Usability <mark>testing</mark> of Alipay

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1. Executive Summary

This research aims to evaluate the usability of Alipay which is an electronic wallet. Alipay is a powerful application, so the functions and users are categorized. In this report, only the function of transfer money to a receiver is inspected. Both Situated Co-inquiry and Heuristics Evaluation are executed to assess it and the findings of the two approaches will be compared. Following are the recommendations:

1) Detect the user's location and choose a country automatically when registration

2) Add search function in the country selection page

3) Sort the buttons on the main dashboard by type and frequency of utilization

4) Allow users to customize the button's arrangement

5) Remove the advertisement

6) Modify the labels of the buttons make them more precise and easy to be distinguish between similar functions

There are two things need to do for the next step. The first thing is test all the other types of user and use. The other thing is all the recommendation should be tested before Alipay being delivered to user.

2. Introduction

Usability represents the capability of a software to be used by the user effectively, efficiently and with satisfaction for a task in a specific context of use (Abran, Khelifi, Suryn, & Seffah, 2003).

Electronic wallet is one of the most widely installed application on the smartphone. Alipay is the dominant one in this market which can use to transfer money to a receiver, pay for orders, pay utility bills, buy all kinds of ticket and top up games etc. Recently, Alipay

launched a new version which adds new functionality including social network functions which people can make friends on and investment functions allowing people to buy funds and stock on it. This report aims to evaluate the money transfer function of Alipay and propose the improvement for the software. Situated Co-inquiry and Usability Heuristics will be executed and the result of the two method will be compared.

3. Research Design

The prime research method for usability testing in this report is Situated Co-inquiry. Initially, a pilot testing was executed and some improvements are concluded form it for the following testing. Three users are participated in the Situated Co-inquiry to find the positive and negative part of the software's usability. After the Situated Co-inquiry, Heuristics evaluation was also implemented and the results of the two usability testing approach will be compared.

3.1 Situated Co-inquiry

There are three people participated in each session of the testing, they are facilitator, logger and user. They sit in a triangle setup-facilitator sit beside and slightly behind the user and the user sit opposite to user. The facilitator should be alongside with the test user and no need to be neutral. And a warm up phase will the user to evoke a feeling of making contribution to the testing (Carter, 2007). Both verbal and nonverbal information will be collected during the testing.

3.2 Pilot testing

The main purpose of pilot testing is to train facilitator and logger and make sure they can corporative closely. It is helpful because some problems are fond out and improved in subsequent formal testing. The first problem is the facilitator tend to propose his own idea and not really be alongside with the test user. Another problem is the facial expression and tone of speaking did not be logged. Some other important information are also failed to be written down by the logger in the pilot testing, and it is improved by letting the facilitator give some hint to the logger if necessary.

3.3 Research objects and scenario

Building scenarios and personas is valuable because it helps to place the usability testing into living context (Carter, 2007). The scenario for this testing is that the users bought a bunch of flower in a shop, they wanted to pay it by Alipay.

Three users are participated in the testing. User A is keen on Alipay because he think Alipay brings convenience. He use it to pay utility fees, buying tickets (such as air tickets and movie tickets) and transferring money to his friends. But he still use the old version Alipay because Alipay version 8 is only launched half moth before. User B also use Alipay frequently, but he use the web version of Alipay and it is the first time he install the application on the smartphone. User C is a totally new user. He did not use Alipay before. User C is a lady with more patient.

3.4 Heuristics evaluation

Nielsen's heuristics is the most popular informal method exploiting the experience of expert in the field to access the usability of the software (Nielsen, 1995). The purposes of using heuristics evaluation in this research is to get a big view of that whether Aplipay follow the usability principle.

4. Findings

4.1 Positive aspects

4.1.1 Allowing users registering with Chinese characters

Alipay allows user register with Chinese characters (See appendix 1.1). "Nice, I prefer Chinese user name, because it is easy for me to remember it" said User C.   It is a big improvement because the majority of mobile application only accept a combination of alphabet for username.

4.1.2 Simple Login page

The login page follow the common pattern, it is very easy for all the three user to know

how to login (See appendix 1.2). They all can quickly input their username and password. One of the user said with confidence and satisfaction: "It is easy because it is a common login page design".

4.1.3 Sufficient help information for login page

In addition, the login page offer sufficient hint for user when they encounter some difficulty in login. One of the client input his password very fast and input wrong passwords twice. The first time the warning is "Error password". When he type a wrong password a second time, besides the warning, the software give two option for the user to choose. One option is "Input password again", the other is "Retrieve my password" (See appendix 1.2). It is really a thoughtful design, "It is good though I do not need to reset my password, but I think it will helpful for people who really forget their passwords". In addition, there also have a link of with the text "Do your encounter any problem?" After click the button, it will offer three options to guide user to reset passwords.

4.1.4 Multiple payment options

There are three payment options, it allows user to scan the receiver's barcode, two-dimension code or sound wave (See appendix 1.4). The barcode and two-dimension code is really handy because it liberate the user from inputting the receiver's account manually. It also reduce the opportunity of incorrect input. Both the three user smiled and like the design. User A said "Awesome! I like it! "

4.1.5 Clear navigation for transfer page

The navigation of the transfer page is clear, both of the three users can use it smoothly. It offer four different type of money transfer. They are "Transfer to your friends", "Transfer to another Alipay account", "Transfer to bank account" and "International transfer" (See appendix 1.5). Below the four button, the accounts which have recent dealings with the user's account are listed. It is very convenience, User A quickly target his friends account.

4.1.6 Avatar facilitate account searching

The avatar helps the user find his friends quickly (See appendix 1.5). I was amazed how User A can find his find his friends so quickly in the list. He answer, "Look the avatar, I

familiar with my friend's avatar."

4.1.7 Verification button make it is easy to verify the account

Alipay offer a verification button for user to make sure the account they are transfer money to right account. When User A was asked why he do not afraid of chose a wrong account. He point to the verification button and say "you can use this button to check it, I do not need to verify this account is because I have remember my friends account, you can see the account here (he point to his friend's account name below the verification button)." It is a thoughtful design, it allow the user to verify the account buy his friends account name or his friends name (See appendix 1.5).

4.2 Negative aspects

4.2.1 The registration process is not easily enough for new users

User need to select a country and input phone number to register. When it came to choose a country for the user, the user was frowning and take a long time to find "New Zealand". Thought the country is arranged in an alphabetic sequence, the user did not realize it before I gave her a hint. The user also had difficulty in inputting the phone number in a correct form because the length of the New Zealand's phone number is different from china. The user tried serval time and still failed to input a correct phone number. He seem to be impatient with It. "Stupid software", she said "I hope it can correct my phone number automatically". After a great effort, she finally know that she input an extra zero after +64 (See appendix 1.1).

4.2.2 Poor navigation of the dashboard

The first drawback is that the dashboard fails to offer a clear navigation. The dashboard displays the buttons of all the main functions, but Alipay do not categorize the functions properly. Even worst, different types of function are mixed in four parts of the page. So it is confusing for new user. Only User A who had used the previous mobile version Alipay manage to find the transfer button quickly. User C was rolling the screen and frowning "Where is the payment button?" She found three buttons related to transfer money. The first one is placed on the top-middle-side with a label "付款" which means "payment". The

second button located at the right-bottom-side of the middle section with a label "转账" which means "Transfer". The last button located above the second button with a label "亲 密付" which means "Intimate payment" used to pay money for the user's family. The first button is obvious, but it take several seconds for User C to find it. The User C was asked why he did not find the first button at once, he explain that because the three payment buttons are mixed with tick purchase, phone top up functions (See appendix 1.3).

4.2.3 Ambiguous label language

In addition, the ambiguity and near-synonym of the button's label make things even worse. All the three words "付款", "转账", "亲密付" can be interpreted as "pay or transfer money to other people" (See appendix 1.3). Both User B and User C have to try one buy one to know the exact function of each button.

4.2.4 Annoying adverting banner

Finally, the adverting on the pay also annoying to users (See appendix 1.3). User C said "I hate the adverting".

4.2.5 Improper arrangement of buttons for payment page

The functions for receiver and payer are mixed in the same page and do not be arranged properly. It make user think they had click a wrong button. After clicking the payment button, user may expect to input or scan the receiver's account to check out. But after a while of thinking, both User B and User C clicked the "付款" button and then they are all more confused with it because it showed an two-dimension code to them in the middle of the page (See appendix 1.4). Normally, two-dimension code is supplied by the money receiver so that the payer can scan the code and transfer money to receiver. So User B get back quickly and try another button and say "It is actually a function for receiver".

4.2.6 The help information for sound wave payment is insufficient

Another problem for this page is the instruction for sound wave is not clear enough. The sound wave is advanced. But it is new function to many users, so they rely on the help information to learn how to operate it. User C did not go back and switch to "transfer" button. He notes there are three smaller button below the two-dimension code and learnt

the functions of the three buttons. The barcode and two-dimension is easily to san, but the sound wave id difficult. She refer to the help information, but the information is insufficient for him to know how to use it. After a minute's trial, she give it up.

4.6 Heuristics evaluation and comparison

Alipay will be evaluated by the check list of Nielsen's heuristics in this section. Only the transfer functions are evaluated in order to make a comparison with the finding of situated co-inquiry.

Table 1: Heuristics evaluation result

Problem Types	Evaluation Result
Positive Aspects	
Visibility of system status	Good. Did not find obvious problem.
Match between system and the real world:	Alipay use a natural language, all the language are close to the real word, the phrases are easy to understand.
User control and freedom	User can stop and get back at anytime
Consistency and standards:	Consist in language, buttons, icons
Error prevention	No problems are found
Recognition rather than recall:	Good, do not need to mesmerize anything
Aesthetic and minimalist design	The login page, payment page and transfer page are consist with the aesthetic and minimalist design.
Help users recognize, diagnose.	Error message is very precise and constructive
Help and documentation	Most of the help information is useful
Negative aspects	
Flexibility and efficiency of use	The menus on the main dashboard should be able to be tailored by the users.
Aesthetic and minimalist design	But the adverting on the main dashboard is troublesome.
Help and documentation	Help information for sound wave payment is insufficient.

Because of heuristics evaluation was done after situated co-inquiry, so the evaluation is incline to find the negative aspects. But the result is surprising because only three shortcoming are found. So a second heuristics evaluation was implemented aim to find the drawbacks of Alipay, but there were still no obvious drawbacks founded.

Therefore, the advantage of situated co-inquiry is that it is more powerful in finding the detailed information. Alipay is developed by Alibaba, China's largest information technology company. So the result of heuristics evaluation may reflect Alipay was developed according to the usability principle. Heuristics evaluation is a comprehensive approach which can cover all main dimension of a software's usability and also an inexpensive approach. Comparing to heuristics evaluation relies on recognized usability principles, Situated Co-inquiry place the usability testing in a live using context, so it more capable in revealing underlying problems. For example, as for the principle "Match between system and the real world", Alipay do use a natural language, all the language are close to the real word, the phrases are easy to understand. But this standard fail to find the defeat of three ambiguity buttons in the main dashboard related to payment because the label language of each button are proper and represent the real word. But three similar buttons placed on the same page make the user confusing can be found in the Situated Co-inquiry.

5. Recommendations

5.1 Select a country for user automatically

The first recommendation for registration page is to recommend a country automatically for user. New technology allow a smartphone application to locate a user's location. When a user register a new account, Alipay should detect the user's location and use it as a default value. In addition, it should allow the user to input the country name or search a country form the list rather than only allow the user to choose it from a list of nearly two hundred countries.

5.2 Categorize the buttons and arrange by the frequency of utilization

The dashboard is the first page a user can see after login into the application. So the navigation is very important for users to find the functions they want, especially for the new version Alipay which combine different type of functionality in a single application.

Alipay should categorize the buttons and arrange them by the frequency of utilization. Placing similar buttons together can narrow the scope that the user need to search for a particular buttons. And arranging them by the average frequency of utilization of the type make the more frequent used button easy to be found and reduce the user's effort.

5.3 Make the dashboard Customizable

Alipay also should permit the users to edit the buttons, That is to say users can add, delete and sort the buttons as their preference. The usability will be improved greatly because the page is tailor by themselves. Furthermore, a "reset to default setting" button should be provided for the user who want go back to the default menu.

5.4 Remove the advertisement

The adverting should be removed because it do not add value to users but annoy the user.

5.5 Use precise and distinctive language

The language of the three buttons related to payment should be modified so that they can be distinguish easily. The "付款" should be modified to "收付款" which means "receive from or pay to a people". The "亲密付" should be modified to "家人付" which means " pay for family". The modification makes the label to be more precise for the actual function and easier to distinguish.

The alteration of "付款" to "收付款" also help users to know the payment page will offer functions for both payer and receiver. So they will not be surprise by the default

two-dimension code.

5.6 Usability testing suggestion

Alipay can adopt Situated Co-inquiry to do extra usability testing in a live scenario to improve userability. It can be seem from the comparison of the results found in situated co-inquiry and heuristics evaluation that Alipay is consist with the usability principle but still have some usability problem can be improved.

6. Other types of user and use

The users of other can be categorize in the following types:

Business owner- they use Alipay to received money.

Ticket buyer-they use Alipay to buy all kinds of ticket, like air tickets, movie tickets etc.

Housewives-they use Alipay to pay for all kind of utility fees.

Gamers-they use Alipay to top up for the games they are playing.

Investor-they use the account book, buy funds and stocks.

7. Possible ramification and future work

As for the registration page, detecting the user's location may cause security and privacy concern, so it is important to get the user's permission before detecting user's location.

As for the main dashboard, categorizing the buttons may not satisfy all the users, because not all the buttons in a specific category have the same frequency of utilization. In addition, some frequent used buttons may be placed at the end of the page because the lower average frequency of utilization of category which the buttons are assigned to. This may frustrates the users who use the buttons frequently. Finally, though Alipay can allow user to customize the arrangement of the buttons, some users may do not know it can be customized or do not know how to customize it. So further works need be done to make sure the arrangement of the buttons satisfy the most proportion of users and the help information also need to be tested to make sure users can understand it easily.
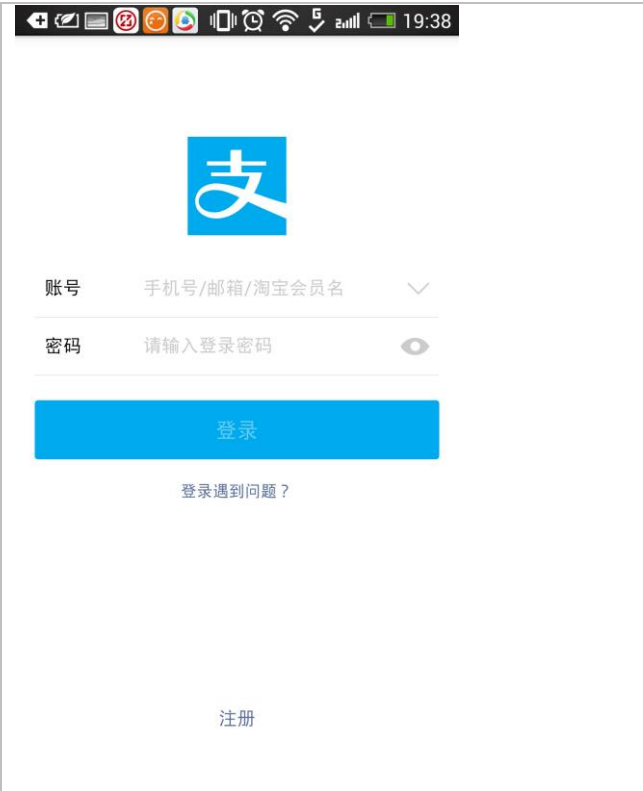
The other recommendation also need to be tested by Situated Co-inquiry though no possible negative ramification can be found in this report.

Finally, the other types of user and use mentioned also should be tested. That is to say a complete testing should be executed to test all aspects of the software.

Appendix

1. Screenshot

1.1 : Registration page	
1. 2: Login Page	

1.3: Dashboard	

1.4 Payment page	

1.5 Transfer

2. Manuscript of User A:

Data: 11/8/2015

16:30 用户 A 升级旧版支付宝到最新的 V8 版支付宝

16:35 安装完成，登录，"登录界面没什么大改变"。

　　　 "密码输入错误，再试一下"

16: 36 暂停，错误提示(见 figure 1)

　　　 又输入了错误的密码，错误提示（见 figure 2）

　　　 用户 A "两次错误提示还不一样的啊，这个设计挺好的，有意思"。

　　　 Fascinator 问："你觉得好？"

　　　 用户 A："恩，这个设计听贴心的。多次输入错误，可能是忘记密码了，他就给你这个选项"

16:37 用户 A: "OK，登录进来了。点转账按钮。"

　　　 "这边搜索收款人账户，OK，就是他了"

　　　 "输入金额，这里有地方可以输入备注，我觉得挺好的！"

　　　 "OK，确认付款。完成了，非常简单！"

　　　 说明：用户 A 的整个支付操作流程非常流畅。

16:39 Facilitator："看起来操作很简单？"

　　　 用户 A："是的，跟上一个版本比，下面的主导航改掉了，不过这个登录进来的默认面板没有改，所以，对我来说，很容易找。"

16:39 Facilitator："我看你搜索输入收款人很快，你不怕弄错吗？"

　　　 说明：用户 A 又演示了一下付款

　　　 用户 A："看，我每输入一个字符，下面的搜索结果都会变。然后每个用户都有个头像，这个收款人我经常付款，所有一看头像，就选他了。"

　　　 Facilitator："恩，OK。"

　　　 用户 A："最后这个付款页面，你看这里有显示完成的收款人账户，还可以点这里验证收款人名字。"

　　　 停了一下，笑着说: "很贴心的设计。"

3. Manuscript of User B:

Data: 12/8/2015

12 日大家都没有课，在 WT 找了个安静的房间。

10:25 用户 B 以前用 web 版的 Alipay（支付宝）,所以用户 B 先下载安装 alipay。安装完开始。

10:28 第一次输入密码也错误。（可能还没习惯使用手机 APP）

用户 B："咦~~"

用户 B 注意到密码输入框后有个小眼睛。

用户 B 点了一下小眼睛，这样输入的密码是明文显示了。

为了用户 B 能够体验小眼睛按钮的效果，Facilitator："我转身，不看你输密码。"

用户 B 反馈："这个挺好的，这样有些时候可以用来确认自己是否输正确的密码。"

用户 B 输入正确的密码，登录

10:31 用户 B 犹豫了片刻，点击了"付款"按钮。

"怎么是二维码？"用户 B 希望进来以后，能够有地方输入收款方的账户，但点"付款"按钮，看到的是二维码，让他很疑惑。

用户 B："这里应该不是付款的，是用来给付款人提供二维码账户的。"

用户 B 没有注意到地下的几个小按钮，很快退出这个二维码界面，返回主页面

10:35 用户 B 在主页付款按钮边上看到一个"扫一扫"按钮。

"这个应该是用来扫描刚才那个二维码的吧？"联想到刚才看到的二维码页面,用户 B 说到。

用户 B 进入扫码功能:"哇，太酷了，这个功能我喜欢! 扫一下试试。"

10:36 提供收款方的二维码给用户 B 扫描。

"叮叮"扫码成功，跳转到收款人界面。可以"添加到通讯录"或者"转账"。

10:36 点转账，进入付款页面。这个页面跟用户 A 点 "转账"按钮，搜索并选择收款人后进入的页面是同一个页面。

10:37 "这一步很简单了"用户 B 很自信。

用户 B 输入付款金额和备注，付款成功。

10:37 用户 B 对 Alipay 产生了更多兴趣。"再试试刚才看到的其他付款方式"。

10:37 用户 B 返回主面板，又点击了"付款"按钮。

"地下底下还有三个按钮，刚才怎么没注意到？"用户 B 很疑惑。

"他这个名称取的太误导了"。 用户 B 看向 Facilitator，Facilitator 点头确认"确实是这样"。

用户 B "这三个按钮，付款码是默认选中的。"

最后一个才是"扫码付"的按钮。

"所以付款码，和扫码按钮做在同一个页面了"用户 B 恍然大悟。

10:40 "这个声波付好像也挺酷的"用户 B 对中间的一个"声波付"产生兴趣。

点击声波付按钮，手机发出"咻咻咻~"的声音。

"收款方手机怎么接收呢？"

10:41 两个手机靠近，没有反应。

Facilitator："右上角按个问好按钮可能有提示怎么做。"

点击了问好按钮，Facilitator 和用户 B 都没看太明白。两个手机打开扫码付。还是不行。

10:45 用户 B："应该说清楚收款方怎么接收信号"

努力和一伙，还是不行，用户 B 放弃了。

4. Manuscript of User A:

Data: 12/8/2015

10:55 用户 A 下载安装最新版 Alipay

11:00 用户 A 是新用户，所以要重新注册。她打开支付宝，很容易在页面最底下找到了"注册"按钮。

11:00 点击"注册"按钮，出现注册表单页面。

11:01 用户 A "是否可以用中文用户名呢？" A 尝试了一下，"可以，这点挺好，中文用户名比较好记忆。"

11:01 选择国家和地区，默认显示的是"中国大陆"。用户 A 点击进入国家和地区选择页面。

用户 A 皱眉头："应该可以自动帮你选就好，这里做的有点傻。"

用户 A 皱着眉头，滚动列表找新西兰这个国家。国家按字母顺序排序的。

用户 A 滚动的太快了，又退回去。

用户不小心点错了，选中了马来西亚。

从新进入选择页面，用户 A 有点失去耐心，第一次使用这个软件体验不好。"这个软件真傻，应该能够自动检测我的地址啊，现在很多软件都能自动检测地址。"

11:06 终于选好国家，输入手机号和密码。点击"注册"按钮。

提示"手机号格式不正确"。用户 A 迷惑又邹眉头，"哪里错了呢"。

11:07 尝试了集中输入，终于知道是多了一个 0。"应该要能自动纠正错误，不就多一个 0 吗，很多人都会多输入一个 0。"

用户 A 开始不满。

11:08 很快手机收到了短信，输入短信验证码，注册成功。

"呼~~~，终于注册好了"用户 A 深呼吸，如释重负。

11:09 进入到面板首页，A 看到底部的广告。

"为什么放个广告在这里呢，真讨厌。"

11:10 用户 A 在寻找付款按钮。"扫一扫，付款，亲密付，转账，是哪一个呢?"

11:12 用户 A 安静的思考了一伙。点击付款按钮。

"咦，怎么是条码和二维码？"用户 A 疑惑

11:12 用户 A 大胆尝试，点了上面的条码和二维码，条码和二维码会放大但没有看到其它作用。所以用户 A 返回，读页面上的文字说明。

11:13 "哦，下面有三个按钮"。

"声波付，扫码付，应该是扫码付了。"点扫码付，出现扫描功能。

"哈哈，肯定是这个了，这个很好。只要扫描别人二维码就可以了，省了输入的事情。"

用户 A 终于兴奋起来。

11:15 要来收款人二维码，扫描付款。很顺利。

11:17 这个"声波付"是怎么用的，A 对"声波付"也很感兴趣。

Facilitator："我也没搞懂，你试试，说明定能搞清楚怎么用的"

11:17 各种尝试，最后失败，没有成功，A 也放弃了。

Reference

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