STUDENTS AS CO-CREATORS

A Learning & Teaching Research Collaboration

Conversation Application – User Interface Design

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1. Executive Summary

The aim of this co-creators project is to design the human-computer interface of a web-mobile enabled app to practise conversation while learning a foreign language. Being able to hold a conversation in a foreign language is a challenging skill - whatever the level of the language learner. This co-creators project is part of a larger research project to create a conversation application that generates context- and level-specific stimuli for both parties in a 2-person conversation with each person only having access to their part of the conversation. Language learners will be able to search for appropriate role play/information-gap stimuli by context, language function and level. The application will provide vocabulary support in the target foreign language and feedback on information gap exercises. All stimuli will initially be produced in English, and the application is aimed to be used by University of Westminster students enrolled in a module to learn a foreign language. Through this co-creators project, the partners clarified the requirements for three of the potential practice exercises and designed the interface of the application using prototyping tools. The prototype was evaluated through the production of a questionnaire and a 3-hour evaluation session.

2. Background and Aims

During their first year of study, foreign language learners normally study a range of "survival" contexts, for example, shopping, eating out, travel, directions. Language learners need to be furnished with a task or prompts if they are to carry out dialogues in an authentic manner – learners cannot be expected to create a spontaneous dialogue without a reason or justification. For a dialogue to be authentic there has to be a reason for the exchange of communication – and the reason for that exchange is normally the sharing of a piece/pieces of information. Language teachers spend significant time designing information gap exercises which provide one student with the information that their partner must discover. This gives the dialogue purpose.

The language application will comprise an interface which enables language learners to search by context, language function or level. For example, language learners may choose to practise a range of dialogues related to one context eg transport, or they may prefer to practise making an apology across a range of contexts ("I'm sorry, I can't come to your party", "I do apologise, I don't have enough money") or may prefer to practise a range of contexts and language functions across a particular CEFR level. The application will also include functionalities to record when and how often a learner has engaged with a task, any vocabulary support that has been accessed and performance in information-gap exercises.

The aim of this phase of this project is to identify and design the appropriate User Interface (UI) elements (navigation, assets, gamification) that will facilitate the practice of conversations between language learners and the functionalities of the application as described above.

3. Methods

The research questions for the co-creators phase of the project are:
- What are the functional requirements of the application?
- What are the use case specifications?
- What are the appropriate storyboards to realise the use case scenarios?
- What is the appropriate navigation for the given information content?
- What are the appropriate design assets, including gamification elements?

The design of the interface followed an iterative and incremental life cycle. First, the requirements of the end users (eg teaching staff at School of Humanities, and language students) were clarified and the use cases of the application were specified.

Following initial gathering and analysis of the user requirements, the student partners designed two draft interfaces, focusing on the selection of navigation, menu choices, and visual elements. The prototypes produced by the student partners were presented to end users (staff partners from the School of Humanities) and the academic partners from the School of Computer Science and Engineering who assisted in the design process. Following a number of iterations, a final prototype was produced using AdobeXD (see Appendix 1).

The prototype has been evaluated following a participatory design approach, the nature of the study was qualitative and the scope was twofold:
- to verify that the proposed UI maps the project requirements
- to refine the current UI design even further.

The group of users were invited to a study that took place in July including the main stakeholders of the app, the language teachers, the researchers who created the dialogues, students (the intended target audience of the app), designers and developers of the app. The users were guided through a list of tasks that reviewed the entire functionality of the app in order to identify potential issues and to gather information about how the UI and the task flow completion could be improved.

The UI has been reviewed for the following main usability metrics:

- Intuitiveness (if users can understand how to interact with the app to complete the task without being explained)
- Effectiveness (if users were able to complete the task)
- Efficiency (how quickly users can complete a task and the route they follow to complete it)
- Error – if users encountered errors; in which case we could suggest error prevention and error recovery
- Ease to learn (if users were able to learn interactions routines)
- Memorability (if users were able to remember routines after they have been exposed to a process)
- User action and system feedback (if the system provided clear feedback about the current system status and processes)
- Overall satisfaction (how users felt about the overall design of the app).

At the end of this process the users took part in an open discussion to gather more information about user satisfaction and recommendations for changes.

The entire testing process took 1.5 hours to be completed.

4. Results

The results of the study were the following:

- The UI is **intuitive** as the users were able to understand how to navigate to different sections of the app, how to complete tasks and how to discover most of the available functionality.
- The UI was **effective**, as the users were able to complete most of the tasks.
- The UI is **efficient** as the users are offered alternative ways to access and complete task without unnecessary steps.
- The users did not encounter any major **errors** of not being able to understand how to complete a task, or how to access information. The process identified some areas in the design thatcould be refined which are related mainly to refining the language used for instructions (this is an action for the language team to conduct editorial work) and the requirement to clarify some of the visual hints related to the current system state.
- The users were able to **learn** interaction routines with ease. After they interacted with one level of activities in the sub-section, "Conversations", they **knew how to repeat the same activity** (memorability), in all different levels. The same applied for "Information Gaps" although this included three different design approaches.
- The **system feedback was clear,** the process indicated some areas where system feedback could be improved to make the current system status and processes clearer..
- Overall, users felt that the proposed design mapped very well the project requirements, they found that the application provided the expected functionality in an interesting and engaging way and that the application was aesthetically pleasing.

Some areas that have been highlighted for further improvement:

- Consistency in the terminology used needs to be reflected in the database as the app will extract all this information directly from the database (e.g. in the first page the conversations appear as **replay exercises** while in the rest of the app as **conversations**)
- Include some explanatory text about the levels.
- Review the text for all the instructions
- When displaying the phrases that users are practising, it would be preferrable to demonstrate that it is the other person's turn by showing the partner's name.. E.g. in the following UI's, B was preferred by most users. (I'm not sure what the example means?)

Asynchronous conversation 7 — A

Alternative design — B
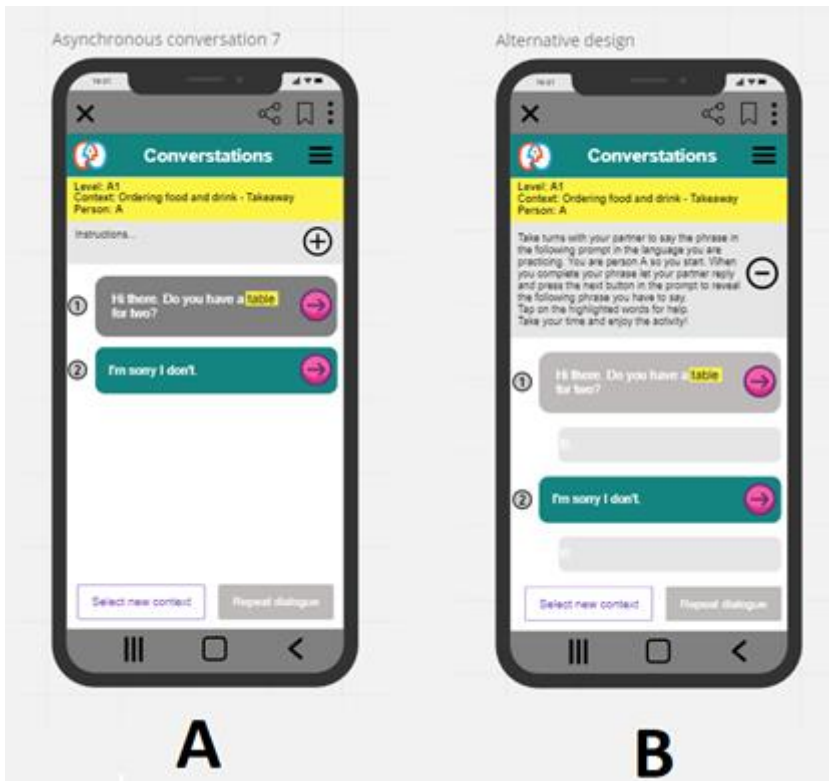
- In the information gap exercise, the users stated that instead of draggable objects the users could tab on the blank box next to the person's favourite colour. Here we are not sure what would be more satisfying, we will have to implement it and test the interactivity.
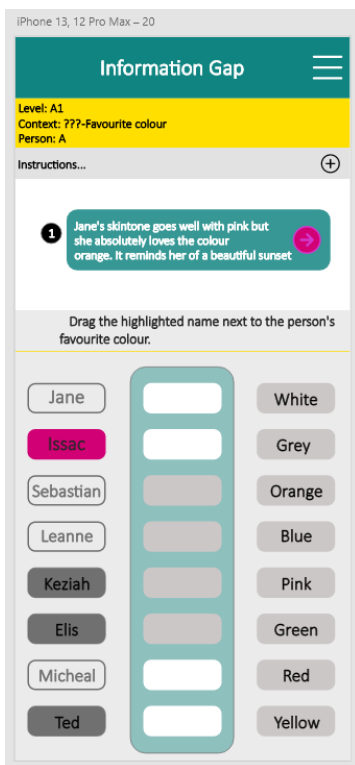

tap rather drag

- In the info map, users suggested that the known square should be highlighted and if we want the users to give directions to others, then perhaps the entire map needs to be provided to them. The information map is a section of the app that requires further work.
- Hints need to be included in all types of exercises
- At the end of the activity, users should be asked if they need to repeat the activity
- Review with the language team the filters (what filters are necessary)?
- Sorting would make sense in context not in levels
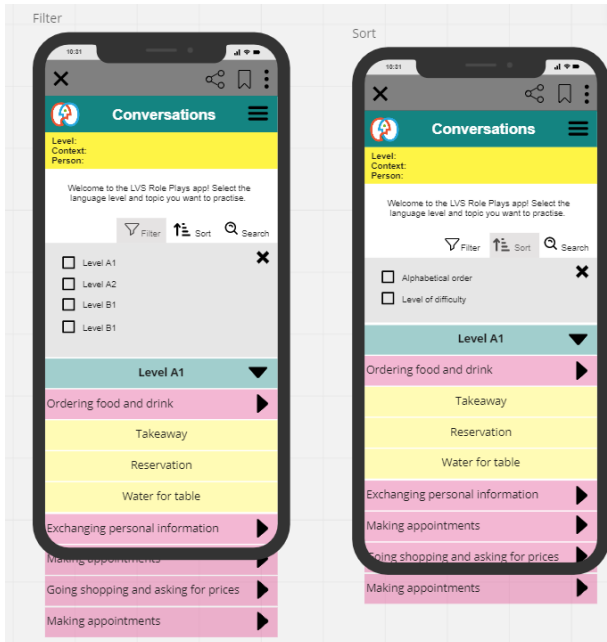
- The collapsible instructions should be extended when a user lands on a new page.
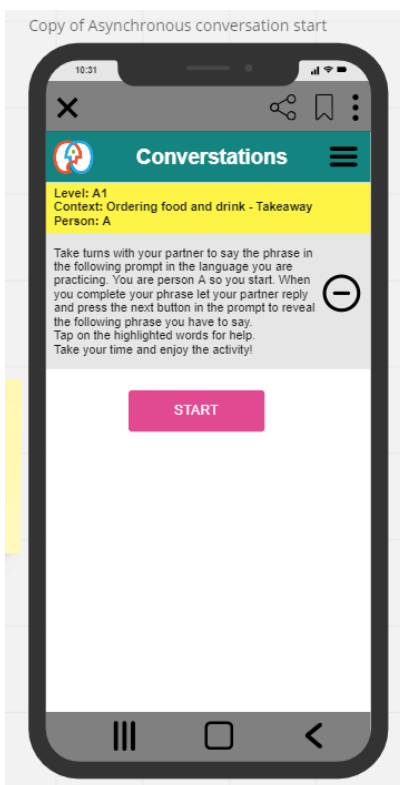
- The menu should contain conversations at the top of the page (above fold)

5. Discussion and Conclusion

The co-creators project provided a very good opportunity for the student partners to be engaged in a real-world project, that will have an impact on the education of our students and beyond. The user interface design produced for the conversation part of the application has met the expectations of the end users, as was indicated following the evaluation of the prototype. The user interface design is now ready to be implemented and incorporated with the knowledge base of the application.

There are still limitations and areas that can be improved. The co-creators team also worked in the information gap exercise. There has been a progress in this part of the application, a better understanding of the needs of the end users and a provisional user interface, however, there are still details that need to be explored to ensure that this exercise meets the needs of the end users.

In addition, there are some functionalities of the application that may be important for the end product but have been considered out of scope for this co-creators project, as for example the use of shared web-panels.
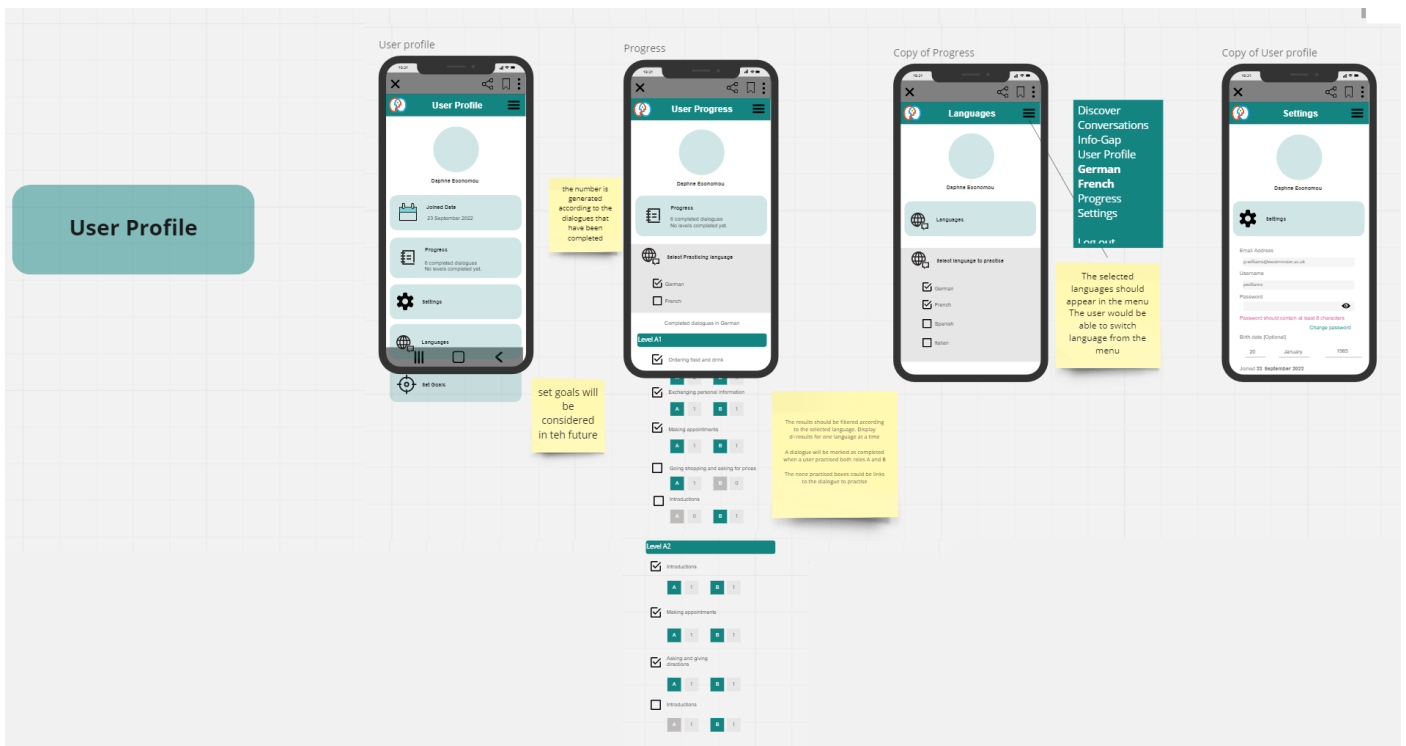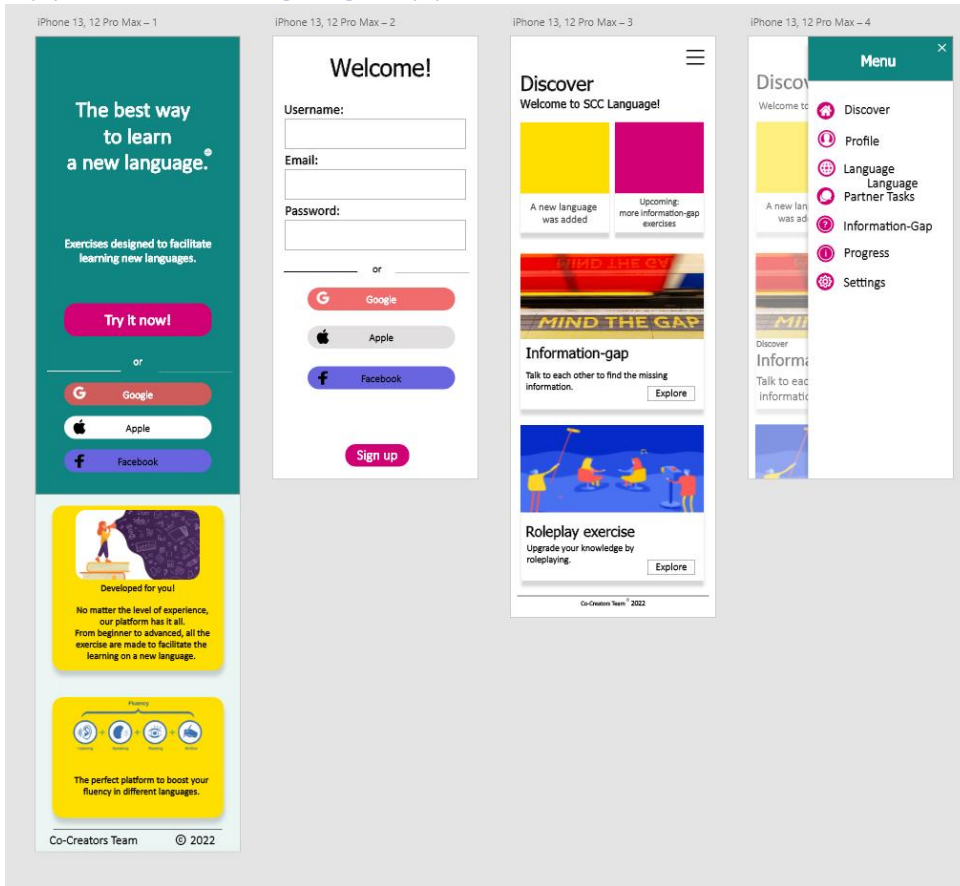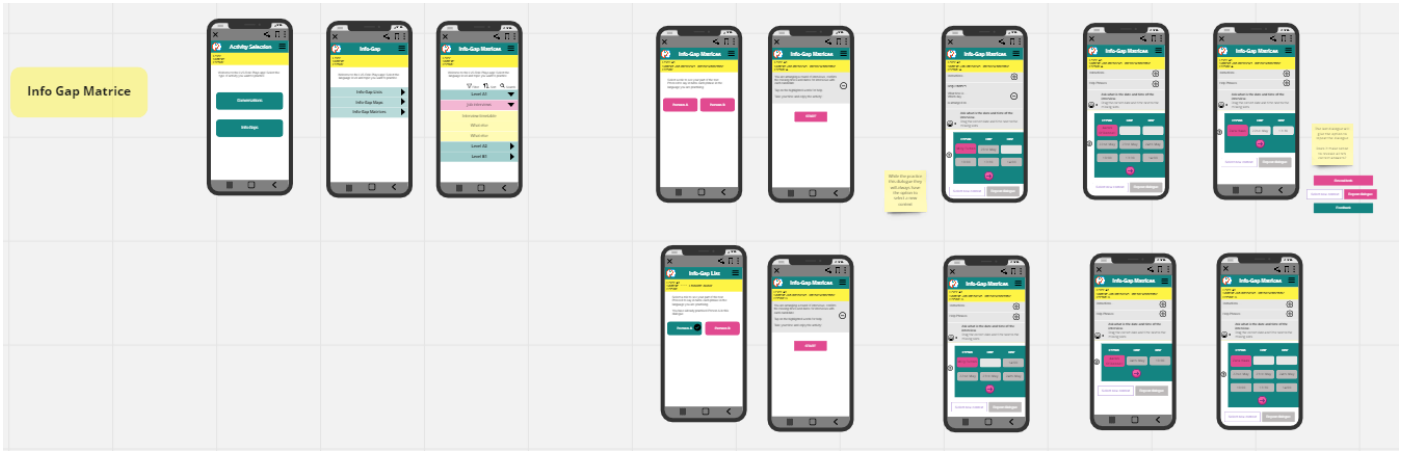
6. Dissemination

The result of the co-creators project will be disseminated as part of the conversation application following its completion and evaluation by students in the School of Humanities.

7. Research Team Reflection

The students required substantial guidance and support for such a project and although the co-creators activities offer fantastic opportunities for student-staff collaboration, such activities need to be recognised somehow in the academic's WAM allocation. Thus, a suggestion is that calls for co-creators projects to be timed so that they could be considered in WAM allocation.

Appendix 1. Language app UI

Row labels (left side):

filtering, sorting, searching

Conversations

Info Gaps — Info Gap List

Info Gap Map

Appendix 2 Language app Logo