

Protocol Preliminary Questions

Exempt Categories

Does all of your research fall under one or more exempt category?

☒ Yes ☐ No

Which exempt category?

☐ One

☒ Two

☐ Three

☐ Four

☐ Five

☐ Six

Click here for a reminder of the [Exempt Review Categories](#).

Does your research involve analysis of secondary data or biospecimens only?

☐ Yes ☒ No

Is this an initial or de novo submission?

☒ Initial ☐ de novo

A principal investigator is the faculty member or staff scientist with primary responsibility for the conduct of a research project.

A supervised researcher initiates the research under the supervision of the principal investigator.

Based on these definitions, is this research being initiated by a:

☒ Principal Investigator

☐ Supervised Researcher

Should anyone other than the principal investigator and supervised researcher receive notifications regarding this protocol?

☐ Yes ☒ No



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Initial Protocol

IRB Protocol #
24009R-E

Date Updated
7/20/2023 7:19 PM

Review Status
Approved/Determined
Exempt

Project Detail

Project Title

Open-World Exploration Study

PI Name

Peter

First

Mawhorter

Last

PI Department

Wellesley College Computer
Science

PI Phone

(909) 255-6164

PI Email

pmawhort@wellesley.edu

Estimated Level of Risk

Minimal

Anticipated Start Date

7/19/2023

Anticipated End Analysis Date

8/31/2024

NIH Clinical Trial

This study is not funded by NIH

Funding Status

Pending

Sponsor

Sponsor ID

Grant PI

Grant Title

1. Purpose of Research

☐ Class Assignment ☐ Thesis/Dissertation ☐ Presentation ☒ Evaluation/Assessment ☒ Publication ☐ Other

Briefly describe the overarching goal of what you seek to discover from the research, as well as its expected benefits.

We want to know more about how people explore open-world video games. We are curious whether their conceptions of space and place in these games align with existing understandings of human exploration in the real world. We expect to do thematic analysis of this data to guide our future work in this area and also potentially as publishable work in itself. We may do further formal analysis of exploration behaviors in the data later in the research, and do some quantitative analysis of these formal structures. We expect to learn more about how people explore games and what makes exploration in games enjoyable, which we think will help game designers design better games for entertainment and/or education.

2. Personnel

List all personnel who will be taking part in the research, their institutional affiliation, role in the research, and CITI training in Human Subjects Research.

Principal Investigator

Name

Peter Mawhorter

Institutional Affiliation

Wellesley

Role in Research

PI

CITI Training

☒ Completed

Will this investigator have access to identifiable data?

☒ Yes ☐ No

Add additional personnel?

☒ Yes ☐ No

Additional Personnel

Person 1

Name

Nissi

First

Awosanya

Last

Institutional Affiliation

Wellesley

Role in Research

Data collection & analysis

e.g., Data Analysis

CITI Training

☒ Completed

Email Address

Will this investigator have access to identifiable data?

na102@wellesley.edu

☒ Yes ☐ No

Person 2

Name

Kitty

First

Boakye

Last

Institutional Affiliation

Wellesley

Role in Research

Data collection & analysis

e.g., Data Analysis

CITI Training

☒ Completed

Email Address

cb116@wellesley.edu

Will this investigator have access to identifiable data?

☒ Yes ☐ No

3. Collaborations and Subcontracts

Describe any additional collaboration or subcontract with an outside institution or vendor (e.g. Boston Children's Hospital, ABC transcription services).

☒ Not applicable

4. Conflicts of Interest

A [Significant Financial Interest Report](#) is required for all externally funded research.

List any actual, potential, or apparent conflicts of interest - financial or otherwise - any research personnel or collaborator may have regarding this research. (*This includes any actual, potential, or apparent financial conflicts of interest that do not rise to the level of significant financial interest.*)

☒ No Conflicts of Interest Exist

5. Study Location

For detailed information regarding international research see the HRPP webpage [International Research](#).

Will this research take place (or will your subjects reside) outside of the United States?

☐ Yes ☒ No

Will this research be conducted in one or more non-English language?

☐ Yes ☒ No

Outline where the proposed research will be conducted.

At Wellesley College, in the Science Center.

Are all of the locations where you are conducting research public?

☒ Yes ☐ No

Will some or all of this research take place in-person?

☐ No ☒ Yes

6. Secondary Data and Protected Information

** For detailed information regarding the use of PHI see the HRPP webpage [HIPAA and PHI](#) and for detailed information regarding FERPA see the HRPP webpage [Research with Children and Students](#).*

Does the proposed research involve the use of secondary data, documents, records, or pathological or diagnostic specimens?

☐ Yes ☒ No

7. Study Design

What data recording methods will you employ?

☒ Handwritten Notes ☒ Computer/Tablet/Cell phone ☒ Video Recording ☒ Audio Recording ☐ Photograph ☐ Other

What Data Collection Tools/Study Instruments will you use?

☐ Online Survey ☐ Paper Survey ☒ Interview Guide ☐ Standardized Test ☐ Behavioral Measure(s) ☐ Field Notes ☐ Other

Attach all study instruments.

Open-World Exploration Study Interview Guide.pdf

Sable Landmarks.pdf

How will you interact with your subjects/conduct your research?

☒ In person (1 on 1) ☐ In person (group) ☐ Email ☐ Telephone/Skype/Zoom ☐ Online ☐ Standard Mail ☐ Participant Observation ☐ Non-participant Observation ☐ Other

8. Subject Details

**For detailed information regarding the use of vulnerable populations see the HRPP webpage [Vulnerable Subjects](#)*

Subject Details - Please check only the populations you are targeting.

☒ Adults (≥18) ☐ Minors (<18) ☐ Impaired Decision-making Capacity ☐ Minorities ☐ Students ☐ Economically Disadvantaged ☐ Prisoners ☐ Elderly/Aged ☐ Educationally Disadvantaged ☐ Other:

Approximately how many subjects do you plan to enroll?

5-20

Describe your subjects – explain any inclusion and exclusion criteria you plan to employ (e.g., over 18 years of age).

We will recruit via email list and word-of-mouth on Wellesley campus, making sure to only include students who are at least 18 years old. We will provide a link to our consent form in the recruiting email so potential participants can understand the demands of the study. Besides age, the only other criterion for inclusion will be that their schedule matches up with when we're available for running interviews. If the first few interviews are successful and we feel we want additional data, we may continue to recruit more participants using the same protocol, I'd guess we wouldn't want more than 20 or so at most.

9. Recruitment Methods

☐ Not Applicable - conducting secondary data analysis only

Recruitment Methods

Describe the recruitment methods you plan to employ.

We're going to send out an email to the summer research mailing list, and also communicate directly with friends on campus where relevant. The link in the recruiting email shown below goes to an online copy of the consent form (with the actual signature portion removed since we'll handle consent using paper forms in-person), so I've re-attached the consent form here. If we are not able to run enough participants before the end of summer research, we'll probably send an additional recruiting email to the CS department list and/or the MAS majors list. For this study, we only intend to recruit locally from the Wellesley student population.

Attach final versions (as they will appear to your subjects - e.g., with graphics, on letterhead, etc.) of fliers, letters, texts of e-mails, scripts for phone calls, etc., as well as site-specific permissions to recruit if working with an outside organization (i.e., letters of permission from each organization that details their understanding of your project, their support and involvement in your project, and the duration of their involvement in your project).

Recruiting Email.pdf

Open-World Exploration Study Consent Form.pdf

10. Data to be Collected

**For detailed information regarding the collection of subject identifiers see the HRPP webpage [De-identifying non-PHI Data](#)*

Describe the specific type of data you will be collecting (e.g., survey data about or medical record data...) and what you plan to do with it (e.g., determine the link between...).

We're going to gather gameplay footage as well as interview responses and consent forms. This will include participants' names and email addresses, along with their voice in our recorded audio, so it will be personally identifiable. The recorded audio will include back-and-forth with the interviewer, and will thus likely contain the participants' names. We will be performing thematic analysis to understand the different types of in-game objects that players use as references in understanding navigation within the game world. We may also be analyzing exploration patterns by coding player's in-game behaviors, although that's a secondary goal. We will potentially use students' emails to contact them for follow-up studies, to be approved separately.

Will you be collecting data that will not be linked to research data?

☐ Yes ☒ No

Check identifiers you will be collecting as data for research purposes only (do not include those you listed above if you will be collecting them for other reasons only - e.g., name, phone number, email for compensation purposes).

☒ Names

☐ Gender

☐ Addresses

☐ Race

- | | |
|---|--|
| ☐ Phone/Fax #s | ☐ Ethnicity |
| ☒ Email Addresses | ☐ Religion |
| ☐ Social Media Usernames or Handles | ☒ Age |
| ☐ URL/IP Addresses | ☐ Marital Status |
| ☐ Social Security #s | ☐ Household Composition |
| ☐ Dates of Birth | ☐ # of Children |
| ☐ Dates of Death | ☐ Place of Birth |
| ☐ Student #s | ☐ Education |
| ☐ License/Certificate #s | ☐ Major |
| ☐ Medical Record #s | ☐ Income |
| ☐ Health Plan #s | ☐ Job Title |
| ☐ Dates of Service | ☐ Occupation |
| ☐ Account #s | ☐ Place of Work |
| ☐ Vehicle/Serial/Device #s | ☐ Medical Condition |
| ☐ Facial Photographs or Images | ☐ Dates (of graduation, arrest, marriage) |
| ☒ Biometric Identifiers, including Voice and Fingerprints | ☐ Uncommon Characteristics |
| ☐ Direct Identifiers of Family/Household Members | ☒ Other: |

Other identifiers to be collected

Gameplay habits & gaming community inclusion/exclusion.

Justify the collection of all identifiers checked above.

Email addresses will be collected for potential follow-up contact. They will be stored as a hard copy along with the consent forms that will assign a number to each subject; the audio recordings will be stored by number. Only the PI will have access to this hard copy subject listing. However, the audio itself may contain the subject's name as that may come up during the interview; full de-identification of the audio recordings is not necessary for this protocol to be exempt under §46.104 (2) (ii) which is why we will not attempt it; it would require extensive transcription work that we currently do not have the funding to support.

(Specifically, to fully de-identify the videos while retaining their suitability for our research purposes, we would have to record interview audio separately from gameplay audio, which we need to retain for research purposes, then we'd need to transcribe each 2-hour interview, time-synced to the video file for reference, and redacting identifiable utterances like names, after which we could destroy the interview audio and keep the gameplay footage, gameplay audio, and transcript. Since we do not have the funding to support such transcription, we are NOT planning to do it.)

Names will be present on the consent form, and researchers with access to the data have the ability to look up names from email addresses for Wellesley students and vice versa in any case. The PI will be the only one with access to the stored consent forms (and index sheet); these will not be stored electronically.

We will ask for age binned by 5-year groups, rather than exact age. Since we expect our sample to have a very focused age distribution around college age, we want to be able to report this in our findings to give an accurate picture of the (lack of) generalizability of our findings.

Similarly, we ask questions about gaming habits to establish background skills going into the study, and questions about inclusion/exclusion in gaming spaces to be able to accurately report on certain potential biases in our data *without* collecting race/ethnicity or gender data (especially since gender data is now data that could reasonably lead to reputational/legal damage if leaked in certain states for certain people). There is a possibility that this data in inclusion/exclusion in gaming spaces could be sensitive in nature, depending on how the participants choose to answer that question. This is one reason we have an extra consent step at the end of the study once the interview is over.

Finally, we collect voice recording because we are having participants do a talk-aloud protocol, and because it's necessary to conduct an interview smoothly without attempting something like live transcription. We will not make voice recordings public in published material, even as excerpts, as stated on our consent form, and as mentioned above, we will not directly associate emails to audio recordings in our stored data.

11. Deception/Incomplete Disclosure

**For detailed information regarding the use of deception or incomplete disclosure see the HRPP webpage [Deception in Research](#)*

Does this research include deception or incomplete disclosure?

☐ Yes ☒ No

12. Risk and Benefits

**For detailed information regarding minimizing risks and balancing risks and benefits see the HRPP webpage [Criteria for Review](#)*

What risks - other than loss of privacy or confidentiality (always a risk when private data is involved) - do you foresee for subjects in this research?

☐ Social ☒ Psychological/Emotional ☒ Physical ☐ Legal ☐ Economic ☐ Other:

Describe in more detail the risks you foresee for subjects and your provisions for managing these risks.

Since it's a 2-hour in-person interview, there's a risk of COVID-19 transmission. We will use masking (voluntary for subjects, but mandatory for interviewers) to mitigate this risk, and have also specified parameters for rescheduling if one or both participants is feeling unwell and/or tests positive for COVID-19 on our consent form.

From playing the games, there could be a risk of seizure if the game includes bright flashing lights and the participant is susceptible; we have chosen games which do not include extreme flashes, but different participants may be susceptible to different kinds of light patterns. We mention this risk in the consent form and ask participants to inform us of susceptibility. Other rare issues might include things like vertigo from

the 3D motion or other sensory issues; we have included the ability to take breaks during gameplay, and a path to withdrawing from the study while still receiving full compensation if necessary.

For some games, there might be a psychological/emotional risk if the content is graphic, the games we are planning to run are not games that we expect to be distressing content-wise, as they have no or minimal depictions of violence or even interpersonal conflict. The games we're planning to work with (Sable and A Short Hike) have ESRB E or E 10+ ratings; we will not use any game with an ESRB rating higher/worse than Teen for this study. We have included a section on this in our consent form.

Describe the anticipated benefits to subjects, society, and/or other specific groups from this research. Note that compensation is not a benefit.

Subjects will probably have fun playing the game during the study. Additionally, we hope that our research can contribute to a deeper understanding of game design patterns, which in turn can potentially help future game designers design more interesting/fun games.

13. Costs and Compensation/Incentives/Reimbursements

Describe any costs to subjects for their involvement in this research (e.g., time – specify the amount, transportation, economic – loss of work, need for child care).

They will need to travel to our study site and spend 2 hours there. There are no other costs to them. We expect them to be Wellesley College students living on-campus, so the travel aspect should be minimal.

Will subject receive compensation, incentives, or reimbursements?

☒ Yes ☐ No

Describe any form of compensation/incentive subjects will receive (e.g., cash, gift card, course credit, medical care) and the terms and conditions of receiving the compensation/incentive (e.g., partial or full compensation for partial participation), as well as any reimbursements for which the subjects may be eligible (e.g., cost of travel or child care).

The subjects will receive a \$30 gift card for their participation, including partial participation. As long as they agree to the study conditions and sign the consent form at the beginning of the study, even if they withdraw immediately after starting the game because of some unforeseen issue, they will be fully compensated. Beyond this they will not be compensated.

14. Informed Consent

**For detailed information regarding informed consent — including how to construct an informed consent form — see the HRPP webpage [Informed Consent](#)*

Describe the circumstances surrounding your procedures for the informed consent of subjects - remember that obtaining informed consent is a continuous process.

- Describe the setting in which you will be obtaining informed consent.
- Describe any special considerations you will make for vulnerable or non-English speaking subjects (e.g. witnesses, translators), if applicable.
- If requesting approval for one of the following, check and explain your reasons for and conditions

that necessitate request:

- ☐ Waiver of documented informed consent (subjects will not sign an informed consent form).
- ☐ Alteration of informed consent. (Note that applicable only if the research could not be carried out without the alteration).
- ☐ Waiver of informed consent (subjects will not undergo informed consent procedures at all). (Note that applicable only if the research could not be carried out without the waiver.)

Informed Consent Procedures

We will have students provide consent on paper, after an interviewer has gone over the consent form with them in person. They will also be able to view the consent form ahead of time online before deciding to sign up for a study slot. We do not intend to recruit any non-English-speaking participants, as we do not have the resources to provide translation services. However, we will have the interviewer go over the consent form with each subject and they can help explain anything a participant finds unclear. Once the gameplay segment and interview are complete, we will ask the participants to re-sign the consent form a second time to indicate that they're comfortable with us using the data that we collected. They may also withdraw consent at any time during the study, and our consent form specifies procedures for them to withdraw consent after the study as well, in which case we would delete their data and stop using it, although we would seek to revise rather than outright retract any published work that used their data in where that data was not alone critical to the conclusions of the work.

Attach final versions (as they appear to your subjects - e.g., with graphics/letterhead and without extraneous text) of informed consent forms, information sheets, computer consent screens, consent scripts, etc.

Open-World Exploration Study Consent Form(1).pdf

Please make a copy of the Informed Consent Form available to participants to keep.

15. Study Description

Describe your research plan, including the procedures, steps, and actions you will be performing, in chronological order. Include in more detail any procedures/steps/actions not previously discussed. Note that if helpful, you may use bullet points.

The procedures for each interview are as described in the interview guide we attached earlier. Broadly for the overall research, we hope to:

1. Recruit participants and schedule interviews.
2. Run interviews, while checking the data we get. We may adapt our questions during the unstructured portion of the interview according to what kinds of responses we're getting.
3. More deeply analyze the data, including thematic analysis to identify salient feature classes used to describe navigation & exploration.
4. Depending on the outcome of some of our other current work, we may attempt to code up participants' in-game behaviors for deeper quantitative analysis.

We hope that steps 1 and 2 can be accomplished in 1.5 weeks; we anticipate a lot of interest in participating in our study. This will allow us to run subjects before summer research ends and our funding situation changes, if we can get IRB approval quickly. Step 3 will likely take several weeks and will need to

wait until the Fall semester, and step 4 would likely happen in the Fall or next Spring.

Optional: attach flow charts, graphs, timelines, etc.

16. Data Security

**For detailed information regarding data security see the HRPP [Guide to Data Management and Protection](#)*

Will you be coding the data (i.e., linking a code/pseudonyms to the subjects' names/personal information)?

☐ Yes ☒ No

A. Describe how you will keep the research data secure during storage (e.g., in a locked file cabinet, on Box.com) and data analysis (e.g., on Box.com).

We will store recordings on the Wellesley College Google drive, using access controls so that only researchers named in the IRB protocol can access it. They will be labeled with subject numbers, not names or email addresses, but they may contain subject names as part of the recorded audio. During the study, they'll be recorded locally to the computer used for the study, but immediately afterwards they'll be uploaded to an access-controlled Google Drive folder and then deleted from the study computer.

Consent forms will be stored on paper in Peter Mawhorter's office, for at least 3 years, after which they will be destroyed. Additionally, a physical index sheet noting the name and email address of each study participant along with their assigned subject number will be kept in Peter Mawhorter's office. This sheet will be retained indefinitely.

B. Describe how and at what point the research data will be de-identified (e.g., when the master list is destroyed). If research data will not be de-identified, explain why. Note that data are not de-identified if linked in any way to the subjects - coded data are not de-identified data.

Research data will not be de-identified: de-identifying the voice recordings is not feasible on a time scale shorter than the time it will take us to do the thematic analysis. We don't expect the data to include any risk of reputational damage should it become public, and we do not have funding to support the two-stream audio recording, detailed transcription, time-stamping, and redaction necessary to fully de-identify the audio. We will store audio files separately from names and email addresses, so they will only be identifiable to someone who can recognize the participant from their voice, or if the participant or interviewer mentions the participant's name during the interview (this last is quite likely, however).

C. Describe when and how the research data will be destroyed (e.g., scrubbing computer files). If the research data will be stored indefinitely, describe how you will continue to keep them secure (e.g., data repository). Note that data must be retained for a minimum of three years.

We plan to store the recorded audio data indefinitely for future analysis, keeping it secure via Google Drive permissions.

Consent forms will be destroyed after 3 years, but the index sheet will be retained indefinitely.

D. Describe who will have access to the research data throughout their life (must always include PI).

The PI and the two listed research assistants: Peter Mawhorter, Kitty Boakye, and Nissi Awosanya. We will apply to amend this approval if additional research assistants need to become involved in analyzing the data.

17. Additional Committee Approvals

This research involves human blood, fluids, tissues, or cell lines; infectious agents; select agents; or rDNA.

☐ Yes ☒ No

This research involves animals.

☐ Yes ☒ No

18. Additional Comments

Attach any other supporting documents not already attached.



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Statement of Assurance

Project Title

Open-World Exploration Study

Principal Investigator Name

Peter Mawhorter

My signature below indicates that the information provided in this protocol is correct and that I agree to comply with all federal, state, and institutional policies and procedures designed to protect human subjects in research. My signature also acknowledges my understanding of my responsibilities as a research investigator, as outlined below and in Brandeis University's Federalwide Assurance.

- I acknowledge and accept the responsibility for protecting the rights and welfare of human research subjects and for complying with all applicable provisions of the Brandeis University Federalwide Assurance.
- I will provide a copy of the IRB-approved informed consent document to each subject at the time of consent, unless the IRB has specifically waived this requirement. All signed consent documents are to be retained in a manner approved by the IRB.
- I will request review by the IRB for any proposed changes in previously approved human subject research. The proposed changes will not be initiated without IRB review and approval, except where necessary to eliminate apparent immediate hazards to the subjects.
- I will report progress of approved research as often as and in the manner prescribed by the IRB.
- I will promptly report to the IRB any injuries or other unanticipated problems involving risks to subjects or others.
- No research investigator who is obligated by the provisions of this Assurance, any associated Inter-Institutional Amendment, or Noninstitutional Investigator Agreement will seek to obtain research credit for, or use data from, patient interventions that constitute the provision of emergency medical care without prior IRB approval. A physician may provide emergency medical care to a patient without prior IRB review and approval, to the extent permitted by law, however such activities may not be counted as research nor the data used in support of research.

- I will advise the IRB, Office of Research Administration, and the appropriate officials of other institutions of the intent to admit human subjects who are involved in research protocols for which this Assurance or any related Inter-Institutional Amendment or Noninstitutional Investigator Agreement applies. When such admission is planned or a frequent occurrence, those institutions must possess an applicable OHRP-approved Assurance prior to involvement of such persons as human subjects in those research protocols.

Principal Investigator Signature

Date

7/11/2023

R. L. Muehlen

Open-World Exploration Study: Consent Form

Research Overview: This study is being conducted by Nissi Awosanya and Kitty Boakye, students at Wellesley College. Dr. Peter Mawhorter, an Instructor of Science Laboratory, is overseeing the research. It involves gameplay and a semi-structured interview. It is designed to help us understand how players explore games. You will play a game for 1½ hours. After that, we will conduct a 30-minute interview. The total duration of your participation will be about 2 hours. We will compensate you for your time with a \$30 gift card if you agree to participate and begin the study. You will be compensated even if you do not finish the study. You must be 18 years old or older to participate. There are no other qualifications to participate.

Study Procedures:

- **Activity:** During the study, you will play a videogame with 3D graphics and navigation.
- **Breaks:** You may take a break at any time during the study: simply inform your interviewer.
- **Withdrawal:** If for some reason you need to stop participating partway through, or if at ANY point you decide to withdraw your consent, we are happy to stop the study. In that case, we will delete the data we have recorded from your session. Simply request to end the study, OR decline to provide a second signature on this form at the end of the study. A decision to stop participation or withdraw consent will not affect your compensation.
- **Assistance:** The interviewer may provide you with help with the game's controls. If you need help with something beyond that, you can ask for help. The interviewer will set a 2-minute timer, and will be allowed to give you advice (but not take over the controls) after 2 minutes. You may ask for help as often as you wish.
- **Talk-aloud:** During gameplay, we will ask you to talk aloud about what you are doing. The interviewer may remind you to keep talking if you forget. You do not need to talk continuously for the entire time you are playing. If for any reason you are unable to continue commentary, you may still continue the study without it.
- **Interruptions:** You will be interrupted a few times during gameplay and asked some questions.
- **Debrief:** At the end of the gameplay session, there will be a 30-minute interview. We will ask you some questions about yourself and about the game you played.

Foreseeable risks:

- **Risks:** We expect participation in this study involves negligible risks. The activity we are asking you to do is not strenuous. The game we have selected **does not** involve bright flashing lights. As a precaution, please do let us know if you are susceptible to seizures.
- **Content:** Depending on which game you play, it may involve depictions of violence. We do not expect these to be disturbing. We do not expect other themes from the game to be distressing. We will use games with a listed ESRB rating of Everyone, Everyone 10+, or Teen.
- **Concerns:** If you are concerned about the content of the game, you may ask the interviewer now for more details about the game's themes and content. As already noted, you may also stop participating in the study at any point.
- **Confidentiality:** Your data will only be available to researchers, but there is a risk that it could be improperly accessed. In that case, the recording of your gameplay might become public. Because it will include your voice, it might be personally identifiable as your gameplay. We will use standard security measures to keep your data confidential. We do not expect your interview responses to be embarrassing or damaging even if they become public.
- **COVID-19:** To mitigate COVID-19 risks, you are welcome to bring a mask and wear it during the study. Our interviewer will wear a mask as well. If you or the interviewer are experiencing COVID-19 symptoms on the day you are scheduled to participate or either of the two days beforehand, we will reschedule. We will also reschedule if either of you test positive for COVID-19 or have a confirmed case.

with symptoms that have not cleared at least 10 days before the scheduled time slot. If we need to reschedule, we will reschedule at least 10 days after the end of symptoms of any confirmed COVID-19 infection, assuming that's still feasible for both parties, otherwise we will cancel

Expected Benefits:

- **Fun:** Besides (hopefully) some entertainment from the game played, we do not expect any direct benefits to you from participating in this study.
- **Design Insights:** Your participation will contribute to our research which may help game designers design more interesting games.

Data & Privacy:

- **Recording:** We will record the video of your gameplay along with audio from the game and from the interview room. (This will include the interviewer's statements and your responses.) We will not record video of you, only audio.
- **Identifiable Data:** Since the audio will include your voice the data may be personally identifiable. However, we do not expect any risk of reputational harm should the data become public. All data will be kept confidential, available only to members of the research team. It is possible that other people may need to see the data from this study. These people are responsible for making sure the research is done safely and properly, and will also keep your information confidential. If audio is recorded which you ultimately do not feel comfortable being used for our research, you may withdraw consent at that time.
- **Discarding Data:** You may withdraw consent during the study, in which case your data will be discarded immediately. If you decide later that you are not comfortable with the use of your data, you may contact Peter Mawhorter (pmawhort@wellesley.edu). We will make our best effort to immediately delete your data. We will definitely delete it within 1 week of receiving your request. We will not use it for further research purposes before we delete it. Publications based on your data may include text transcribed from your audio or screenshots from your gameplay. They **will not** include recordings of your voice. Unless you withdraw your consent, your data may be used for future research projects.

Contact: If you have any questions about this study, you can contact the principal investigator Peter Mawhorter (909-255-6164 or pmawhort@wellesley.edu). If you have a question that you do not feel comfortable asking Peter about, contact the Wellesley College Ombudsperson Kathryn Bender (ombuds@wellesley.edu).

This research was approved by the Brandeis IRB office which is the Institutional Review Board of record for Wellesley College. If you have any questions about your rights – or if you have concerns about the study – you may contact them at 781-736-8133 or hrpp@brandeis.edu.

Consent: Participation in this study is voluntary. If you decline to participate at this point, you will not be compensated for participation, but there will be no other consequences. If you agree to participate and begin the study, even if you later stop, you will receive full compensation. Please sign once below to indicate consent to begin the study. Sign again at the end to indicate final consent to use the data we recorded during the study.

Print Name: _____ Today's Date: _____

☐

Check here to confirm that you are at least 18 years old.

Consent to begin study (sign here): _____

Consent to use data (sign again at end): _____

Recruiting Email

Subject: Invitation to Participate in Study on Exploring Open-World Games

Body:

Hello everyone!

How would you like to get paid to play videogames?

We want to introduce you to our open-world exploration study, a part of our research project with Professor Peter Mawhorter. We are looking for participants to dedicate two hours of their time to play a videogame and then respond to our post-gameplay interview questions.

This study does include recording participants' gameplay footage and the audio for interview responses. If you want to participate, read through the [Research Overview](#) for more details and sign up for a time slot in this Google Form[LINK] by [DATE]. We will respond to those who have filled out the google form within the next couple of weeks with a final schedule. Depending on the level of interest, not everyone who wants to may be able to participate. Those who do participate will be compensated for their time.

Thank you for your time and help with our research. Feel free to contact our student researchers email address at na102@wellesley.edu or cb116@wellesley.edu, or Professor Mawhorter at pmawhort@wellesley.edu with any questions or concerns.

Best,

Members of the Mapping Metroidvanias lab

Open-World Exploration Study: Interview Guide

Orientation

Before starting the interview, and even before the participant arrives, make sure that everything is set up for recording and the game is running ready to start a new game, but don't start the recording until after the participant agrees to start the study and signs the first signature line on the consent form. Make sure that the microphone is picking up sound by checking the levels in OBS and recording & watching a short test video. Keep these instructions open on your own computer so you can consult them throughout.

When the participant shows up, introduce yourself; make sure not to talk too in-depth about our research specifics, but feel free to let the participant know our broad aims (understand how players explore games). Confirm whether they'd like to wear a mask or not, and that they're not experiencing any COVID-19 symptoms (nor have recently). Let them choose headphones or speakers for the audio setup, and hand them the paper consent form. Walk them through it point-by-point, making sure to mention and confirm they understand each part with a **bold** heading. Let them simply read it themselves if they prefer, and let them know that there's no rush.

When they're ready to begin, have them print their name, enter the date, check the box for being over 18, and sign the form on the first line, but save the second line for the end of the study. Then go ahead and start the recording (informing the participant as you do so) and show them how to start the game; let them press the button to start a new game. While things are loading and/or during the intro cinematic, remind them that we'd like them to talk aloud during gameplay and that they can ask you for help with controls and if they get stuck. Then let them play until the 1 hour mark when you'll interrupt for the first goal probe (counting the time it took to orient them and to sign the consent form). During gameplay, follow the instructions below...

Talk-Aloud Reminders

During the orientation, make sure to explain that we want the participant to provide commentary as they play about their motivations, interests, and reactions to the game. During gameplay, if they fall silent for a brief period, that's fine, but if they fall silent for an extended period (especially if they complete multiple important exploration actions without any commentary) you should gently remind them that we'd like them to provide commentary as we play. This can take the form of a specific prompt to comment on something that just happened, e.g., "Can you say something about why you went that way?" or "Oh nice, you got it. Any comments at this point?"

If the player's voice is wearing out or they find providing commentary too distracting, you can let them continue without commentary and stop giving reminders, but only if they explicitly request this.

Help During Gameplay

If the participant requests help, you should determine whether they are requesting help with the controls of the game or something about the tech setup, or with something else in the game. If they are requesting help with controls or the tech setup, you can help them freely. If they request help with something in the game, like figuring out a puzzle, navigating or orienting themselves, or even wondering "what do I do next?" you should set a 2-minute timer, and encourage them to spend more time trying to figure out their issue (you may at this point suggest they consult the map if that's appropriate, but you may not yet offer any other kind of advice). Once the 2-minute timer is up, you can help them resolve their question with advice, but you may not touch the game controls. Once their immediate question is resolved, let them continue play, and if they ask for help again, set another 2-minute timer.

If they are frustrated or upset, you can suggest they take a break from the game, which is allowed as part of the protocol. For short breaks keep the play timer running; if a break runs longer than 5 minutes, you can ask whether they'd like to extend the study period or not, and you can pause the play timer if they agree to extend the study period. They can of course withdraw from the study at any point. If you have time limitations, you can explain that it's not possible for them to complete the study over a longer period, and ask whether they'd like to stop the study or continue play with whatever time you can afford.

If the player just gets stuck to the point where they cannot make progress in the game even with your advice, if applicable you can suggest they pursue a different goal within the game. If they are stuck and don't see any other relevant goals to pursue, they may need to stop the study, but that should be their decision, not yours. As long as they've already made some progress in the game, the interview can still happen; you could in this case cut the play session short (skipping any goal probes you haven't gotten to yet but performing one final probe at the point where they're stuck).

Performing "Goal Probes"

At the roughly 1-hour, 1:15, and 1:30 marks, you should interrupt their gameplay to perform a "goal probe." You can wait a few minutes beyond these times if the player is in the middle of a challenge and it's not a good time to interrupt their play. For each goal probe, start by asking "How would you describe what you are doing right now?" Next, follow up with "Why are you doing that?" After they answer, keep asking "And why are you doing that?" until the answer goes beyond the scope of the game (e.g., "because you asked me to play this game" or "because I want to"). If for some reason they have two different answers that circle back to each other, you can also stop the probe. The result of a goal probe should be a discrete series of increasingly abstract answers about the player's goals/motivations.

Follow-up Interview Questions

Once the 1:30 mark is reached, ask the participant to stop playing. They may continue for just a few minutes if there's something they're in the middle of, but you need to leave enough time to conduct the interview before they have to go. Explain that you'll be asking a few questions about them and then some questions about their gameplay. Ask each of the questions listed here, and if there's time, ask whatever additional questions seem most relevant, and/or ask for more details about something interesting they said in response to one of the questions you already asked.

- Demographic questions:
 - a. **What age group do you fit into (grouping by 5 years): 18-20, 21-25, 26-30, 31-35, etc.?**
 - b. **How often do you play video games in a typical week: less than one play session per week, a few sessions per week, at least one session on most days of the week, or at least one session every day?** (They can answer "in between" two of those categories if they want, but try to get them to pick a category.)
 - c. If they answer "less than one session per week" follow up with **"Do you typically play video games at least once per month, once per year, or even less frequently? Do you not typically play video games at all?"**
 - d. **Have you played <insert name of game used here> before?**
 - i. If so, ask them **"Have you finished that game?"**, and **"Approximately how many hours have you spent playing it?"** (it's fine if they have trouble approximating hours, try to get them to at least estimate whether they've played 5 or more hours, or less than 5 hours, and do the same for the hours questions below).
 - ii. If not, ask them **"Have you ever watched anyone play that game?"** If so, ask them to approximate how many hours they watched.
 - e. **Have you played any games that are similar to the game you played in this study?** (ask this even if they've played the specific game)
 - i. If so, ask **"What game have you played that you'd consider most similar to the game you played in this study?"**, then using the phrasing above, ask whether they finished that game, and approximately how many hours they spent playing it.
 - ii. If not, ask **"Have you played other games that include exploration?"**
 1. If yes, ask about their favorite exploration game, whether they've finished it, and approximately how many hours they spent playing it, using the phrasing above.
 2. If no, that's the end of this line of questioning.
 - f. **Have you watched at least an hour of gameplay of exploration-focused games?**
 - i. If so, ask **"What's the most similar game you've watched, and approximately how many hours of it have you watched?"**

- g. **Are there any communities (online or offline) centered around games or gaming where you consider yourself an insider?**
 - i. If they say "yes," ask them to give an example of such a community.
 - h. **Do you feel that people like you are underrepresented in gaming, or face discrimination in videogame communities?**
 - i. **Race, gender, sexuality, and other aspects of people's identities are often the subject of bigoted remarks and/or bullying in videogame communities. Without getting into specifics, have you been the target of derogatory speech or other bigoted behavior in videogame communities or while playing videogames?**
 - j. **Whether or not you yourself have been targeted, have you seen other people subject to bigoted bullying in a way that's made you feel uncomfortable?**
- Path questions (use pre-prepared screenshots and agreed-upon place names to help identify places). You will be asking 9 questions, based on three paths within the game. These vary based on the game played, but the same 3 questions are used for each path. Instructions to read to the participant: **"Now I'm going to ask you some questions about the game you just explored."**
 - a. You will ask the following three questions about each of three paths. See the Landmarks section below for details of the three paths in each game. For each path, using "A" to refer to the start and "B" to the end, ask the following questions:
 - i. Instructions for the participant, using the landmark identification packets from the Landmarks section below: **"You passed through A and B while you were playing just now. Here are some screenshots of A and of B. Do you recognize these places?"**
 - 1. If they answer "no" or "maybe" to one or both places, offer additional descriptions to try to jog their memory. If they cannot seem to remember one or both places even with additional help skip the questions about this path.
 - ii. First question about the path: **"What features or landmarks did you use to navigate from A to the B?"**
 - iii. Second path question: **"Did you find that process easy or hard, and can you say a little bit about why?"**
 - iv. Third path question: **"If you were giving explicit step-by-step directions to another player to get from A to B, what would you say?"**
 - b. Now move on to asking these questions about the second path, and then the third.
- Once you're done with path questions, if time allows, ask this transition question: **"Are there any regions in the world that you find particularly immersive or captivating? How do they make you feel?"**

- If there's any remaining interview time, use it however you feel is best. If they said something particularly interesting in their previous answers, feel free to ask followup questions about that. If you can't think of what to ask next, pick a question from this list:
 - a. **Which times during your gameplay where you focused more on exploring your space around you or achieving quests?**
 - b. **Were there specific design features in the game that stuck out to you emotionally or caused some kind of reaction out of you e.g. excitement, frustration, feeling of ease, etc. ?**
 - c. **When exploring games, do you tend to stick to the suggested path or explore as much as possible?**
 - d. **When exploring in games, do you try to explore every corner of the world, or just explore as much as necessary to beat the game?**
 - e. **Do you usually find exploration in games more exciting or more frustrating?**
 - f. **In your opinion, what aspects of playing a video game do you believe are most crucial to your enjoyment/experience (e.g. story, graphics, social interactions, freedom to explore, etc.)**

Wrap-up

Once the 2-hour time limit is reached, let the participant know that you're out of time and thank them for their participation. There are two critical things to do at this point:

1. Give them their compensation for the study.
2. Have them sign the consent form a second time to indicate that they're okay with us using the specific data we recorded.

Make sure to give them the compensation first, as their final consent does not affect their compensation and we need to take pains not to make it seem like it does.

Landmarks

The landmarks we ask about (and thus the paths we focus on) are different for each game. However, for each game we will identify points "A" and "B" that specify a first path to ask about (from A to B), along with a point C and a set of possible points D that specify a second path (based on which (if any) points D the player reached during their playthrough). The third path is identified by asking the player:

What's another landmark that you visited during your playthrough? Which landmark did you come from when you first visited it?

Separate from this interview guide, we will compile documents for each game we study giving names to the relevant landmarks and including screenshots to help identify them to players. Games that we are considering for the current round of participants are [Sable](#) and [A Short Hike](#).

Sable Landmarks

For Sable, we use the following definitions for points A/B/C and set D.

- Point A is the starting room of the game, labeled the "Face Room," within the "Face Temple."
- Point B is the "Ibex camp" (no specific sub-area).
- For Sable, point C is also the Ibex camp, as that's a hub that players are likely to both journey out from and return to.
- The possible candidates for point D, depending on which locations the player journeyed to from the Ibex camp are:
 - a. The Beetle Nest (interior part where the beetles are)
 - b. The Tall Wreck
 - c. The Wreck Behind the Dam (interior)
 - d. The Gliding Temple
- (Those four are preferred, as they're each moderately complicated to navigate to and involve major quest items, but if the player didn't reach any of them, you could also use:)
 - a. The Dam (interior)
 - b. The Nearby Wreck (interior)
 - c. The Gates
- Note that there are many other things the player may consider landmarks when describing their third path. Just go with whatever they pick for that third path. In particular, one of the bike parts is found underneath the Ibex camp.

As a reminder in case it's useful for helping people who get stuck, for the starting game quests, [this IGN guide](#) has lots of details, but the outline is:

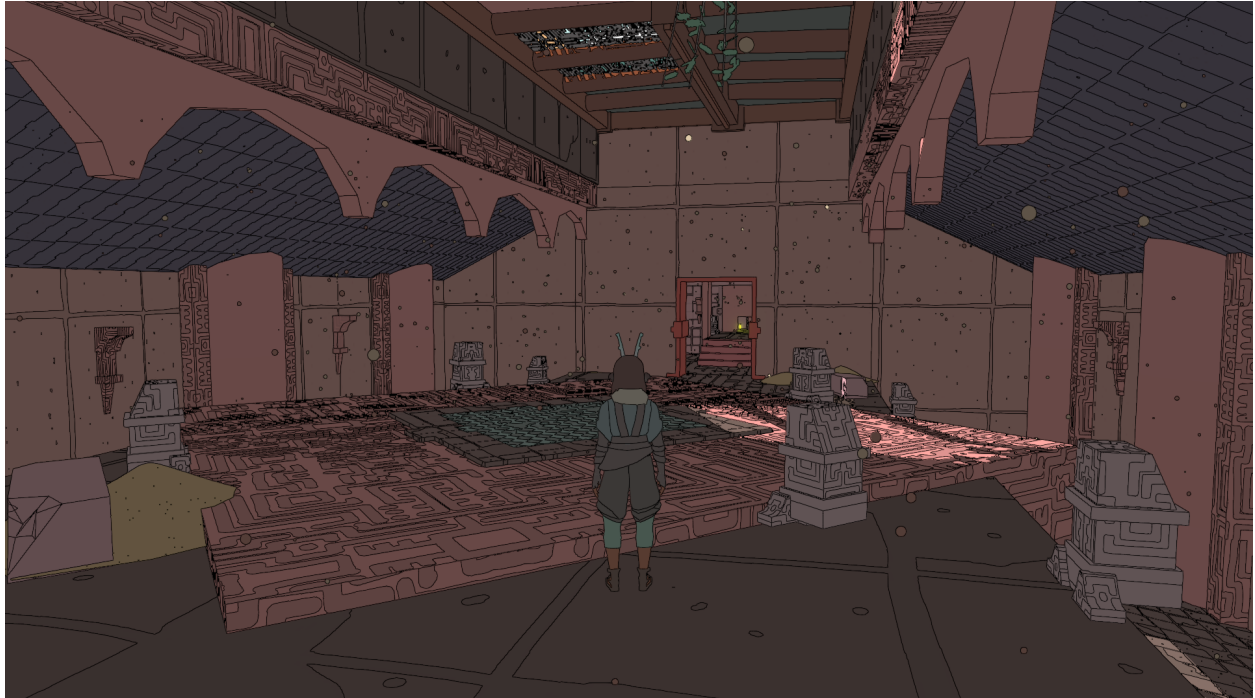
- Get a dysfunctional hoverbike
- Get and charge your gliding stone in the Gliding Temple
- Get 3 bike parts (visit the Dam and thence the Wreck Behind the Dam, the Nearby Wreck and thence the Beetle Nest, and also the Tall Wreck).
- Get a map (once you have the gliding stone charged, visit the cartographer's balloon in the Ibex Camp; IIRC this is not strictly required)
- Return to the Face Temple to get your Ibex mask, then head back to the Ibex Camp and you'll be able to leave the starting area through The Gates.

We don't really expect most participants to finish all of that within just 1.5 hours, but we're hoping that many participants will get 1 bike part, or get close.

The following pages provide brief descriptions of each landmark listed above, along with screenshots from the game. These should be used to describe landmarks to the player when asking questions, since that way each participant will hear the same description.

The Face Temple

This is where you start the game, in the "Face Room" with a giant face statue on the wall. This is known in-game as the Temple of Rohana.



The Face Room in the Starting Temple, looking away from the face statue.



An exterior view of the Starting Temple looking at the main entrance.

The Ibex Camp

This is the camp where other characters you can interact with live. It's got a distinctive pillar of smoke and tower.



The Ibex camp viewed from the balcony of the Face Temple.



The Ibex camp again, this time at night and viewed from farther away.

Inside the Ibex Camp

There are many sub-locations within the Ibex Camp, including a cartographer's balloon, a maze-like area underneath, a machinist's workshop, a junkyard, Saima's hideout, the sheep pen, etc. Because we'll use "the Ibex Camp" as the starting area for most of our journeys and are interested in larger-scale exploration (although exploring the camp itself is also a form of exploration) we won't use these areas as landmarks for paths we ask about, although players might list them for the third path.

The Dam

The Dam is a structure set into the mouth of a narrow canyon. It's possible to enter this structure and then go past it to an area behind.



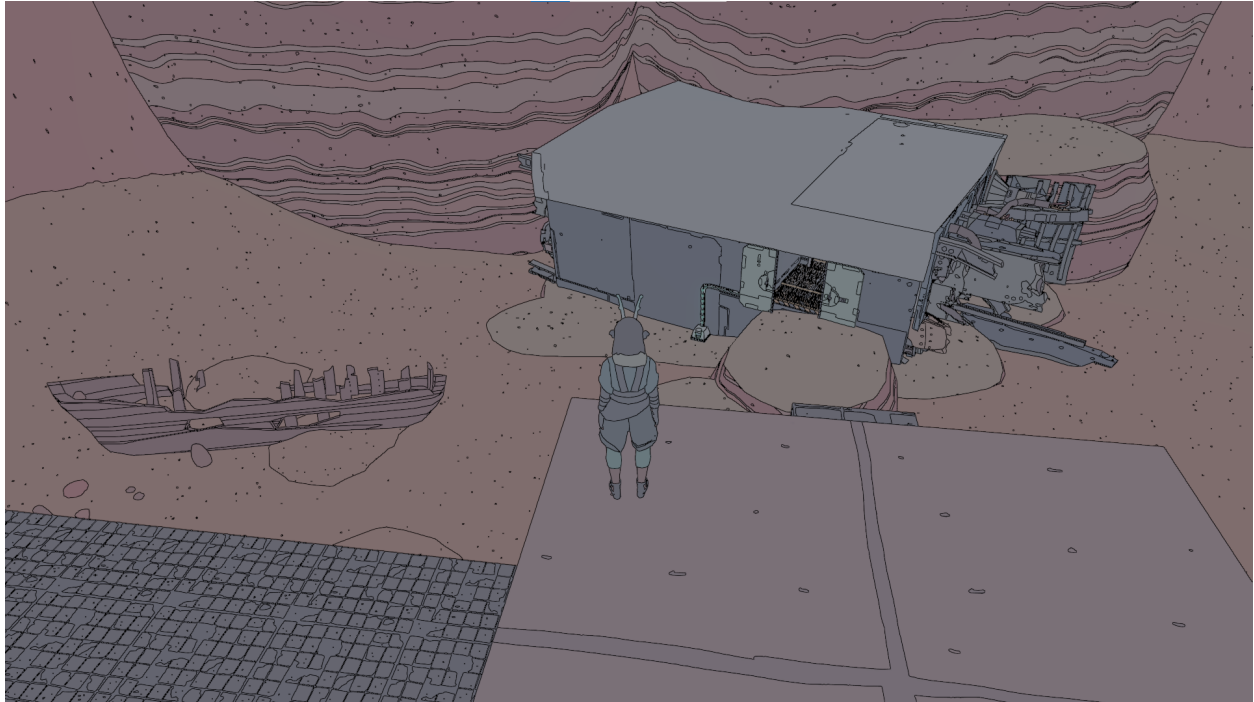
View of the Dam from far away, showing the canyon mouth.



Standing on top of the second wall of the Dam, looking at the interior and the Ibex Camp beyond (this vantage point would be difficult to access at the start of the game).

The Wreck Behind the Dam

This wrecked ship can only be entered once you go through the dam. It contains one of the bike components.



View of the wreck from on top of part of the Dam. Another vantage point that would be hard to access in the early game.

The Cliffs Behind the Dam

Farther back behind the Dam are some cliffs that you could explore which have spaces to move among them. There are some wrecked ship-like structures on top of them.



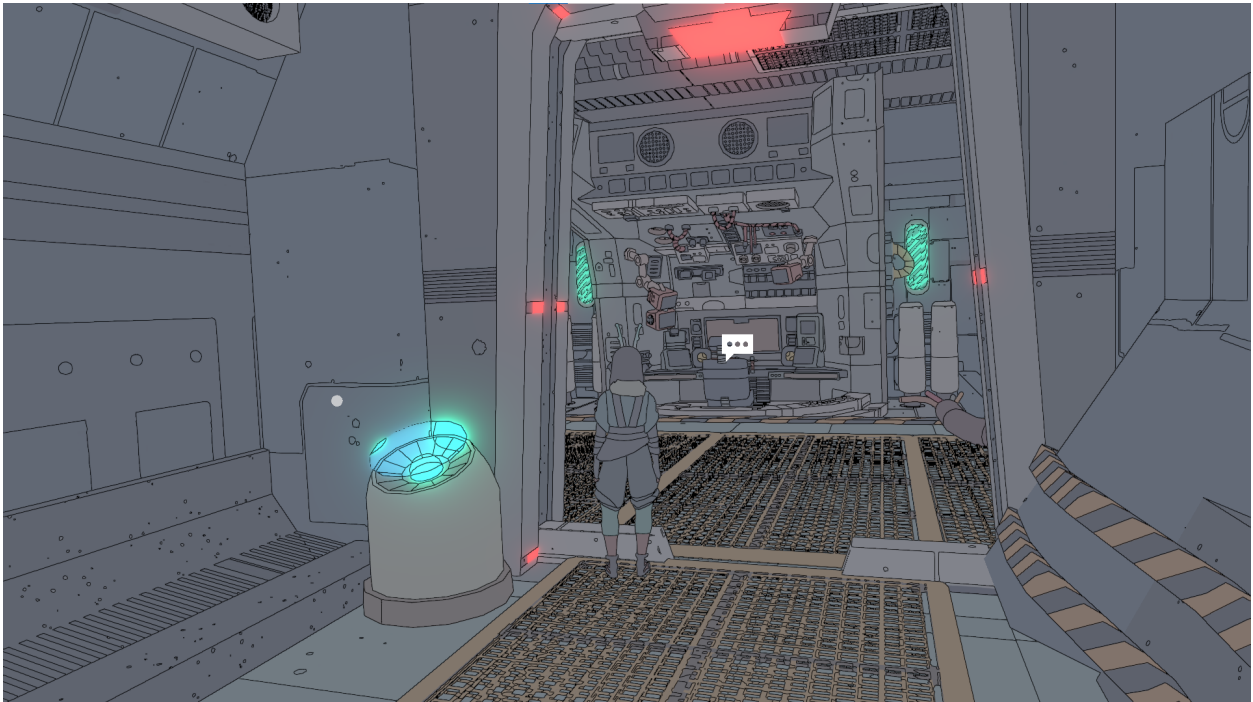
View from the bottom of the canyon showing the cliffs behind the dam and the wrecked ships on top.

The Nearby Wreck

There is a small wreck out in the desert close to the Ibex camp. You can enter into it and hear a recording. This is where you are told to look for one bike part, although it turns out not to be here.



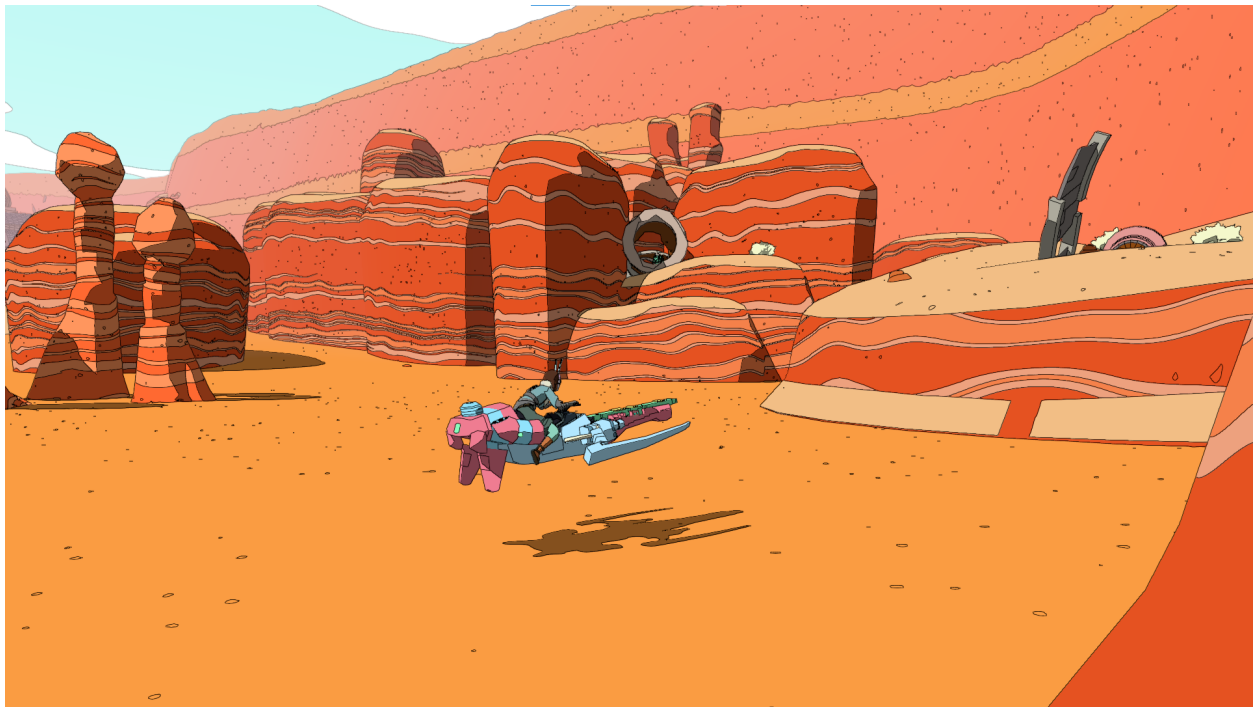
View of the wreck that also shows the Ibex Camp and the top of the Face Temple.



A view of the interior of the wreck, showing an opened door and the cockpit where a message can be listened to.

The Beetle Nest

Near the Dam, there is a butte which has a path leading inside made of old ship material. Inside, there are beetles and fruiting plants which you can collect fruit from to trap the beetles. You'll need to catch a few to exchange for one bike part.



The entrance leading to the beetle nest.



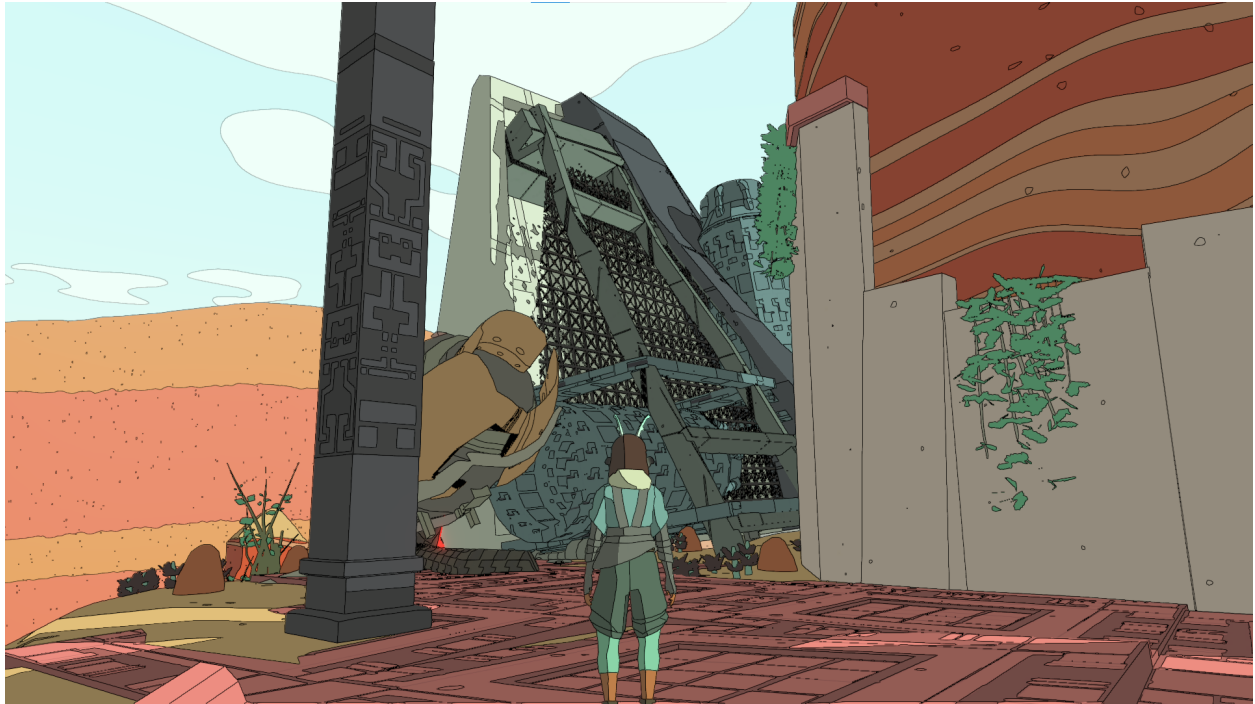
The inside of the beetle nest, where the fruiting plants grow.

The Tall Wreck

This wreck is perched high up on a narrow spire. You need to climb up to get one of the bike parts.



A view of the Tall Wreck from the desert below.



A view of the upper part of the Tall Wreck, near where the bike part can be found.

The Gliding Stone Temple

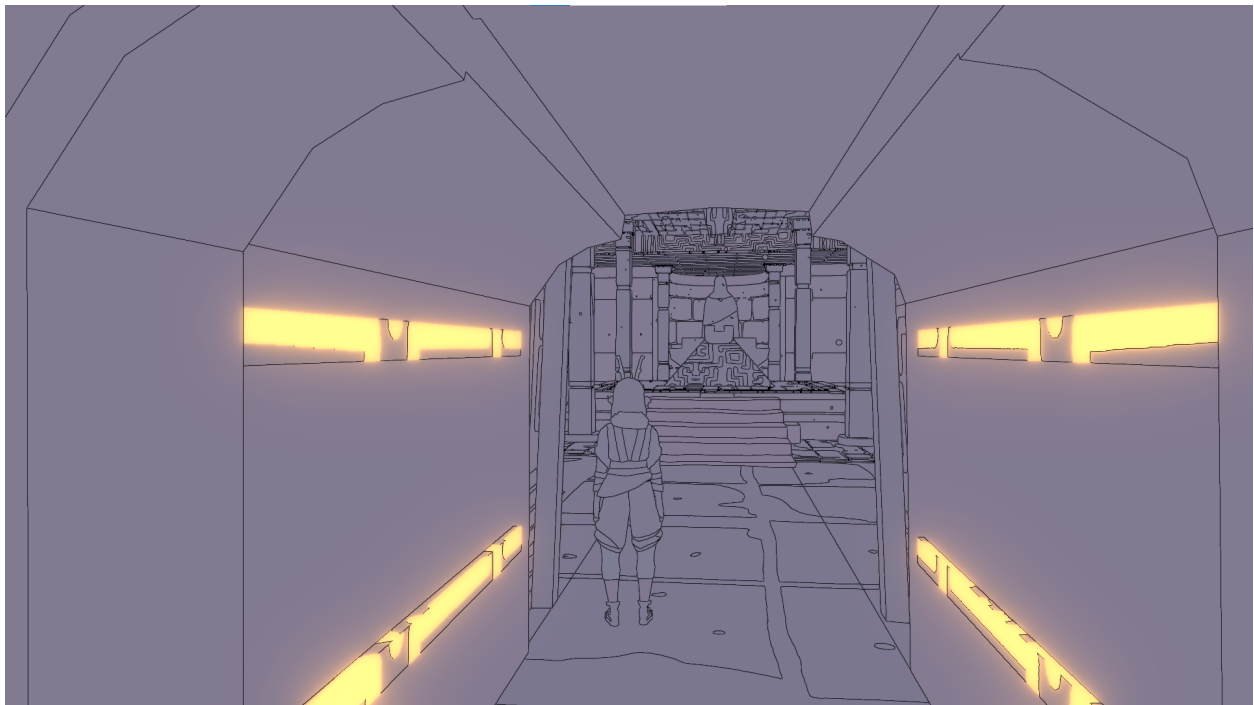
This is where you charge your gliding stone. It's a temple built into the cliffside with some complicated platforms inside along with an inner chamber.



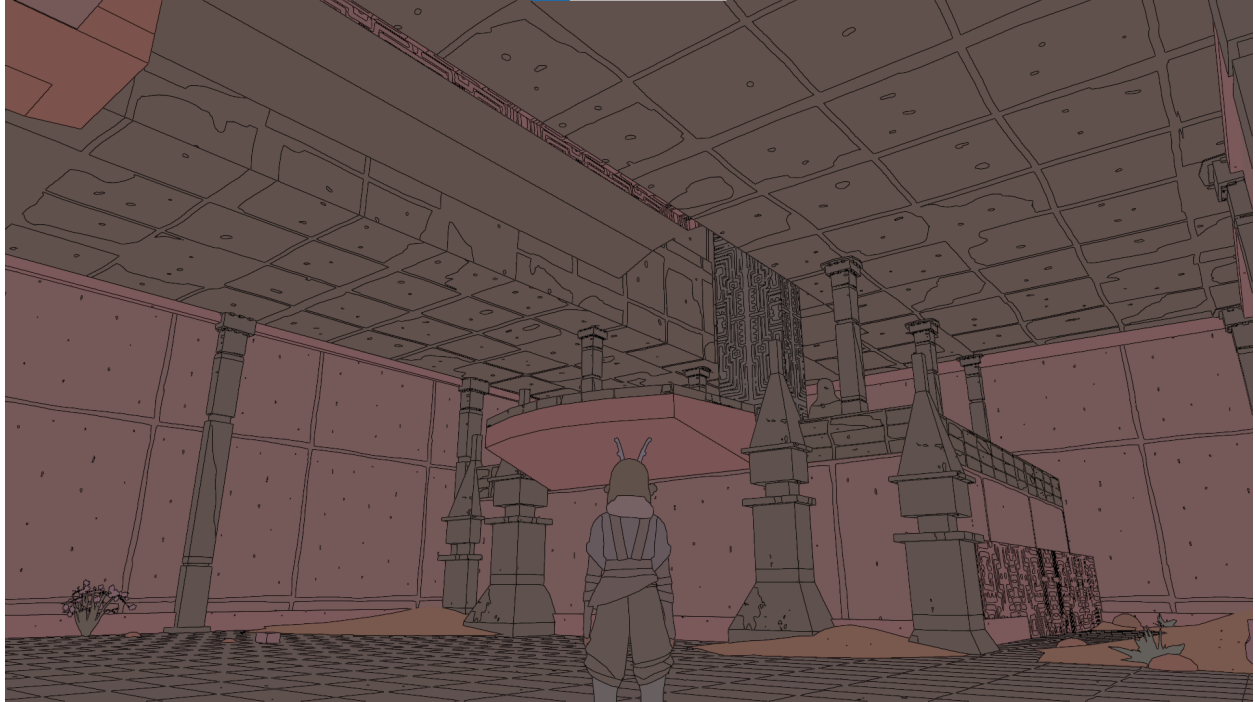
A view of the Gliding Temple from the outside, showing the entrance and the path up to it.



A view of the distinctive winged person statue at the entrance to the Gliding Temple.



A view of the lower chamber where you enter to charge the gliding stone.



A view of the upper chamber where you are put once the gliding stone is charged. This shows the lower area around the central platform, and the gap that you have to glide across to get out.

The Gates

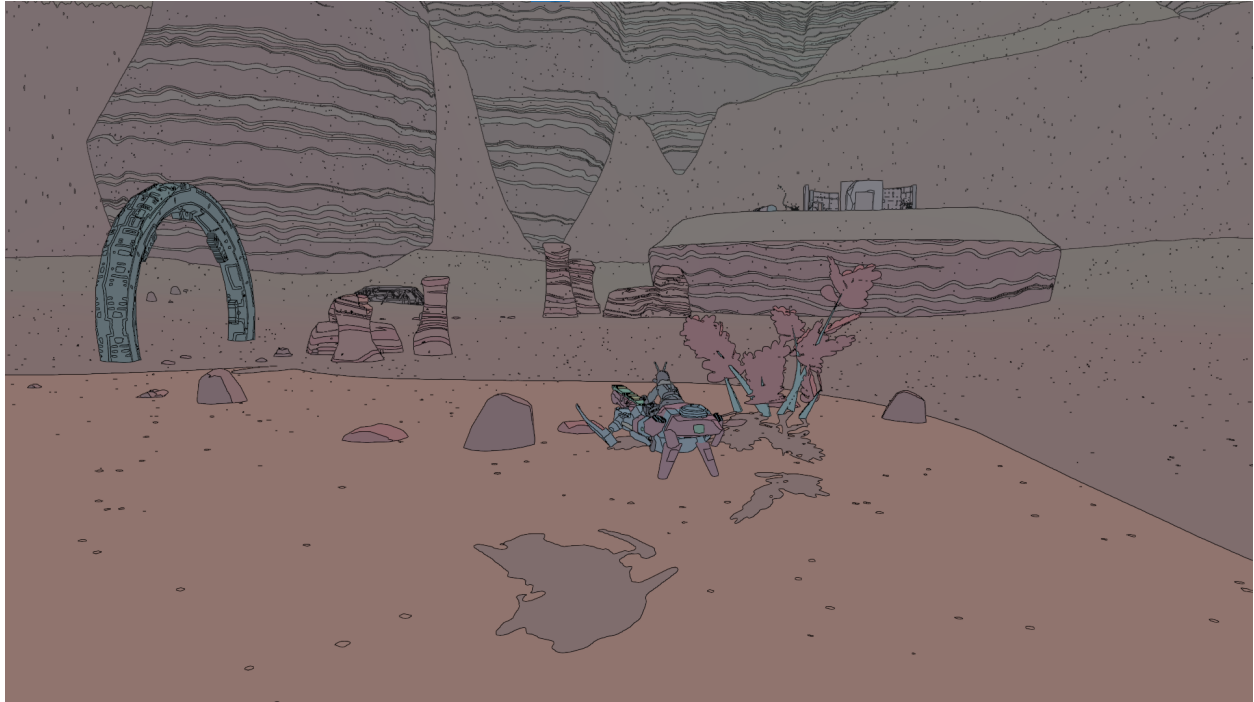
The entire starting area, called the Ewer, is sealed off initially from the rest of the world by large gates. Once you complete the intro quests, you can leave through these gates (we don't expect that to happen in this study).



A reasonably close shot of the gates, also showing the Tall Wreck in the distance. In this shot they are open already.

The Ring

There is an ancient ring partway embedded in the ground that you can ride through on a hover bike.



A shot of The Ring that also includes a nearby ruin on a small outcropping. The ruin is minor enough that it doesn't have its own entry in this list.