories and pleasure variants to affect users' emotional experiences, memory preservation, and anticipation for the upcoming car. We also investigated the perception of these app variants among users with varying levels of emotional attachment to their cars.

Main Results

The hypotheses and their status (confirmed/rejected) are presented in Table 12.

Table 12. Hypotheses and Their Status (Confirmed or Rejected)

	Hypotheses	**Status**
H1	The memories variant will better preserve memories with the previous car than pleasure and pragmatic.	✓
H2	The overall car change is perceived more positively with the memories variant than with the pragmatic.	✓
H3	The farewell of the previous car is perceived less negatively with the memories variant than with the pragmatic.	✓
H4	The pleasure variant leads to more pleasant anticipation for the upcoming car than the memories and pragmatic.	✓
H5	The overall car change is perceived more positively with the pleasure variant than the pragmatic.	✓
H6	The receipt of the upcoming car is perceived more positively with the pleasure variant than with the pragmatic.	✓
H7	The memories and pleasure variants show stronger effects among emotionally attached users than among less attached users.	X
H8	The overall app is rated more positively by emotionally attached users than by non-emotionally attached users.	X

Note: ✓ means confirmation, X means no confirmation

To investigate whether storing memories supports users emotionally during a car change, we examined whether the memories app variant achieved its goal. Participants reported that the memories variant helped them store and retrieve memories more easily than the pleasure and

pragmatic variants, confirming H1. The results suggest the pleasure and pragmatic variants could also store memories. This may be due to the common start page, which is identical in all variants and provides an overview of current and past cars. Participants reported that this overview triggered memories of their previous car. The memories variant led to moderate anticipation for the upcoming car, as participants indicated they would like the upcoming car listed to store future memories. This aligns with Grund et al. (2024a), who suggested users want to create memories during familiarization.

Our results show that the memories variant supports users emotionally more than the pragmatic during a car change, confirming H2. It makes the farewell more pleasant compared to the pragmatic variant, confirming H3. Users feel reassured with the memories variant, knowing their memories remain preserved. This aligns with Fraine et al. (2007) and Grund et al. (2024b), who noted negative emotions during the farewell partly come from lost memories. The memories app variant can mitigate this. However, the farewell is most convenient with the pleasure variant. This occurs because the memories variant causes some participants to experience increased emotional attachment to the previous car. This is because the memories variant addresses evocation and memories dimensions, enhancing emotional product attachment (Hassenzahl, 2001; Mugge et al., 2005; Norman, 2005), and the intention to use the product persists longer (Wang & Wang, 2022).

We examined whether the pleasure variant achieves its goal of generating excitement for the upcoming car. Participants reported the pleasure variant strengthened their anticipation significantly more than other variants, confirming H4. We found no differences between users with emotional attachment and those without. The results show the pleasure variant helps users emotionally better than the pragmatic (confirming H5) and the memories. The pleasure variant strengthens attachment with the upcoming car by eliciting stimulation and pleasure, which is evident in its highest ratings for acquiring the upcoming car, confirming H6. The variant enhances anticipation and fosters emotional attachment before receiving the car, making it most helpful for the car change process.

Contrary to expectations, the memories and pleasure variants achieved similarly strong effects in emotionally and non-emotionally attached users, not confirming H7. This suggests the emotional aspects are relevant regardless of emotional attachment to the car. However, groups differed in evaluating the pragmatic variant. Non-emotionally attached users rated this variant as more helpful for the car change process, possibly because they value pragmatic aspects more (Grund et al., 2024a).

We can conclude that storing memories and stimulating anticipation can emotionally facilitate the car change process, with anticipation having a greater effect than storing memories. This effect occurs regardless of users' emotional attachment. Nevertheless, integrating both variants is desirable. We examined the perception of the overall app concept and found that pragmatic qualities did not differ between emotionally attached and non-emotionally attached users, which did not confirm H8. Regarding hedonic qualities, emotionally attached users were more stimulated by the app. There were slight indications they could rate the app as more attractive, though not significantly. The overall app was rated very positively, especially the hedonic values. Both groups would actively recommend the app, underlining the relevance of hedonic qualities (Hassenzahl, 2005) and user experiences (Kujala et al., 2011) for product acceptance.

Explorative analyses showed the app improved users' ability to recall memories and feel group affiliation. This aligns with using digital tools to enhance emotional product attachment through memory retrieval and social connections (Mugge et al., 2005; Hassenzahl & Monk, 2010). The increase in group affiliation was unexpected, as no variants addressed this. Perhaps group affiliation is not suitable to measure emotional product attachment. There was no change in overall product attachment, pleasure, or self-expression, suggesting that while the app can enhance specific attachment dimensions, overall attachment may require longer interactions. The prototype only targeted the memories dimension about the previous car, explaining why other attachment dimensions did not increase.

In conclusion, an app can elicit product attachment dimensions, per Mugge (2007), or hedonic values, per Hassenzahl (2005). Following Hassenzahl and Monks (2010), we prioritize experiences and events for a good user experience. This study shows an app's potential to create product narratives that generate emotions and meaning. Although this study specifically

focused on the car change process, the app can be utilized throughout the entire lifecycle of a car, as memories and experiences accumulate over time, thereby strengthening the attachment (Karapanos, 2013; Norman, 2005). These results have relevant implications for developing digital tools that aim to enhance emotional product attachment.

Limitations and Future Work

One limitation of the study was the sample size, which was rather small and not representative of car users. Furthermore, this study was conducted in two German cities, limiting its generalizability to other countries, cultures, or rural areas. Future research should consider diverse geographical and cultural contexts to increase external validity.

Second, the study was conducted in an artificial environment using a prototype and imagining a car change. In the app test, participants had to imagine the car history displayed was their own, which may have led to a discrepancy in cognition. To overcome this limitation, the app should be evaluated in a real-world setting to validate the findings and ensure the effects occur in practice. Furthermore, future research could investigate the long-term effects of such tools on user behavior and loyalty to their car or brand. A third limitation is a potential overlap between the different dimensions presented by the apps, as the same start page was used. An improved separation of the variants would be interesting from a psychological perspective, as it allows for a more precise investigation of which dimensions lead to which effects. Nevertheless, users prefer a combined variant for practical applications.

Last, participants knew they would be presented with three app variants to provide emotional support during the car change. Although the distinct objectives of these variants were not revealed, this prior knowledge may have introduced bias into their responses to an unknown extent. Alongside the positive aspects of product attachment, there are negative risks. Users might spend more money repairing a product when buying a new one would be more economical, or act emotionally rather than rationally when purchasing, choosing a worse or more expensive model. Future research should investigate these potential dangers.

Conclusion

It can be concluded that digital interventions can significantly impact the emotional management of changing cars. Three app variants were designed to (1) store memories of the previous car, (2) build anticipation for the upcoming car, or (3) serve as a baseline. Qualitative and quantitative methods revealed that stimulating anticipation makes the car change emotionally easier. Saving memories can also make the car change more pleasant, but it risks intensifying the attachment to the previous car and making the farewell more difficult. This research provides insights into strengthening emotional attachment through digital products. It underscores the potential of such interventions to improve user experience and emotional attachment to long-term consumer goods like cars. This emphasizes the need to consider the entire usage cycle when developing strategies to foster emotional attachment.

Tips for User Experience Practitioners

- Use mixed-method approaches to investigate emotions. The qualitative approach provides a deeper understanding of participants' thoughts and actions, while quantitative methods allow the derivation of statistically significant effects.
- Embrace the entire product's lifecycle, from anticipation to farewell. Actively involving users before receiving the product can help build emotional attachments. Consider the farewell phase and the emotions it might stir. Designing for this entire cycle creates a holistic and supportive experience.
- Prioritize hedonic aspects in product design and marketing. While users with weaker emotional attachments may appreciate pragmatic features, emphasizing hedonic qualities benefits the user experience regardless of users' existing emotional attachment.
- You do not always need to reinvent the product to deepen emotional attachment. Consider how digital interfaces can enhance memory, build anticipation, and create meaningful interactions around the product.

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