Mobile App Marketing:
A Conjoint-based Analysis on the Importance of App Store Elements

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***Abstract*—Today, little is known about how the various elements involved in the presentation of mobile applications (apps) in app stores influence the download or purchase decision. Current publications primairly focus on the possibilities and technical tools of app store marketing based on best practices or experience. However, research on customer preferences with regards to the presentation of apps in app stores as well as the impact of single app store elements on purchase or usage decisions has yet to be addressed. In this context, the key research objective of this paper is to analyse the impact of individual app store elements on customer choice. Accordingly, this study will identify the relative importance of individual app store elements to derive recommendations on how to successfully present mobile applications in app stores. With this objective in mind, a conjoint analysis was carried out in this study for a fictitious mobile messaging app to be presented in the Apple App Store.**

Keywords-Mobile App Marketing; App Store Elements; App Marketing; Consumer Preference; Conjoint Analysis.

I. INTRODUCTION

The number of available mobile applications is steadily growing. More than a million applications are now available for Android and iOS in the respective app stores (i.e., GooglePlay and Apple App Store). Accordingly, the competition among individual app providers has also risen continuously [1]. The competitive pressure is constantly rising along with the number of available offers and the growing number of possible alternatives for the user. It has long since ceased to be enough to simply turn a good idea into an app. More and more, the question has become which factors trigger the user's purchase decision. Numerous managers in the mobile phone business are now forced to deal with this situation and to define mobile app marketing strategies on how to achieve and defend a competitive position for their apps in the market.

The specification of marketing plans and strategies is usually made using the concept of the marketing mix, which also plays a key role in mobile app marketing [2]. As we know, the marketing mix should be an optimal combination of marketing tools from the areas of Product (product policy), Price (pricing policy), Promotion (communication policy) and Place (distribution policy) [3]. These "4Ps" are also the components of the app store marketing toolkit. Product policy starts at a very early stage and deals with the app idea and with the subsequent design of the application [2].

With regards to pricing policy both before and after the launch of the mobile app, a wide range of decisions have to be made. These decisions range from adequate price level to dynamic pricing strategies designed to systematically alter prices over time in order to react to changes in actual demand and current market conditions. However, pricing policy is limited by the possibilites and restrictions of the app stores. For example, the app stores may specify certain price points to be selected or not permit providers to offer trial versions for a limited period of time [4].

Distribution policy generally deals with all the marketing decisions and activities concerned with the delivery channel from the producer to the customer and therefore from production to consumption [3]. As early on as the development stage of an app, the distribution channel is determined, or at least influenced, by the technical implementation. So-called web applications, for example, can simply be made available for download per link or published via any webserver. The distribution channel for so-called hybrid und native applications, on the other hand, is the app store. Before use, they must be completely downloaded and installed on the mobile device. While native applications are created using the platform-specific development environment and programming language, web technology is usually used with hybrid applications. Additional development frameworks and tools, however, allow for further processing and compilation of this source code in a way that enables its distribution via an app store in a similar way to a native application.

Within the communication policy we have to differentiate between activities inside and outside the app store. These include advertising and other activities which provide and spread information intended to familiarise the potential customer with the app and its features. App stores are usually the only official channel for the smartphone user to buy and install new apps on their mobile devices. Thus, the communication policy within the app stores and the corresponding design of the various app store elements are of particular importance [5]. Here, it must be noted that each store has its specific regulations and guidelines on how to publish an app for distribution via the store and on the elements that can be used for the presentation of the app in the store. However, although the regulations vary in detail, the core concepts and the core elements for the app presentation are quite similar.

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In this context, the objective of this study is to develop appropriate recommendations for the setup and design of important app store elements and to empirically validate common app store marketing best practices. For this reason, a conjoint-based approach was choosen to analyse user preferences and characterize the relative importance of different app store elements.

With this in mind, Section II presents a short discussion on related work and current best practices in app store marketing. Section III describes important elements of the presentation for mobile applications in app stores. The explanations refer to the example of the Apple App Store; can, however, to a great extent be generalised to include other app stores. In Section IV, the methodological approach of this study is then described. Significant results of this conjoint analysis are presented in Section V, before we finally discuss the central findings and recommendations for practical implementation in the concluding section.

II. Related Work

Mobile app marketing is still a relatively new marketing topic. It wasn't until the first app stores emerged that the necessity for a market-oriented way of thinking when developing and marketing mobile apps started to become aparent [4]. In principle, we can say that many well established concepts from general marketing practices are transferable to mobile app marketing. In this understanding, mobile app store marketing adopts standard marketing principles and tools and adapts them to the needs of the app specific market.

Current literature on mobile app marketing predominatly focuses on guidelines and recommendations for the successful monetarisation of app concepts. For example, the topic of app marketing can be found as part of the technical literature on app development in which the monetarisation of the app in the app store is seen as being the final step in the app development process [4][6][7].

Additionally, more specialised publications focusing on mobile app marketing are available as well [1][5][8][9]. However, most of these publications comprise structured guidelines and extended checklists on how to successfully monetise mobile applications based on the authors' experience or the discussion of successful case studies. In contrast, scientific research on app stores and app (store) marketing is rather rare today.

Only few publications have so far dealt with individual aspects of app stores, mainly focusing on app ranking mechanisms and fraud [10][11][12], pricing strategies [13] or recommendations and user reviews [14][15].

Against this background, a significant research gap can be observed with regard to the availability of empirically based recommendations on the market-oriented configuration of app store elements. The suggested research approach, a study measuring customer preferences based on a conjoint analysis, has been applied to software selection processes and even to mobile application development [16][17], but is rather new to the specific area of app store marketing.

III. App Store Elements

As stated above, the design of the various app store elements is one of the key instruments of mobile app marketing. Potential users search for suitable mobile applications in the app store and obtain information about their features and properties [2]. In order to acquire a common frame of reference for this study, we focussed solely on the Apple App Store. There are various app stores for different mobile operating systems which are characterised by different appearances, but which are fundamentally very similar in terms of the possibilities to present mobile applications.

A fictitious messenger app was chosen to concentrate on the importance of the app store elements and prevent participants from being biased by ealier purchase decisions, knowledge of real-world app presentations or brand preferences. The Apple App Store can be accessed via several mobile devices. It is possible, for example, to open the app store via smartphones (iPhone) and tablets (iPad) to download applications. However, the number of elements is the same for all devices and always identical in each case.

In total, based of an analysis of the Apple App Store and the best practices derived from the mobile app marketing literature in Section II, eight key app store elements were examined for this study which will be described in more detail below. Moreover, the study also deals with variations of each of the attributes which were compared and examined with regard to their influence on customer preference in terms of a purchase or usage decision. The fictitious messenger app was presented to the participants of the study based on the attributes and its selected attribute levels only. There was no prototype or trial-version in an app store available in this study.

A. App Icon

The app icon is seen as being one of the most crucial elements, as it is generally the first visual element that a potential user sees. The purely aesthetic design of the app icon can already have an effect on the development of user preference, for example in the way that the impression the icon makes is taken to be an indication of the quality of the app. The app icon and the app name are central design elements in many app stores, not least because a search request in the store appears directly on the search result page [4][18].

In Figure 1, three icon versions are shown that were developed for a fictitious messenger app in the study.

(1) „High quality" version | (2) „Medium quality" version | (3) „Low quality" version

Figure 1. App Icons Variations

In the form of these icons, the intention is to refer to a particular messaging app which is characterised by an especially high level of security. Best practice guidelines have been used to develop the design variations [19]. For example, the clarity of the graphic elements to visualise the messaging and security features of the app, the colouring and the legibility of the writing were varied in order to portray the spectrum from a representative "high" to a "low" quality of the icon design. While icon (1) has easy to understand graphical representations of messanging, icon (3) uses a confusing illustration and illegible writing. The consideration of the icon design as an attribute will allow an empirical verification of the aforementioned existing best practices in the study.

B. App Name

As mentioned above, the name of the app is also a central element with respect to the presentation of mobile applications in app stores, as it is shown in the app store's search and ranking lists and may therefore influence the user's purchase decision [4]. The app name should fulfil certain criteria in order to be easy to remember on the one hand, and easy to find via the app store's search algorithms on the other. Ideally, solutions to internationalise the name should also be available [2]. For the test app in the conjoint analysis, the same name was used for all three, but a claim was added for extra clarification – varying from a simple allusion to security to a technical description which is difficult for the average user to understand (high to low comprehensibility):

- „high": SafeTalk – Your Safe Messenger
- „medium": SafeTalk Secure Messenger
- „low": Safetalk with AES-256 Encryption

C. Reviews („stars") and the number of reviews

The reviews in the app store are assigned according to the star principle (1–5 stars) and are – together with the number of total reviews – an initial indicator for the user of how satisfied other users were with the app after downloading. A high number of stars is perceived as being a positive purchase recommendation [5]. App providers should note that star reviews are not immediately displayed for new apps but are only published once a meaningful average value can be calculated. In the Apple App Store, this means a minimum of 5 reviews. Apple also differentiates according to countries. At present, it is not possible for the user who is giving the review to interact directly with the app provider [2]. The following analysis includes the review alternatives none, three and five stars.

D. Price

Pricing is another element which is immediately displayed on the search result page and in all the app store's lists (for example in the „top charts") and can therefore influence the user's purchase decision during the app selection process. For the analysis in this study, a cost-free version and three price points were chosen which represented a low, a medium and a high price segment, respectively, in comparison to actual mobile messaging applications (0.89 EUR, 1.79 EUR, 2.69 EUR).

E. Screenshots

Screenshots are usually only visible in the detail view of an app. An exception is the result page of the search feature. Here, the first of a total of five possible screenshots is already shown in the preview. Screenshots have several tasks: On the one hand, they should display the features of the mobile application and, on the other, communicate the app's design [2]. Screenshots offer crucial support to the descriptive text as many users do not read this or only read it in part and therefore rely heavily on the screenshots for their purchase decision [18]. App store users draw conclusions from the screenshots as to the aesthetics and user friendliness of the mobile application as a whole [5]. In this study, three different qualities of screenshots were created (high, medium, low), which vary with regard to recognisability and clarity of the functional elements of the mobile messaging app. The bad screenshot, for example, displays rather random content, whereas the good one highlights important core functions with accompanying explanations.

F. App Description

The descriptive text is the only element presented here which appears solely in the detail view of an app once it is opened. The Apple App Store allows a descriptive text with a maximal number of 4000 characters [5]. The descriptive text is important for two reasons: Firstly, potential customers are presented with a list of sales arguments and secondly, the search algorithms of most app stores use the text to carry out corresponding search requests. As the optimisation for search purposes was not the main focus here, the quality of the descriptive text was varied mostly in terms of comprehensibility. Here again, three levels of quality were created (high, medium, low). Whereas the good description used simple language and easily comprehensible wording, the bad descriptive text was characterised by technical terms which the average user would find difficult to understand. In addition, the text was automatically translated as is often the case in app stores which reduced the comprehensibility yet further.

G. Server Location (as an additional attribute)

As a messenger with special focus on secure communication had been chosen as a fictional product for analysis, an additional attribute entitled "server location" was included in the study for evaluation. This is not an element of an app store in a narrow sense, but an important company-related attribute of the app provider that can be emphasized within the app description. While the aforementioned attribute is used to measure how the quality of language influences user preferences, the server location is an example of how various app characteristic, even if just mentioned in the description, could have an impact on customer choice. Due to current discussions about data security in Germany [19], heightened customer awareness was assumed to be a significant influencer on customer preference. By including this attribute, we wanted to test whether and to what extent such attributes contribute to the user's purchase decision in comparison to the other marketing-related app store elements. Server locations in the US, in Germany and an unknown server location were included in the study.

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IV. METHODOLOGY

The conjoint analysis is considered to be the standard method when investigating customer preferences and buying decisions. Traditional Conjoint Analysis (TCA) goes back to the year 1964 and was developed by the psychologist Luce and the statistician Tukey [20]. TCA, as well as all the subsequent versions of conjoint analysis, basically deals with the measurement of preferences for product attributes. Instead of asking the participants directly about the importance of attributes, conjoint analysis is based on the evaluation of product profiles. Each product profile consists of several attributes describing the product characteristics (e.g., brand, price, design, etc.). Different product profiles are derived by variation of attribute levels (e.g., high, medium, and low price). An analysis is always carried out in such a way that each product profile or "stimulus" has to be examined and assessed from a holistic perspective or *con*sidered *joint*ly) [21][22]. Instead of asking directly about the importance of a product attribute, conjoint analysis considers products as bundles of attributes on which the customer decides and makes trade-off decisions. The approach is better aligned to real-world purchasing decisions and the part-worth utilities of the attributes can be decomposed by using statistical methods like regression analysis.

For this reason, the conjoint method is well suited to analyse the impact of different app store elements on the customer choice decision. As a result, the relevance of the key app store elements, derived from the practical literature, can be empirically validated based on the example of fictitious messenger app. The analysis also provides the relative importance of the different app store elements for market success. From a more pracitical perspective the results could be used by an app provider to determine the optimal app store configuration for the analyised secure messenger app or to conduct market simulations based on different configurations. However, the study at hand focusses on the relative importance of the app store elements. The reference to fictitious messenger app was required only because the conjoint analysis cannot be conducted based on a non-specific and generic "mobile app".

Since the mid-sixties, conjoint analysis research has evolved and produced several variants that can be divided into traditional and more recent approaches. Traditional Conjoint Analysis (TCA) can be applied by using trade-off or full-profile approaches but its significance in research has been declining since its first appearance due to limitations on the number of attributes as well as other methodological and statistical problems [23]. Of the more recent approaches, Choice Based Conjoint Analysis (CBC) and its variant, the computer-aided Adaptive Choice-Based Conjoint Analysis (ACBC) are taken into consideration for this study.

CBC is the most popular conjoint analysis today. In CBC, unlike TCA, discrete selection decisions are analysed instead of preference decisions [24]. During CBC, the subject is therefore not asked to make an order of precedence of all the product profiles, but must select the preferred product profile within a set of alternatives or, if such an option is included, reject the choice by deciding on a "none option" [21][22] as shown in Figure 2.

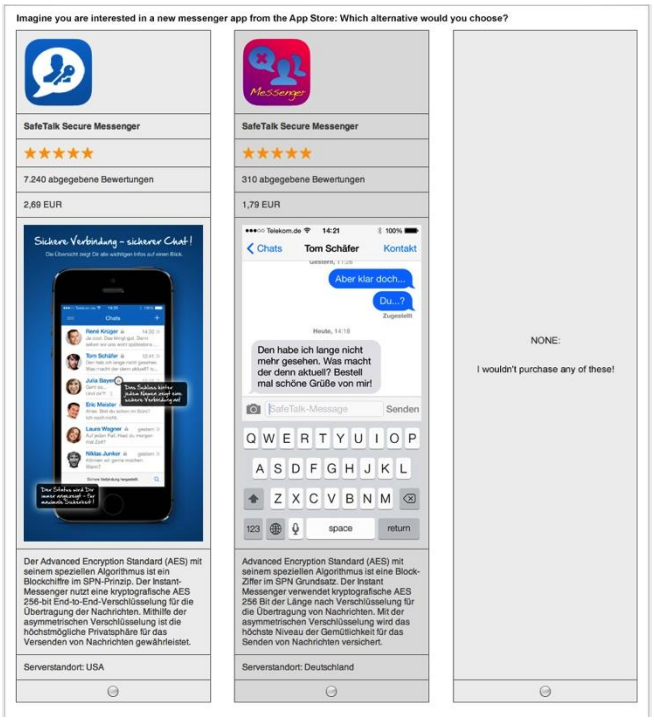

Figure 2. Example of a Choice Set in the Study

The ACBC is a computer-aided enhancement of classic CBC and includes an adaptive approach. This means that every piece of information supplied by the test subject during the course of the interview gradually reveals the formation of his/her preference structure so that the questions posed to him/her can be successively adapted to the answers [25].

In this context, the first consideration for the study was which kind of conjoint analysis should be applied. For best results, CBC is recommended, if the product bundle in question has around six attributes or less; the method can, however, be carried out with up to ten attributes. Adaptive ACBC has proved to be especially suitable if 5 to 15 attributes are to be examined. It is, however, characterised by a more complex and time-consuming questioning process [26].

The number of attributes in this study was eight. We therefore had to determine the feasibility of using a CBC despite the large number of attributes, or if the larger effort of drawing up an ACBC would be needed. The form of the attributes provided an important aspect in making this decision. The amount of information that a test subject has to absorb and process in connection with every single attribute is especially important when calculating the reasonable maximum number of attributes. If the attributes being examined are graphic elements (e.g., app icon) or information which can be quickly understood (e.g., price), it is also assumed in CBC to be feasible to carry out this type of analysis with more than six attributes [26].

Due to these criteria and considering the impact of an ACBC on the interview duration, CBC appeared to be the more suitable choice for the planned empirical survey.

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As far as survey design was concerned, particularly the form of the stimuli had to be defined, specifically the question of which combination of attribute variations would constitute the stimuli and how the stimuli should be presented to each test subject. Here, the Full Profile Method was used, in which each product profile consists of all the attributes. As the number of attributes was already very high, we decided to present only two stimuli at a time so as not to overstrain the test subjects with regard to the information they had to evaluate. In order to create a selection situation as close as possible to a real-life purchase situation, a "none option" was also included.

Figure 2 shows a complete selection situation as an example of how it also appeared in the final survey. In addition to the (randomly) created selection sets, so-called hold-out sets were integrated into the survey. These special selection sets serve to analyse the validity of the prognosis. They are not integrated into the benefit evaluation and are used to evaluate the quality of the prognosis of the preference rating. Two of these sets were defined and included.

The conjoint analysis was carried out using the *Sawtooth* SSI Web 7 software package [27]. The main objective of the study was to measure the importance of the presented app store elements for mobile application purchase decisions. The study was conducted as an online survey. The website for the online survey was generated by the SSI Web 7 software, based on the aforementioned study design. The configuration of the CBC analysis and selected configuration parameters are summarised in Table I.

TABLE I. CONFIGURATION OF THE CBC ANALYSIS

Parameter	Value
Number of Random Choice Tasks	12
Number of Fixed Choice Tasks	2
Number of Concepts per Choice Task	2 (and an additional "none option")
Response Type	Discrete Choice (single select radio button)
Advanced Design Module Settings	Traditional Full-Profile CBC Design
Randomise Attribute Position within Concepts	No Randomise of Attribute Order

The survey was online between December 19, 2013 and January 10, 2014. Participants were acquired by using social media and various other online and offline channels of the RheinMain University of Applied Science in Wiesbaden, Germany.

A total of 221 people participated in the conjoint analysis interview. Of these, 163 completed the interview in its entirety and are, therefore, included in the subsequent evaluation. Selected demographic characteristics of the study participants are shown in Table II below.

TABLE II. DEMOGRAPHICS OF THE STUDY PARTICIPANTS

Characteristics	Absolute Number	Percentage
Mobile OS		
Apple iOS	78	47.9%
Android	78	47.9%
Blackberry OS	1	0.6%
Windows Phone / Mobile	5	3.1%
Symbian	1	0.6%
Purchased Apps		
None	32	19.6%
1–5	40	24.5%
6–10	20	12.3%
11–20	19	11.7%
21+	52	31.9%
Gender		
Female	70	42.9%
Male	93	57.1%
Ages		
18–24	66	40.5%
25–34	70	42.9%
35–44	21	12.9%
45–54	5	3.1%
55+	1	0.6%

The demographics show that the study might be biased by the participating media and design students and due to the resulting high proportion of iOS users compared to the lower usage rate in the total population in Germany of around 32 percent at the end of 2013 [28] and the underrepresentation of older user segments.

V. STUDY FINDINGS

The evaluation of the collected data took place in two steps: In the first phase, a counting analysis was conducted. This analysis can be used to calculate an outline of so called main effects. A main effect of an attribute level is calculated here as a proportion and reveals how many times a specific attribute level was chosen, divided by the number of times this attribute level was available for choice in the testing. Counting analysis is a simple way to get a first indication of the relevance of the attribute levels. As a second step, the part-worth utilities of the attribute levels were estimated based on a logit analysis to find the maximum likelihood solution for the data. Based on the results of the part-worth utility estimation, the relative importance of the individual app store elements were finally determined.

A. Counting Analysis

A counting analysis and the proportions that are calculated at this stage can be used to identify the "winner" of the different attribute levels. Table III shows the results of the counting

analysis for all attributes and attribute levels considered in this study. The higher the proportion of an attribute level is, the stronger this attribute level may have influenced the choice of participants. For the app store element "Reviews (stars)" a five-star rating was the "winner" – which is not surprising. However, in comparison, choices with this attribute level were selected more than twice as often (0.421/0.158) than choices with no stars in the reviews.

TABLE III. SUMMARY OF STUDY RESULTS

Attributes and Attribute Levels	**Counts (Proportions of "Wins")**	**Part-Worth Utilities**
App Icon		
High quality	0.312	0.22215
Medium quality	0.262	-0.01639
Low quality	0.234	-0.20575
App Name		
SafeTalk – Your safe messenger	0.277	0.02744
SafeTalk Secure Messenger	0.247	-0.10392
Safetalk with AES-256 Encryption	0.283	0.07648
Reviews (stars)		
5 stars	0.421	0.73209
3 stars	0.229	-0.13465
No stars	0.158	-0.59744
Number of Reviews		
7.240 reviews	0.329	0.31666
310 reviews	0.320	0.26487
5 reviews	0.229	-0.19484
No reviews yet	0.198	-0.38669
Price		
Free of charge	0.385	0.60605
0.89 EUR	0.274	0.02966
1.79 EUR	0.238	-0.14028
2.69 EUR	0.180	-0.49543
Screenshots		
High quality	0.262	-0.02198
Medium quality	0.274	0.01437
Low quality	0.271	0.00760
App Description		
High quality	0.283	0.07434
Medium quality	0.269	0.01472
Low quality	0.256	-0.08906
Server Location		
Germany	0.373	0.52316
USA	0.224	-0.20529
Unknown	0.212	-0.31788

However, as mentioned before, this analysis can give a first indication of the relevance but does not provide measurements for the part-worth utilities of attribute levels and relative importance of the different attributes, i.e., app store elements.

B. Estimation of Part-worth Utilities

Parth-worth utilities were calculated by using the multinominal logit estimation provided by the *Sawtooth* software for the CBC analysis. For the model estimation, a Chi Square of 473.7 was reported. Considering 18 degrees of freedom (26 attribute levels and 8 attributes) the Chi Square is much larger than the required 34.8 for a 0.01 level, which would mean that the choices of the respondents are significantly affected by the attribute composition [24]. The estimated part-worth utilities represent the relative desirability of an attribute level. The higher the value of a part-worth, the greater the impact of the corresponding attribute level on the buying decision. Part-values are automatically standardised, so that the result per attribute amounts to „0". Reciprocally, this means that negative values can also arise. Table III shows the estimated values for all attribute levels. These should be interpreted to mean that a higher number corresponds to a higher part-worth utility and that this attribute variation therefore had a higher preference among the test subjects. If we look again at the attribute "Reviews (stars)", it becomes evident that the attribute level „5 stars" has a very high part-worth value with a positive value of 0.73209. The other two variations „3 stars" (-0.13465) and „no stars" (-0.59744) were less important for the purchase decision of the test subjects due to smaller values of the corresponding part-worth utilities.

C. Calculation of the Attribute Importance

The defined objective of the empirical study was not only to find out the utilities of the attribute variations but also to analyse each individual app store element in terms of its relative importance for an app purchase decision. We must therefore find a unit of measurement to express the relative importance of each attribute. The calculation is carried out by dividing the range of the the part-worth of each attribute by the sum of the part-worth ranges of all the attributes. Hereby, the range is defined as the difference between the highest and the lowest part-value within the levels of an attribute [29]. The results can be seen in Table IV.

TABLE IV. RELATIVE IMPORTANCE OF ATTRIBUTES

Attribute	**Attribute Importance**
Reviews (Stars)	27.8%
Price	23.2%
Server Location	17.6%
Number of Reviews	14.9%
App Icon	9.0%
App Name	3.6%
App Description	3.3%
Screenshots	0.6%
Total	**100.0%**

The values reveal that the reviews according to the star principle have the largest influence on the purchase decision. Almost 28% of the decisions are based on this criterium. The highest part-worth utility and/or the most positive influence

was of course an app review with 5 stars. The distance to the other attribute variations (3 stars, no stars) was the highest with this app store element compared to the other elements. This highlights the extremely high relevance of good reviews and the importance of this attribute for the perceived total utility of the corresponding app presented in the app store. As was to be expected, pricing, too, has a high level of importance for the purchase decision. The test subjects reacted in a very price-sensitive way. It should also be noted that many apps are now offered at the Apple App Store for free or at a greatly reduced price at the beginning or at some stage of their life cycle for a certain period of time. A certain „freebie“ mentality is also reflected in the order of precedence in this study and shows that price is one of the most important criteria for an app.

The app provider's server location differs from the other elements in as far as it is not a standardised app store element but the app developer's company-related element. We can therefore conclude that users not only include the app store's design elements into their purchase decisions, but also consider and evaluate outstanding and specific properties of the app. In this case, there was a particularly positive effect on the purchase decision if the messenger provider was located in Germany.

The number of reviews relates to the reviews according to the star principle. Here, we see the tendency that the part-worth utility is perceived as higher, the more reviews an app has. An interesting aspect here is that the part-worth of the extreme scenario considered in the survey with 7,240 reviews did not substantially differ from the next level with 310 reviews. The distance to the next two steps (5 reviews, no reviews) is considerably larger, however. This means that an optimal number of reviews – which can be attained with a reasonable amount of effort on the part of the app provider – can be assumed to be more than 5, but not significantly higher than 310 reviews.

The app icon is considerably less important than expected. Besides the screenshots and the star reviews, it is the third graphic element and easy for the potential buyer to understand. Nevertheless, the test subjects apparently did not assess the quality of the app on the basis of the icon but stuck to the very much more rational criterium of the reviews when making their purchase decision.

The app name is of very low significance. Many users see it as a "frill" within the overall impression of the app store and it is therefore of little interest. The study results even show that the name "Safetalk with AES-256 Encryption" with the per definition worst variation actually had the highest partial benefit value. However, this could be a result of the specific setup and the sensitivity of the app users towards data security in Germany. The complicated name –event if not understood by the customers – may be associated with a highly sophisticated technological solution to protect the user from the danger of interception.

The app's descriptive text is also of little importance in terms of decision making. This suggests that potential buyers do not take the trouble to read it or may be very familiar with the type of apps that have been tested here. It should be noted at this point that the descriptive texts used in the survey were relatively short. In real life, an app is mostly described in much more detail and using many more characters – the attention span could, therefore, be even shorter than for the texts used in the survey.

With a relative importance of 0.6 percent, the screenshots had the lowest influcence on the purchase decision. Here, too, it was striking that the part-worth of the medium quality screenshots was the highest, followed by those of the worst quality. The highest quality level had the lowest part-worth value for the test subjects. Here we should note, however, that the differences recorded were marginal and the general result, i.e., that screenshots hardly influence purchase decisions, is predominant. This may also be due to the fact that the subject of the study, messaging app functions, is relatively well-known and simple and that therefore screenshots have only minor informational value as far as the app is concerned.

VI. CONCLUSIONS

One of the most important findings of the study was that reviews have a major influence on the user's purchase decision. Average rating according to the star principle as well as the number of reviews given determine the buying decision of an app to a very large degree. These two criteria, however, cannot be directly influenced by the app provider – reviews are made by the app user and are published by the provider with no prior screening. Nevertheless, there are numerous possibilities for the provider to influence the reviews, at least to some extent. Active review management should therefore be conducted. Review reminders within the app can for example help to continuously increase the number of reviews. It is advisable to wait for a certain period of time before displaying review reminders as the probability of receiving a positive review is higher when the app has been used for a period of time. Reviews can also be stimulated by actively reacting to user feedback, i.e., by responding to reported software bugs or considering suggestions for improvements in upcoming updates.

The possibilities for the provider to influence the price are often strongly determined by the costs. In addition, the price decision can depend on the app's life cycle or even some important seasonal factors (special offers on public holidays for example). Thus, a low price level may not be an option and the findings of the conjoint analysis can not be transferred to a general recommendation on an adequate pricing strategy. However, if it makes sense for the type of app in question, a free version can be offered which can be supplemented by additional content per in-app-purchase. This "freemium model" takes the user's initial price-sensitivity into account. Revenue generation is then postponed to a later phase of usage.

Another important finding is that particular attention should be drawn to app-specific properties if these could positively influence sales. In this study, this applied to the server location of the company providing the app and the corresponding messenger service. In this particular case, it appears to have addressed a basic need for security among the test subjects. This may not be directly transferable to other apps. However, such "unique selling prepositions" should be particularly highlighted and communicated accordingly via the other elements.

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The elements not yet mentioned at this point (app icon, app name, descriptive text, screenshots) should by no means be neglected during the course of marketing activities. It can only be stated that these have a smaller influence on the customer's purchase decision. They are, therefore, elements which must indeed be well designed, in order to convince a customer to purchase or to use the app, yet are only to a limited extent suitable for the purpose of setting the product apart from the competition. The descriptive text and the app name, for example, are nevertheless crucial for the app store's search algorithms to enable the mobile application to be found at all. Whether the app name is easy to remember is another factor that plays an important role in the selection process and in word-of-mouth propaganda.

This study has revealed some empirically based recommendations on how to align the elements of the app presentation in app stores to customer preferences. The findings, however, refer to a rather small and not representative sample. Moreover, the generalisability of the study is limited due to the fact that here just one single, specific application was investigated, using the example of select design elements of the Apple App Store. More detailed studies in different application domains and with regard to different app stores will therefore be necessary in order to verify the validity of the findings derived in this study.

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