

Touchscreen interactions in the realm of fashion: a users' perception study

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Abstract. Mobile applications present a wide range of opportunities for fashion brands to connect with the consumer. To the knowledge of the authors, understanding how users perceive touchscreen features is still in an early stage. Part of an ongoing research, this study aims to collect users' general views about the concept of a digital magazine that explores the potential of the iPad to advertise content. A sentence completion technique was administered to identify positive and negative aspects, as well as to examine emerging themes. The results provide compelling evidence that interactivity has the potential to attract users. This finding is promising, and future studies should explore how brands can take advantage of this type of platforms to engage with their audience.

1. Introduction

As part of everyday experience, mobile devices are not mere tools that only allow connecting to the internet. Rather, they have become primary gateways to communication, entertainment, transport and navigation [1]. They are packed with different functions and applications and they encompass potential marketing tools to communicate with consumers effectively [2].

For the aforementioned reasons, mobile applications are attracting the interest of practitioners and researchers from several fields such as Information Systems and Marketing [3]. Mobile apps are defined as “mobile application software designed to support the functions of performing tasks on smartphones, tablet computers, and other personal mobile devices” [4, p. 3]. Through this digital channel, retailers and marketers can use several design elements to promote their products: multimedia product viewing; informative content; product promotions and consumer-led interactions [5].

Nevertheless, Parker [6] advocates that potential new concepts of app design and consumer engagement should be explored since the primary focus of fashion apps is on direct sales. Thus, the challenge is to identify which features enhance consumers' experience as applying technology for technology's sake is meaningless.

Following this line of thought, the purpose of this research is to examine peoples' perceptions of a digital fashion iPad magazine that incorporates interactivity to enhance user experience. This study

explores its attractiveness and examines positive and negative aspects to provide guidance and practical recommendations to researchers and practitioners.

The elected magazine was “The Unlimited Magazine” which was designed to engage readers through features such as swipe, push and tilt. In its website, the magazine claims to be “a complete interactive media source” that promotes content around a chosen topic ranging from wearable tech and cutting-edge artists to unusual events and novelties in the music field [7].

The next section of this paper assesses data collection procedures, as well as the stages of data analysis. Then, section 3 contemplates the results and discussion of the study; the latter was divided according to the aims of the research. Lastly, the conclusion highlights the findings and their implications respectively. Also, avenues for future research are provided.

2. Materials and methods

In this study it was administered a sentence completion task — a projective technique that asks participants to complete sentences that are previously prepared. This type of technique allows participants to easily express themselves in many different ways [8]. Moreover, previous research suggests that this technique can be useful for gathering users’ feedback on products [9].

An invitation to participate in the study was emailed to all the students from University of Minho, in Portugal. In addition, the online survey was also posted on social media (Facebook, Instagram and LinkedIn). The final sample involved 140 respondents — 70% female (98 answers) and 30% male (42 answers) with 17 to 54 age bracket.

Created with Typeform™, the questionnaire encompassed a brief introduction to the study, the task instructions, a video showcasing the app [10], the sentence completion tasks and one field for additional comments. It should be noted that the app is not currently available for the latest versions of iOS which made testing the digital product unviable. Also, by using an online video more people could be easily reached.

Respondents were asked to complete eight different sentences that probe for positive and negative aspects to understand which ones attract or repel. Additionally, the research also aimed to obtain participants’ overall perception as well as their emotional reactions (Table 1) as perceiving a product can be enough for eliciting emotions [11].

Table 1. Sentence stems and main topics associated.

Sentence stem	Main Topic
I think this application is...	Overall perception
What I liked the most about the application was...	Positive aspects
The feeling that the application brings me is...	Emotions
I think the appearance of this application is...	Overall perception
What surprised me in the application was...	Aspects that stand-out
What interested me less about the application was...	Negative aspects
What made me most curious about the application was...	Interest
Compared to other fashion applications this...	Overall perception

The collected data was downloaded to a spreadsheet in an Excel file. Then, all the answers were reviewed in the first instance: comments or expressions like “nothing”, “no opinion”, “I don’t know” were removed. In the process, two participants were excluded because one of them did not complete any of the sentence completion tasks, and the answers from the other participant were inaccurate. Thus, the number of respondents considered for the analysis was 138 rather than 140.

In a second moment, the Excel file was exported into NVivo 12 Mac, which assisted the subsequent analysis. Each question was examined separately by three researchers, who grouped and labeled expressions or words with similar meaning into different categories (Table 2) as well as comments

related to the same theme. Though, an exception was made for the sentence “The feeling that the application brings me is...” as it was coded based on Desmet’s [11] emotion-specific eliciting conditions.

Table 2. Example of a grouping of the answers according to content.

Sentence stem	Category	Examples of responses
I think the appearance of this application is...	Unusual	Original; irreverent; a bit strange; alternative

Subsets of the coded texts were further examined to get a better understanding of participants’ perspective. Following previous qualitative research papers, only categories mentioned by more than 5% of the participants were considered [12].

3. Results and discussion

3.1. Overall perception

As previously illustrated in Table 1, three of the eight completion tasks were built to reveal the overall perception of the app. Whilst the first sentence “I think this application is...” was broad, the task “I think the appearance of this application is...” asked specifically for particular aspects about visual design. The third sentence, “Compared to other fashion applications, this...”, elicited participants’ reactions by comparing the app with existing ones.

The sentences that produced more responses were “I think this application is...” and “I think the appearance of this application is...” — each sentence obtained 139 responses. This may imply that both sentences were very straightforward. It was clear that the respondents got the gist of what the application is about. Interesting, cool and interactive were some of the expressions that emerged to label what the digital magazine is to them. Several categories were created but some of the topics stood out as can be observed in Table 3.

The most frequent responses were positive: 42.7% appraised the app as good, useful and appealing. Furthermore, there are three categories with approximately the same number of responses (13 up to 15) — interaction and motion; unusual and novelty. This finding indicates that for some participants the app means motion while others believe that is something that has not been experienced before, and somehow different from what is usual. In some cases, the app was directly linked to the field of fashion (7.2%).

In contrast, some respondents appraised the app as dull (6.5%). What is more, the app caused some confusion, and to some extent respondents describe it as being complex and difficult to understand (8.6%).

Table 3. Categories identified regarding the sentence “I think this application is...”

Category	Examples of responses	Percentage of mention (%)
Good and useful	Appealing; interesting; amazing; cool; useful	42.7
Interaction and motion	Interactive; dynamic; fast	10.8
Unusual	Different; bold; creative; strange	10.1
Innovative	Modern; innovative; edgy	9.4
Confusing	Confusing; complex; difficult to understand	8.6
About fashion	About fashion; an app of clothes	7.2
Uninteresting and useless	Boring; irrelevant; useless	6.5

Table 4 illustrates participants' associations with visual design. The data indicates that as many as 43.4% of the responses were positive. Respondents highlighted that visual design is very satisfactory,

enjoyable and interesting. Thus, this result demonstrates that appearance is an attractive trait of the app. Moreover, visual design considerably conveyed that the app is innovative and contemporary (32 responses) as well as easy to use (10 responses). On the other hand, in some cases the layout was considered heavy due to colours (11 responses) and information overload (2 responses). Also, fairly eight respondents considered the appearance unusual.

Table 4. Categories identified regarding the sentence “I think the appearance of this application is...”

Category	Examples of responses	Percentage of mention (%)
Good	Good; cool; excellent; perfect; amazing; attractive	43.4
Innovative and present	Modern; innovative; futuristic; avant-garde	23.1
Heavy	Dark; black and white; lot of content; full of content	9.4
Simple and useful	Simple; intuitive; clean; easy to use	7.2
Unusual	Original; irreverent; different; a bit strange; alternative	5.7

The sentence that requested participants to make a comparison with other fashion applications produced a total of 110 sentences. The results are summarized in Table 5. Twenty-five participants stated that they did not know or use similar apps. Therefore, it may be reasonable to assume that the app conveys innovation. Indeed, comparing Tables 3, 4, and 5 shows the category “Innovative” emerged in the three sentences.

Table 5. Categories identified regarding the sentence “Compared to other fashion applications, this...”

Category	Examples of responses	Percentage of mention (%)
Unawareness	I don’t know others; I have no means of comparison	18.1
Better	Looks better; more interesting; complete	15.2
Different	Different; more original; creative; it stands-out	11.5
Innovative	New; innovative; modern; revolutionary	7.9
Interactive and dynamic	Is more interactive; is more dynamic	6.5
Appealing	Grabs attention; more attractive; is more appealing	6.5
The same	The same; more of the same	5.7

Respondents considered the app superior to other mobile apps as it stands out for being better (21 responses), different (16 responses), innovative (11 responses), more interactive (9 responses), and appealing (9 responses). Combining all these responses means that almost half of the respondents (47.6%) commented positively about the app. By contrast, just eight participants stated that the application does not add anything new.

3.2. *Positive and negative aspects*

The sentences “What I liked the most about the application was...” and “What interested me less about the application was...” examined positive and negative attributes of the digital magazine. The respondents completed 216 sentences: 129 responses regarding positive aspects and 89 responses related to negative ones.

The design category comprises expressions and words related to aesthetics, content presentation, layout, typography and colour. It was referred to by 34% of the participants as the aspect they liked the most. Another positive aspect that arose was interaction and motion — over 31.1% of respondents pointed out that they enjoyed the app being interactive, dynamic and quick.

As detailed in Table 6, sixteen participants draw attention to the features of the app. While some responses were broad (“visual effects”; “variety of effects”; “variety in terms of communication”), others focused on particular features i.e. 360° panoramic images, and zoom in. Additionally, the type

of content (video, photography), as well as the theme itself (fashion) were slightly taken into account by 11 respondents.

Table 6. Categories identified regarding the sentence “What I liked the most about the application was...”

Category	Examples of responses	Percentage of mention (%)
Design	Design; the interface; typography; colours; aesthetics	34
Interaction and motion	Interactive; dynamic; speed; different types of interactivity	31.1
Features	Visual effects; 3D mannequins; variety of effects	11.5
Content	Photography; pictures; clothes; theme that addresses	7.9
Simple	Simplicity; intuitive; ease of navigation	5.7

Lastly, eight participants mentioned that what they enjoyed the most about the app was its simplicity although they did not experience the product. Nonetheless, this finding may imply that an app should convey ease of navigation as it is one factor that people value.

Conversely, regarding negative aspects (Table 7), the least interesting aspects were the type of content (20 answers), and the theme (13 answers). This result was expected to some extent due to the nature of the sample. Twelve respondents also refer to colour — dark colours elicited negative associations. Since colour was also pinpointed when respondents were asked to write their thoughts on the appearance of the app, it appears that colour is an important trait and dark colours should be used with caution.

Table 7. Categories identified regarding the sentence “What interested me less about the application was...”

Category	Examples of responses	Percentage of mention (%)
Content	Content; videos; interviews; the products; the text	14.4
Theme	Fashion; the theme; clothes; art	9.4
Colour	Colours; darkness; very dark colours	8.6
Features	Depends on an iPad/tablet; lack of theme categorization	7.9
Design	Content organization;text layout; too many lines	5.7

Respondents reported some particular features that they disliked too (7.9%). The responses were scatter as several aspects were mentioned: “lack of theme categorization”; “some multimedia effects”; “be an application that may not work on smartphones or devices with a smaller screen”; “panoramic images”; “the way videos are presented”; “main menu”; “does not seem to allow research (by specific themes and/or articles)”, and “not being able to preview the article”. The remaining comments revealed disappointment due to the fact of being only available for iPad devices and iOS. At last, few respondents mentioned that they did not like the design (5.7%) — some believe that the app is not properly organized while others refer to the imagery.

3.3. Emotions

From the eight sentence completion tasks, “The feeling that the application brings me is...” was the one that generated the least homogenous responses. Respondents completed 119 sentences, and with Desmet’s [11] emotion-specific eliciting conditions in mind, it was possible to group and divide 109 responses into pleasant and unpleasant emotions. As can be seen in Fig. 1, over 82.6% of the identified emotions were pleasant, and only 17.4% unpleasant.

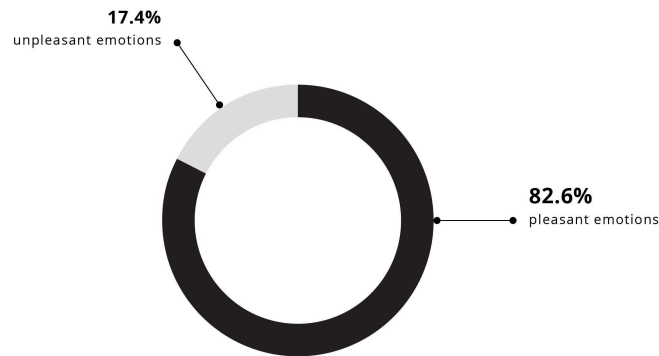


Figure 1. Percentage of mention of pleasant and unpleasant emotions.

An in-depth examination of the responses revealed that admiration was the most prominent pleasant emotion (Table 8). In the context of products, admiration is elicited when someone considers a product praiseworthy. In this case, respondents used several words and expressions to communicate their approval. The digital product highly conveyed the feeling of innovation; contemporary; dynamism, and quality. Moreover, fascination was identified too in 10 comments that expressed the need of curiosity.

Table 8. Pleasant emotions regarding the sentence “The feeling that the application brings me is...”

Category	Examples of responses	Percentage of mention (%)
Admiration	Originality; quality; speed; good; in; creativity	57.2
Fascination	Interest; curiosity; enthusiasm; desire to know	7.2

On the subject of unpleasant emotions (Table 9), disgust was identified in 9 responses which seem to involve an attitude of dislike. Also, a few comments revealed dissatisfaction — respondents reported feeling confused, with doubts and overwhelmed.

Table 9. Unpleasant emotions regarding the sentence “The feeling that the application brings me is...”.

Category	Examples of responses	Percentage of mention (%)
Disgust	Darkness; superficial; stress; anxiety	6.5
Dissatisfaction	Confusion; doubt; too much information; a bit lost	5

3.4. *Surprise*

The design emerged as a topic that generated surprise alongside interaction and motion: each category encompasses 21 responses. Respondents highlighted aesthetics, content presentation, dynamism, and the versatility of the interactions. The results are summarised in Table 10.

The categories that follow, content and features, produced 19 responses each. While some respondents pointed out comments related to the content, others mentioned specific features. It is worth noting that both positive and negative comments were found in both categories, but in the majority of the cases it was not possible to identify whether the response refers to a pleasant or unpleasant surprise. For example, the following response — “the three-dimensional view of the images. Quite interesting”, may be acknowledged as being positive. On the other hand, comments like “the number of photos and videos” were difficult to appraise.

Table 10. Categories identified regarding the sentence “What surprised me in the application was...”

Category	Examples of responses	Percentage of mention (%)
Design	Design; aesthetics; content presentation	15.2
Interaction and motion	Interaction; speed; rhythm; dynamism	15.2
Content	Content diversity; photography; content demonstration	13.7
Features	Visual effects; zoom in; 360° view	13.7
User-friendly	Ease of use; fluidity; accessibility	8.6

Nevertheless, the responses within the category “content” emphasized its diversity and quantity. In relation to “features”, the comments were practically the ones that were brought up in the sentence that probed for the aspects that participants liked the most: 360° panoramic images; three-dimensional view; zoom in; variety of visual effects. One person replied, “the fact that we can have control over what we want to see/do”, and through the analysis of other responses it became visible that respondents paid attention to the diverse ways in which the content could be seen.

Lastly, from the categories that emerge in this sentence, “user-friendly” was the only one that can be appraised as positive. It encompasses the responses that mentioned that the app surprised for its accessibility, fluidity, and ease of use.

3.5. Curiosity

The responses produced by the sentence “What made me most curious about the application...” provided data about what caught participants’ attention in the digital magazine (Table 11). From the 101 responses examined, “content” was the category that received the highest mentions (27 responses). Most of the responses commonly used the word “content.” Though, some answers revealed respondents’ interest: “see how the content would apply”; “understand the contents more”; “read the articles.” One particular content about recycled high fashion was noticed by five respondents too.

Table 11. Categories identified regarding the sentence “What made me most curious about the application was...”

Category	Examples of responses	Percentage of mention (%)
Content	Content; information; to understand the content more	19.5
How it works	To discover; how it works	13.7
Interaction	Interaction; interaction with images and information	9.4
Purpose	What is it for; what is the exact goal	8.6
Features	Access to articles; augmented reality features; 3D mannequins	5.7

Additionally, interaction held respondents’ attention (13 answers). It should be highlighted that in one of the previous sections, the results showed that interaction was considered the most positive attribute of the app, and it surprised respondents as well. Therefore, it can be inferred that interaction might have the potential to engage people’s interest.

Some respondents demonstrated a willingness to explore the digital magazine (19 responses) while others questioned its purpose (12 responses). Finally, specific features were mentioned by eight respondents. However, since the responses were nothing alike it was not possible to make conclusions.

4. Conclusions

The sentence completion tasks made it possible to reach a representative set of users. On the whole, the analysis points out that the overall response to the application was highly satisfactory. Participants have noticed interactivity as a positive element capable of grabbing attention and surprise. This result

is in line with previous research on mobile touchscreens that demonstrated that interactive features contribute to increasing user engagement [13].

Additionally, design characteristics were underlined — visual appearance was acknowledged as an attractive element of the app. Interestingly, participants also considered the digital magazine an innovative product. Since the last issue of the app was launched in 2014, this finding shows that the magazine was successfully able to remain timeless.

On the other hand, the negative associations relate mostly to confusion, dark colours, and information overload. Thus, designers should strive to create understandable products, and cautiously consider colour choices to avert dissatisfied users.

The outcomes of this research revealed that mobile applications have the potential to promote fashion content and may foster consumers' engagement. This study is limited by the fact that users saw a video showcasing the app. Future work should focus on understanding participants' perceptions after experiencing the digital product.

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