

# Social Gothenburg - Report 1

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## Background and data collection

The purpose of the task “Social Gothenburg” is to use design to enhance interactions and facilitate social encounters to promote a more Social Gothenburg. For this particular project, the area Bergsjön has been the main focus for observation and data collection, and will remain the primary target for ideation and product development.

The data collection was carried out as an ethnographic observation in which a visit to Bergsjön was made in the purpose of gaining a deeper understanding of the area that the project was designing for. The goal was to find out what this residential area was constructed, what prerequisites there were for social interactions, what people were there, why they were there and how they interacted with each other as well as how they interacted with the city. To best observe this, the field study was focused around the most central parts of Bergsjön. Parts of the study were conducted inside a supermarket as they usually attract a lot of people and interactions and a small purchase was made as a contextual inquiry. To gain a better view of what Bergsjön as a whole looked like, further observations were made while riding different means of public transport.

The data was collected through jotted note taking, contextual photography and videotaping to ensure that all information was being reobtainable during later stages in the process. At the end of the field study, the notes were discussed, compiled and supplemented with more impressions. These methods allowed for quick documentation that did not disrupt the observations or the immersion. A complementary method for information gathering that was not utilized was some form of survey like a questionnaire or interview. This could have resulted in some good insight into the wants and needs of the people who live, or for other reasons, spend a lot of time in Bergsjön. However, the reason for this not being executed was twofold. First of all it was considered a better use of the limited time available to focus on gaining better comprehension of the area as a whole instead of focusing on certain individuals' opinions. Second of all, it was thought that receiving outside opinions make other observations confirmation biased as well hinder the innovative thinking and ideation. As no interviews were held and no photographs were taken that involved any people no ethical dilemmas arose during the data collecting.

## Observations

The field study resulted in a better understanding of the area and the people who spend time there. One of the first observations that was made, however, was that there were, in fact, not many people there. The lack of people to observe was in itself a valuable observation but it impeded the intended examination of the people in Bergsjön and the way they interacted with each other and their surroundings. Therefore the biggest insights regarded the area itself. First of all, it was apparent that Bergsjön is rather segregated from the rest of Gothenburg, both geographically and socially. The commute was roughly 30-40 minutes from central Gothenburg and, although there were multiple buses and trams with frequent departures, there were not very many people who stayed on all the way to Bergsjön. Bergsjön itself had lots of beautiful nature such as many green areas, smaller forests and a

large lake. The housing mainly consisted of apartment buildings and there were few shops, restaurants and other social hubs.

From the very few people that were encountered it was hard to make any conclusions regarding what people were there and what they were doing. Apart from the people who were in schools or in the shops, the few people we saw seemed to be on their way somewhere, either walking alone or in small groups, talking to each other. No people were observed engaging in other social activities or interacting with nature or the area. It was noticeable that the main part of the people were not ethnically Swedish and many spoke in languages other than Swedish or with different degrees of various accents. The spread of ethnicities was also apparent in the supermarket where a lot of different groceries from many other countries.

Further information regarding Bergsjön was sought through the internet. This was done post field study so as to not give any preconceptions and prejudice. From this research, previous premonitions about a large proportion of the residents having a foreign background as well as Bergsjön being part of the so-called “Miljonprogram”, was confirmed. The Miljonprogram, translated to english as “ The million program” was a project by the Swedish government in the 1960s-70s that aimed to build a million new residences and is often associated with negative connotations of a low socioeconomic standard. It was also discovered that classified as a “särskilt utsatt område”, “Especially vulnerable area” is a term that Swedish police use to denote areas of low socioeconomic status and high crime rates. The overall perception of Bergsjön is that could benefit from an initiative to make it a more social and active part of Gothenburg

## **Data analysis**

For our data analysis we used a qualitative analysis approach. Initially, we first started writing down identified needs and problems on post it notes, based on our observations in the data collection phase. After identifying the problems and needs for the users we prioritised them using variation of the prioritization matrix, which is a method for identifying the most relevant issues (Gibbons, 2018). We evaluated the problems and needs based on two criteria; The first criteria focused on which problems and needs were most or least urgent most for the people, and the second criteria considered which problem and needs we found the most interesting or relevant, for us in the group (Figure 1). This method was beneficial for us to create a mutual understanding of the most important needs and which ones were most relevant for us. Additionally, this matrix analysis method provides a structure, allowing us to make informed decisions (Gibbons, 2018).

After prioritising the needs and problems based on our two criteria, we employed thematic analysis which is a method for identifying, interpreting and categorising themes based on the data collected (Braun & Clarke, 2006). This allowed us to organise the related needs and problems into meaningful clusters based on common themes (Figure 1). This approach was beneficial for us because it easily emphasises the distinctions and similarities within the data and is beneficial for people with minimal experience in qualitative research (Braun & Clarke, 2006).

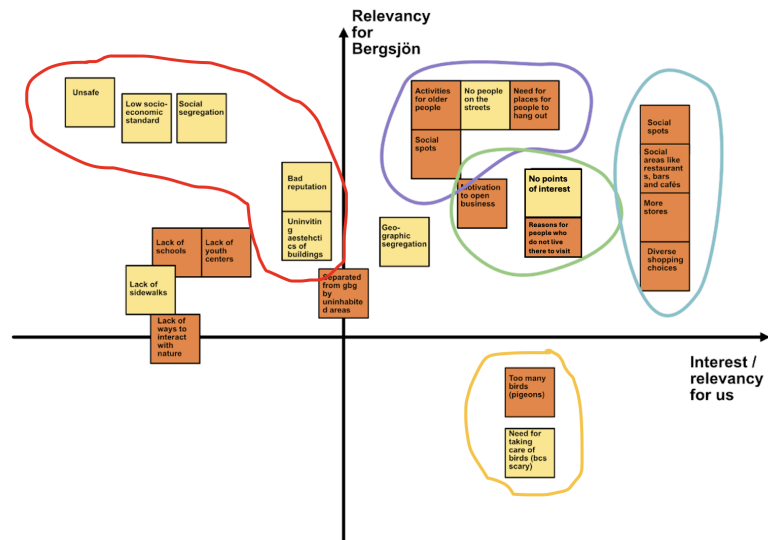


Figure 1. Prioritization matrix and thematic clustering

## Identified needs

Based on our data analysis we noticed that there was a lack of activity and no points of interest in Bergsjön. We also noticed that the commute to Bergsjön was long and time-consuming. We concluded that this was a problem that makes people less willing to actually travel to Bergsjön. From this, two points emerged: Bergsjön needs to be a more social spot to attract people from outside the area, and the residents themselves should be more engaged with each other. We decided to focus on drawing visitors to Bergsjön, which led us to develop our research question: “How can Bergsjön become a more attractive destination among children and young adults?” We also included a sub-question: “How can the commuting experience to Bergsjön be improved to incentivize a more social life in the area?” Our target group is children to young adults, ages 10-30. This is the group that we felt like would appreciate the solution that we came up with during the sketching phase.

Based on the identified needs, the stakeholders could include residents and businesses in Bergsjön. During the analysis of the data, we noted the need for more restaurants, bars, cafes etc. Attracting more visitors could create opportunities for these businesses, making Bergsjön a more lively and social part of Gothenburg. Research supports this idea, showing that everyday public spaces foster social interactions that help people build a sense of belonging and community (Qi et al., 2024), enhancing the possibilities for social interactions in Bergsjön. While these needs were not our primary focus, they are important outcomes of the solution we are designing to meet the problems and needs identified.

Ethically, it is important to consider factors like social well being as well as the impact the design has on the local community. Design related to a city area should respect the existing community and make sure that local identity and culture, as well as community values and interests, are considered (Pataki et al., 2021).

When working with children as part of our target group, there are important ethical factors to consider, such as informed consent and parental permission. By also engaging in continuous reflection, as suggested by Frauenberger et al., 2017, we can ensure that children's needs and privacy are respected throughout the project. This method also allows us to remain responsive to participants' needs throughout the process.

## Design Development

Once we identified the problem, and formed a research question, we continued with the next step, which was ideation. To explore potential design ideas, we conducted an extensive brainstorming session. In the first step of the brainstorming session, which took 30 minutes, every team member was required to sketch at least five design ideas individually. We used sketches not only to communicate the design ideas, but as a way of generating new ideas (Hartson & Pyla, 2012). By the end of the first step, we had generated 26 design ideas.

We then passed all the sketches around the table, so the team members could improve upon each other's ideas. Neither in this step, nor in the former had we discussed and judged the design ideas. As suggested by Kelly (2000), we didn't consider whether the ideas were feasible or not, and instead aimed for quantity. The discussion of ideas only began in the next step. Once everyone familiarised themselves with each other's design ideas, the sketches were returned to their respective owners and the thorough discussion began. The goal of this discussion was to slim down the 26 ideas to only five. Each member was then given five stickers and voted by placing the stickers next to their favorite ideas, as shown in Figure 2.

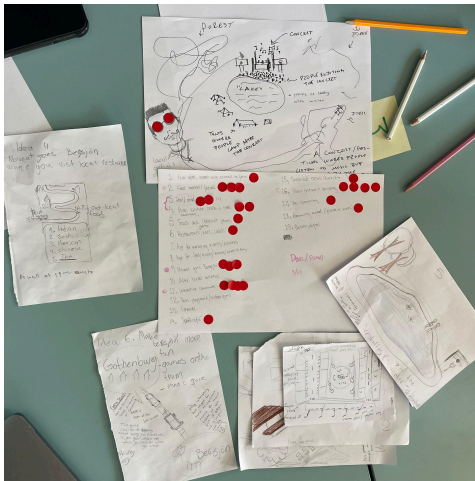


Figure 2. Five voted design ideas

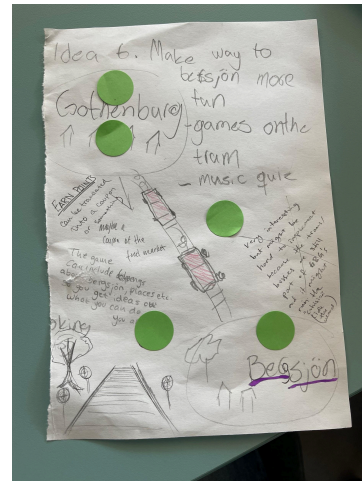


Figure 3. Improving the commute to Bergsjön

Five concepts that received the most votes were the following: concert events, pool fixture, food market/festival, a coupon application for Bergsjön, and improving the commute to Bergsjön. The team went into further discussion of these five ideas to assess the advantages and potential drawbacks. We then voted as a team to choose the final design concept. The selected design concept was “Improving the commute to Bergsjön” as shown as a sketch in Figure 3. After consideration we combined it with another idea that could incentivize people to want to visit Bergsjön, which was the food market concept.

The final design concept concerns having a food market in Bergsjön to encourage more people to visit the area, and making improvements to the commuting experience. We are aiming to achieve this by creating a more engaging commute with the help of social mini-games/quizzes of which commuters can access via their smartphones. Once they arrive in Bergsjön, these points can be redeemed and used at the local food market.

## References

1. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
2. Frauenberger, C., Rauhala, M. & Fitzpatrick G. (2017). In-Action Ethics. *Interacting with Computers*, 29(2), 220–236. <https://doi.org/10.1093/iwc/iww024>
3. Gibbons, S. (2018, 27 may). *Using Prioritization Matrices to Inform UX Decisions*. Nielsen Norman Group. <https://www.nngroup.com/articles/prioritization-matrices/>
4. Hartson Rex, & Pyla Pardha S. (2012). 7.6 Ideation. In *UX Book - Process and Guidelines for Ensuring a Quality User Experience*. Elsevier.
5. Kelly, T. (2000). The perfect Brainstorm. In Kelly, T. & Littman, J. *The Art of Innovation*, chapter 4, Doubleday.
6. Pataki, D.E., Santana, C.G., Hinnens, S.J., Felson, A.J & Engebretson, J. (2021). Ethical consideration of urban ecological design and planning experiments. *Plants, People, Planet*, 3(6), 737,746. <https://doi.org/10.1002/ppp3.10204>
7. Qi, J., Mazumdar, S. & Vasconcelos, A.C. (2024). Understanding the Relationship Between Urban Public Space and Social Cohesion: A Systematic Review. *International journal of community well-being*, (7), 155-212. <https://doi.org/10.1007/s42413-024-00204-5>

# Social Gothenburg - Report 2

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## Introduction

Previous data collection in Bergsjön revealed several problems and needs associated with the area. The main problems identified were the limited opportunities for social interaction and the perception of a tedious commute to Bergsjön. Based on this, the following research question was formulated to guide this project: “How can Bergsjön become a more attractive destination among children and young adults?” with the sub-question: “How can the commuting experience to Bergsjön be improved to incentivize a more social life in the area?”. Based on the collected data and our analysis, we are developing a prototype for an interactive game to be played on the tram. Points earned in the game will be redeemable in a food market planned for Bergsjön. In this report, we will outline the development process of the first and second prototype, along with the user evaluations conducted for each. The results of these evaluations will be presented, followed by a discussion of the findings. Lastly, we will outline the future plans for the project.

## First prototype and evaluation

Before creating the first prototype, a storyboard was created that described a possible user scenario. This scenario describes a person proposing to their friend to go on a tram ride to Bergsjön to play a new game that has been implemented on the public transport vehicles and to visit the new food market in Bergsjön. Based on this scenario, an initial, low fidelity prototype was created, consisting of sketches on sheets of paper. Some of the sketches visualised the intended context as described in the storyboard, representing the inside of a tram, the screen where the questions would show up and the food market that was the destination. The other sketches showcased different frames on a phone being used to play the game.

Using these prototypes, a user study was conducted to evaluate the concept. A mediator acted like a narrator, explaining the scenario, while the participants were presented with each slip of paper, one at a time, and told to interact with them as if they were actual screens on a phone. After this interactive part of the user study, the participants were asked qualitative, open ended questions and follow up questions in a semi-structured interview. The group of interviewees consisted of classmates which is in line with our intended user group as they are teenagers and young adults. The answers from the interviews were then compiled and important points and quotes were discussed and used as a foundation for improving the following prototype.

Some of the feedback and new ideas that were gained during the prototyping and the user studies were:

- Creating loading screens in between questions that promotes Bergsjön
- Make it a webpage, not an app
- Option to interact with quiz by physical touch. That would be by having physical buttons on the tram/ bus so participants could press together as a team.
- Make the questions related to countries that are represented in the food market
- Make weekly themes, if the country from the questions is Italy, make deals for the italian food.



Figure 1: Storyboard



Figure 2: Sketches for first prototype

## Second prototype and evaluation

The second prototype was developed with the help of the feedback received from the first prototype. One of the main points the team took into consideration was the need for the quiz/game to be a web app instead of a mobile app. We also decided to change the open ended questions in the quiz to multiple choice questions to make it more user friendly. Another major improvement from the first prototype was that the second prototype was digitised, as opposed to a paper prototype. An interactive higher-fidelity version of the web app as well as the game screen was created with Figma. This was done to improve the quality of the interaction between the participants and the prototype, both in terms of responsiveness and the overall look of the UI, as shown in Figure 3.

Once the development of the second prototype was complete, we conducted a testing session to gather more data about our design concept. We followed a mixed method approach (Gelo et al., 2008) of collecting data, meaning we collected both quantitative and qualitative data from the testing session. By collecting both quantitative and qualitative data, we aimed to compensate for the weaknesses of each type of data with the strengths of the other (Verhoef and Casebeer, 1997). The quantitative data provided us with measurable, numerical metrics and the qualitative data supported the numerical data and provided deeper insights about the users' experiences.

In total, 11 people participated in the testing. 10 of which tested the concept in pairs, while one person participated by themselves. The testing session began with the team explaining the scenario, the use case of the product, and how the prototype functions to the testers. Once this information was communicated, the testers began interacting with the prototype in a simulated scenario. As the participants interacted with the prototype, we took notes about the pain points, participants' behaviours and how they used the prototype. This was one of the two methods we used to collect qualitative data. After the testing session, we asked participants to answer a short survey. The survey consisted of six likert scale questions that ranged from 1 (negative) to 7 (positive), as shown in Table 1. We gathered quantitative data from this survey, which we later analysed. Lastly, we conducted brief, semi structured interviews with the participants. The main goal of the interviews was to allow participants to elaborate more on the design concept and freely share their opinions without the restrictions of likert scale questions. The data gathered from the interviews finalised the qualitative data we collected from the testing session.

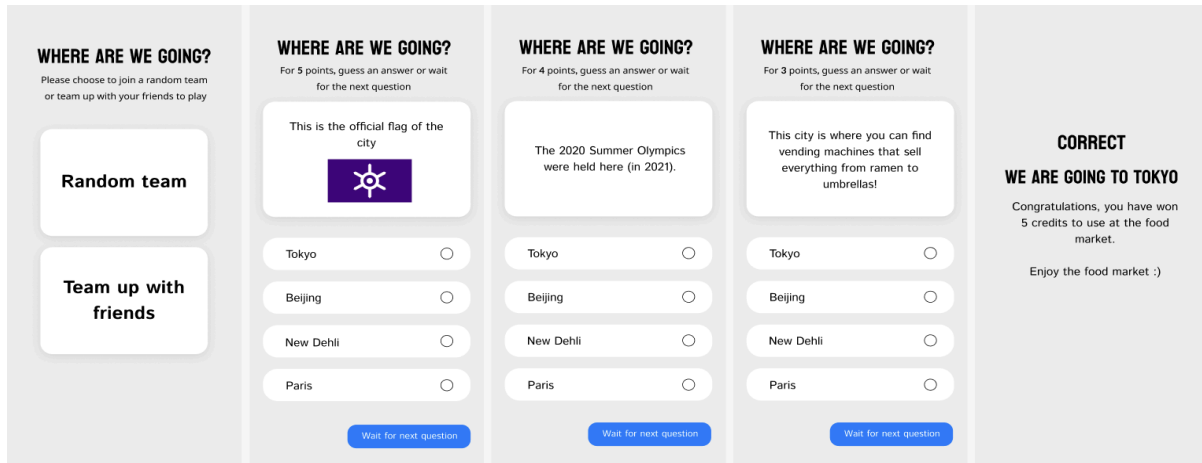


Figure 3: Screenshot of the high fidelity prototype via Figma

## Data analysis and results

We have conducted both quantitative and qualitative data analysis. For the quantitative analysis, we used IBM SPSS Statistics version 29.0.2.0 (20) to summarise key metrics—minimum, maximum, mean, and standard deviation—providing an overview of responses to Likert scale questions (Table 1). The question most relevant to our research question is: "Would this mini-game and the food market encourage you to visit Bergsjön?" The mean response for this question was 4.18, indicating a neutral to slightly positive inclination among participants.

Question	Min	Max	Mean	SD
Would this mini-game and the food market encourage you to visit Bergsjön? <i>1 = Strongly disagree, 7 = Strongly agree</i>	2	5	4.18	0.87
Would the possibility of winning points to spend on the food market would encourage you to participate in the game? <i>1 = Strongly disagree, 7 = Strongly agree</i>	5	7	6.28	0.79
Do you think you would have fun if this was a real concept on the tram? <i>1 = Strongly disagree, 7 = Strongly agree</i>	5	7	6.09	0.70
Would you be willing to interact and socialise with new people while playing the game? <i>1 = I would play with my friends, 7 = I would love to meet new people</i>	1	6	3.64	1.86
Would you ask a friend to join you to partake in this experience? <i>1 = I would never, 7 = I definitely would</i>	3	7	5.55	1.29
What did you think about the question in the mini-game? <i>1 = Very boring, 7 = Very fun</i>	3	6	4.45	0.82

Table 1: Descriptive statistics (min, max, mean and standard derivation)

For the qualitative analysis, we drew inspiration from the "Rose, Bud, and Thorn" method (LUMA Institute, n.d.), to organise and identify data. Positive feedback, symbolised by "roses" was recorded on pink Post-it notes. Feedback highlighting areas with potential for improvement, or "buds" was marked on green Post-its. Lastly, negative feedback, representing "thorns" was captured on blue Post-its (Figure 4). The feedback suggests that offering discounts, food markets, and mini-games could motivate people to visit Bergsjön, with particular emphasis on cheap food. However, concerns include a lack of motivation from the game alone and a desire for more clarity around the point system and how the game work.

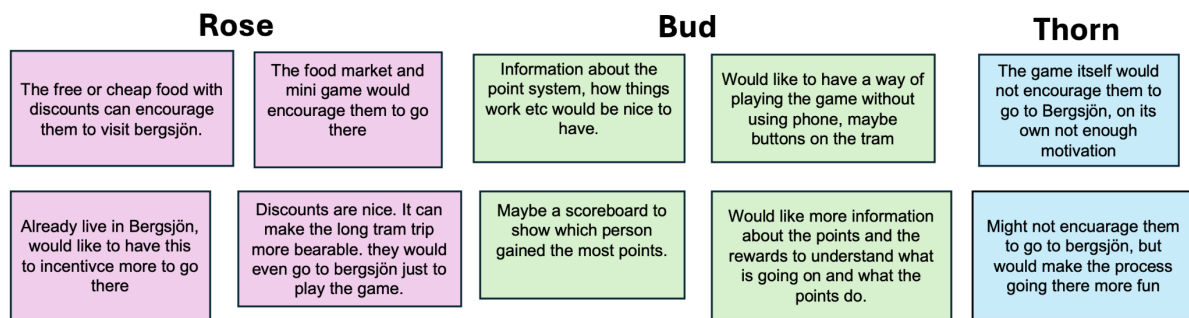


Figure 4: Rose, Bud and Thorn inspired analysis

## Discussion

From the quantitative analysis, we found that participants were generally positive about the idea of having an interactive game during the tram ride. However, the results also showed that the game alone would not be enough to incentivize most participants to actually visit Bergsjön. On the other hand, the qualitative feedback revealed that participants liked the idea of getting discounts at the food market, and they felt this would encourage them to visit Bergsjön. Some participants also mentioned that the game itself would incentivize them to visit the area, reflecting an overall positive attitude toward the concept of the game.

The results showed a difference between the quantitative and qualitative analyses. In the qualitative feedback, participants were generally more positive about the game itself and that it made them more inclined to visit Bergsjön. However, in the quantitative results, participants were less convinced that the game would incentivize them to visit Bergsjön. This difference may be due to the limited number of participants, making it more difficult to draw a clear conclusion. Unfortunately, due to time constraints, we were not able to include more participants in the evaluation. Another factor could be the nature of the methods themselves. Qualitative methods allows for a more in-depth exploration of personal experiences and attitudes, which may have been the reason for the positive responses in terms of the games potential to motivate visits to Bergsjön. In contrast, quantitative methods tend to measure more generalized feelings, not allowing the participants to explain their opinions in greater detail.

Our expectations before conducting the user evaluations was to get feedback on whether the concept would incentivize the participants to visit Bergsjön. The gathered feedback from the evaluation sessions mostly supported this, but some of it did not show as strong a motivation as we hoped. This might suggest a gap between our intended concept and how participants experienced it in practice. Additionally, time limitations prevented us from reaching a more diverse group of people, which might have given us a wider range of results.

## Future work plan

For the design iteration phase of our project, we plan to refine our idea and design based on insights gained from user feedback during our evaluation. Our focus will be on adding more value to the Figma prototype by for example adding a scoreboard feature, provide clearer instructions on how the game works and clarifying how users earn and redeem points in the game for rewards at the food market. Additionally, we aim to enhance the social aspect of the game by encouraging users to engage with new players. Furthermore, we are planning to conduct another round of user testing to evaluate the updated prototype. Based on the feedback from these tests, we will make further adjustments to both the prototype and the overall concept to ensure an improved user experience.

## References

- Gelo, O., Braakmann, D., & Benetka, G. (2008). Quantitative and qualitative research: beyond the debate. *Integrative Psychological and Behavioral Science*, 42(3), 266–290. <https://doi.org/10.1007/s12124-008-9078-3>
- LUMA Institute. (n.d.). *Rose, Thorn, Bud*. Retrieved October 7th, 2024 from <https://www.luma-institute.com/rose-thorn-bud/>
- Verhoef, M. J., & Casebeer, A. L. (1997). Broadening horizons: Integrating quantitative and qualitative research. *Canadian Journal of Infectious Diseases and Medical Microbiology*, 8(2), 65–66. <https://doi.org/10.1155/1997/349145>

# Social Gothenburg - Report 3

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## Final idea

After completing the iteration phase, we finalised our idea to make Bergsjön a more social place: An interactive social quiz game called “Where Are We Going?” (Figure 1 & 2) available on all trams in Gothenburg. By scanning a QR code on the tram, people will be able to team up with other passengers to play the game and earn points that can be redeemed for food from different cultures at a local food market in Bergsjön. The concept aims to encourage social interactions on multiple levels. The game creates a shared experience among all participating passengers as well as promotes collaboration and conversation between teammates. By offering an additional 25% increase in points for those choosing to be teamed up with a random person we aim to motivate social interaction between strangers. By implementing the game across all trams in Gothenburg we offer a fun and social experience while promoting the food market to a large crowd. We hope that the game being displayed on the big screen on the tram incentivizes more people to play and that the earning of points make them more likely to visit the food market. The food market presents an activity and an opportunity for people to engage socially with their friends as well as other people visiting the food market, making Bergsjön a more social area.

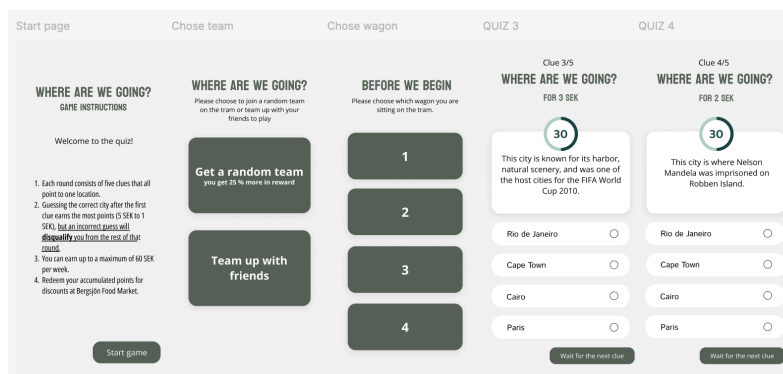


Figure 1: Figma prototype including; instructions, how to choose a team and two questions.



Figure 2: Visualization of how the game could be applied to the tram's

## **Social Gothenburg requirements**

During the design iteration, different methods were selected to support the development of the concept and prototype. Throughout the design process and in previous exercises, the team actively reflected on used methods to deepen our understanding. This knowledge was later applied during the design iteration, and used as a base for independent decisions of how to best proceed with the project in order to meet both the project's requirements and the needs of our target group. In this phase, we chose the methods that best suited our project. For instance, during the design iteration phase, we decided to test our prototype with the intended target group to refine the improvements we made on our concept. This time, however, we chose to conduct only qualitative interviews, in contrast to the quantitative methods used during the evaluation phase. This decision was mainly due to prioritising the participants' thoughts, allowing them to elaborate on their response, which resulted in a more effective evaluation.

During the iteration phase, improvements could have been made to the methods used, such as including more participants in the evaluation and conducting a more comprehensive analysis. However, because this iteration was more time-constrained than the initial design phase, prioritisation was necessary to move the project forward, resulting in some aspects being less detailed than in the first phase. With each team member actively contributing to concept development and participating throughout the design process, we have been able to meet the project's requirements.

The final concept promotes social interaction in multiple ways, enhancing engagement both on the tram and within Bergsjön. The proposed food market is expected to attract more people to Bergsjön, thereby facilitating increased social interactions. The game designed to be played on the tram encourages team collaboration, and by offering higher rewards for playing with a random stranger, we aim to incentivize broader participation and more opportunities for social interaction. A 30-second timer was included in the prototype to allow players more time to discuss answers, enhancing the social dimensions of the game. Furthermore, the food market, featuring food from various cultures, creates opportunities for cross-cultural exchanges, which can help address the segregation currently observed in Gothenburg. This initiative promotes inclusivity and strengthens intercultural relationships through shared experiences. By making the game available on all trams in Gothenburg, it brings people from the entire city together, contributing to a more social Gothenburg.

There are still areas of improvement that could enhance the social aspects of the game even further. For instance, people on the tram may not feel comfortable sitting next to another person physically. Therefore, a chat function in the app would be beneficial, allowing people to socialise without sitting next to each other. Furthermore, a quiz game may not appeal to everyone. Restricting the game to a quiz format may lead to a decline in usage.

## **Improvements made in second sprint**

In the second sprint, our idea and prototype were refined based on insights gained from user feedback from the evaluation in the first sprint. Building upon previous planning, a detailed to-do list of potential improvements were created, and then prioritised based on impact on our idea and effort needed for implementation. Using this method we took inspiration from the criteria prioritisation method which is a part of the impact-effort matrix and can be used to determine what to implement (Gibbons, 2021). This prioritisation allowed us to focus on addressing the most critical improvements first. Given the time constraints, the focus was on implementing the highest-priority changes, ensuring the most important points were refined.

The improvements made in the second sprint were to add more value to the figma prototype and to increase the overall experience. One significant improvement was adding constraints, requiring users to confirm their answers before proceeding or skip to the next question, which was a key issue identified during our first sprint evaluation. Additionally, an instruction page explaining how the game works including how to use points in the food market was included, the questions were revised, and overall user experience enhancements were made to improve the Figma prototype. The most critical improvement identified was enhancing the social aspect of our idea to encourage users to collaborate with new people. To do this, a reward system was introduced that offers a 25% bonus when users collaborate with someone new. Furthermore, to promote the game and the food market to more people, a decision was made to make the game available on all trams in Gothenburg, not just those heading to Bergsjön. This aims to incentivize more people to visit Bergsjön, attracting more than current tram riders heading there.

Following our evaluation in the second sprint, additional adjustments were made as described in the next section, including clarifying the introduction page, removing unnecessary information from the quiz page, and modifying the quiz questions for better clarity and engagement.

## **Final evaluation of the prototype**

After the new, improved prototype was created based on the user feedback, we decided to conduct a final evaluation session to collect user feedback for the final prototype. This was done in order to make sure that the changes made to the prototype aligned with users' needs. This evaluation session was shorter compared to the previous ones. Due to the time limitations, only two participants tested the prototype and both of these participants had tested the previous prototypes we developed, hence they were familiar with the design concept. The goal of this evaluation session was to gather insights that regard the experience of the prototype itself as opposed to the broad concept. Unlike the previous evaluation sessions, the participants were encouraged to focus and give feedback on the details such as the UI/UX elements, difficulty of the questions etc.

The evaluation was conducted in two parts: **(1)** Testing of the prototype with the help of a user scenario, **(2)** Gathering feedback with the use of unstructured interviews. Due to the limited number of participants, only qualitative data was collected to gather as detailed insights as we could. As described by Sharp et al. (2019), the unstructured interviews were held casually, almost like a conversation and the participants were given the freedom to go as in depth as they prefer with their feedback.

Participants' remarks from the interview were transcribed and content analysis was employed to analyse the text. Content categories were developed as described by Prasad (2008). Some of these categories were: "user interface", "broader concept" and "quiz questions". Since this evaluation was conducted close to the final deadline of the project and there wasn't enough time to make changes to the overall design concept, we focused on the categories "user interface" and "quiz questions" instead of "broader concept". We rated each item based on how easy they were to implement or fix, and based on how important they were to the project. We then went through the list and tried to implement as many of the items as we could within the limited time we had.

The changes we made to the prototype based on the feedback were: **(1)** Changed the questions orders based on difficulty levels, **(2)** reduced the text in the information page and the quiz pages and **(3)** simulated a tram ride with the help of multiple chairs and QR codes behind them. Other than allowing

us to improve the prototype further, the evaluation session also taught us the importance of a high-fidelity prototype. Both participants made positive comments about the UI design of our prototype and stated that it was a lot easier to use this prototype compared to the previous version. They stated that the interaction between them and the prototype was seamless and they could immerse themselves in the concept and the prototype. This allowed them to experience the prototype more fully, without the limitations of low-fidelity prototypes.

During the design iteration phase, the evaluation provided valuable insights that shaped the development of the final prototype. One of the key lessons learned was the importance of aligning design decisions with actual user needs rather than assumptions, making sure potential users were a part of the whole design process.

## **Future research and possible improvements**

There are many possible improvements that can be taken into consideration. The first and major improvement would be to fully implement and deploy the quiz in the trams in Gothenburg, especially the ones commuting to Bergsjön. This is to see how it affects the people who are going and living in Bergsjön. The project could evolve into a fully fledged product, that could go through different design stages and incorporate new features to enhance user experience. Quality of life improvements for the quiz could include adding tips and information between questions, allowing participants to learn something while doing the quiz, not just answering questions. If the quiz gains popularity and traction, it could evolve from a website to an application. Within the app, users could customise their account and have a wider variety of rewards to redeem and choose from. Additionally, the quiz could contain different types of interactive tasks, such as easy/ hard mode for the questions, drawing games, connect the dots and such, this is to not limit the users to only interact in the question tasks. Another addition would be to include an option for the users to interact with one another in the different interactive tasks, while remaining seated, this is done by interacting via a text/chat channel. This option would benefit users that want to be interactive but are not fully comfortable to go and meet them. This option could have an extra 10% points when compared to 25% and none.

A second area for improvement would be to conduct multiple user tests with potential end users. For this prototype, we used our classmates as our test participants during our different prototype phases to gather feedback. Having participants outside of our classmate pool would be of benefit by gathering more details and feedback from our user groups (10-30 years old). Our classmates' feedback could be biased due to being knowledgeable about the course project. Conducting several interviews and user testing with our user groups could provide more intel and insight to features that they would like to see implemented, improved, or removed.

Additionally, quality of life improvement could include optimising the placement of the QR code for the quiz on the trams, arranging of the seats to make discussion and participation easier between the different participants, incorporating the quiz on busses, and expanding further than the food market as the main focus, by possibly having a festival or carnival.

Finally, if this project idea gains traction and proves a positive impact in Bergsjön, it could be implemented in other areas in Sweden or around the world that face similar issues. This could help boost the community and social engagement.

## References

1. Gibbons, S. (2021, November 14), 5 Prioritization Methods in UX Roadmapping. Nielsen Norman Group. <https://www.nngroup.com/articles/prioritization-methods/>
2. Prasad, D. B. (2008). Content analysis: A method of Social Science Research, In D.K. Lal Das (ed) Research Methods for Social Work, (pp.174-193), New Delhi: Rawat Publications, 2008. Unpublished. <https://doi.org/10.13140/RG.2.1.1748.1448>
3. Sharp, H., Rogers, Y., & Preece, J. (2019). Interaction Design : beyond human-computer Interaction (5th ed.). Wiley.