

INTERFACES & INTERACTION

Version 1.0
BSc Computing for Games

Alcwyn Parker

Introduction

In this assignment, you will evaluate an existing screen based game interface of your choice, with a focus on usability and user-experience. You will carry out at least two distinct qualitative and quantitative methods of evaluation, justifying your choice of methods.

Human-centred design (HCD) puts the end-user at the heart of the design process with a focus on usability and user-experience (UX). It relies on a fast-paced, iterative approach to the design and development process where evaluation and testing are built into every iteration. This allows the designer to learn from each iteration and feed forward into the next. It is vital that you familiarise yourself with the various qualitative and quantitative evaluation methods so that you can apply them to all of your future projects.

This assignment is formed of several parts:

- (a) **Implement** a thorough evaluation of a screen based game interface of your choice. Create a GitHub Page to document your evaluation process, that will:
 - i. **justify** your choice of screen based game interface;
 - ii. **list** and **justify** your choice of evaluation methods;
 - iii. **describe** in great detail, the findings from the evaluation task.
- (b) **Present**, a ten minute summary of your findings that will:
 - i. **clarify** your approach to the task;
 - ii. **describe** the strengths and weaknesses of your chosen interface;
 - iii. and **discuss how** strategies derived from your findings that might improve the usability and user-experience of the interface in question.
- (c) As part of your GitHub documentation page, **Write** a conclusion that will:
 - i. **synthesise** your findings into a clear and concise list of strengths and weaknesses for your chosen interface.
 - ii. **reflect** on the process and consider the strengths and weaknesses of your approach;

Assignment Setup

This assignment is an **usability evaluation task**. Fork the GitHub repository at:

<https://github.com/Falmouth-Games-Academy/comp210-evaluation>

Use the existing directory structure and, as required, extend this structure with sub-directories. Ensure that you maintain the `readme.md` file.

Modify the `.gitignore` to the defaults for **TeX**. Please, also ensure that you add editor-specific files and folders to `.gitignore`.



The Arduino is an open-source prototyping platform that makes designing and developing interfaces fun & easy.

Part A

Part A is formed of **multiple formative submissions**. This is **individual** work will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

- (a) Submission is timely;
- (b) Enough progress is made to conduct a meaningful review each week;

To complete Part A, carry out a thorough evaluation of your chosen interface and document your process and findings using GitHub pages. Demonstrate your progress to your tutor each week in class. At the minimum, you are expected to implement at least one qualitative and one quantitative evaluation method. Ensure that any digital artefacts (including but not limited to sketches, photographs, diagrams, raw data, and any other documentation) are included in your GitHub page. The GitHub pages platform is extremely versatile, with very little effort you should be able to achieve some quite dynamic and creative documentation. Although some textual discussion will be necessary, do not overly rely on this mode of communication. Instead, experiment with embedding dynamic content such as info visualisations, images and videos. You will receive immediate **informal feedback** from your **tutor** and **peers**.

Part B

Part B is a **single summative submission**. This is **individual** work will be assessed on a **threshold** basis. The following criteria are used to determine a pass or fail:

- (a) Enough work is available to hold a meaningful discussion;
- (b) Clear evidence of usability testing knowledge and communication skills;
- (c) No breaches of academic integrity.

To complete Part B, prepare a ten minute presentation based on around your GitHub documentation page that explains your approach to the task and summarises your findings. Ensure that all related assets are pushed to GitHub and a pull request is made prior to the scheduled viva session. Then, attend the scheduled viva session.

You will receive **immediate informal** feedback from your **tutor** and **peers**.

Part C

Part C is a **single summative submission**. This work is **individual** and will be assessed on a **criterion-referenced** basis. Please refer to the marking rubric at the end of this document for further detail.

To complete Part C, write a conclusion that provides a synthesis of your findings and reflects on the strengths and weakness of your approach to the task. Then, upload all the documentation to the LearningSpace. Please note, the LearningSpace will only accept a single .zip file.

You will receive **formal feedback** from your **tutor** three weeks after the final submission deadline.

Additional Guidance

Your choice of game interface should not only be complex and interesting enough to warrant interrogation but also be relevant to your interests and

your aspirations as a game developer. The selection process might involve choosing multiple games and using rapid and heavily discounted evaluation methods to identify the game interface that will produce the most insightful results. Before you begin the task you are encouraged to research existing case studies and evaluations to inform your approach.

Your evaluation must find a balance between expert reviews and usability testing. Human-centred design (HCD) puts the user at the centre of the design process, and thus relying solely on expert reviews will not produce results conducive to a HCD process. The purpose of usability testing is to evaluate the user's behaviour when interacting with an interface and identify the aspects of the interface that are most regularly a source of frustration and confusion. Tests should be designed around tasks and scenarios that represent typical end-user goals. Participants in your studies must span a range of skills and experiences for your results to be meaningful. It is important that you go beyond your course cohort to find participants.

You should use a range of qualitative and quantitative methods of evaluation. Some suggested methods are: cognitive walkthrough; task analysis; user-story mapping; analytic tools. Many other methods can be found in the academic literature.

"The first 90 percent of the code accounts for the first 90 percent of the development time.

"The remaining 10 percent of the code accounts for the other 90 percent of the development time."

— Tom Cargill

"Hofstadter's Law:

"It always takes longer than you expect, even when you take into account Hofstadter's Law."

— Douglas Hofstadter

GitHub Pages are an invaluable tool for showcasing your work to future employers and collaborators. You will use them a lot more in the third year so it is important that you familiarise yourself with them now. GitHub Pages are created just like any other website, using HTML to layout content, CSS to control the style and JavaScript to create dynamic behaviour such as animations and interactive components. Although you have not been taught these specific languages, your existing knowledge of document markup languages such as LaTeX and programming languages such as Python and C++, combined with the wealth of tutorials available online, should make it relatively easy to pick these languages up.

Poor planning and poor time management can have a significant impact on this assignment. A comprehensive evaluation cannot be 'crammed' into a last minute deluge. Sustain a steady pace across the four weeks. Aim to implement one method of evaluation per week.

Areas where students tend to lose marks are: depth of insight; analytical skill; and evaluative skill. Depth of insight implies rigorous testing of each task in detail. Adequate analysis implies going beyond mere description, perhaps through: researching UI/UX, comparing interfaces, and deploying reasoning to generate new insights. Adequate evaluation implies making appropriate reference to evidence and ensuring that evidence is of appropriate quality. Further to this, sound and valid arguments should be constructed based on common usability principles.

Additional Resources

- Guild, John D., and Clayton Lewis. Designing for Usability: Key Principles and What Designers Think. Communications of the ACM, 1985.
- Krug, Steve. Don't Make Me Think. Berkeley, 2000.
- Reiss, Eric, Usable Usability : Simple Steps for Making Stuff Better. Wiley, 2012.

Marking Rubric

Criterion	Weight	Refer for Resubmission	Basic Proficiency	Novice Competency	Novice Proficiency	Professional Competency	Professional Proficiency
Basic Competency Threshold	40%	At least one part is missing or is unsatisfactory. There is little or no documentation to evidence a usability evaluation of an interface.	Submission is timely. Enough work is available to hold a meaningful discussion. Clear evidence of a 'reasonable' evaluation process. Clear evidence of usability testing knowledge and communication skills. Clear evidence of a synthesis of findings. No breaches of academic integrity.				
Appropriateness of chosen evaluation methods	10%	No evaluation methods have been implemented.	At least one method has been implemented.	At least one method has been implemented. The approach is appropriate.	Two methods have been implemented The approach is reasonably appropriate.	Two methods have been implemented. The approach is appropriate. There is some consideration for	Two methods have been implemented. The approach is appropriate. The approach is considered and clearly justified.
Adequacy of Analysis of Findings	20%	No analysis has been presented.	Little analysis has been presented.	Some analysis has been presented.	Much analysis has been presented.	Considerable analysis has been presented.	Significant analysis has been presented.
Synthesis	15%	No connections are made between the findings.	Superficial connections are made between the findings.	Basic connections are made between the findings from the different evaluation methods.	Reasonable connections are made between the findings from the different evaluation methods. Connections go beyond mere description.	Strong connections are made between the findings from the different evaluation methods. Connections are analytical in nature.	Strong connections are made between the findings from the different evaluation methods. Connections are analytical and evaluative in nature.
Quality of Documentation & Presentation	10%	There is no documentation.	There is some basic documentation.	There is little documentation.	There is much documentation. Some images and diagrams have been included.	There is considerable documentation. The use of images and diagrams is effective. Some dynamic content has been included.	There is significant documentation. The use of images and diagrams is effective. dynamic content is effective and helps to articulate the process and findings.
Specificity, Verifiability, & Accuracy of Claims	5%	No documentation to evidence to claims. Substantial errors and/or misinterpretations.	Few claims have supporting documentation. Significant errors and/or misinterpretations.	Some claims have supporting documentation. Many errors and/or misinterpretations.	Many claims have supporting documentation. Some errors and/or misinterpretations.	Most claims have supporting documentation. Few errors and/or misinterpretations.	All claims have a supporting documentation Almost no errors and/or misinterpretations.
Depth of insight	15%	No insight is demonstrated. Findings are merely presented.	Little insight is demonstrated. Findings are summarised.	Some insight is demonstrated. Attempts are made at discussion beyond summary.	Much insight is demonstrated. Discussion is inferential in nature.	Considerable insight is demonstrated. Discussion is analytical in nature.	Significant insight is demonstrated. Discussion is analytical and evaluative in nature.