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THE EFFECTIVENES OF RACING SIMULATORS AND GAMEPAD CONTROLLERS IN ENHANCING DRIVING PERFORMANCE

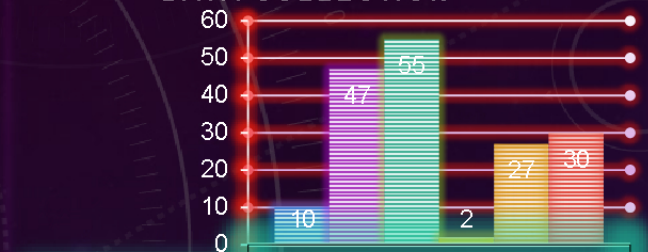
EXPERIMENT OUTLINE

The objective of this research is to investigate and describe the impact of two radically different game controllers on people. This experiment was based on the game Gran Turismo 6, using stock Mazda Roadster S (ND) '15 on Tsukuba Circuit racing track, to ensure consistency across laps. No practice laps were available for the experiment, and it was undertaken on a Sony Dual Sense PS5 Wireless controller for three laps, and Logitech G29 Driving Force racing simulator for another three laps. Specific settings and configurations for both controllers were standardized to create a fair comparison. The timings of every lap were recorded using the in-game timer, and compared for each lap and controller, and the data was analysed and compared accordingly. Participants recruited for the study are unbiased individuals with varying levels of gaming experience and diverse range of gaming backgrounds.

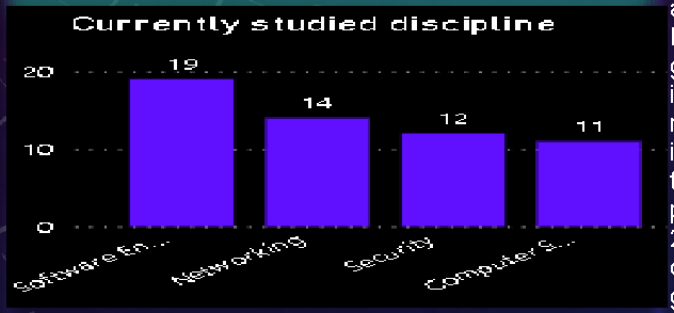
The Controller:

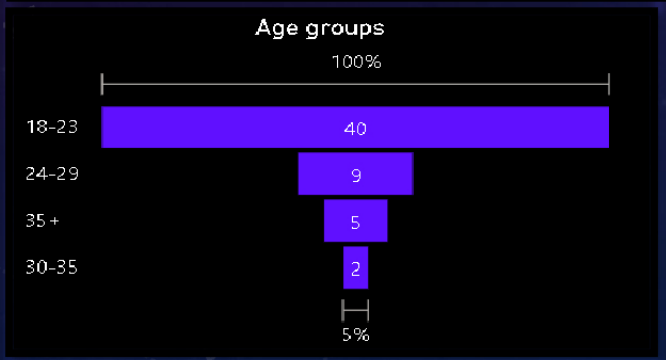
The Racing Simulator:

DATA COLLECTION



Prefers Simulator	10
Prefers pad	47
Male	55
Female	2
Driver	27
Non-driver	30





RESULT ANALYSIS

There is a gender gap among the 57 participants, and only two of them identify as female. It's interesting to note that 47 individuals said they preferred the gamepad over the racing simulator, with a clear majority saying so. This preference for the gamepad indicates a popular decision among the users.

When the participant demographics are broken down, it can be seen that 30 people identify as drivers and 27 do not, providing a fair representation of both categories. Interestingly, when preferences are examined based on actual driving experience, a clear pattern appears. Out of the non-drivers, only two said they preferred the racing simulator, whereas eight of the driver group said they preferred the same approach. This significant difference highlights a clear split in choice depending on participants' actual driving experiences and offers interesting information about how preferences for virtual racing controllers are affected by real-world experience.

Moreover, in additional to the gender and driving experience gaps, the analysis of participants age groups reveals interesting patterns in controller preferences. Most of respondents fall within the 18-23 range, covering 40 individuals. Within this group, there is extensive tendency towards the gamepad, with 30 participants expressing a preference for this virtual racing simulator. Moving to the 24-29 age group, consisting of 9 participants, the trend continues with slightly smaller margin in favour of the gamepad. Surprisingly, the 30-35 age group, consisting of only 2 participants, shows a unanimous preference for the racing simulator. Furthermore, among the 35 and above age group which has 5 participants, there is a more balanced distribution between the gamepad and racing simulator preferences. This age-based breakdown suggest a correlation between age and virtual racing simulator preferences present useful data on numerous aspects impacting the choices players make during the game experience.

CONCLUSION

Interesting trends in participant preferences are shown by our research. There are just two females out of the 57 participants, which suggests that there may be a gender difference in the interest in virtual racing. However, According to Wayne N. (2018) both genders are equal and can possess similar driving skills. Furthermore, Wayne N (2018) states that there is no association between playing video games and driving skills in both genders.

Additionally, 47 participants preferred a more familiar and user-friendly gaming interface, preferring the gamepad over the racing simulator. In the words of Shodipe-Dosunmu, A. (2023) this finding could be very important for game developers that want to improve the user experience.

Furthermore, Shodipe-Dosunmu, A. (2023) explains that opting for a racing wheel is recommended for gamers that are aiming for advanced gameplay and exceed in the boundaries of the game, whereas a controller is the cost-effective choice designed for casual gaming.

Having an even representation of 27 non-drivers and 30 drivers allows accurate analysis. Based on actual driving experience, there is a significant difference, out of 8 drivers, just 2 non-drivers said they preferred the racing simulator. This points to how preferences for virtual controllers are affected by real driving experiences.

Therefore, our study shows the impact of actual driving experience on virtual gaming decisions and offers important information about participant preferences.

FURTHER WORK

As I faced some difficulties, in my next research I will make sure to select an even amounts of participants of the same gender, even number of drivers and non-drivers, and even number of people based on their control preference and age, as this can greatly affect the outcome of the research. Furthermore, I would change the game title, as "Gran Turismo 6" is a "PlayStation 3" game released during 2013 and its clearly outdated for this kind of research. The survey upon which the research relies also reveals certain flaws, as some of its questions are too intricate and the provided answers do not align effectively with the collected data. In future research activities, I intend to address this by refining the questionnaire, ensuring that the questions are straightforward and that the answers can seamlessly translate into meaningful data.

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REFERENCES: Wayne N. (2018). *Impact of gender, organized athletics, and video gaming on driving skills in novice drivers* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5783381/. (Accessed on 14th of December 2023).

Shodipe-Dosunmu, A. (2023). *Controller vs. Racing Wheel: Which Is Better for Racing Games?* https://www.makeuseof.com/controller-vs-racing-wheel-which-is-better-for-racing-games/#:~:text=At%20first%2C%20a%20racing%20wheel,is%20the%20way%20to%20go. (Accessed on 7th of January 2024).

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