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Performance Impact of Gaming Mice in Finnish CS:GO Organizations

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Abstract

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This thesis investigated the impact of gaming mice on performance in two Finnish CS:GO organizations with active line-ups competing. The research focused on the different brands and models of gaming mice and their effect on the competitive scene. Statistical analysis, specifically two-way ANOVA was used to determine the relationship between gaming mice, player experience (maps played), and performance (Rating 2.0).

The theoretical background covers esports history, skills acquired at a young age, and the significance of peripherals, especially gaming mice. The history of esports is short, so the theoretical background was similar to other theses written in the topic area.

The statistical approach was employed to analyze data from sources such as Liquidpedia and HLTV.org, revealing that while gaming mouse choice does not significantly impact player performance, it significantly impacts player experience, as measured by the number of maps played.

The strength of the study is in challenging the belief that gaming mice have a substantial influence on performance, emphasizing the role of practice and experience. The results suggest that personal preferences and habits may influence outcomes, but long-term success in professional CS:GO and FPS gaming is determined by consistent practice.

Foreword

As I start on this journey into the gaming world, diving into the complex dynamics of mice and men, I think about the thousands of hours I've spent in Counter-Strike: Global Offensive. Deciding to try multiple brands and models of gaming mice and figuring out, what does it actually impact, if it impacts anything at all.

I want to thank my mentor, Janus Pitkänen, for being a guiding force in shaping this thesis. Your encouragement has been truly valuable.

A big shout-out to my fellow student and partner in crime, Jarmo Helttunen. Your companionship and help during the tough years in school made this possible. I am forever grateful for those late nights in Discord just gaming and having something regular during COVID-19.

To my girlfriend, Nea, your support and understanding during late-night gaming sessions and marathon thesis writing have been my rock. Your patience is amazing.

This thesis is a modest attempt to understand how gaming mice affect the performance of professional Finnish CS:GO players. I've explored the history of esports, dived into the importance of peripherals, and gone on a statistical adventure.

So, dear reader, as you journey through the pages of this thesis, I hope you find bits of insight amidst the stats and theories. Remember, in the gaming world, the story is written not just by the characters on the screen but also by the choices made by those behind the peripherals.

Leevi Järvi
November 2023

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List of Symbols

Esports - Electronic sports, a competitive form of playing video games

CS:GO - Counter-Strike : Global Offensive, an FPS videogame produced by Valve

LAN - Local Area Network – A network of two or more computers

FPS - First-person shooter, a shooting game where the camera is directed from the player's perspective – the first person.

1   Introduction

The purpose of this study is to research, what kind of impact different mice have on player performance in competitive esports in Finnish organizations that have an active CS:GO -lineup. Hands are irreplaceable in the lives of professional esports competitors and by using the right kind of equipment together with good ergonomics, the players can use all their potential performance. We will research only gaming mice in this thesis since is possibly the most impactful peripheral. Without a mouse, you would not be able to aim at all and would miss all of your shots.

In this thesis we studied different brands of mice and how they affect accuracy. Usually, the choice of these peripherals is a question of opinion and habits. One major aspect is the performance of the mouse itself, since there are many types of options available, and they all have their specialties.

Statistical analysis will be used as a research method since there will be a lot of numerical values. CS:GO is a game that can be measured with a lot of factors, but numbers are the easiest and most accurate method.

This thesis's subject and its research are very narrow, but I think it will be very interesting to see the results and maybe this research can help someone in their choice of new mouse to play with. I have a background in competitive gaming, so I should be able to bring out my knowledge and use it alongside the research results to back them up.

1.1   Esports and Gaming History

Esports's birth can be traced back to 1972. Stanford University took the first steps in a new industry beginning when five of their students competed in the "Intergalactic Spacewar Olympics" for the game Spacewars (Heaven, 2014). The prize for winning this tournament was a year's subscription to a magazine called "Rolling Stone". "It may seem extraordinary that you can now fill arenas with people who want to watch video games," says Brand. "But it's a perfectly reasonable outcome of what you could already see in 1972." (Baker, 2016)

In the early 90s, personal computers became more affordable and made it possible for anyone to play video games and compete in them (Scholz, 2019) leading to a rapid rise in game development. Competitive gaming experienced a significant increase as a result of dedicated multiplayer video games and the ability to play them over the internet and at LAN parties. Gaming became social and has not looked back since.

Today, esports are consumed daily by millions of people (Geyser, 2022) online, and millions of minutes are streamed to live streaming services such as Twitch.tv. So far, Twitch has been watched for 462 billion minutes (TwitchTracker, 2023).

1.2   Player performance in esports

Esports players must have a variety of skills, including strategic thinking, quick reflexes, and excellent hand-eye coordination. Physiological, psychological, and environmental factors can all have an impact on player performance. Sleep quality is also very important to competitive players. Poor sleep quality can lead to reduced reaction times, poor decision-making abilities, and increased fatigue (MacKenzie-Shalders, Pontifex, Redman, & Ball, 2021). A healthy diet can help the player improve their cognitive functions, concentration, and alertness. Stress, anxiety, and depression can all have a negative impact on a player's performance.

Physical fitness may be the most overlooked department in esports. Regular exercise can help reduce stress, improve mental clarity, and increase energy levels. It can also prevent injuries such as upper body, arm, and wrist injuries. These can be prevented with good environmental factors; comfortable chairs, ergonomic keyboards, ergonomic mice, and the position of your armrests when gaming. (MacKenzie-Shalders, Pontifex, Redman, & Ball, 2021)

Measuring and analyzing player performance is crucial in esports. This allows coaches and players to identify areas for improvement and optimize training and strategies. Some of the metrics used to evaluate player performance in esports and in this thesis are accuracy, kill/death ratio, win/loss ratio, average damage per round, and headshot percentage.

Esports training involves improving player skills and strategies through practice, analysis, and feedback. Several training methods can be used to improve player performance; regularly playing and practicing can help players improve their skills and muscle memory. Reviewing past gameplay can help identify areas for improvement and develop better strategies.

2   Theoretical background

In the dynamic and competitive world of eSports, where milliseconds will determine victory or defeat, the importance of peripherals cannot be overstated. Electronic athletes are constantly looking for tools that give them a competitive edge, and gaming mice have proven to be one of the biggest tools in terms of impact in the games.

2.1   Peripherals in esports

Peripherals are important in esports because they provide professional gamers with tools that improve their performance and provide them with a competitive advantage.

Gaming mice are built to provide accurate control and responsiveness, which is essential in competitive gaming. Higher DPI settings in gaming mice have been linked to better aim and accuracy. Gaming mouse with programmable buttons allows gamers to modify functions, increasing efficiency during games.

Esports keyboards include features designed specifically for professional gaming. Mechanical keyboards, like those equipped with Cherry MX switches, provide haptic feedback while reducing accidental keystrokes. Customizable key bindings allow gamers to improve their setups and perform in-game tasks more quickly. (Streams, 2023)

Headsets are vital esports peripherals because they provide accurate spatial audio cues. High-quality surround-sound headsets boost awareness and reaction times.

Monitors that are quick and responsive are essential for esports professionals. High refresh rates create better pictures by reducing motion blur. Low response times reduce input lag, allowing players to react more quickly. (N.d., 2023)

2.1.1 Gaming mice

Gaming mice have become an indispensable tool for gamers, especially in competitive gaming situations. These specialized input devices are intended to improve overall performance and user experience by improving precision, responsiveness, and ergonomics. Using relevant scholarly sources in the field, this theoretical background aims to provide an overview of the key aspects and features of gaming mice.

Sensor technology is an important aspect of gaming mice. Optical sensors, which are commonly found in gaming mice, track movement by capturing data from the surface beneath the mouse with the use of light-emitting diodes (LEDs). Laser sensors, on the other hand, use laser beams to track objects, providing greater sensitivity and faster tracking speeds. Sensor technology is crucial in determining the accuracy and tracking capabilities of a gaming mouse. (Cabading, 2019)

Aside from sensor technology, the resolution or DPI (dots per inch) of a gaming mouse is an important feature. DPI is the sensitivity level, or how many pixels the cursor moves per inch of physical movement. Higher DPI settings result in faster cursor movement, which is useful in games that require quick reflexes, whereas lower DPI settings provide more precise control for tasks that require accuracy. (N.d., 2023)

Furthermore, gaming mice frequently include programmable buttons, which allow users to assign custom functions or macros to specific buttons. This feature improves gameplay efficiency by providing quick access to in-game actions, eliminating the need to rely solely on keyboard commands (Biancuzzo, 2023). The ergonomic design of gaming mice is also important in providing comfort during long gaming sessions. Mice with well-designed shapes, adjustable weights, and textured grips cater to a wide range of gamers' needs and preferences, reducing the risk of discomfort or fatigue. (Johnston, 2023).

Sensor technology, DPI, programmable buttons, and ergonomic design are just a few of the key features of gaming mice covered in this theoretical background. Understanding these features allows gamers to make informed decisions when choosing a gaming mouse that fits their specific gaming style and needs. As technology advances, it is critical to stay current on the latest research and developments in the field to fully utilize the potential of gaming mice for enhanced gaming performance.

2.1.2 Human-Computer Interaction (HCI)

Human-Computer Interaction principles are critical in comprehending the interaction between CS:GO players and the mouse. HCI theories are concerned with the design and usability of computer interfaces, which include input devices. HCI principles such as precision, responsiveness, and ease of use are relevant in the context of mouse selection for understanding how different mouse qualities can affect accuracy in CS:GO. (Interaction Design Foundation, 2016)

2.1.3 Motor Skill Acquisition and Performance

Motor skill acquisition theories provide information on how CS:GO players learn and improve their skills. These theories emphasize the importance of practice, muscle memory, and fine motor control in achieving game accuracy. Mouse selection has a direct impact on the execution of precise movements, and motor skill acquisition theories can aid in understanding how specific mouse characteristics, such as sensitivity, DPI settings, and sensor accuracy, influence accuracy performance in CS:GO. "During early stages of learning, the learner must find movement strategies to match the particular features of the task and environment to achieve the goal. (Kramer & Hinojosa, 1993)"

2.1.4 Sensory Perception and Hand-Eye Coordination

Sensory perception theories focus on how people perceive and process sensory information. Accuracy in CS:GO is dependent on players' hand-eye coordination, which involves integrating visual information with motor actions. The mouse serves as an important interface between the visual cues on the screen and the hand movements of the players. Understanding sensory perception and hand-eye coordination theories can help explain how mouse selection affects accuracy by facilitating or hindering this coordination process. (Hedlund, 2022)

2.1.5   Rating 2.0 (HLTV)

Firstly, I will introduce the data source for all the statistics I am going to use in the analysis, and it could be described as a sanctuary for the community of CS:GO players.

HLTV.org is a well-known website that focuses on the popular game Counter-Strike: Global Offensive (CS:GO). It provides a wide range of information and coverage related to CS:GO tournaments, news, player statistics, and other content. It is a valuable resource for CS:GO fans and researchers, helping them stay updated on the competitive CS:GO scene, including insights into players, teams, and events.

HLTV has conducted a rating system to rank players with multiple factors skimmed from matches recorded to HLTV. The rating system was first introduced back in 2010 for the game's previous version, CS 1.6 with the aim that fans and analysts would have a single stat to take a quick look at and determine the performance of a player. Rating 2.0 was introduced in 2017 and it improved the previous model by adding ADR and KAST and dividing the rating for each side (CT and T). (HLTV.org, 2017)

The rating includes ten components, five on each side. These components are Kill Rating, Survival Rating, KAST Rating, Impact Rating (this is based on 1onX wins, multi-kills, opening kills, and more), and Damage Rating.

Aspect	Description
Kill Rating	Measures how good a player is at eliminating opponents.
Survival Rating	Evaluates a player's ability to stay alive during the game.
KAST Rating	The fraction of rounds in which the player either had a kill, assist, survived, or was traded.
Damage Rating	Measures the amount of damage a player inflicts on opponents, even if they don't secure the final kill.
Impact Rating	Based on 1onX wins, multi-kills, opening kills and other statistics not provided by the service provider HLTV.org.

Figure 1. Rating 2.0 - Included statistics.

3   Research

In this thesis we are researching the impact of gaming mice on performance in Finnish CS:GO organizations. The group chosen for the research were Finnish for easy confirmation of the data. Given the fact that I know few of the players from my personal life, it was easy to go through their social media accounts to confirm the data fetched from Liquidpedia. I also wanted to keep the group small, that allowed for precise and accurate research. The following teams and players are the data source for this research:

ENCE Academy

- o   S1rva
- o   Juissi
- o   HENU
- o   myltsi
- o   podi

HAVU

- o   Airax
- o   ottoNd
- o   sLowi
- o   Banjo
- o   uli

3.1   Methodology

The study will use quantitative methods and personal experience for research and personal experience. I will go through the data collection and analysis methods in the next paragraphs. Methodology for this research was with principles in mind. Keeping the research simple and using secondary data. The main inspiration for this thesis stemmed from a personal desire to find out whether the gaming mouse affects performance. That's why I wanted to keep it simple.

3.1.1 Data collection methods

This thesis will use secondary data collected from Liquidpedia and HLTV.org. Liquidpedia is a centralized repository for numerous game wikis. The data stored in Liquidpedia is from various sources. Our main focus are the Liquidpedia CS:GO pages. The secondary data that I have used from Liquidpedia in this thesis is collected from photos, tournament info, interviews, HLTV.org, and various other sources such as individual writers for the wiki.

HLTV.org was used as a secondary data source for all the numerical data for this thesis. All of the data in HLTV is acquired through server plugins and pulled straight from the server while games are being played This plugin is extremely useful, since it gathers all the important data to player-specific cards (HLTV.org, 2023).

In addition, the study will investigate current literature, case studies, and industry reports to acquire important secondary data and utilize that data to use my experiential evidence. I've logged around 9,000 hours in the game, giving me a solid grasp of CS:GO's mechanics, limitations, and possibilities.

3.1.2 Data analysis methods

Two-way analysis of variance (ANOVA) is a statistical method used to assess the influence of two independent categorical variables on a continuous dependent variable. It is an extension of the one-way ANOVA, which deals with a single factor. The two factors in a two-way ANOVA can be thought of as two independent variables or two different grouping variables.

These factors could represent different treatment groups, levels, or conditions in an experiment. The goal is to understand whether these factors individually, or in interaction, significantly contribute to variations in the dependent variable. Two-way ANOVA is particularly useful in experimental designs where there are two distinct sources of variation to be examined. (Bevans, 2020)

P-Value:

The p-value indicates the likelihood of obtaining observed differences by chance. A low p-value (in this thesis it is set to lower than 0.05) suggests significant effects, leading to the rejection of the null hypothesis.

F-Value and F-Crit:

The F-value is the ratio of variability between groups to variability within groups. It's compared to the critical F-value (F crit), determined by significance level and degrees of freedom. If F is greater than the F crit and p-value less than 0.05, differences among groups are considered significant.

3.1.3   Reliability and validity

Liquidpedia relies upon facts fetched from various sources but also relies on contributions from users all over the world. This platform has an editorial process to review and moderate the content published. This allows occasional inaccuracies, but in my research, I have cross-checked the data from Liquidpedia to pictures from tournaments and players' own social media accounts or streams to confirm that the gaming mice they use are correct in this research.

4   Results

Using the data fetched from various sources, I decided that the best possible way to understand the impact of gaming mice on performance would be a two-way ANOVA. It is a suitable method for analyzing the relationship between multiple factors and a response variable, such as the variables: gaming mice, experience (maps played), and performance (rating 2.0).

The tool used to conclude this statistical analysis was Microsoft Excel and specifically the *Analysis ToolPak.*

Anova: Two-Factor Without Replication						
SUMMARY	Count	Sum	Average	Variance		
Logitech G Pro X Superlight	2	320,79	160,395	50947,5121		
ZOWIE EC1-A	2	359,94	179,97	64103,4818		
Logitech G MX518	2	299,97	149,985	44410,9405		
ZOWIE EC2-B	2	390	195	75272		
FinalMouse Ultralight 2	2	291,26	145,63	41685,3938		
Pulsar Xlite V2 Wireless	2	1368,02	684,01	932950,68		
	2	635,01	317,505	200338,17		
	2	1050,17	525,085	548973,854		
	2	409,82	204,91	83305,4562		
	2	393,02	196,51	76432,6802		
Experience (Maps Played)	10	5508	550,8	134920,844		
Performance (Rating 2.0)	10	10	1	0,01982222		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	607267,8092	9	67474,201	1,00040829	0,4997624	3,1788931
Columns	1511400,2	1	1511400,2	22,4088209	0,00106819	5,11735503
Error	607019,9692	9	67446,6632			
Total	2725687,978	19				

Figure 2 - Two-way ANOVA results. Data for the table fetched from (HLTV.org, 2023).

4.1   Analysis

The two-way ANOVA was conducted to assess the impact of two factors, gaming mice, and player experience (measured in terms of maps played), on player performance as measured by the Rating 2.0 metric. Using the two-way ANOVA was the simplest analysis for this kind of research. With this method, we can easily compare two different statistics and their impact of them, without complicated tables and figures. Here are the key findings:

4.1.1 Gaming Mice

The choice of gaming mice does not appear to have a statistically significant impact on player performance (Rating 2.0). The p-value for the *Gaming Mice* factor was approximately 0.500, which is greater than the chosen significance level of 0.05. This suggests that differences in gaming mouse types do not lead to differences in performance among the players.

4.1.2 Player Experience (Maps Played)

On the other hand, player experience, as measured by the number of maps played, has a significant effect on player performance. The p-value for the "Experience" factor was approximately 0.001, which is less than the alpha level. This indicates that there is a statistically significant difference in performance among players with varying levels of experience. In simpler terms, the number of maps played has a noticeable impact on a player's performance, as measured by Rating 2.0.

4.1.3 Interaction Effect

In the analysis, I did not find a statistically significant interaction effect between gaming mice and player experience. This means that the impact of gaming mice on performance does not depend on a player's experience, and vice versa.

4.1.4 Summary

The choice of gaming mice does not significantly affect player performance, as indicated by this analysis.

However, player experience, as measured by the number of maps played, does have a significant impact on performance. Players with different levels of experience exhibit significantly different performance levels.

These findings provide valuable insights into the factors affecting player performance within the dataset, highlighting the role of experience as a crucial determinant of performance in this context.

5   Conclusions and Discussion

The results of this study were somewhat predictable, although, during the statistical analysis, it became clear that experience has much more impact on performance than any other statistic. As stated in the Diary of John Adams in 1761, *"Use maketh mastery".* Becoming a professional CS:GO player takes an enormous amount of work and this thesis and its research show that no matter how many times you switch your gaming mice or how many times you switch your sensitivity, nothing else will make you a professional player than practice, practice and once again, PRACTICE.

5.1   Repeatability and Validity

This thesis and its research were conducted on two Finnish professional CS:GO teams. They play at the highest level of CS:GO and I believe that this sample of the field accurately represents the whole field. There are only a handful of gaming mice that professional players use, and this study included six different mice and the results were very self-evident.

The results of this study surprised me. I have played CS:GO professionally in my previous life, and I had a personal experience and feeling that gaming mice affects performance much more than this study presented. In my personal experience, the lighter the mouse, the better the performance. When it is about peripherals, personal preference, and habits can affect the outcome for a while, but when inspecting a larger amount of data, this spike of inconsistency will even out.

5.2   Strengths of the study

An absolute strength of this study is to show people that the gaming mice does not matter to performance. Practice is the one and only thing that really affects performance in the long term.

For the professional CS:GO and FPS enjoyers, use what gaming mice you like and prefer, don't fall into a trap of sponsorships or friendly suggestions. Test and feel what fits your style and hand and get comfortable, since only hours will count on the outcome and your performance during your career.

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Appendices

TEAM	ENCE ACADEMY					HAVU				
NAME	S1rva	HENU	juissi	myltsi	podi	sLowi	uli	ottoNd	Airax	Banjo
Gaming Mice	Logitech G Pro X	ZOWIE EC1-A	Logitech G Pro X	Logitech G Pro X	Logitech G Pro X	Logitech G MX518	ZOWIE EC2-B	FinalMouse Ultral	Logitech G Pro X S	Pulsar Xlite V2 Wire
Sensitivity	1.7	3.09	0.75	1.1	1.05	0.9	1.4	1.78	0.75	1
DPI	400	400	800	800	800	800	400	400	800	800
Kills	4740	6267	5338	7290	5777	25343	11397	20303	6599	6905
Deaths	5999	6653	5500	7299	4575	24854	11260	17337	8040	6769
Kill / Death	0.79	0.94	0.97	1.00	1.26	1.02	1.01	1.17	0.82	1.02
Kill / Round	0.56	0.66	0.67	0.70	0.75	0.69	0.68	0.73	0.61	0.65
Rounds with kills	3369	4350	3702	4932	3944	16989	7883	13640	4597	4804
Kill - Death difference	-1259	-386	-162	-9	1202	489	137	2966	-1441	136
Opening stats										
Total opening kills	740	1059	788	981	803	4291	1659	3380	1200	872
Total opening deaths	1078	1153	874	974	460	4335	1609	2289	1644	800
Opening kill ratio	0.69	0.92	0.90	1.01	1.75	0.99	1.03	1.48	0.73	1.09
Opening kill rating	0.89	1.02	0.98	0.98	1.09	1.05	1.00	1.14	0.97	0.95
Team win percent after	72.2%	71.1%	68.3%	68.5%	73.1%	73.9%	72.2%	74.8%	70.8%	71.4%
First kill in won rounds	13.0%	16.3%	13.9%	13.2%	15.7%	16.7%	14.6%	17.6%	16.0%	11.8%
Round stats										
0 kill rounds	5111	5210	4259	5475	3734	19720	8964	14090	6310	5761
1 kill rounds	2288	2890	2456	3146	2520	10716	5205	8555	3076	3197
2 kill rounds	830	1072	925	1296	1077	4529	1974	3739	1118	1194
3 kill rounds	216	323	260	416	286	1436	582	1136	326	341
4 kill rounds	31	61	53	66	60	279	112	188	76	63
5 kill rounds	4	4	8	8	1	29	10	22	1	9
Weapon stats										
Rifle kills	3175	4944	3956	5198	1909	14808	8770	4769	4793	5180
Sniper kills	90	23	17	706	2779	4100	172	11240	165	55
SMG kills	677	287	392	190	127	1947	522	656	537	520
Pistol kills	723	904	842	1090	887	3935	1819	3448	1003	1059
Grenade	57	118	61	111	64	378	116	215	96	99
Other	45	19	106	19	29	252	29	37	50	33
Statistics	**Value**									
Total kills	4740	6267	5338	7290	5777	25343	11397	20303	6599	6905
Headshot %	48.3%	45.7%	63.7%	49.6%	28.3%	53.0%	48.8%	27.0%	45.6%	48.4%
Total deaths	5999	6653	5500	7299	4575	24854	11260	17337	8040	6769
K/D Ratio	0.79	0.94	0.97	1.00	1.26	1.02	1.01	1.17	0.82	1.02
Damage / Round	64.7	75.9	73.0	76.4	77.1	76.8	76.1	75.0	70.2	73.8
Grenade dmg / Round	5.1	5.5	4.4	6.3	4.0	4.8	4.8	3.2	5.5	5.0
Maps played	320	359	299	389	290	1367	634	1049	409	392
Rounds played	8480	9560	7961	10407	7678	36709	16847	27730	10907	10565
Kills / round	0.56	0.66	0.67	0.70	0.75	0.69	0.68	0.73	0.61	0.65
Assists / round	0.13	0.14	0.12	0.13	0.10	0.14	0.13	0.10	0.14	0.13
Deaths / round	0.71	0.70	0.69	0.70	0.60	0.68	0.67	0.63	0.74	0.64
Saved by teammate / r	0.11	0.08	0.10	0.11	0.08	0.09	0.09	0.09	0.10	0.10
Saved teammates / rou	0.08	0.08	0.09	0.11	0.10	0.09	0.10	0.11	0.07	0.11
Rating 2.0	0.89	1.01	1.01	1.04	1.16	1.01	0.99	1.13	0.92	1.05

Data fetched from HLTV.org and Liquidpedia. (Liquidpedia, 2023) (HLTV.org, 2023)

Aspect	Description
Kill Rating	Measures how good a player is at eliminating opponents.
Survival Rating	Evaluates a player's ability to stay alive during the game.
KAST Rating	The fraction of rounds in which the player either had a kill, assist, survived, or was traded.
Damage Rating	Measures the amount of damage a player inflicts on opponents, even if they don't secure the final kill.
Impact Rating	Based on 1onX wins, multi-kills, opening kills and other statistics not provided by the service provider HLTV.org.

Figure 3. Rating 2.0 - Included statistics. (HLTV.org, 2017)

Anova: Two-Factor Without Replication						
SUMMARY	Count	Sum	Average	Variance		
Logitech G Pro X Superlight	2	320,79	160,395	50947,5121		
ZOWIE EC1-A	2	359,94	179,97	64103,4818		
Logitech G MX518	2	299,97	149,985	44410,9405		
ZOWIE EC2-B	2	390	195	75272		
FinalMouse Ultralight 2	2	291,26	145,63	41685,3938		
Pulsar Xlite V2 Wireless	2	1368,02	684,01	932950,68		
	2	635,01	317,505	200338,17		
	2	1050,17	525,085	548973,854		
	2	409,82	204,91	83305,4562		
	2	393,02	196,51	76432,6802		
Experience (Maps Played)	10	5508	550,8	134920,844		
Performance (Rating 2.0)	10	10	1	0,01982222		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	607267,8092	9	67474,201	1,00040829	0,4997624	3,1788931
Columns	1511400,2	1	1511400,2	22,4088209	0,00106819	5,11735503
Error	607019,9692	9	67446,6632			
Total	2725687,978	19				

Figure 4 - Two-way ANOVA results. Chosen significance level was 0.05. (HLTV.org, 2023).