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A study of redesigning food delivery application in Thailand

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ABSTRACT

User interface (UI) and user experience (UX) design is fundamental to the stickiness of any application. Food delivery is no exception. With the food delivery business sector on the rise during the coronavirus disease 2019 (COVID-19) pandemic, it is necessary for any newcomers in the market to at least match the must-have feature lists of the major players. However, Robinhood, despite having a niche in societal responsibility, is still a food delivery app that is found to lack some of the features that, in the past few months, due to the fierce competition within the food delivery space, moved down from a delighter to a must-have. In this paper, we show, through iterations of qualitative interviews, the proposed solutions consisting of features and future roadmap along with the general context of why each implementation was selected in each sprint. Through all these experiments, we learned not to go against the natural reading pattern of reading from left to right, the z pattern in the visual hierarchy, the users' familiarity with buttons placement due to loaded external factors, and how introducing too many new features may negatively impact the usability test score.

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1. INTRODUCTION

Due to the worldwide situation of the coronavirus disease 2019 (COVID-19) pandemic, consumer behavior has changed significantly from goods and services purchasing patterns up to medical caring patterns, travel planning, and technological usage behaviors [1]-[5]. Consumer purchasing behavior has changed by social distancing and lockdown situations. Many consumers open their minds to online shopping and digital platform. Before COVID-19, some of them had never used online shopping before because most of them think it was expensive and had delivery fees. Nowadays, online shopping and food delivery application has been growing both academically [6]-[8] and commercially, and will be a long-term option because it is more convenient and safe than going outside, as explained by Sharma [9] in 2020 and Muangmee *et al.* in 2021 [10].

One of the most competitive scenes with significant growth during this period is the food delivery services. These booming services provide consumers the ways to continue their lifestyle while minimizing the risks of contracting the disease due to the contactless process of the online application. While the price of food is the most impact attribute to customer perceptions in young people, as suggested by Jamaludin *et al.* in 2019 [11]. Other research found that the price of food within the app has no positive impact on continuous usage; both multi-person households and single-person households value trustworthiness equally while the design, price, and food choices have a significant difference in value, as discussed by Cho *et al.* in 2019 [12]. Speaking of attributes regarding food delivery applications that affect customer loyalty and satisfaction, they are usefulness, reliability, and mobility while informative does not affect both loyalty and satisfaction.

This means that too much information may be useless for customers. Thus, food delivery application developers need to develop food delivery applications that are easy to use and focus on improving usefulness, reliability, mobility, and necessary information [13]. However, well-design applications were important to increase customer satisfaction and perceive usefulness in food delivery applications [14].

Out of the major players of food delivery services and platforms in Thailand, Robinhood is one of the applications that stood out in terms of local restaurant variety. Not only does Robinhood offer more localized restaurants to users, but the application also has numerous methods of helping small and new restaurants transition into the online platform such as direct money transfer and charging less gross profit (GP) margin. This enabled smaller restaurants to enter the market, giving restaurants the chance to survive, giving the consumers unique options, and ultimately, giving Robinhood unique selling points when being compared to the bigger platforms.

However, as we tried to use Robinhood ourselves, we have found that the other aspect of the platform is lacking behind that of other major players. Things such as the user interface (UI), user experience (UX), the category system, the restaurant listings, the search, and even the rider notification system have some features missing. We believed that these missing features are slowing down the growth of the application by pushing the users away and we believe that through redesigning user experiences and implementing of most needed features, Robinhood can push their growth even further, helping them help smaller restaurants during the pandemic situation the process.

2. METHOD

2.1. Persona

To create these personas, we decided to collect our data using the qualitative method. Like in [15], the reasoning behind selecting such a method was mainly due to our need to understand the user journey within the application and the feelings and perceptions of the respondents that we believed are difficult to quantify on the spot. We settled on the method of one-on-one interviews with the target market of food delivery applications in Thailand based on our literature reviews [16]. Our interview questions were designed to find out the reasons the respondents use food delivery applications, why they prefer any specific application, and what are their experiences with Robinhood. Due to the constraint of the lockdown of COVID-19 situation in Thailand [17], our one-on-one interview will be done offline and online using simple random sampling, where the population is based on colleagues and coworkers of each of the interviewers.

As previously mentioned, the interview questions were not specific down to what to ask or when to ask. However, we do have those three topics that each interviewer should gear the conversation towards without guiding them to any specific answer. During the interview process, we ask the respondents to go through the application they mentioned and voice their thoughts out loud on the feelings and perceptions of any elements they saw and interacted with from the front page until the order is successfully processed. However, for the rider's notification page, we show the screen to the respondents instead of letting them finish their orders. This was because our interview was mainly done at night when the curfew was already in place. The point of the said process was to understand the pain point of those respondents, to reduce the confusion during the note-down process, and to get a glimpse of the way the respondents use the application.

Once the interviews were collected, we proceed to group the respondents together using factors such as frequency of application usage, the average basket size, and the reasoning behind the usage of the application. We then continued to summarize their needs, wanted and unwanted, into categories and split them into personas. The personas created can be revised later once more experimental results are available.

2.2. Value proposition

Using the data from the interviews, we can create our value proposition graphs to understand where the Robinhood application stands against the rest of the competitors. The data source for the value proposition comes from three main sources-interviews, first-party data from the team, and reports from news articles or the competitor's websites. There are four comparators in our value proposition graphs-Robinhood, Line Man, Grab Food, and Food Panda.

2.3. Pain point and unmet needs

During the interview, the team listed down the voiced-out pain points of the respondents while going through the interaction process of each interview to map out any unvoiced pain points that the respondents may or may not speak out consciously. We grouped these pain points into three categories according to the theory of Dan Olsen on synthesizing user feedback [18]-[20] functionality (feature set), UX design, and messaging. The functionality group has to do with the features of the application such as ordering food, rider's notification, or the ability to put down a discount code. The UX design group has to do with the way these features flow together and the way our respondents use the features to complete their orders.

Finally, the messaging group has to do with the way our messages or icons are perceived by the respondents; did the respondents understand what we meant by this icon, or did the perception of these texts convey the same meaning as the team expected.

Within each group, we also noted if the pain points were positive or negative. This is so that we can keep track of what features to change or remove and what features we can add delighters or performances matrix on top of. Again, we refer to the "tracking key results from user tests" process of Dan Olsen on synthesizing user feedback and we use the same table layout as he does minus the final scoring of "how valuable" and "how easy to use". This was, mainly, because we did not have to deal with the core function of must-haves within this study regarding redesigning the Robinhood application.

2.4. Roadmap

For the roadmap, we use the reference from Dan Olsen's The Lean Product Playbook where he mentioned both satisfaction versus importance and investment versus return. However, since our product already exists and is up and running, we decided to modify the customer value graphs (satisfaction versus importance) into satisfaction versus investment (man-hour). The decision here was made due to the fact that Robinhood, on its own, has already satisfied the must-haves as it is able to let respondents order the food delivery. This meant that going into this project, we will be mainly dealing with performances and delighter factors. For the must-haves, we should be dealing with the optimization of UX/UI and the messages of the restaurants and applications. Assuming we have the spring of two weeks, we will then prioritize any pain point above the 33% threshold that uses below four weeks of man-hour.

2.5. Prototype creation

Prototyping is an important concept for rapid research and lean product development as it allows creators and developers to get user feedback earlier in the development process [21]. Since our objectives are based on the existing project, our first step was to create a replica of the project with high fidelity and high interactivity. The reason was that we needed to increase the familiarity of the prototype for the respondents and reduce the discrepancies between our prototype and the actual application to as low as possible. The tool that we use is Figma (https://www.figma.com/), a free platform that enables its users to create, design, and implement the prototype online quickly. Figma platform also has the capacity to accommodate real-time collaboration between designers and the capacity to sync the edited design onto the live prototype being tested in real-time.

The process started with one of our team members going through every single page on the Robinhood application, from starting the app until the order completion page. Instead of stopping at the payment page (like what we did during the persona's creation process), we proceeded with the actual order of food to understand the flow entirely. While going through every page, we will screen capture the page and note down any interaction the page has, such as the color changes after an interaction or the side-scrolling function. We then proceeded to create a wireframe of the application by going through our screen-captured image references. To achieve the high-fidelity prototype, we use the Unsplash plugin created by Kirill Zakharov and Liam Martens to help with the images within the wireframe. We then continued with the prototyping function in Figma to link all pages together and replicate the whole process of ordering within the Robinhood application. Note that throughout each user study iteration, we will use the outcome from the roadmap chart (section 2.4) to determine which functionality, UX design, or messaging of our prototype to be focused on and edited accordingly.

3. RESULTS AND DISCUSSION

3.1. Persona

Due to the constraint of time, this study was conducted starting with three personas: Guitar, Ohm, and Phai. Guitar represents our heavy user who uses the application at least four times a week with a medium-sized basket of around 150 Baht. This persona refers to the younger Y and the older Z generation who are very tech-savvy. Their usage behavior is based on the speedy lunch hour of the work-from-home atmosphere where the meetings often go late into the lunch hour resulting in less time to order and eat. This persona is young and lives away from their parents, so there is rarely any cooking done within the condo. Their main needs are based on knowing what they want to eat before lunch hour, going through the app quickly and efficiently, and selecting the options they believed will get the food to their condo the fastest. Since on a normal pre-COVID day, they eat out quite often and get used to the taste of the mass brand shops, what they seek on the food delivery app is often the localized, so-called hidden gems, restaurants. This persona also rarely cares about promotions unless it is right in their face since spending time browsing for promotions is not worth their time. This translates to their initial request of efficiency and familiarity with the

home page layout, moving the promotion away from the main page, re-categorizing the existing food categories, and having suggestions for the menu.

The second persona is Ohm who is a tech-savvy high-income middle-aged man with a family and is currently living on the outskirts of the city. This persona lived through the old times when there was no review and the information on deals was extremely limited. As a result, they are often the ones who will find the most worthwhile and valuable way to get special coupons or discounts. Using the wide variety of e-wallets and credit cards, they have much more options than any of the other personas combined. They also know when things are personalized just for them or it is just a mass promotion from the application, this is due to their experiences in bargain hunting and partly because they were one of the first in the tech circle when personalization was just an idea. As a result, the features requested by Ohm are about dealing with the customization of the filters, the recommended menus on the front page, and the reviews of the restaurants.

Our last persona is Phai. Phai represents the younger Y and the older Z generation just like Guitar but Phai is not tech-savvy at all. This persona represents those that travel often, are extroverts, and often live near a few friends. They always know what they want from any given platform. They lack credit cards when it comes to deal hunting. But unlike Ohm, Phai can always take advantage of the buy 1 get 1 free or the extra dish promotions since they can always find a friend to share these extra promotions with. Since they know what they want beforehand, they often find popups, ads, and notifications annoying. Specific promotions are also a no since oftentimes, applications place this menu deep within the UI, and so unless the deal is directly shown or automatically selected for them, they don't care what promotion the app sent them. For this persona, the requested features are linked directly to their social-heavy behavior. For example, rating stars are not enough for this persona but written reviews with notes and pictures; real-time location of a driver is requested so they can call their friends to pick up the menu for them; the recommendation based on the menu they selected is preferable than the recommendation based on restaurants.

3.2. Value proposition

Based on our research conducted during June and July 2021, our value proposition table is constructed to compare Robinhood with other food delivery apps like Line Man, Grab Food, and Food Panda based on must-have, performance, and delighter benefits. As shown in Table 1, the strength of Robinhood lies in the localized shops and the subsidized GP which caused the price of food items to be cheaper than those on other platforms. Even if the same shop offers the same price on different platforms, Robinhood's portion size is kept the same while the other application will get smaller portions.

Table 1. Robinhood's value proposition compared to other competitors in Thailand

		Robinhood	Line Man	Grab Food	Food Panda
Must-have benefits	Food ordering system	✓	✓	✓	✓
	Discount	✓	✓	✓	✓
	Delivery fee	✓ (actual distance)	✓ (actual distance)	✓ (10 baht for partners, 3km free)	✓ (free)
Performance benefit	Delivery time	Average	Fast	Fast	Slow
	The number of restaurants	Lesser known	Mass, lesser known	Mass	Mass
	Food price	Cheapest	Most expensive	Most expensive	Most expensive
	Payment option	Bank transfer, credit card	Cash, credit card, e-wallet	Cash, credit card, e-wallet	Cask, credit card
Delighter benefit	Restaurant review	×	×	×	×
	Restaurant near-me recommendation	✓	✓	✓	✓

3.3. Existing pain points and unmet needs

From the interview, we can summarize the improvements into 4 categories: food order system, restaurants, promotions, and recommendations. First, the food order system has to be streamlined to order the food faster; fewer ads that are blocking the user flow, and a better notification system. Second, a review system should be implemented in order to improve the trustworthiness of the restaurants. Third, most of the light users that started using the system after lockdown are not very tech-savvy and missed out on a lot of promotions. Therefore, we believed that the promotions should be automatically selected to ensure that everyone gets a deal. Fourth, we should implement some form of recommendation system whether it is something as basic as a popular restaurant near you, this restaurant has a dish similar to something you frequently ordered, and all the way up to personalization of menu explorations.

These findings are then converted into the features list regarding must-have, performance, and delighter benefits. Then, each feature in the list is refined into smaller feature chunks, and prioritized into our development roadmap that includes four versions of future prototypes. The roadmap is very heavy on the first version as we have to replicate the entire existing Robinhood application into the prototype with high fidelity to reduce the discrepancies with the users.

3.4. User study result of the first iteration

After classifying features into three groups of functions, UX, and messaging, we have 13 ideas to work on. Out of these 13 ideas, only 2 of them are regarding positive feedback. Interestingly, most of the feedback on the features was made by light users while the messaging feedback was made by heavy users. As for the group of UX, it spreads out evenly between light and medium users. We assumed that this is because the heavy users are already familiar with the introduced functions and features such as floating menu and detailed restaurant cards in which a similar format can be found on the competitor's application.

The most negative feedbacks which led to a major change are that rider notification has no timer and there is a misunderstanding regarding the home button. The home button was negatively commented on by both light and heavy users but for different reasons. The light users commented on what is the point of the floating menu as a whole whereas the heavy users were puzzled as to why there is a use for the home button if the flow is so short and the back button will work just fine as a replacement. The decision we reached was to remove the floating menu entirely. As for the comments on the UX, the first negative comment was from the faulty prototype where there will always be a menu for you shown despite which way you enter the shop menu. This should have shown up only if the respondents click on the menu after being done with the search. As for the actual negative feedback, we have the buttons being too small. The respondents commented that smaller buttons slowed them down when they tried to order because they had to stop and read the prints.

This is the only iteration where we found that using the familiar icon design and placement helped with the user experience [22]. The original heart icon which represents the favorite menu was not being understood. The cart and promotion menu where we moved down to the floating menu was found a nuisance since they were not where they are supposed to be. When inquire further, the respondents told us that all the other e-commerce apps and food delivery apps have their cart icon placed on the top right of the page, and therefore by default, making it an industry-standard placement position. This is also where we found that we have to stick to the conventional ways of human behavior, mainly, reading left to right. Initially, we placed our picture on the right of the grid and the text on the left, but it seems to go against the conventional method of reading for the respondents. The other features we included in the restaurant card such as the wait time, the distance, and the discount on the searched menu were not commented on.

According to the results, initially, we decided to implement most of the comments except for the resizing of the banner and buttons, the countdown timer, and the extra comments for duplicate orders. The resizing was because the work will cause a big shift in page layout and due to the constraint of time, we forgo this changelog in the next iteration. The countdown timer was abandoned because we did not know how to do the timer in Figma and the extra comments for duplicate orders needed a whole new set of high-fidelity pages to work as intended. However, in the end, we proceeded with making the banner and button size bigger as it coincides with the main goal of the application and our personas-whatever changes are made should enable respondents to get from the main page to the order completion page as fast as possible.

3.5. User study result of the second iteration

According to Dan Olsen's book [18] where he said that if the new respondents were not making comments on the changes you have made on the negative feedback of the previous iteration, then you can assume you succeed. This is what happened in our second iteration of user study. In this iteration, the respondents did not mention any of the similar feedback as in the first iteration. Hence, we assumed that the changes we made fixed the problems.

The number of ideas that we have to work on for the second iteration jumped to 30; 10 for features, 8 for UX, and 12 for messaging. The most impactful changes in terms of the features were the search suggestion. This is a little bit surprising because we implemented this feature back in the previous iteration but no respondent from the previous iteration mentioned this feature. As for the most negative feedback on the feature topics, the rider notification came up again. Despite being a different feature, it does show us that the rider's notification feature as a whole is lacking.

On the UX front, the decision to implement the bigger buttons and banners despite a huge investment in man-hours was definitely worth it here, with over 80% of the users talking about this change positively. It is also linked to the increase in user-friendliness. However, there was some contradicting feedback about the back button. Back in the previous iteration, we removed the floating menu containing the home button as the general consensus was that the back button can be used as the replacement. Now, the feedback was that the back button goes directly to the home page instead of the menu page. This might be the problem with the

prototype where we made interaction incorrectly or that the respondents' behavior was significantly different from the previous iteration. Finally, the messaging, the placement, and the standardization of cart and promotion icons paid off, bringing in a positive score. Otherwise, the messaging feedback revolves around the restaurant cards and the shop details where information was missing or misplaced.

Our idea of the second iteration roadmap on the features was that we should keep things to a minimum since the availability of features was just about right. Our main focus will be on the UX and the messaging instead where we believe that the biggest change will be made since the highest negative feedback came from these two topics. The major change to be implemented was the layout of the home page. What we found out upon closer inspection was that none of our respondents actually side scroll the home page banner. They either scroll down or search right away. When we go back to inquire about this behavior, we found that, if the respondents did not see any of the restaurants they like within the first two cards, they will ignore those categories assuming that if the first two did not satisfy their curiosity, the rest will not as well. To solve this, we implemented a dual scroll down the category for the recommendation while keeping the rest as a side scroll to test if the respondents will actually notice any differences. Finally, the rider's notification also improved. We now implemented a real-time tracking feature along with the countdown summary for those that did not want to keep track of every move of their delivery.

3.6. User study result of the third iteration

In the third iteration, it seems that our rider tracking was a success and the new home page layout was not only noticed but earned a positive score as well. Overall, our decision on the roadmap back in the previous iteration paid off. However, the arrangement of information is still back on the feedback. This is another topic where we might have to do a deep dive in the future.

The significant score in the feature ideas was the rider notification where we introduced the map and let the respondents track their delivery in real-time. Interestingly, we have found that the missing features feedback is now in the delighter section of our original plan. This might be because we actually caught up to our competitors in terms of must-have features, or the respondents we brought in on the third wave are not diverse enough. We should explore further with a bigger and more diverse group of respondents. On the UX, the new home page got a positive score as well as the auto-selection of promotion which we implemented back in the first iteration. However, there seems to be an imbalance of the elements within the page with the comment of the banners and buttons being too big when compared to the other restaurant cards, but by themselves, the banners and buttons' sizes are just fine. There was also the problem of arrangement on the restaurant information page where the feedback we got was that this segment was too cramped and difficult to read but there was no more feedback on missing information. We believe that in the next iteration; it is just a matter of redesigning the arrangement of elements within the page. For the messaging, there was nothing major. All negative feedback was spread out evenly among the topics so more information is needed to decide where should we go forward with this topic. Figure 1 to Figure 6 show the changes we made for each iteration. Nevertheless, as suggested by recent works of [23]-[25] that there are changes in user and consumer behaviors in the post COVID-19 era. We recommend that these changes must be carefully reviewed and compared to our study in order to ensure alignment in user behaviors for the food delivery applications.

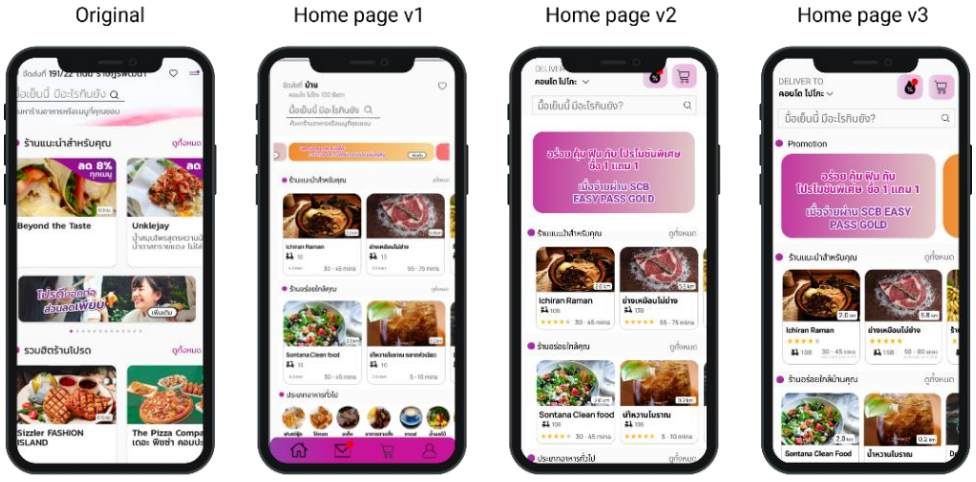

Figure 1. Journey home page

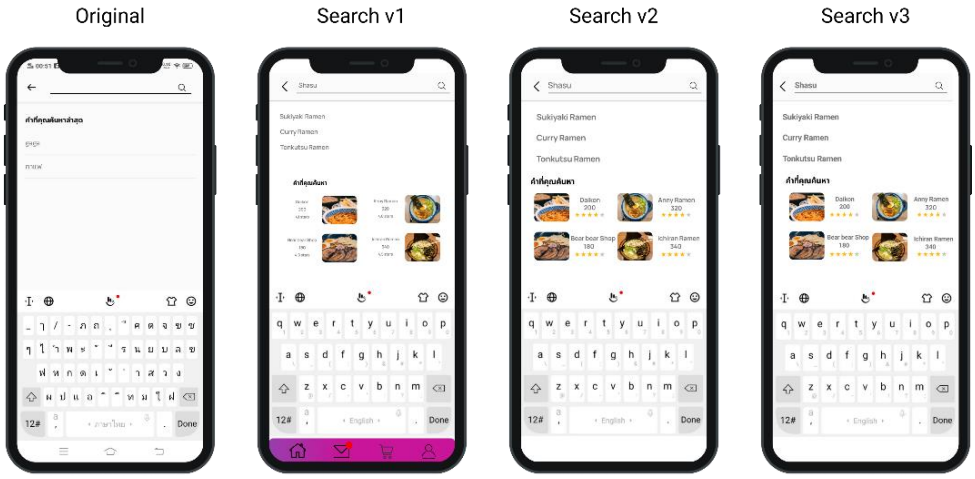

Figure 2. Journey search

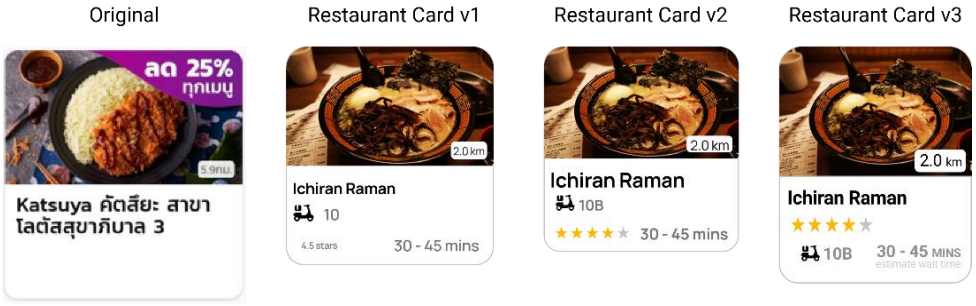

Figure 3. Journey restaurant card

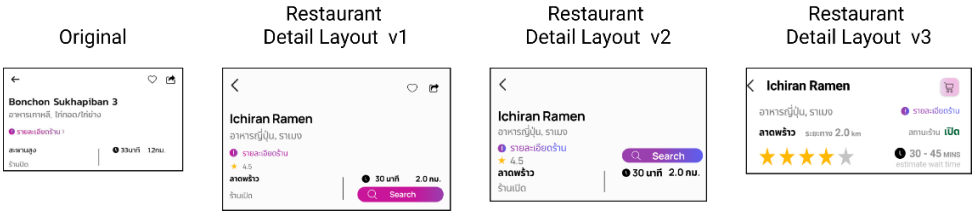

Figure 4. Journey restaurant detail layout

Figure 5. Journey restaurant

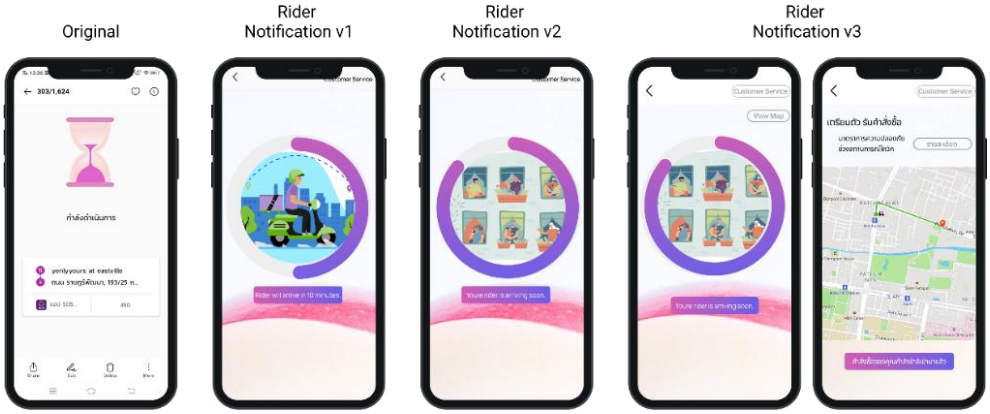

Figure 6. Journey rider notification

4. CONCLUSION

In Thailand, the COVID-19 pandemic and its safety constraints have transformed many face-to-face services in the past into remote services in the new normal, including remote medical caring, working from home, online studying, and eating at home. Because of the curfew, the lockdown, and the early closing hours of the restaurants in Thailand, the food delivery application market has grown significantly. Robinhood is one of the food delivery applications which focused its market on the smaller local restaurants. Robinhood, despite having all the must-haves, must also bring about some changes concerning its user experiences and the user journey within the application in order to stay competitive. As such, the team has created a high-fidelity interactive prototype that has implemented all these important changes to test out on our respondents, and in each iteration, collect more feedback to improve the application further in the next iteration.

After three iterations of user study, we have a rough idea of the directions of the Robinhood app in terms of features, UX, and messaging in future implementations. There are also some features that were interesting but will take too many man-hours to create such as menu pairing, full-text reviews, and customized filters. These ideas are valid and backed up with qualitative data and should be pursued in the future. With all the comments of each iteration, and looking at the satisfaction scale of each feature introduced, it is advisable for the application to continue in its current direction rather than pivot to something else. For now, the goal of our redesign mainly focuses on improving the usability of Robinhood to be comparable to the rest of the food delivery applications.

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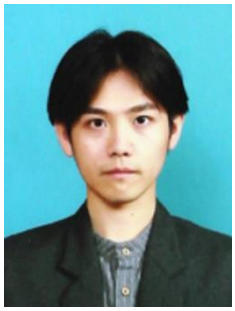

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