

Developing an interactive visual tutorial for Citizen Science



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To address the training needs of Citizen Science project users, this study aimed to develop an interactive visual tutorial tailored for Citizen Science users. To accomplish this goal, a literature review and an online survey were conducted to identify user preferences for the tutorial prototype's design. The results were evaluated through a focus group. The findings emphasized the significance of straightforward design and effective use of interactivity, underscoring the requirement for focused UX investigation in tutorial conception.

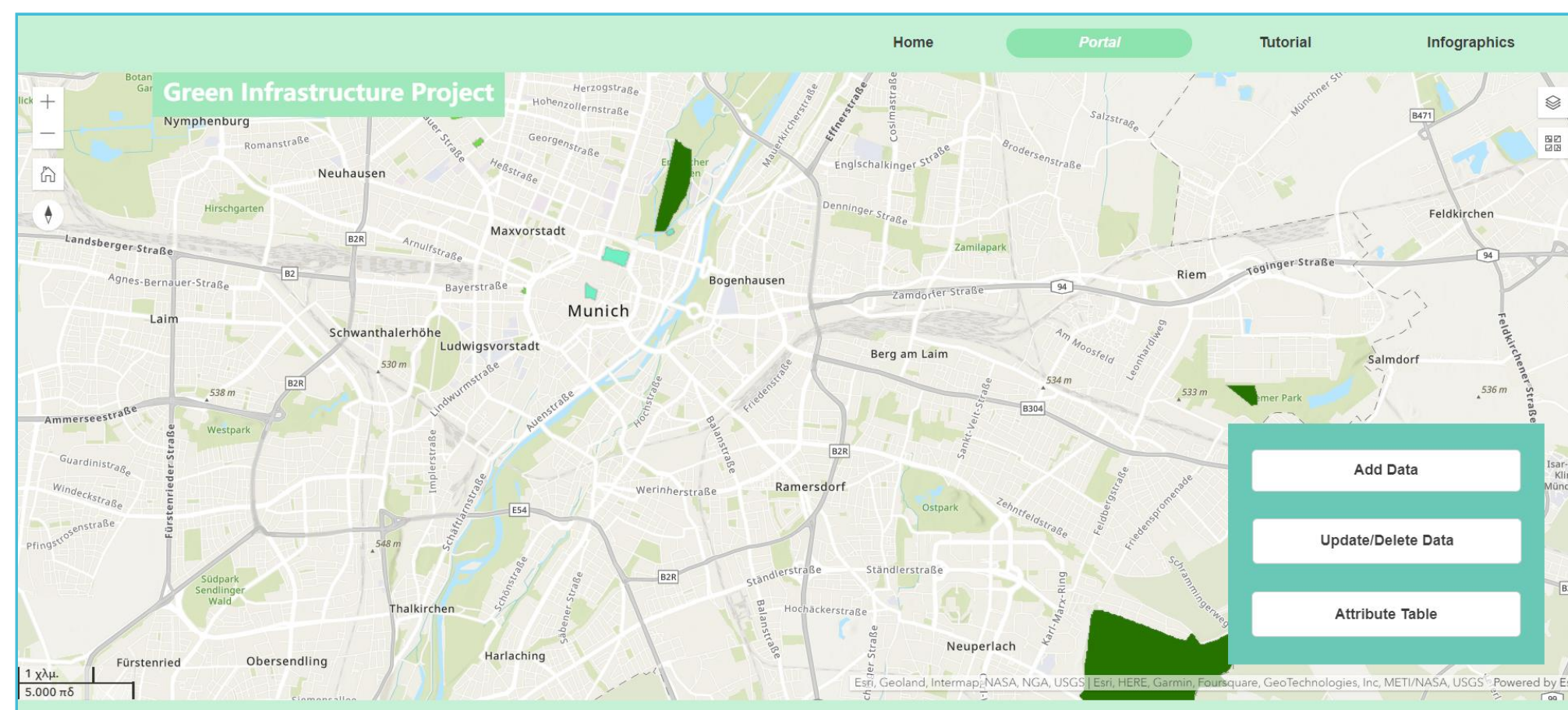


Fig. 2: "Urban Green Infrastructure Project" a fictional Citizen Science Portal.

MOTIVATION

In Citizen Science projects, research is usually carried out by amateur scientists working with the scientific community. Challenges may arise due to the research participants' needs, such as how the information is communicated or their educational background [1]. There is a lot of research on how to implement and design new Citizen Science projects; however, the perceived quality of Citizen Science data is one of the sharpest criticisms [2]. Based on this, the training of users must be an integral part of Citizen Science projects to ensure data quality. Therefore, this study aims to fill this gap by identifying the characteristics of an ideal visual tutorial.

METHODOLOGY

The thesis used both qualitative and quantitative methods to answer the research objectives. The following sections describe the fundamental steps of the methodology.

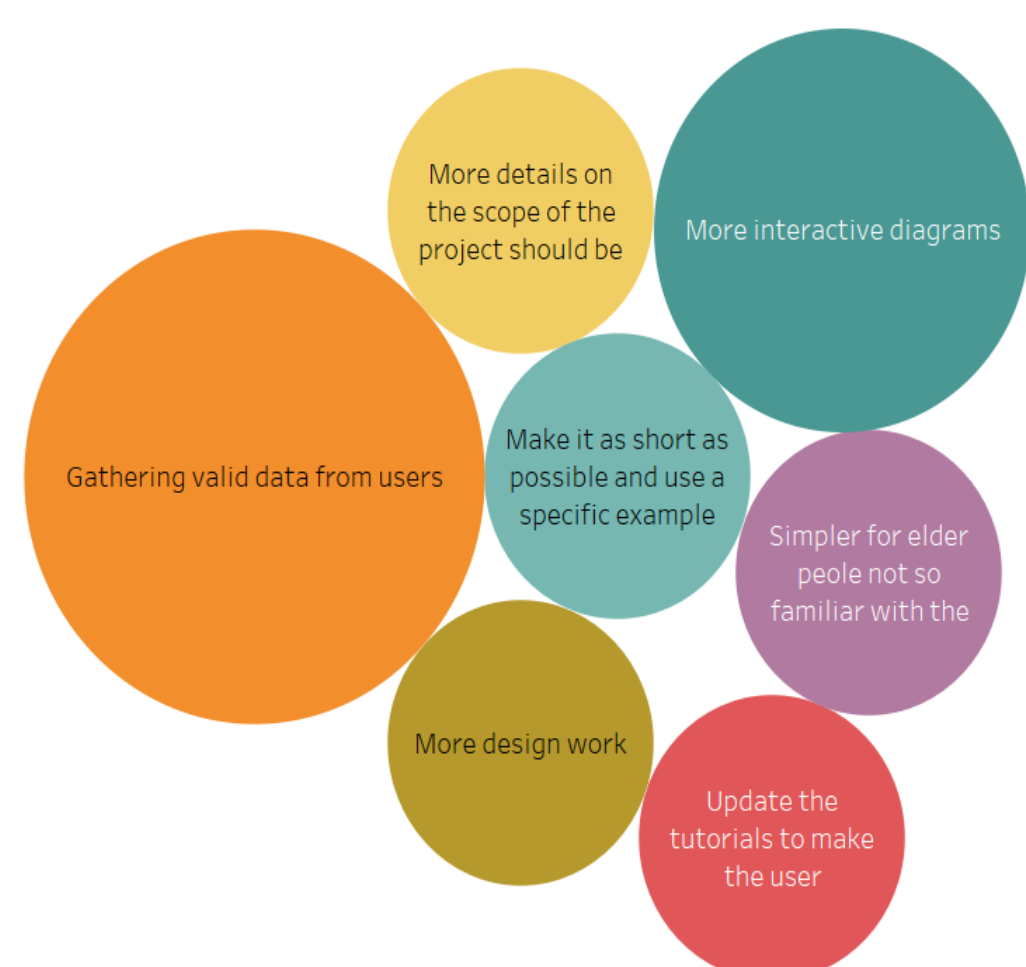


Fig. 1: Suggestions for improvement of visual tutorials gathered from the online survey.

ONLINE SURVEY

Before designing the tutorial, an online survey was conducted in order to gain valuable insights. We managed to gather 32 responses from people in the age group 16 – 65 years old. The results from the online survey informed the refinement and development of the Citizen Science tutorial. Fig.1 shows the suggestions on what can be improved on a tutorial based on the replies.

PROTOTYPE DESIGN

For the thesis, a fictional portal about urban green spaces in Munich was created (Fig. 2). The users of the portal must collect data and add it to the map. The portal contains the home page with information, the map, the tutorial and the infographics page. The tutorial is divided into 3 parts and a quiz. For the creation of the prototype, we used the following tools: ArcGIS experience builder, ArcGIS online, ArcGIS dashboard, ArcGIS Survey123, Quizmaker and Canva.

FOCUS GROUP

The focus group was conducted with 6 participants in total. The group was divided into 2 groups of 3 people, each completing 3 tasks. They had to practice the tutorial beforehand for around 8-10 minutes. Tasks included adding data to the portal, updating/deleting data and downloading data. Following this, a group discussion with open-ended questions regarding the usability, accessibility and design of the portal took place.

RESULTS

The participants found the tutorial understandable, helpful, and tailored to the portal tasks. The interactivity used in the portal was considered important. Nevertheless, better use of pop-up videos and flashcards was suggested. Finally, a linear web structure was suggested and bigger frames for the tutorial steps, so it can be easier to read for less technology-familiar users.

DISCUSSIONS

Basically, when something is built for Citizen Science, we should keep in mind to give extra attention to user engagement and training of the users. Effective citizen science tutorials should prioritize interactivity, simplicity, structured step-by-step guidance, and strategic use of visual elements and graphics while also ensuring real-time feedback, accessibility for diverse users, and responsive design across devices for an engaging learning experience.

CONCLUSIONS

To conclude with, user preferences significantly influence the perceived effectiveness of citizen science tutorials, highlighting the need for a balanced tutorial design, as an excess of interactive elements can become redundant. Moreover, gamification elements have proven to be effective in citizen science tutorials, enhancing overall engagement. A recommendation for future research will be to explore further UX design for tutorials and training.

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KEYWORDS

Citizen Science, UX Design, Digital Education, Interactivity



Fig. 3: QR code for the prototype.

REFERENCES

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