

Internet banking app quality compared to other utilitarian apps

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Abstract

Purpose – The purpose of this study is to investigate how good internet banking apps (banking apps) are compared to other apps from a user perspective. The app categories included in the comparison are healthcare and fitness apps, news apps and navigation apps, which are all considered utilitarian apps.

Design/method – To achieve the paper's purpose, an online questionnaire was conducted with a sample of 200 Swedish users of banking apps. The questionnaire investigated the quality of banking apps compared to other apps through five items deriving from previous research.

Findings – The conclusion of the study is that banking apps hold a high overall quality compared to the other apps. When looking at the items severally, banking apps are considered somewhat inadequate regarding ease-of-use, sufficiency of features and app aesthetics. The two aspects which increases the quality of banking apps are that it is reliable in its performance and that it helps the user be more efficient.

Originality/value – The value of this study is that it identifies dimensions of banking apps which hold high quality and which do not. This can be helpful for banks when improving their apps since the study suggests where the improvements should be focused.

Keywords – Sweden, Internet banking, Internet banking apps, Quality, Utilitarian apps

Paper type – Research Paper

1. Introduction

The usage of smartphones and tablets has expanded quickly in recent years (Vitello *et al.*, 2015) and along with this expansion, the popularity of mobile apps has also increased considerably (Hsiao, Chang & Tang, 2016; Xu, Peak & Prybutok, 2015). One industry that eminently takes part of the growing usage of mobile apps are banks through their development of internet banking apps (banking apps) (Bharti, 2016). Banking apps offer customers advantages such as convenience and interactivity, and makes it possible for people to do their banking wherever and whenever they want (Jun & Palacios, 2016). For banks it has quickly become a requisite for prosperity to offer the service of mobile banking (Jun & Palacios, 2016; Laukkanen, 2007). Since there is a strong link between service quality and user satisfaction (Yaya, Marimon & Casadesus, 2011; Ribbink, van Riel, Liljander & Streukens, 2004), it is of great interest for banks to develop high quality apps. There has been substantial research identifying dimensions of service quality which can be used to valuate various services (Parasuraman, Zeithaml & Malhotra, 2005; Jun & Palacios, 2016).

The purpose of this paper is to investigate the quality of banking apps compared to other apps, from a user perspective. Quality is divided into several influencing dimensions deriving from previous research. Furthermore, "other mobile apps" were distinguished using Kim, Park, Kim and Lee's (2014) categories for apps. Kim *et al.* divide apps into utilitarian apps and hedonic apps based on their value. In their study, banking apps are a part of the finance category and are considered utilitarian. In order to achieve equitable

comparability, the apps included in the comparison are utilitarian apps solely. Utilitarian apps are separated from hedonic apps since the value of using a utilitarian app is related to effectiveness, efficiency and utility. Hedonic values on the other hand focuses enjoyment and experiential values (Kim *et. al.*, 2014). To improve the comparability even more, the study focuses on three app categories which have similar downloading-frequency as the finance category. The selected app categories are *healthcare and fitness, news and navigation*.

2. Review of Previous Literature

2.1 What is quality?

Quality has been described as the extent to which a product's performance fulfills the customer's expectations of its performance (Zeithaml, Berry & Parasuraman, 1988; Harris & Harrington, 2000). A requirement for achieving product quality is therefore to understand the customer's needs and expectations and thereafter design a service which meets those needs and expectations (Harris & Harrington, 2000). It is well-documented quality is positively related to customer satisfaction (Ribbink *et. al.*, 2004; Yaya *et. al.*, 2011).

2.2 Quality of online businesses

Regarding the quality of online businesses, Parasuraman *et. al.* (2005) have developed a general measurement instrument for measuring the quality of websites which is called E-S-QUAL. E-S-QUAL consists of 22 attributes divided into four quality dimensions. Those dimensions are efficiency, fulfillment, system availability and privacy. The *efficiency* dimension concerns how easily and fast the user can access and use the site and how it helps the user to be more efficient. *Fulfillment* measures the degree to which promises about delivery and availability of the site are fulfilled. *System availability* refers to the site's technical functioning, and *privacy* measures the site's safety and to what extent it protects user information.

2.3 Quality of internet banking

Apart from general measurement instruments for the quality of online businesses, there are also studies concerning the quality of internet banking specifically. Yaya *et. al.* (2011) use the E-S-QUAL instrument to research users' apprehensions of internet banking quality. Through their study, Yaya *et. al.* draw the conclusion that efficiency is the most important dimension for customer satisfaction of internet banking.

Another instrument for measuring the quality of internet banking has been developed by Sohn and Tadisina (2008). Their measurement instrument consists of six dimensions; trust, customized communication, ease of use, website content/functionality, reliability and speed of delivery. The *trust* dimension is made up by the two components financial security and confidentiality of personal information. *Customized communication* means if the customer can receive personalized communication with the bank easily and furthermore, internet banking should be designed for their customers' *ease of use*. *Website content/functionality* concerns both appropriateness of the content of the website and the functionality of it. The *reliability* of the website depends on if the performance of the site is consistent and dependable, and lastly, *speed of delivery* regards how fast customer requests are responded.

2.4 Quality of banking apps

In a study, Jun and Palacios (2016), develop eight dimensions for measuring the quality of banking apps in particular. These dimensions are: "content; accuracy; ease of use; speed; aesthetics; security; diverse mobile application service features; and mobile convenience" (p. 315). The dimensions which were proved to have the greatest impact on the level of customer satisfaction was accuracy, convenience, ease of use and diverse mobile application service features. The *accuracy* of the app is concerned with the level of error in the app, the interface and the accuracy of the information on the app. the *convenience* dimension refers to the portability, compatibility, customizability, and functionality of the app. Furthermore, *ease of use* includes both what the customer think of the ease of understanding and of operating the app. Lastly, *diverse mobile application service features* refers to the diversity and width of the features on the app.

2.5 Factors deciding customer satisfaction with mobile apps

Xu *et. al.* (2015) divides the factors deciding if a customer is satisfied or dissatisfied with an app into four dimensions:

- *app utility* – "...the extent to which a person believes that using an app will deliver desired, superior outcomes..."
- *app quality* – "...reflects the quality of app features such as reliability, responsiveness and integration."
- *enjoyment* – "...the extent to which using an app is enjoyable in its own right, apart from any anticipated performance consequences."
- *app aesthetics* – "...aesthetics is an object-based belief about the visual appearance of a system." (Xu *et. al.*, 2015, p. 173)

Xu *et. al.* proposes a division of the dimensions into utilitarian benefits and hedonic benefits. This division implicates that app utility and app quality are utilitarian benefits while enjoyment and app aesthetics are hedonic benefits.

3. Research methodology

3.1 Questionnaire and measurements

In order to fulfill the aim of the paper, a quantitative study was performed with a sample of Swedish users of banking apps. An online questionnaire was made for the purpose of this study, starting with a qualifying question used to seek only users of banking apps: "Do you use your bank's mobile app to do all or parts of your banking?".

The questionnaire was divided into three parts. The first part aimed at establishing a sample profile through a few categorizing questions seeking out the respondents' age, gender, and which bank they use. The respondents' banks were sought out through a list of possible banks. If the respondents used multiple banks they were asked to mark the one they used most frequently.

The second part of the questionnaire focused on banking apps and the respondents' perceptions of the one they use most frequently. Firstly, the respondents were asked to mark which matters they perform on their banking app. The matters performed on banking apps were sought out through a list of different bank matters including an open alternative for other matters. In the second part of the questionnaire, the respondents were also asked to grade their overall satisfaction with the banking app. This was done through a scale from 1-5, where the respondents had the alternatives very satisfied (5), satisfied (4), neutral (3), dissatisfied (2), very dissatisfied (1). The author's

motive for identifying the respondents' bank and level of satisfaction with the bank's app was to be able to see if the level of satisfaction depends on which bank it refers to. Lastly, the respondents were given the opportunity to suggest desired improvements of the banking app.

The third part aimed at seeking out how good banking apps are compared to other mobile apps. As stated in the introduction, these other apps include the categories *healthcare and fitness*, *news* and *navigation*. In order for the respondents to understand the content of the categories, they were given examples of apps that belong to each category. When answering the questions, the respondents were asked to think of the app they use most frequently in each category. The comparison was done using Xu *et. al.*'s (2015) dimensions *app utility*, *app quality*, *enjoyment* and *app aesthetics*. Although, since the dimensions proposed in the mentioned previous studies do not include *enjoyment*, this dimension was excluded in the questionnaire. The three remaining dimensions were divided into items deriving from the review of previous literature (see Appendix). More exactly, the items were created through an integration of Xu *et. al.*'s (2015) dimensions and other dimensions from previous literature. All items were evaluated by five-point Likert-scales.

3.2 Data collection

The questionnaire was created on a website where you can both create the questionnaire and summarize the answers. A link to the questionnaire was distributed online to be able to reach respondents from varying parts of the country and with different characteristics, even if time and resources for the study was limited. According to Evans and Mathur (2005), two of the major strengths of online questionnaires are that it is a time effective method and that it broadens the reach of the study. The time effectiveness applies to both the data collection and the follow-up of the questionnaire. The possibility to require answers on specific questions to be able to complete the questionnaire is an additional strength of the online questionnaire found by Evans and Mathur. Another reason for the choice of online distribution was that the target group for the study is users of banking apps, which is an online service. Evans and Mathur (2005) describes that a weakness of online distribution is the risk of ending up with a demographically skewed sample. This is something that needs to be taken into consideration when analyzing the questionnaire results. Furthermore, since the target group consists of people with Swedish as their mother tongue, the questionnaire was written in Swedish to avoid obscurities and misinterpretations. In the two weeks that the questionnaire was distributed, 200 valid completed questionnaires from Swedish users of banking apps were retained.

4. Empirical findings

The sample in this study consists of 200 Swedish users of banking apps. 138 of the respondents are women and 62 are men. Half of the respondents are aged 18-25 years, 43 respondents are aged 26-33 years and only 7 of the respondents are older than 58 years. The rest of the respondents are evenly divided between the ages 34-57.

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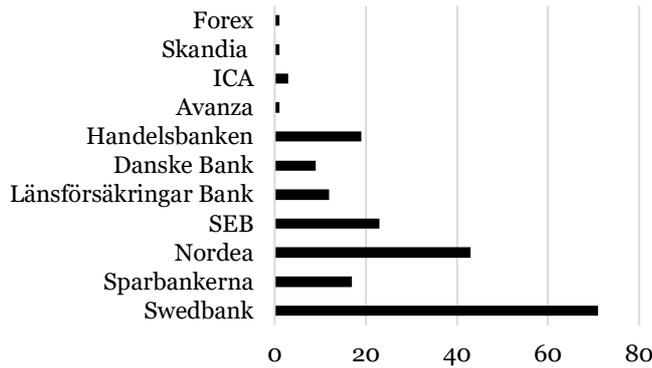


Figure 1. The respondents' primary bank

Figure 1 presents the proportion between the respondents' primary banks. The proportion corresponds with the magnitude of the banks in Sweden in terms of household deposits, according to the Swedish Bankers' Association (2015).

The empirical study shows that the most frequently performed matters on banking apps are *check balance of accounts* (199) and *account transfers* (192) followed by *pay bills* (159). Also *manage options* (e.g. *Swish/BankID*) (123) and *manage accounts* (120) are matters which are performed on banking apps by more than half of the respondents. 88 respondents *manage savings/investments* through the app and 50 respondents *manage credit cards*. None of the respondents *apply for loans* on their banking app and only 5 use the app to *contact customer service*.

Figure 2 shows that the majority of the respondents are either satisfied (4) or very satisfied with their banking app.

Regarding suggestions for improvements of the banking app, the most frequent suggestions are addition of functions and adjustments for making the app easier to use.

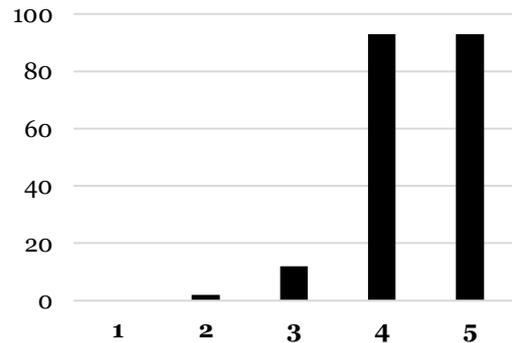


Figure 2. Level of satisfaction of banking app

BANK	MEAN GRADE
Swedbank	4,38
Sparbankerna	4,53
Nordea	4,12
SEB	4,43
Länsförsäkringar	4,83
Danske Bank	4,33
Handelsbanken	4,63
Other banks	4,17

Table 1. Primary bank of the respondents

The mean grade of all banking apps is 4,39. Table 1 presents the grade of the banking app for each of the respondents' banks. Nordea has the lowest grade, 4,12, and Länsförsäkringar has the highest, 4,83. This means that the grades of the different banks' apps are within a range of 0,71, and that the biggest variance from the mean grade is 0,44.

AU1	1	2	3	4	5
Banking apps	5	13	51	49	82
Healthc. & Fitness	27	71	50	30	22
News	0	0	11	47	142
Navigation	5	25	35	61	74

Table 2. Results from item AU1

AU2	1	2	3	4	5
Banking apps	0	0	3	58	139
Healthc. & Fitness	0	2	57	143	28
News	49	88	49	12	2
Navigation	0	0	20	71	109

Table 3. Results from item AU2

AQ1	1	2	3	4	5
Banking apps	10	27	42	68	53
Healthc. & Fitness	20	52	52	67	9
News	0	3	28	66	103
Navigation	0	1	8	69	122

Table 4. Results from item AQ1

AQ2	1	2	3	4	5
Banking apps	1	6	13	39	141
Healthc. & Fitness	31	61	59	47	12
News	5	10	18	78	89
Navigation	21	57	63	31	28

Table 5. Results from item AQ2

AA1	1	2	3	4	5
Banking apps	21	54	101	20	4
Healthc. & Fitness	0	1	60	60	79
News	6	43	81	60	10
Navigation	2	48	89	52	9

Table 6. Results from item AA1

Table 2-6 shows the result from each item in the different categories. The tables show how the respondents' answers are allocated on the Likert-scale. To the right in the tables, the mean value of the item for each category is presented.

5. Analysis

5.1 Sample profile

The sample profile consists of 69 % women and 31 % men. Since the exact proportion of men and women in Sweden who uses banking apps has not been identified in this study, the proportion is presumed to be half-and-half. Consequently, the sample does not represent the population perfectly and the over-representation of women can be seen as a bias in the study. The study is also a bit skewed towards younger people since half of the respondents are aged less than 25 years. The uneven proportion between the ages could be a consequence of the chosen approach for distribution. This can be considered a bias for the study to some extent, but on the other hand, one of the reasons for choosing online distribution was to only reach out to people who uses online services. The most important aspect of the sample in this study is that it

represents banks in Sweden appropriately. The sample’s distribution among the banks matches the overall bank engagements in Sweden (Swedish Bankers’ Association, 2015). The study is thereby not biased towards any bank in particular.

5.2 Banking apps

The banking apps evaluated in this study originate from at least eight different banks. Therefore, an interesting aspect is whether banking app quality differs between the banks or not. As shown above, the difference between the highest and the lowest overall mean grade of the app is 0,71. Thereby, a small difference is found between some of the banks, but generally the mean grades are pretty even. This aspect is important since it suggest that the subsequent items do not depend considerably on which bank the user is engaged in. Consequently, this increases the possibility to draw conclusions about banking apps generally in this study.

Furthermore, the empirical study shows that none of the respondents use the banking app to apply for loans, and very few to contact customer service. The three matters that are performed on the banking apps most frequently are checking balance of accounts, transferring money between accounts and paying bills. These matters can be considered quite basic compared to less frequent matters, such as applying for loans, managing savings and investments and managing credit cards. This should be taken into consideration in the following analysis since it suggests what matters the respondents have in mind when answering the items.

5.3 Banking apps compared to other apps

	Parasuraman et. al.	Sohn &Tadisina	Jun & Palacios
AU1		Ease-of-use	Ease-of-use, Convenience
AU2	Efficiency		
AQ1		Content/Functionality	Content, Diverse app features
AQ2	System availability	Reliability	Accuracy, convenience
AA1			Aesthetics

Table 7. Relationship between items and previous studies

As mentioned earlier, the dimensions in this study derive from the study of Xu et. al. (2015) regarding app quality. The items of the questionnaire derive from previous studies which have developed quality dimensions in various levels. The studies included in this study are Parasuraman et. al.’s (2005) quality dimensions for online businesses, Sohn and Tadisina’s (2008) dimensions for internet banking, and Jun and Palacios’ (2016) dimensions for banking apps. Table 7 shows the relationship between these dimensions and this study’s questionnaire items. In each of the included studies, a dimension regarding safety or privacy is included. This suggests that safety and privacy are important aspects when it comes to banking apps. In this study, the safety dimension was excluded since it was not considered comparable towards the other categories. In addition, the privacy dimension was not seen as one of the most important dimensions in Jun and Palacios’ study (2016). As shown

above, the dimensions are mostly influenced by Jun and Palacios' (2016) study. The motive for this is that their study focuses banking apps specifically. To make the dimensions and items comparable to the other categories, the comparability is assured by adding the studies of Parasuraman *et. al.* (2005), Sohn and Tadisina (2008) and Xu *et. al.* (2015).

When analyzing the questionnaire results for banking apps alone, it is clear that app aesthetics is their weakest point. App utility have the highest mean value and is closely followed by app quality (Table 8).

	Banking apps
AU	4,32
AQ	4,11
AA	2,66

Table 8. Mean of dimensions

The different app categories included in the comparison of this study are all utilitarian (Kim *et. al.*, 2014). Therefore, the items are also chosen to correspond with this type of apps. The value of using a utilitarian app is related to effectiveness, efficiency and utility, while hedonic values focus enjoyment and experiential values (Kim *et. al.*, 2014). Consequently, there are no items regarding whether the app is fun or enjoyable to use included in this study. Items of that sort is not considered relevant for the purpose of this study.

Regarding Healthcare & Fitness apps, there are many neutral answers to all five items (Table 2-7). At least a quarter of the respondents were neutral on each item. One possible conclusion which can be drawn from this is that a significant part of the respondents do not use an app in the Healthcare & Fitness category and thereby do not have an opinion of its quality. Another possible conclusion is simply that many of the respondents have a neutral opinion of the quality of the Healthcare & Fitness app they use.

	Banking apps	Healthcare & Fitness	News	Navigation
AU1	3,95	2,75	4,66	3,87
AU2	4,68	4,44	2,15	4,45
AQ1	3,64	2,97	4,35	4,56
AQ2	4,57	2,89	4,18	2,94
AA1	2,66	4,09	3,13	3,09
Total Mean	3,9	3,43	3,69	3,78

Table 9. Mean value of items for each category

When looking at the total of all items among the four categories, the mean values do not differ distinctly, as shown in Table 9. Banking apps have the highest total mean, 3,9 out of 5, which suggests that they hold a high overall quality compared to the other three categories. As presented earlier, the mean grade of the satisfaction of banking apps is 4,39 out of 5. Consequently, there is a difference between mean grade of satisfaction and banking apps' total mean of the items. The difference indicates that there might be other additional dimensions that are significant for satisfaction or that some of the above items are insignificant.

Table 9 also shows that the mean value of each item differs considerably among the categories. Below, the five items are analyzed severally.

5.3.1 AU1

When looking at the first item, ease-of-use, the category with best results are news apps with a mean of 4,66. Banking apps are the second best with a mean of 3,95. This result is not very surprising since there are usually more functions involved in a banking app than in a news app. Banking apps are considered about as easy to use as navigation apps and much easier to use than healthcare & fitness apps, according to the study.

Regarding this item, one should take into consideration that the most frequently performed matters on banking apps are pretty basic. The respondents do not necessarily use all of the offered functions. If the respondents would have performed more complicated matters on the banking apps, such as applying for loans, the ease-of-use item might have gotten a lower mean.

5.3.2 AU2

The second item concerns to what extent the app helps the user be more efficient. In this aspect, banking apps are rated highest with a mean of 4,68. Healthcare and fitness apps and navigation apps also have a rate above 4 in this aspect, while news are rated much lower at 2,15. Out of the five items this is the one where banking apps has the highest rating, which suggests that this item is the most contributory to the quality of banking apps.

Yaya *et. al.*'s (2011) study implicates that efficiency is the most important aspect when it comes to the quality of online banking. Therefore, this item is a good measure of value for the quality of banking apps. The fact that banking apps got their highest mean value on this item further contributes to the statement that banking apps hold a high overall quality.

5.3.3 AQ1

The third item regards whether the app has enough features to fulfill the user's needs. Banking apps have a mean of 3,64 which suggests that features could be added to increase the quality of the apps. This is something that is further confirmed by the respondents' suggestions for improvements where addition of functions was a frequent suggestion. Both news apps and navigation apps are rated much higher than banking apps regarding this item.

Since fulfillment of customer needs and expectations is an important aspect of product quality (Zeithaml *et. al.*, 1988; Harris & Harrington, 2000), this item should be critical for the banks. Both News apps and Navigation apps have a higher mean regarding this item, which ought to be an alarming finding for banks. As Harris and Harrington (2000) states, identifying and understanding customer needs are requirements for achieving high quality. Banks should investigate what functions their customers think the app is missing. Thereby, they can create apps which meet customer needs and expectations better.

5.3.4 AQ2

The fourth item investigated the reliability of the app's performance. Banking apps have the highest rate, 4, 57, on this item. This suggests that when it comes to the app quality dimension, banks should focus their improvement work on AQ1 rather than AQ2.

5.3.5 AA1

Lastly, the fifth item was the only item concerning app aesthetics. The aesthetical appealingness of the banking apps was considered the weakest in the study. Healthcare and fitness apps were considered as the apps that were most aesthetically appealing.

As stated above, there is a difference between total mean of items (3,9) and mean satisfaction (4,39) when it comes to banking apps. This difference indicates that some of the items in this study might be insignificant for perceived quality, and thereby satisfaction (Ribbink et. al., 2004; Yaya et. al., 2011). The item concerning app aesthetics (AA1) is the item which lowers the total mean of banking apps the most. Furthermore, app aesthetics can be considered a hedonic value according to Xu *et. al.* (2014). Altogether, this indicates that AA1 might not be as relevant for the study as the other items. The motive for including the AA1 item in the questionnaire is that it can be found in the previous studies of both Xu *et. al.* (2014) and Jun and Palacios (2016).

	Banking apps	Healthcare & Fitness	News	Navigation
AU1	3,95	2,75	4,66	3,87
AU2	4,68	4,44	2,15	4,45
AQ1	3,64	2,97	4,35	4,56
AQ2	4,57	2,89	4,18	2,94
Total Mean	4,21	3,26	3,84	3,96

Table 10. Mean value of items for each category (AA1 excluded)

Table 10 presents the result from the items when AA1 is excluded. This table is useful if it turns out that app aesthetics do not affect the perceived quality of banking apps. In this result, the total mean of banking apps (4,21) corresponds with the mean value of satisfaction (4,39) better than when AA1 is included. This could strengthen the irrelevance of AA1 for the purpose of this study. Furthermore, when excluding AA1, the differences between the categories' total means changes. All categories' total means increase except for Healthcare & Fitness apps' total mean which decreases. Banking apps still have the highest total mean and the difference from the other categories has increased slightly.

6. Conclusions

The major conclusion of this study is that banking apps have a good overall quality when being compared to other apps. Out of the four app categories chosen in this study, banking apps shows the highest quality when summarizing the five items. Although, when studying the items severally, one can distinguish both strengths and weaknesses with the different apps. The study shows that banking apps hold a high standard in helping the user to be more efficient and in being reliable in its performance. The study also suggests that improvements can be made to make the banking apps easier to use and that additional features can mean that the app meets user needs better. Lastly, the study identifies the greatest potential for improvement in app aesthetics. The results of the study can be used by banks when improving their apps since it identifies aspects of banking apps which are inadequate. Furthermore,

6.1 Implications and suggestions for further studies

The value of this study is that it identifies dimensions of banking apps which hold high quality and which do not. This can be helpful for banks when improving their apps since the study implicates where the improvements should be focused.

Previous studies have mostly identified quality dimensions of separate product categories. It has been more difficult to find studies which identify specific quality dimensions for mobile apps in general. A limitation in this study is therefore that the dimensions included in the comparison are somewhat limited. Consequently, a suggestion for further studies is to identify more specific quality dimensions which can be used to compare the quality among a variety of apps and app categories.

As stated above, banks can use the results of this study to improve their apps. Apart from identifying inadequate aspects of banking apps, the study also shows apps which are considered better regarding these aspects. A proposal for further studies is therefore to identify why these other apps are considered better. Banks can use this information as concrete suggestions how to improve their apps.

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Appendix. Items included in questionnaire

App utility (AU)

- AU1 The app is easy to use
 AU2 The app helps me be more efficient

App quality (AQ)

- AQ1 The app has enough features to fulfill my needs
 AQ2 The performance of the app is reliable

App aesthetics (AA)

- AA1 The design of the app is aesthetically appealing