

The Relationship between Visual Style and Emotional Engagement in Mobile Tourism Applications

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Abstract— Mobile tourism applications are designed to deliver both functional usability and emotionally engaging experiences. This article examines how visual style is associated with emotional engagement in four mobile tourism applications used in Bulgaria: *100 Places Bulgaria*, *I Love Bulgaria*, *The Hundred National Tourist Sites of Bulgaria*, and *Opoznai.bg*. A comparative mixed-methods user experience design approach was employed, incorporating a seven-point *Likert scale* and an *Emo-card* assessment with 85 respondents, along with three task-based think-aloud interviews. The analysis concentrates on four recurring interface components: overall map appearance, menu layout, landmark distribution, and achievement screen design. The results indicate that a clearer visual hierarchy, well-structured content distribution, and more visible progress cues are linked to stronger positive emotional engagement. Among the cases analysed, *100 Places Bulgaria* exhibits the most positive emotional profile, whereas *Opoznai.bg* demonstrates functional strengths but weaker visual coherence. These findings support integrating affective measures into user experience evaluation for tourism-oriented mobile applications.

Keywords— mobile tourism applications, user experience, visual style, emotional engagement, interface design, tourism user experience.

INTRODUCTION

Mobile tourism applications serve as significant points of connection between users and destinations. In user experience (UX) research, experience encompasses not only efficiency and task completion but also perception, affect, and context of use [1], [2]. This perspective is particularly relevant in tourism, where digital products are expected to facilitate orientation and planning while also stimulating curiosity, pleasure, and motivation [3]. Thus, the present study aims to address the following research

question: In what ways is visual style related to emotional engagement in mobile tourism applications?

Visual style is more than decoration in interface design. Composition, hierarchy, consistency, contrast, and symbolic cues shape how users interpret and emotionally respond to digital environments [3], [5]. Emotional value and user engagement are central dimensions of interaction quality in digital products [6], [7].

In the Bulgarian design context, research on pictograms and visual communication is particularly relevant to mobile tourism applications. Pictograms, icons and simplified visual signs support faster recognition, reduce the need for lengthy textual explanation and help users orient themselves in visually dense information environments [8]. This perspective is especially applicable to tourism interfaces, where users often rely on maps, icons and symbolic cues before engaging with detailed textual content.

The visual communication systems developed for major international events also provide a useful perspective for the present research. Such systems demonstrate how identity, symbols, colour, pictograms and graphic consistency can create a recognizable communication environment across different cultures and languages [9]. In a similar way, mobile tourism applications depend on coherent visual identity and recognizable signs in order to guide users, communicate cultural content and stimulate emotional engagement.

The interaction-oriented aspect of the study can also be related to research on interactive visual works and the role of the observer-participant. Visual experience is not passive; it is formed through perception, action and participation [10]. This perspective is relevant to UX research because the user of a mobile tourism application is not only a viewer of visual content, but an active

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participant who searches, selects, navigates, marks progress and responds emotionally to the interface.

Research on the design and creation of interactive visual works also supports the interpretation of mobile interfaces as dynamic visual environments rather than static graphic compositions [11]. Therefore, the present study treats map appearance, menu layout, landmark distribution and achievement screens as interactive visual components that influence both task support and emotional engagement.

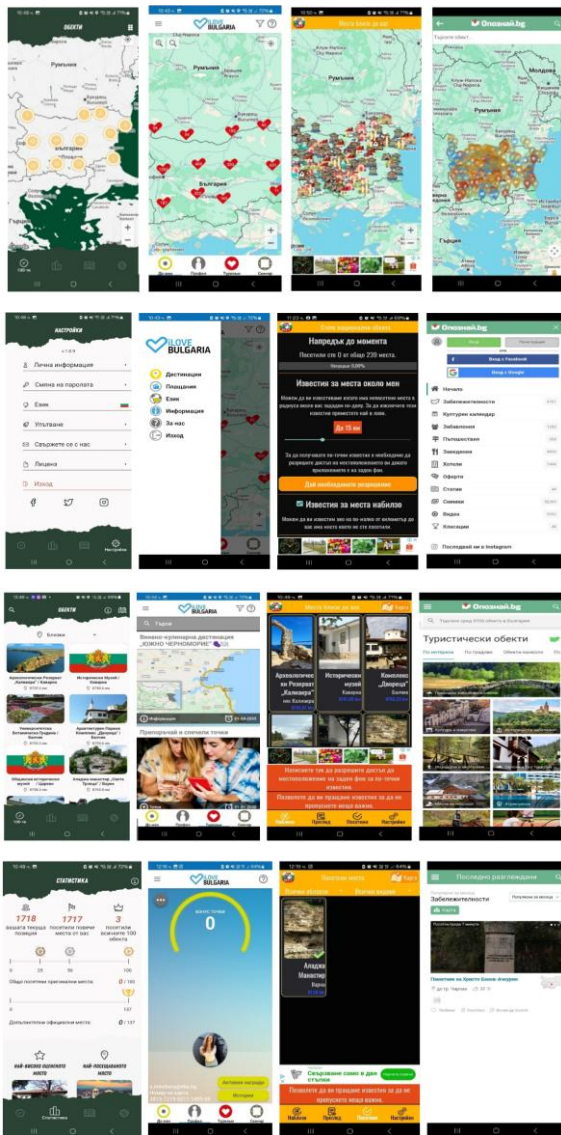


Fig. 1. Comparative interface examples of the four applications across the analysed components: map appearance, menu layout, landmark distribution, and achievement screen

This article examines a specific segment of the relationship between visual style and emotional engagement in four mobile tourism applications used in Bulgaria. Instead of conducting a comprehensive UX comparison, the analysis focuses on four recurring interface components identified through empirical

research: overall map appearance, menu layout, landmark distribution, and achievement screen design. The analysed applications and the four recurring interface components are illustrated in Fig.1.

This targeted approach enables a detailed examination of how particular visual characteristics are associated with more positive affective responses and stronger engagement.

• MATERIALS AND METHODS

The study uses a comparative mixed-method UX design, combining quantitative and qualitative approaches commonly used in UX evaluation [5], [12]-[15]. The analysis covers four Bulgarian domestic tourism applications: *I Love Bulgaria* [16], *The Hundred National Tourist Sites of Bulgaria* [17], *Opozna.bg* [18] and *100 Places Bulgaria* [19]. The comparison centres on four interface components found across all applications: map appearance, menu layout, landmark distribution, and achievement screen design. These components were selected because they combine navigational, visual, and motivational functions, making them suitable for examining the relationship between visual style and emotional engagement.

The quantitative phase involved 85 respondents: 52 women and 33 men, aged 21–62. Participants evaluated the applications using a seven-point Likert scale. The same group also used Emo-cards to assess affective responses along the dimensions *pleasant ↔ neutral ↔ unpleasant* and *interesting ↔ neutral ↔ boring*. The use of both tools enabled a comparison between reflective evaluation and a more immediate emotional response.

The qualitative phase included three individual think-aloud interviews: two men, aged 23 and 36, and one woman, aged 51. Participants completed tasks related to landmark discovery, route-related actions, and achievement functions. In the present article, these observations are used as a supporting interpretive layer for the visual-emotional findings rather than as a separate analytical focus.

The article adopts a comparative, descriptive-analytical logic, systematically contrasting each application across predefined interface components. This approach uses quantitative data, such as mean ratings for the four interface components and corresponding percentages of emotional responses, to identify patterns and differences across the applications. In addition, emotional positioning is assessed using the eight-category model to contextualise affective responses. The analysis is further supported by qualitative evidence from the think-aloud interviews, which provides insight into participants' experiences of visual order, navigation clarity, and the visibility of progress cues. By integrating these quantitative and qualitative data streams, the methodology enables a focused examination of how visual style is associated with emotional engagement. The sequence of the empirical procedure is summarized in Fig.2.

The selection of these components is also supported by visual communication theory, where pictograms, symbols and coherent graphic systems are understood as tools for orientation, recognition and cross-cultural readability [8], [9]. At the same time, the task-based part of the study reflects the idea that visual experience is shaped through active participation rather than passive observation [10].

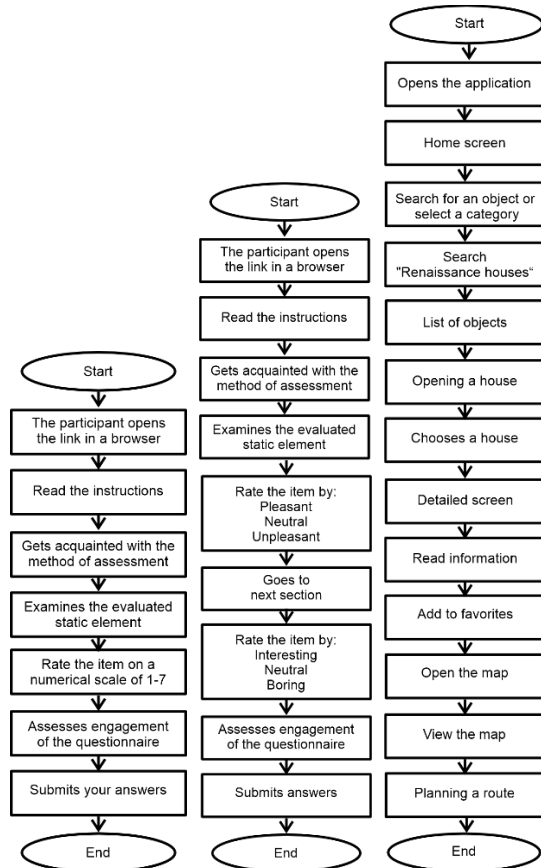


Fig. 2. Research design workflow showing the sequence of Likert evaluation, Emo-card assessment, and think-aloud interviews.

The affective dimension used in the Emo-card assessment are presented in Fig.3.



Fig. 3. Emo-card dimensions used in the study: pleasant–neutral–unpleasant and interesting–neutral–boring

RESULTS AND DISCUSSION

A. Quantitative Comparison of Interface Components

The comparative results (tabl 1.) show clear differences across the four applications. According to the empirical data, *100 Places Bulgaria* obtained the strongest combined profile, with mean scores of 4.92 for map appearance, 5.26 for menu layout, 5.89 for landmark distribution, and 5.52 for the achievement screen. *I Love Bulgaria* received 4.41, 4.98, 3.60, and 4.88, respectively. *The Hundred National Tourist Sites of Bulgaria* showed lower values across all four components, while *Opoznai.bg* displayed a mixed pattern, with a low score for map appearance but strong evaluations for menu layout and landmark distribution. Main values for the four compared interface components are presented in Table I.

TABLE I. MEAN VALUES OF THE COMPARED INTERFACE COMPONENTS

App	Criteria	Map	Menu	Landmark distribution	Achievement
100 Places Bulgaria		4.92	5.26	5.89	5.52
I Love Bulgaria		4.41	4.98	3.60	4.88
The Hundred National Tourist Sites of Bulgaria		3.54	3.98	4.06	4.34
Opoznai.bg		2.95	5.32	5.73	4.33

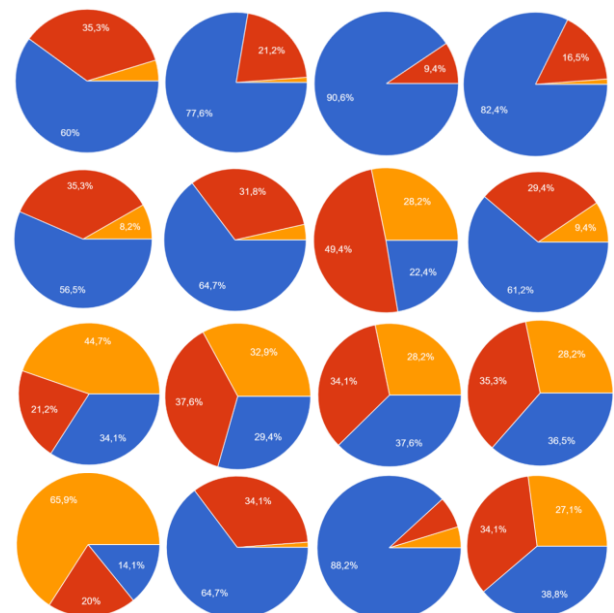


Fig. 4. Comparative emotional-response chart based on pleasantness and interestingness percentages for the four analysed interface components.

B. Emotional Assessment Through Emo-Cards

The emotional percentages further clarify the pattern. In *100 Places Bulgaria*, landmark distribution received ratings 90.6% pleasant and 87.1% interesting, while the achievement screen reached 82.4% pleasant and 76.5% interesting. In *I Love Bulgaria*, responses were more uneven, especially for landmark distribution, which received 22.4% pleasant and 23.5% interesting ratings. *The Hundred National Tourist Sites of Bulgaria* showed

consistently modest emotional ratings across the analysed components. In *Opoznai.bg*, landmark distribution was rated positively (88.2% pleasant and 85.9% interesting), but the map and achievement screen received substantially lower affective evaluations.

The comparative distribution of pleasantness and interestingness responses is visualized in Fig.4.

These data suggest that users' emotional responses are closely related to the interface's overall visual coherence. For example, *Opoznai.bg* achieved high positive ratings for landmark distribution, yet its lower scores for map appearance and achievement screens corresponded with weaker overall emotional engagement. This suggests that strong individual components do not fully compensate for weak hierarchy or visually overloaded composition.

C. Emotional Positioning of the Applications

The eight-category emotional model reveals a clear pattern. *100 Places Bulgaria* is positioned in the "Excited Pleasant" zone and is interpreted as engaging and inspiring. *I Love Bulgaria* is positioned in "Excited Neutral" indicating moderately positive engagement. *The Hundred National Tourist Sites of Bulgaria* is positioned in "Calm Neutral" suggesting balanced but weakly stimulating interaction. *Opoznai.bg* is associated mainly with "Excited Unpleasant" reflecting visual and informational overload. Emotional positioning of the four applications is shown in Fig.5.

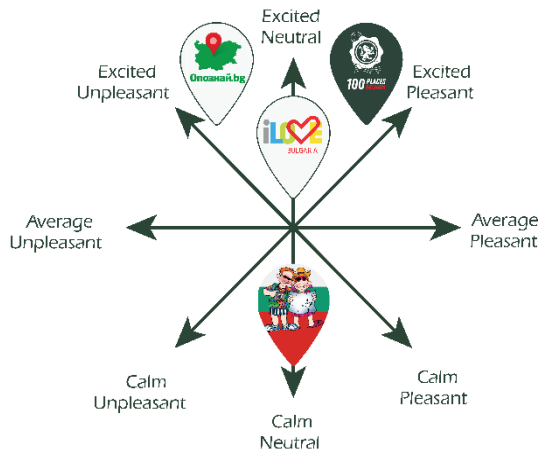


Fig. 5. Emotional positioning of the four applications within the eight-category emotional model

D. Supporting Observations From Task-Based Interviews

For the study was used the "Likert scale", according to which the user indicates a specific rating in an interval between two extremes – negative and positive, figure 6 shows the Rating scale for our study.



Fig. 6. Rating scale (1- I don't like it at all, 2- I don't like it, 3- I rather don't like it, 4- Neutral, 5- I rather like it, 6- I like it, 7- I really like it)

The criteria by which the audience evaluates dominants is how much they like them. The selected elements are the overall appearance, the web header, its main image and the main colour. Overall the sites are evaluated on how each one has chosen the combination of graphic elements and what is the impact on the target group [23].

The interview data support the quantitative and emotional findings. The map of *100 Places Bulgaria* was perceived as visually ordered, easy to scale, and logically structured. In *I Love Bulgaria*, route creation was rated as the easiest due to the automated logic that connects selected objects. *The Hundred National Tourist Sites of Bulgaria* was interpreted as functionally stable but visually limited. *Opoznai.bg* provided rich information, yet participants reported overload, poor visual focus, and difficulty locating functions. Only *100 Places Bulgaria* presented a clearly visible and emotionally rewarding achievement screen.

The main interview-based observation related to visual style, task support, and progress cues are summarized in Table II.

TABLE II. INTERVIEW-BASED OBSERVATIONS RELATED TO VISUAL STYLE AND TASK SUPPORT

Application	Visual style observation	Task support	Progress cues
100 Places Bulgaria	Clear, ordered, visually engaging	Easy landmark search and orientation	Easy to find, motivating
I Love Bulgaria	Visually appealing, moderately structured	Best route-creation support	Functional, less engaging
The Hundred National Tourist Sites of Bulgaria	Basic, restrained, outdated	Understandable but limited	Weak visibility
Opoznai.bg	Informationally rich but overloaded	Difficult to parse, weak focus	Low visibility and motivation

The interview observations confirm that the analysed applications function as systems of visual signs and interactive actions. Clear pictograms, recognizable symbols and consistent visual identity support orientation and reduce ambiguity, while weak hierarchy and overloaded screens interrupt the user's emotional involvement. This confirms the relevance of pictograms and visual identity to tourism interface design [8-9]. It also supports the view that aesthetic and user experience are formed through the active participation of the observer-user [10-11].

The results indicate a consistent association between visual style and emotional engagement. Applications with interfaces characterised by clearer hierarchy, better-organised spatial distribution, and visible progress cues

received more positive emotional evaluations. In particular, *100 Places Bulgaria* stood out because of the alignment between map design, landmark distribution, and achievement visualisation, resulting in the highest mean scores and the strongest positive emotional profile. These results suggest that visual clarity and progress visibility are important factors associated with stronger emotional engagement in mobile tourism applications.

Further analysis shows that strength in a single interface component does not guarantee a wholly positive emotional experience. Although *Opozna.bg* received high ratings for landmark distribution, its lower emotional scores for the map and achievement screen weakened the overall affective evaluation. This inconsistency suggests that when visually engaging elements are absent across the major components, the overall emotional response becomes less positive. Consequently, consistency and balance across interface components appear to be important for fostering stronger emotional engagement.

A further point concerns the role of progress visualisation. The interview data and component scores suggest that achievement screens should not be treated as secondary interface elements. When users can easily identify progress, unlocked elements, or visited places, the interface gains motivational value and supports emotional continuity over time [20]. This pattern is most visible in *100 Places Bulgaria* and least visible in *The Hundred National Tourist Sites of Bulgaria* and *Opozna.bg*.

Several design implications follow from these findings. First, map-based interfaces should prioritise visual simplification and a stronger layer hierarchy. Second, landmark distribution should support rapid visual parsing and orientation. Third, achievement screens should be treated as strategically important affective components rather than secondary pages. Fourth, visual consistency should be considered as important as functionality, since useful features lose effective value when embedded in visually noisy or fragmented environments.

The study also has limitations. Most importantly, the Emo-card method relies on respondents' subjective self-reports, which may lead to differences between experienced and reported emotional states. In addition, the three-level scale may oversimplify emotional responses. These limitations should be considered when interpreting the affective results. Despite this, the user-based recommendations in the broader study point in the same design direction: more filters and a more optimised map view for *100 Places Bulgaria*, improved search logic for *I Love Bulgaria*, a redesigned menu for *The Hundred National Tourist Sites of Bulgaria*, and visual simplification with stronger hierarchy for *Opozna.bg*.

CONCLUSIONS

This article examined one section of a broader study: the relationship between visual style and emotional engagement in four mobile tourism applications used in Bulgaria. The findings show that a positive emotional response is associated with visual clarity, a stronger hierarchy, a coherent distribution of landmarks, and clearly

visible progress cues. Among the analysed cases, *100 Places Bulgaria* demonstrated the strongest overall visual-emotional consistency, while *Opozna.bg* highlighted the limits of information-rich but visually overloaded design.

The study also indicates that affective evaluation should accompany usability-oriented assessment in tourism app research. Broader issues, such as user-flow analysis, route-creation logic, and wider usability comparison, can be developed as separate publications based on other sections of the same research.

FUTURE WORK

Future research may examine the role of artificial intelligence (AI) in the processing and interpretation of UX data. The framework proposed in [21] can serve as a practical instrument for organizations and development teams by supporting informed and sustainable decision-making regarding the integration of AI into web projects. In addition, the use of AI-based language models for generating aggregated reports from personalized interviews, as discussed in [22], may be relevant for future UX studies that combine qualitative interviews, structured templates, and automated report generation.

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