**Participant Information Sheet**

University of Reading

School of Psychology and Clinical Language Sciences
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**Title of Study: Investigating the perception of game stutters**

**Information Sheet**

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**Overview**

One important metric when assessing a video game is the smoothness of frame rate rendering while it is active. When the rendering of graphics within a game is irregular, users will perceive this as a "jumpiness". Depending on the game genre and the degree, this can vary in reception from mild irritation to extreme frustration. This phenomenon has colloquially been termed as a stall. To exemplify, a game that runs at 60 Frames per Second (FPS) should render 60 frames of video in 1 second (each frame taking ca. 16.7ms to render). Temporary problems in the video rendering pipeline may render several frames at a slower rate than desired, which the player perceives as a glitch or distortion to the video. Depending on the severity, this, in turn, can lead to breaks in in-game immersion.

**Research Study**

You are invited to participate in a research study about the human perception of this stalling effect.

We wish to define a technique for measuring stalls in video games and a set of criteria related to the process of perceiving stalls.

This is the first part of a series of studies intended to investigate this subject. This particular investigation aims to understand when a user can perceive the occurrence of a stall in a simple graphical environment.

**Why have I been invited to take part?**

You have been invited because you are between 18 and 60 years old.

**Do I have to take part?**

Participation is entirely voluntary.
You can choose not to participate or withdraw from the study at any time without giving a reason or penalty.

**What will happen if I take part?**

- You will first see on-screen instructions explaining the task.
- You will play a simple game where you watch a spinning sphere. Occasionally, the game will introduce controlled frame stalls (brief visual freezes).
- You will press the space bar whenever you notice a stall.
- At the end of the session, your experiment data will be automatically uploaded to a secure server.
- Once the session ends, you will be shown a link to complete a short questionnaire. **All questions in the questionnaire are optional**. This includes:
    - Your experience with the task
    - A few questions about your gaming habits

The full session (including gameplay and questionnaire) will take approximately 20-30 minutes.

- If participating from home, you will be required to download a small game application to complete the experiment.

**What if I am participating in the study remotely?**

If you are taking part in this study remotely (**on your own compute**r), you will need to download a small game application to run the experiment.

The researcher will provide the game file and clear instructions on how to install and run it.
No additional software installation is required beyond running the application itself.
The game does not collect any personal information other than your anonymous responses.

**You may delete the application after completing the experiment.**

**Network Access and Security Notices**

The experiment software will attempt to upload anonymous gameplay data to a secure server at the end of your session. This is necessary for our data collection process.

As part of Windows' built-in security features, you may see a pop-up from Windows Defender Firewall saying that the application is attempting to use network features. Please allow this access.

The application does not collect or transmit any personally identifiable information. All data is transmitted securely and stored in compliance with the University of Reading data policies and GDPR.

The same can happen for Mac users. An instruction video is provided on how to run the application on Mac alongside the official Apple Support Website.

**Will my data be kept confidential?**

Yes. Your responses will be anonymous and cannot be linked back to you personally.
All data will be stored securely on password-protected university servers, and only the research team will have access to it.
In any research publications or presentations, individual participants will not be identifiable.

**Are there any risks to taking part?**

There are no significant risks expected from taking part.

However, a small number of people may be sensitive to **visual flickering or repetitive motion**, which could cause discomfort or trigger migraines or headaches.

The experiment uses simple graphics (a spinning sphere) and no deliberate flashing effects, but if you have a history of migraine, epilepsy, or light sensitivity, you may wish to avoid participating.

You are free to stop the session at any time if you feel discomfort.

**Are there any benefits to taking part?**

Participants signing up through SONA will receive 1 credit.

While there is no direct personal benefit, your participation will contribute to improving knowledge about player experience and technical performance in gaming.
This could help developers create better, smoother gaming experiences in the future.

**What happens to the data collected?**

We will collect some of your personal data, including your age and gender. This data will be anonymised and is collected so we're able to describe the demographics of our sample. All of your data will be kept confidential and securely stored, with only an anonymous number identifying it, so that it will never be identifiable as your own. Your experimental data will be securely stored in an anonymous form, not linkable to you, and made available to other researchers e.g., via the University of Reading Research Database. As your experimental data is anonymised immediately upon collection, it is not possible to withdraw your data after data collection has been completed.

**Who can I contact about data privacy and storage?**

The organisation responsible for the protection of your personal information is the University of Reading (this is the "Data Controller", i.e., who holds the data). Queries regarding data protection and your rights should be directed to the University Data Protection Officer at imps@reading.ac.uk, or in writing to: University of Reading, Information Management & Policy Services, Whiteknights House, Pepper Lane, Whiteknights, Reading, RG6 6UR, UK.

The University of Reading collects, analyses, uses, shares, and retains personal data for the purposes of research in the public interest. Under data protection law we are required to inform you that this use of the personal data we may hold about you is on the lawful basis of being a public task in the public interest and where it is necessary for scientific or historical research purposes. We will always have in place appropriate safeguards to protect your personal data.

You have certain rights under data protection law which are:

- Access your personal data or ask for a copy
- Rectify inaccuracies in personal data that we hold about you

- Be forgotten, that is your details to be removed from systems that we use to process your personal data
- Restrict uses of your data
- Object to uses of your data, for example retention after you have withdrawn from a study

Some restrictions apply to the above rights where data is collected and used for research purposes. You can find out more about your rights on the website of the Information Commissioners Office (ICO) at https://ico.org.uk. You also have a right to complain the ICO if you are unhappy with how your data has been handled. Please contact the University Data Protection Officer in the first instance.

**Who has reviewed the study?**

This study has been reviewed and approved by the University of Reading's Ethics Committee.

**What if there is a problem?**

If you have any concerns or complaints about any aspect of the study, you should contact Dr. Peter Scarfe at p.scarfe@reading.ac.uk or Dr. Etienne Roesch at **e.b.roesch@reading.ac.uk**.

**Who can I contact for further information?**

If you would like more information about the study, please contact: emmanuelle.rodriguesnunes@pgr.reading.ac.uk

*This application has been reviewed by the School of Psychology and Clinical Language Sciences Research Ethics Committee and has been given a favourable ethical opinion for conduct (2025-104-ER).*

Thank you.