Navigraph FlightSim Community Survey 2018 Final Report

Compiled 2018-12-18

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1. Introduction

1.1. Partners

The FlightSim Community Survey 2018 is a collaborative effort conducted by the developers, organizations and companies alphabetically presented in the list of partners below.

- Alabeo
- CaptainSim
- Carenado
- Flight1
- FlightSim.com
- FlightSimExpo
- Folke Will
- HiFi Simulation Technologies
- IPACS
- IVAO
- JonFly
- Just Flight
- Laminar Research
- MilViz
- Navigraph
- ORBX
- QualityWings
- SimBrief
- SimFlight
- VATSIM

Navigraph was responsible for coordinating, designing, compiling and funding the survey, as well as authoring this document.

1.2. Purpose and Target Audience

The primary purpose of the survey is to provide the participating partners with information about the flight simulation community so that they are better able to:

- recruit new pilots to the flight simulation community
- develop products and services in response to pilots’ needs and requests

The secondary purpose of the survey is to provide all members of the flight simulation community with information so that they are better able to:

- find resources to develop their flight simulation interest
- maintain and develop the community

1.3. Data Treatment

The data was collected from the respondents anonymously without storing any personally identifiable information. The results are presented in aggregated form, never individually. The data was collected in the legitimate interest pursued by Navigraph and the partners. To the best of our judgement, the survey was conducted in a fashion compliant with the General Data Protection Regulation (EU) 2016/679. For any questions regarding user privacy, please contact info@navigraph.com.

1.4. Previous Work

VATSIM conducted a survey in 2006[1]. It had 6,691 respondents.

AVSIM has previously published a demographic survey for the flight simulation community. The most recent one was made in 2013[2]. It had approximately 2,800 respondents.

Navigraph has previously conducted customer surveys. In 2017[3] it had 3,187 respondents. In 2016 2,200 participated. While these surveys had significant portions aimed at product feedback specific for Navigraph, it also had demographics questions included from the AVSIM survey.

Laminar Research has collected usage data from its X-Plane simulator and published two reports[4] in November 2017, and June 2018.

It is our impression that there have been additional small surveys completed in the past. Either they have been published by various developers with the intent of obtaining specific product feedback; or they have been published by interest organizations with the intent of obtaining feedback of the particular operations of that organization.

The current FlightSim Community Survey 2018 is different in that it has:

- a larger sample size, i.e. more than twice as many as the largest flight simulation community survey to date
- a sample which represents multiple user groups, i.e. users from various developers and members from various organizations

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[1] https://www.flightsim.com/vbfs/content.php?7782-VATSIM-User-Survey-Results

[2] https://www.avsim.com/forums/topic/430855-results-of-the-2013-avsim-community-demographics-survey/

[3] http://blog.navigraph.com/post/167492052421/survey-results-prepar3d-x-plane-up-fsx-down

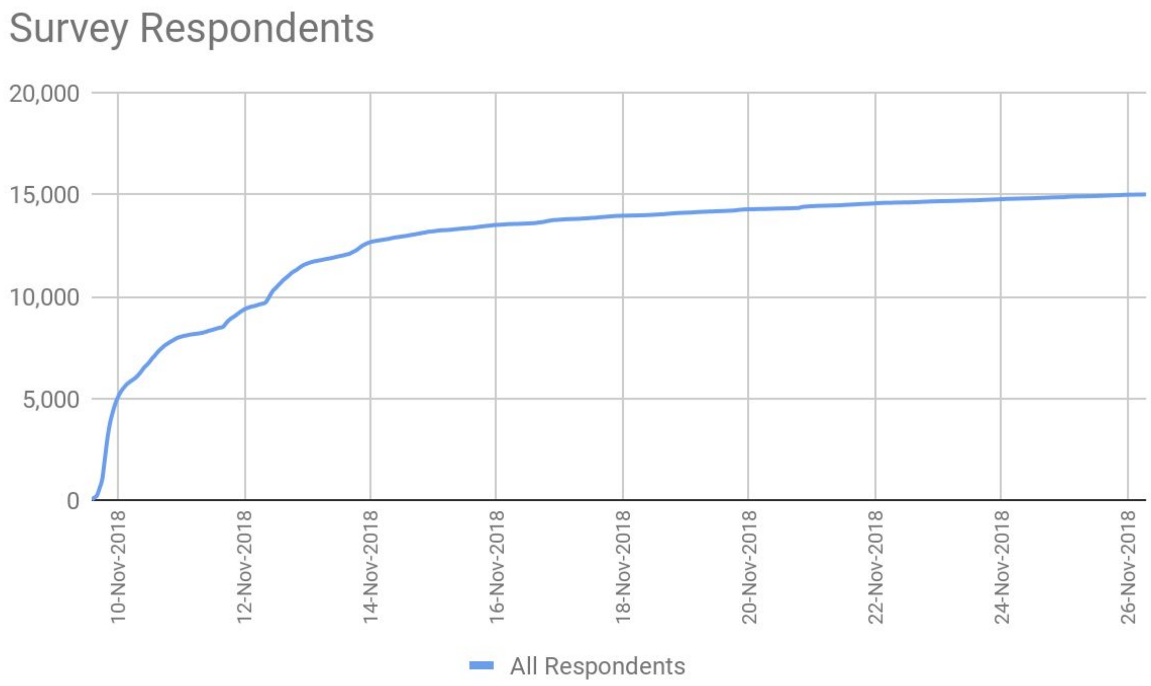
[4] https://developer.x-plane.com/category/x-plane-usage-data/

2. Analysis

2.1. Respondents

The survey had 15,006 respondents out of which 73% completed the survey and spent on average 20 minutes.

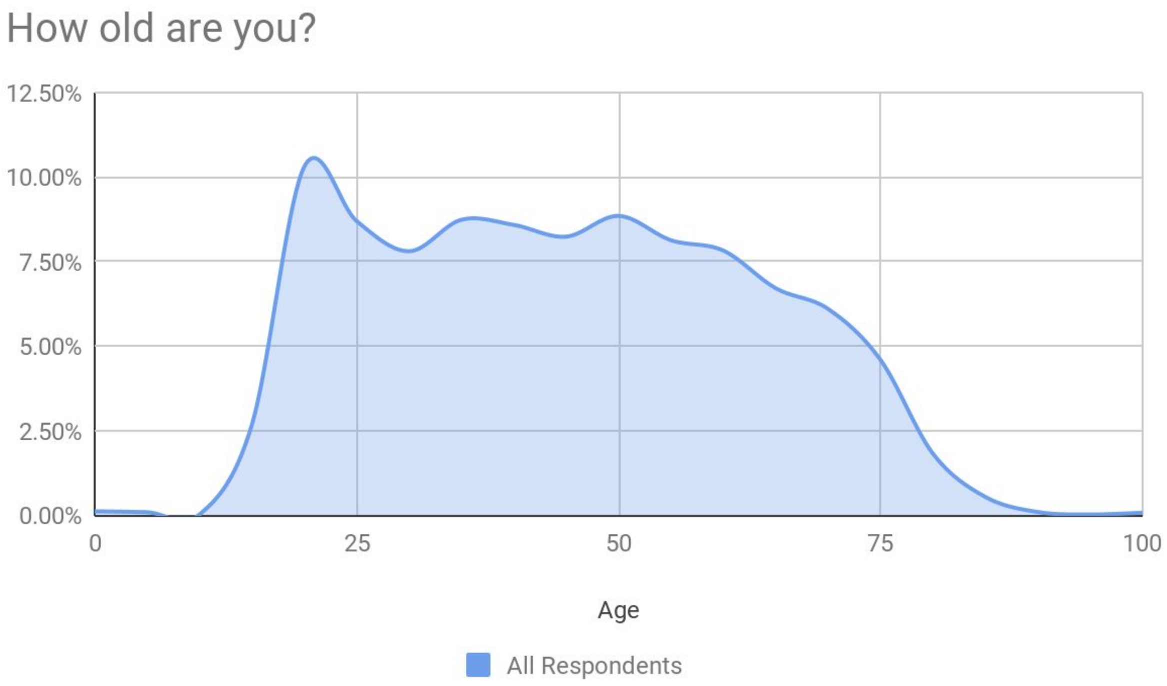
The diagram below illustrates the progress of survey completion over time. (The newsletter distributions from the various partners are noticeable as surges in the graph.)



2.2. Demographics

2.2.1. Age

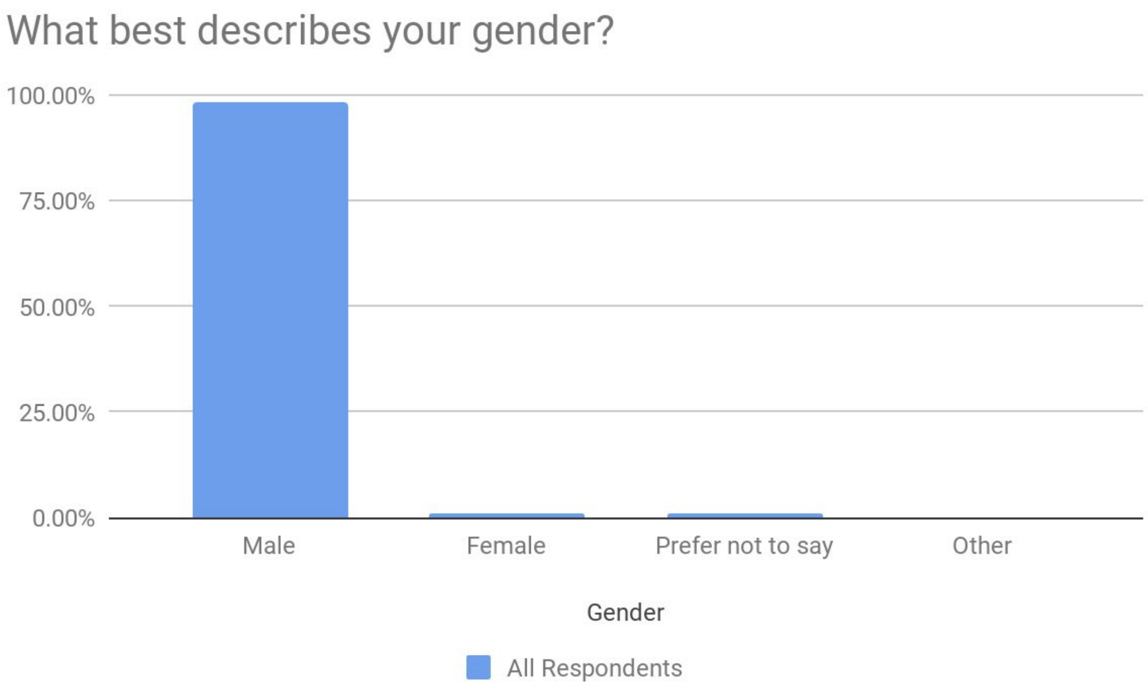
Flight simulation is interesting to people of all ages. The bulk of the users are in the range of 20-60 years, with a noticeable peak around 20 and an impressive tail towards 80.



Age	All Respondents
0	0.11%
5	0.09%
10	0.02%
15	2.67%
20	10.30%
25	8.70%
30	7.80%
35	8.74%
40	8.58%
45	8.24%
50	8.85%
55	8.13%
60	7.82%
65	6.71%
70	6.10%
75	4.59%
80	1.82%
85	0.54%
90	0.09%
95	0.02%
100	0.07%

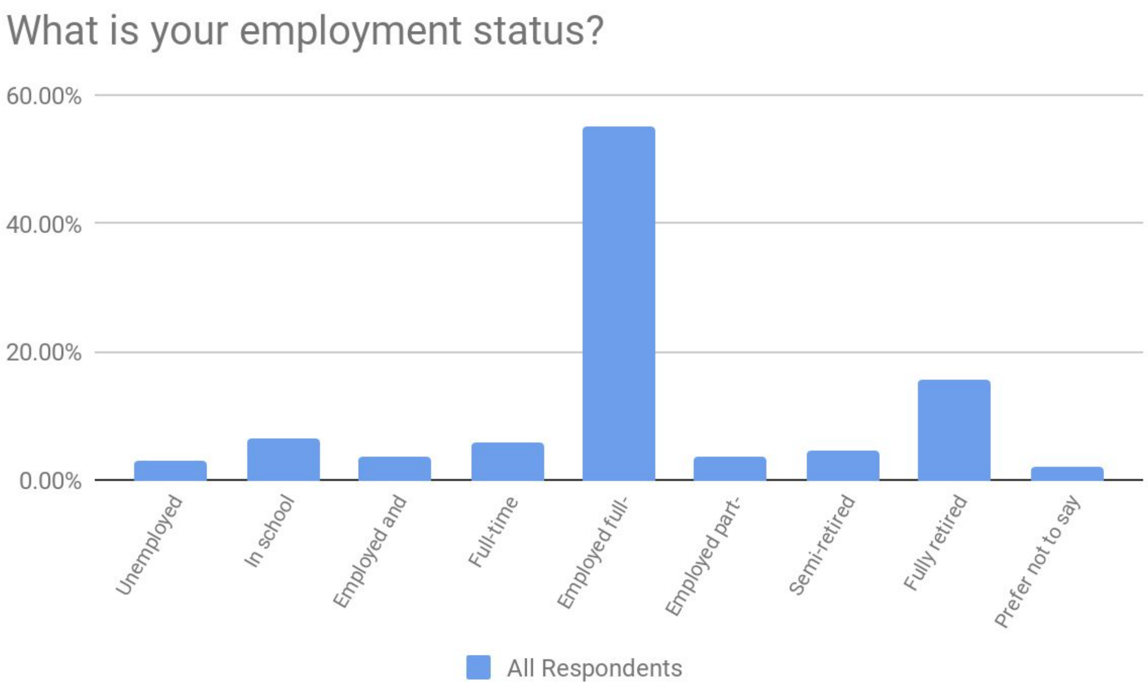
	All Respondents
Average age	43
Median age	42

2.2.2. Gender



Gender	**All Respondents**
Male	98.22%
Female	0.78%
Prefer not to say	0.79%
Other	0.21%

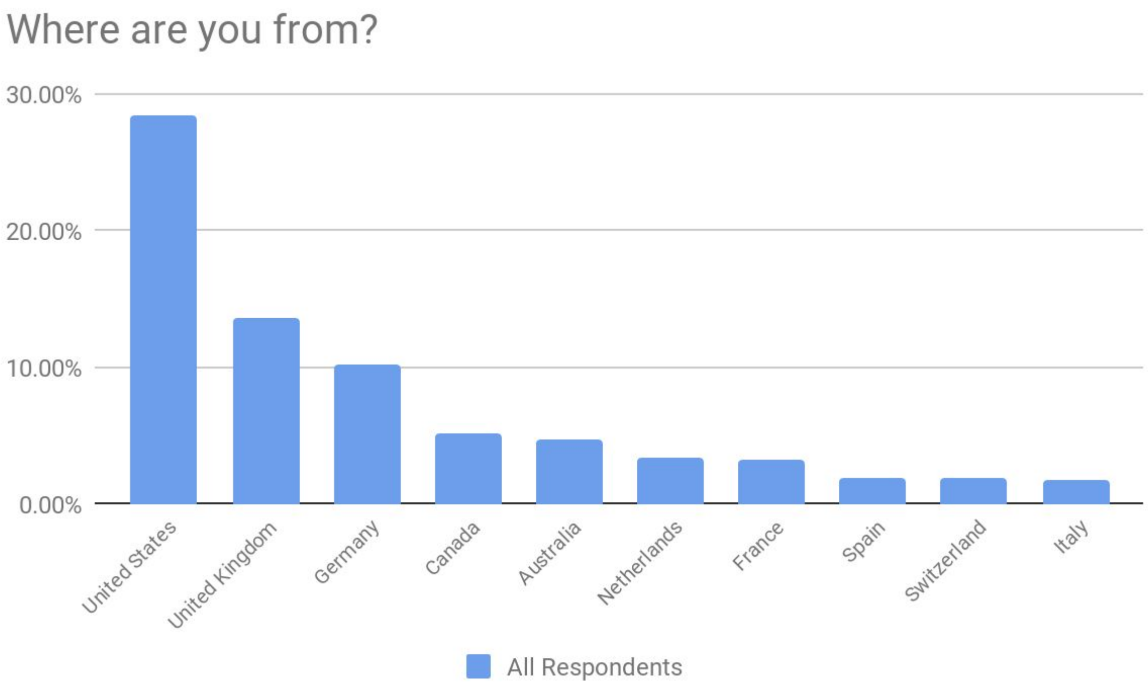
2.2.3. Employment Status



Employment status	All Respondents
Unemployed	2.96%
In school	6.54%
Employed and school	3.53%
Full-time student	5.88%
Employed full-time	55.04%
Employed part-time	3.51%
Semi-retired	4.68%
Fully retired	15.68%
Prefer not to say	2.19%

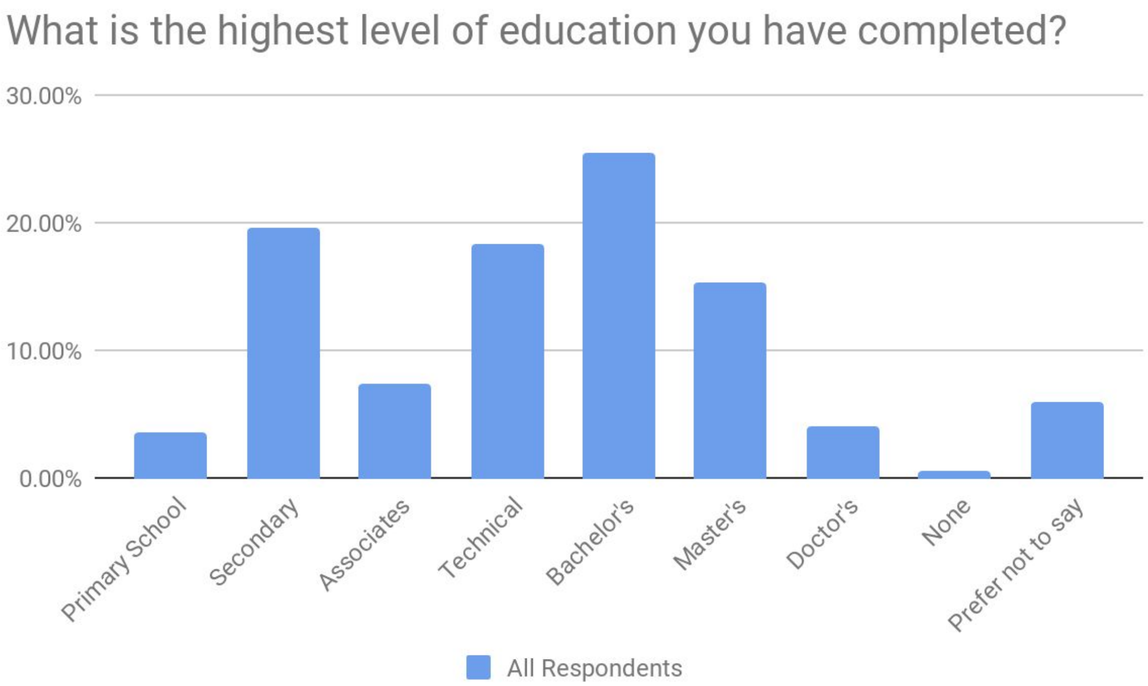
2.2.4. Country

The graph below shows the top 10 countries for all respondents.



Countries	All Respondents
United States	28.49%
United Kingdom	13.65%
Germany	10.28%
Canada	5.10%
Australia	4.72%
Netherlands	3.42%
France	3.29%
Spain	1.95%
Switzerland	1.85%
Italy	1.70%

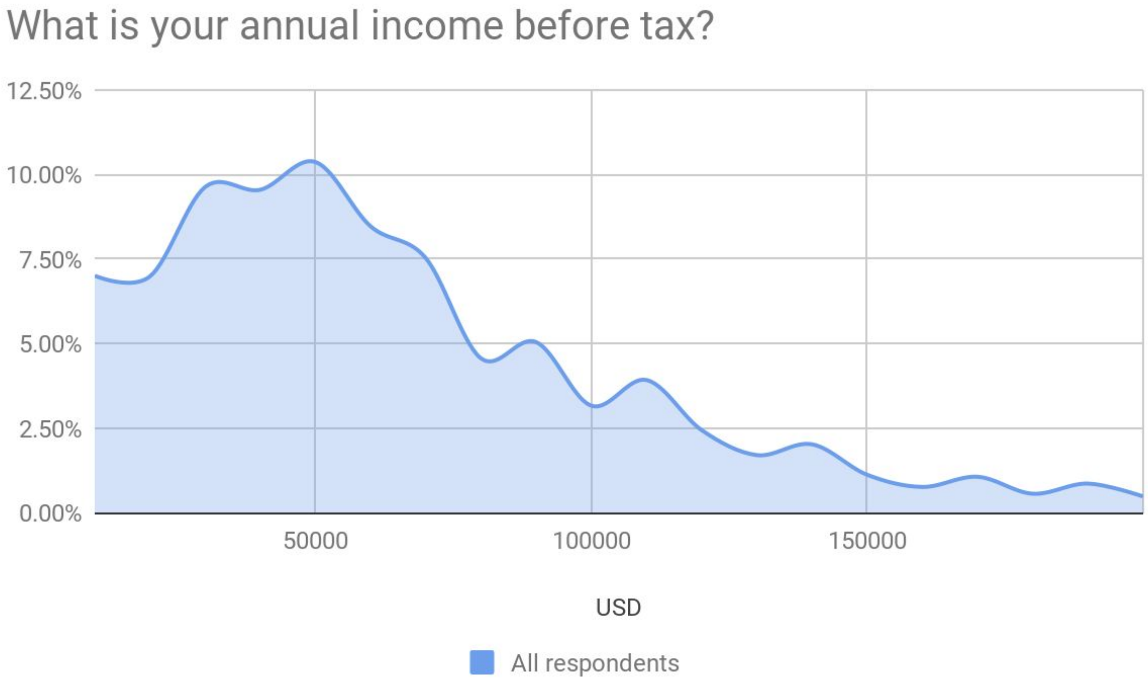
2.2.5. Education



Employment status	**All Respondents**
Primary School	3.56%
Secondary School	19.53%
Associates degree	7.32%
Technical degree	18.29%
Bachelor's	25.50%
Master's	15.28%
Doctor's	4.11%
None	0.53%
Prefer not to say	5.90%

2.2.6. Income

Respondents were asked to enter their annual income before tax in their local currency. Exchange rates as per November 2018 were then used to calculate the income in US Dollars.

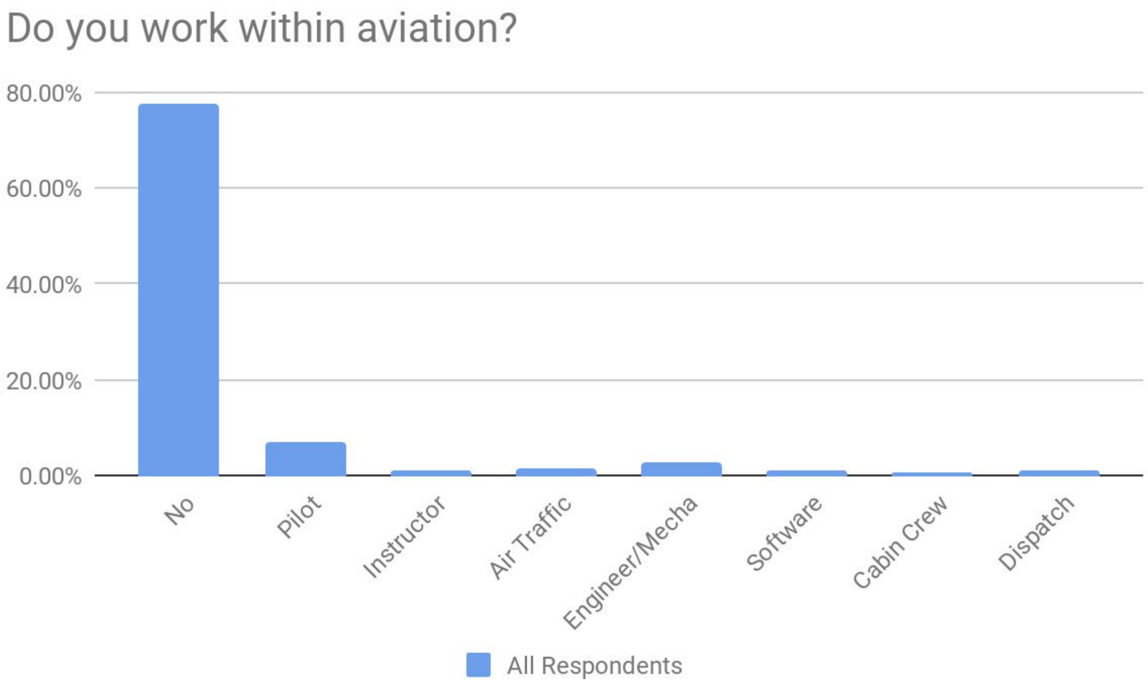


Income (USD)	All respondents
< 10000	9.59%
10000	7.01%
20000	6.99%
30000	9.63%
40000	9.55%
50000	10.37%
60000	8.47%
70000	7.53%
80000	4.56%
90000	5.05%
100000	3.16%
110000	3.92%
120000	2.44%

130000	1.70%
140000	2.02%
150000	1.12%
160000	0.76%
170000	1.06%
180000	0.56%
190000	0.86%
200000	0.48%

2.3. Relation to aviation

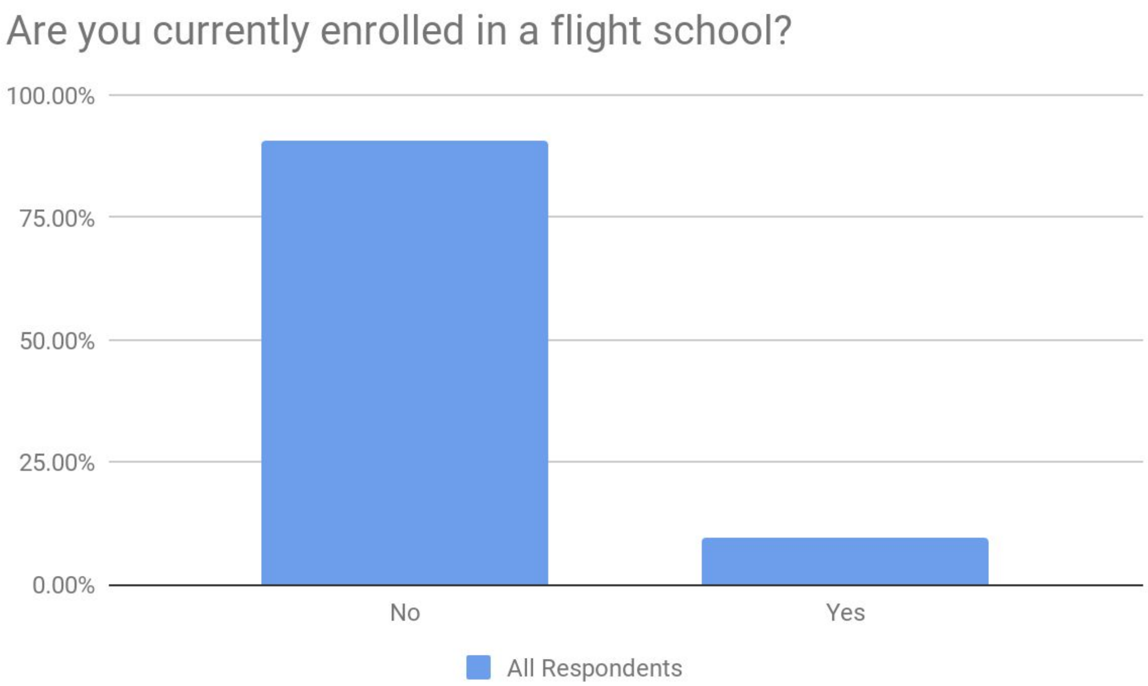
2.3.1. Work



Position	All Respondents
No	77.59%
Pilot	7.07%
Instructor	1.14%
Air Traffic Controller	1.33%
Engineer/Mechanic	2.94%
Software Developer	1.24%
Cabin Crew	0.54%
Dispatch	0.87%
Other	7.28%

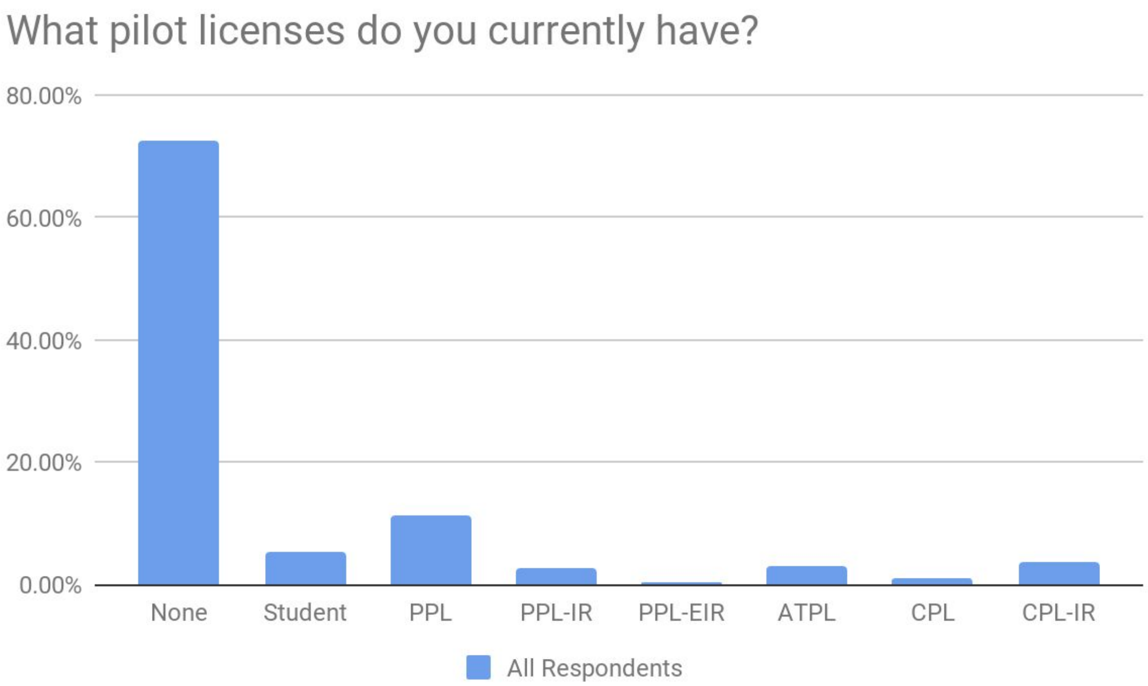
- 6% of the answers provided in the “Other” answer option free text field were variations on “retired”
- 4% of the answers provided in the “Other” answer option free text field were variations on “student”

2.3.2. Flight School



Enrollment	**All Respondents**
No	90.47%
Yes	9.53%

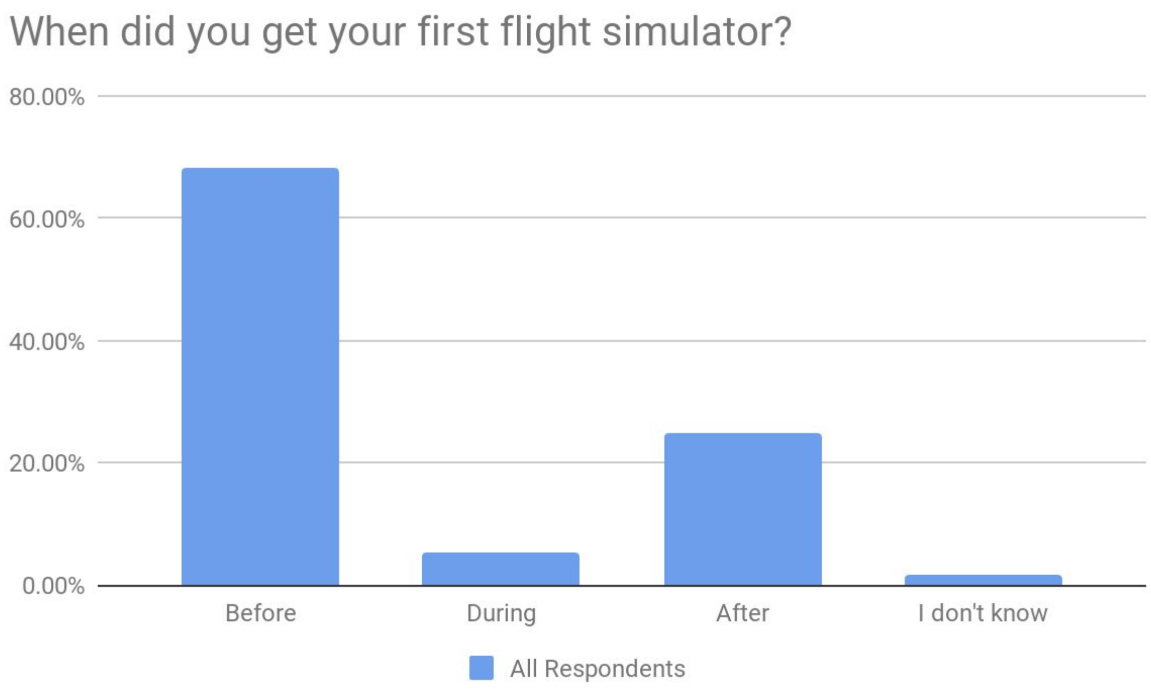
2.3.3. Pilot License



Pilot Licenses	**All Respondents**
None	72.65%
Student	5.22%
PPL	11.33%
PPL-IR	2.67%
PPL-EIR	0.39%
ATPL	3.10%
CPL	0.99%
CPL-IR	3.65%

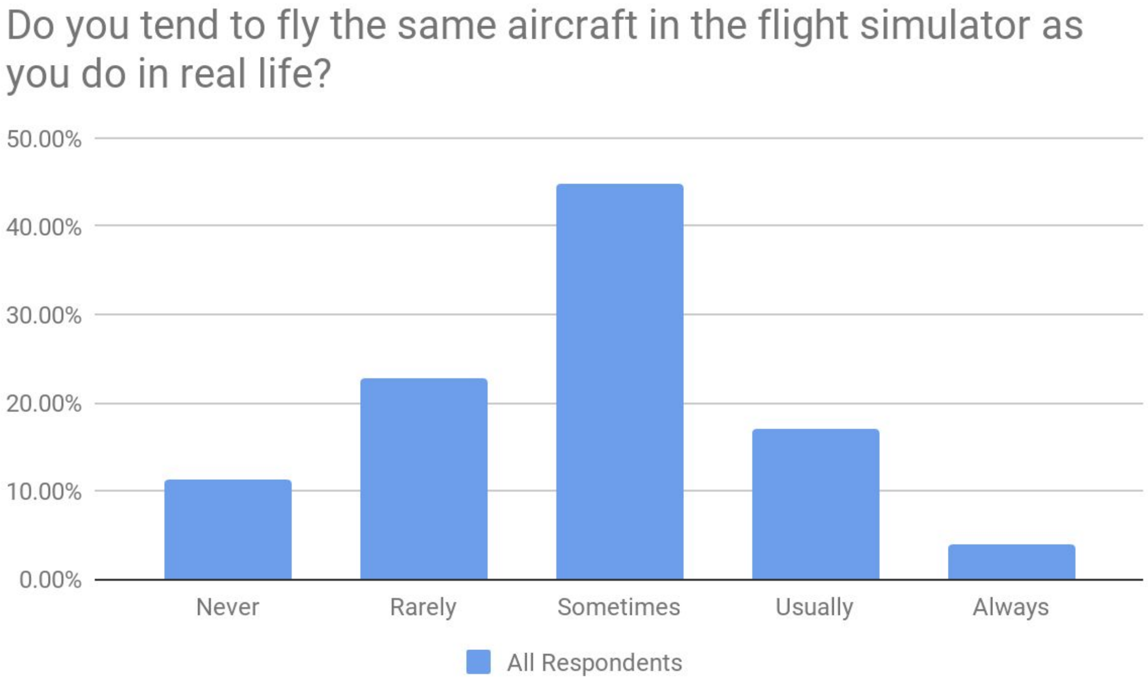
2.3.4. Simulation in Relation to Aviation

Question 10 was presented to the respondents who stated that they had a pilot license.



	All Respondents
Before	68.12%
During	5.29%
After	25.02%
I don't know	1.57%

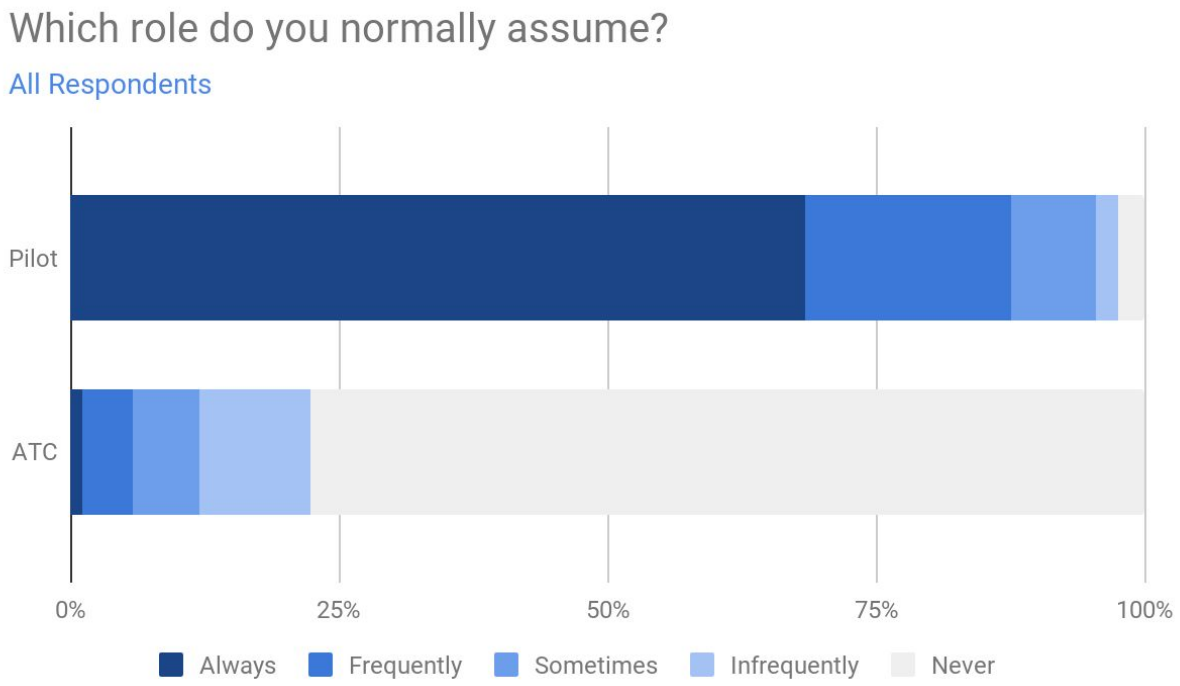
Question 11 was presented to the respondents who stated that they had a pilot license.



	All Respondents
Never	11.38%
Rarely	22.83%
Sometimes	44.71%
Usually	17.07%
Always	4.01%

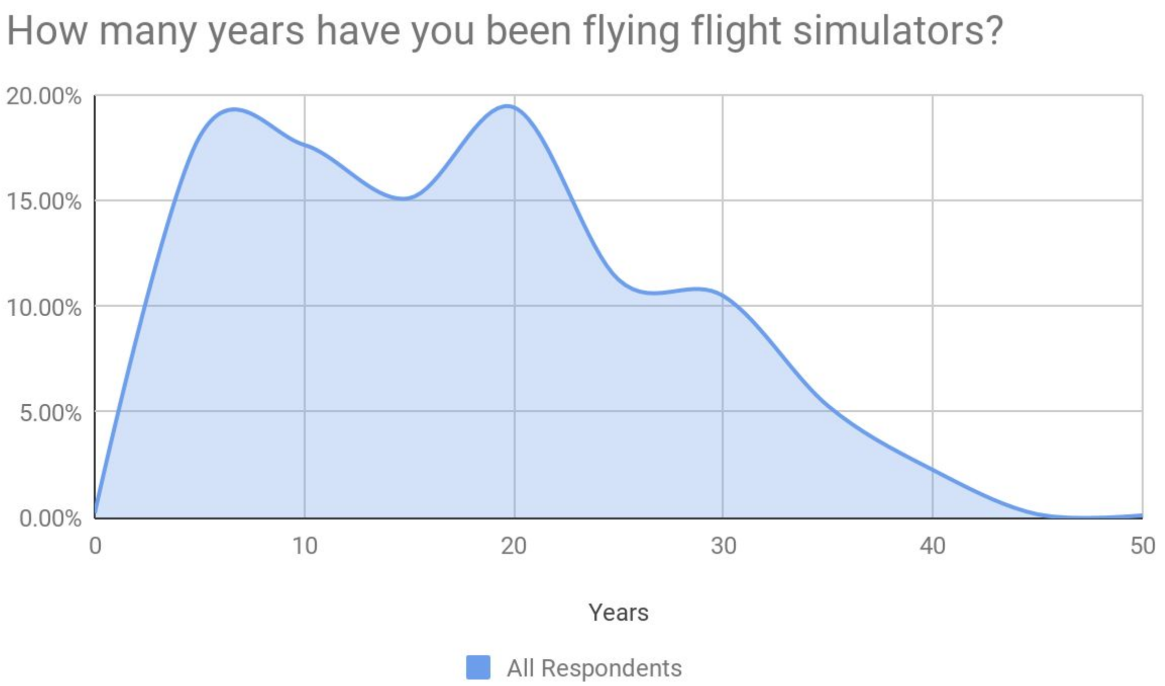
2.4. Simulator Habits

2.4.1. Roles



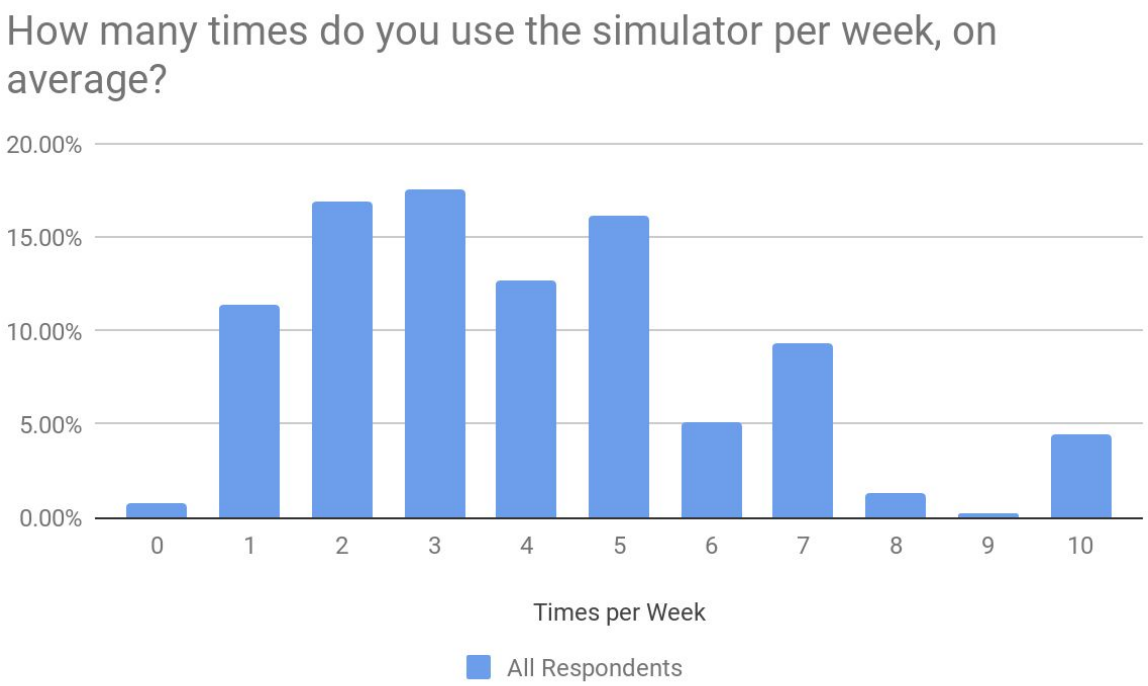
	Pilot	**ATC**
Always	68%	1%
Frequently	19%	5%
Sometimes	8%	6%
Infrequently	2%	10%
Never	3%	78%

2.4.2. Experience



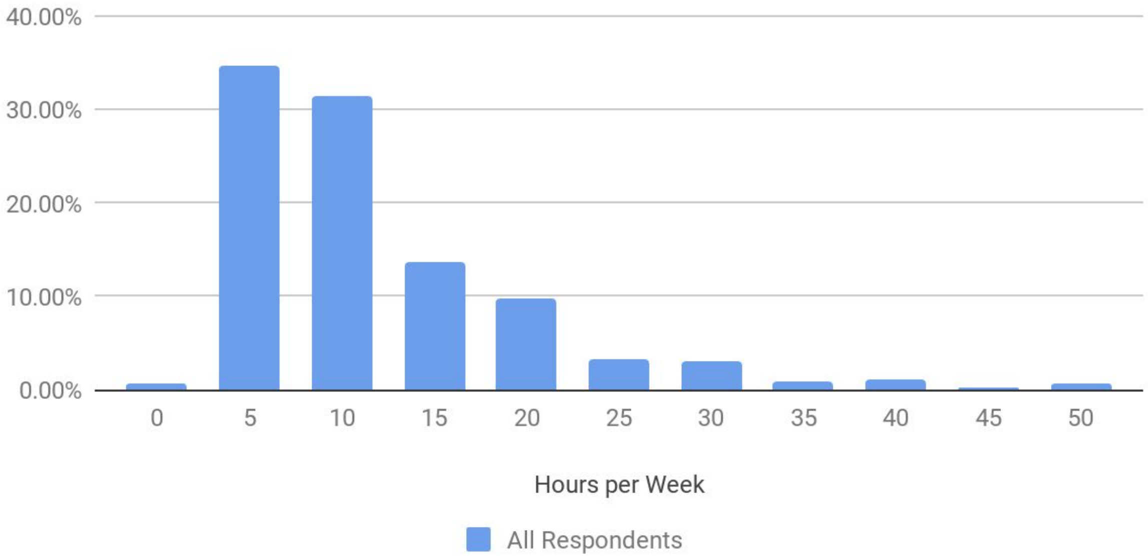
Years	All Respondents
0	0.22%
5	18.02%
10	17.64%
15	15.11%
20	19.41%
25	11.26%
30	10.49%
35	5.28%
40	2.26%
45	0.16%
50	0.11%

2.4.3. Usage

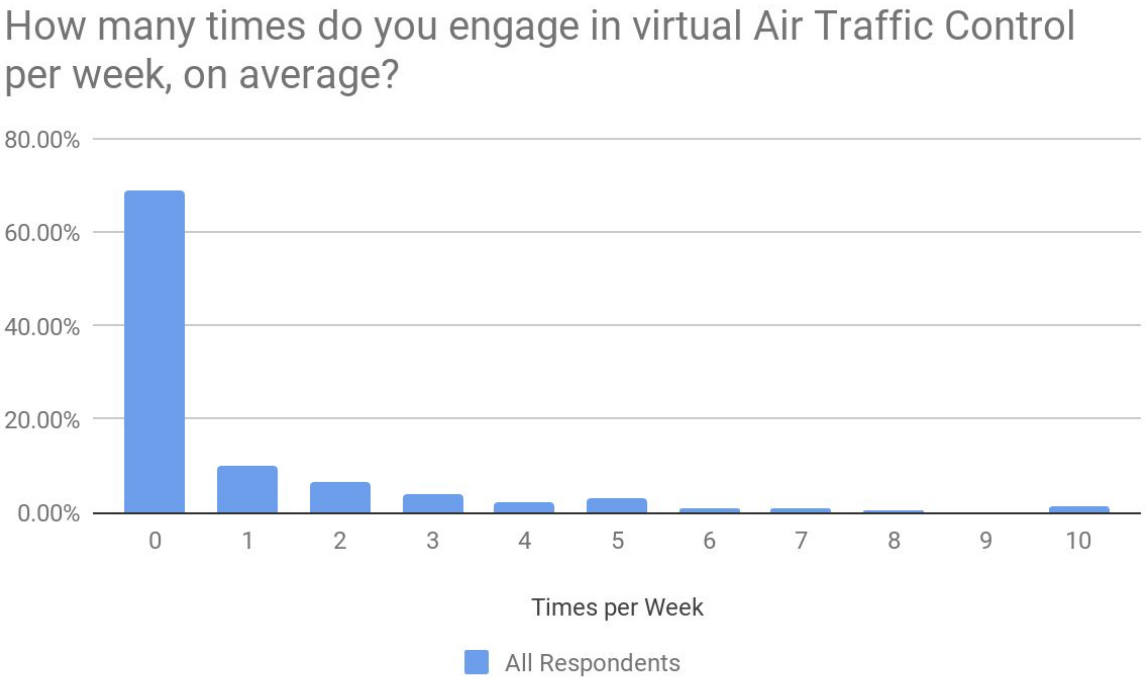


Times per week	All Respondents
0	0.74%
1	11.34%
2	16.90%
3	17.51%
4	12.68%
5	16.19%
6	5.06%
7	9.34%
8	1.26%
9	0.25%
10	4.40%

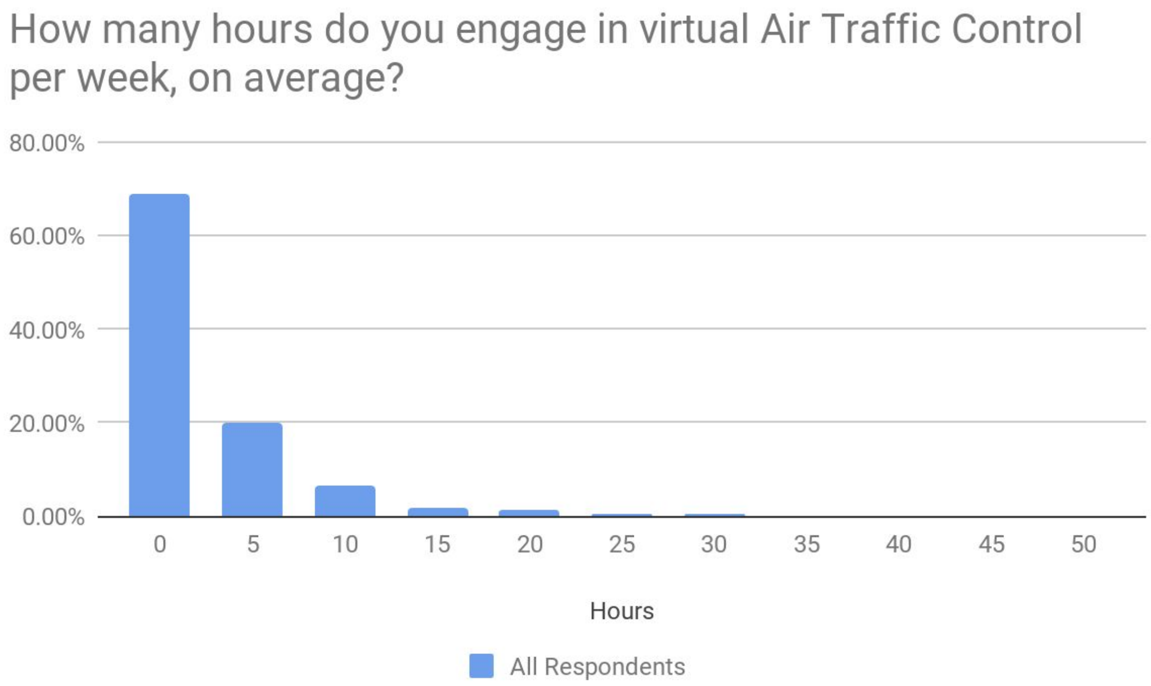
How many hours do you use the simulator per week, on average?



Hours per Week	All Respondents
0	0.70%
5	34.59%
10	31.46%
15	13.61%
20	9.73%
25	3.20%
30	3.04%
35	0.79%
40	1.07%
45	0.22%
50	0.61%



Hours per Week	All Respondents
0	68.77%
1	10.00%
2	6.56%
3	3.84%
4	2.28%
5	2.97%
6	1.01%
7	1.04%
8	0.51%
9	0.09%
10	1.31%


How many hours do you engage in virtual Air Traffic Control per week, on average?

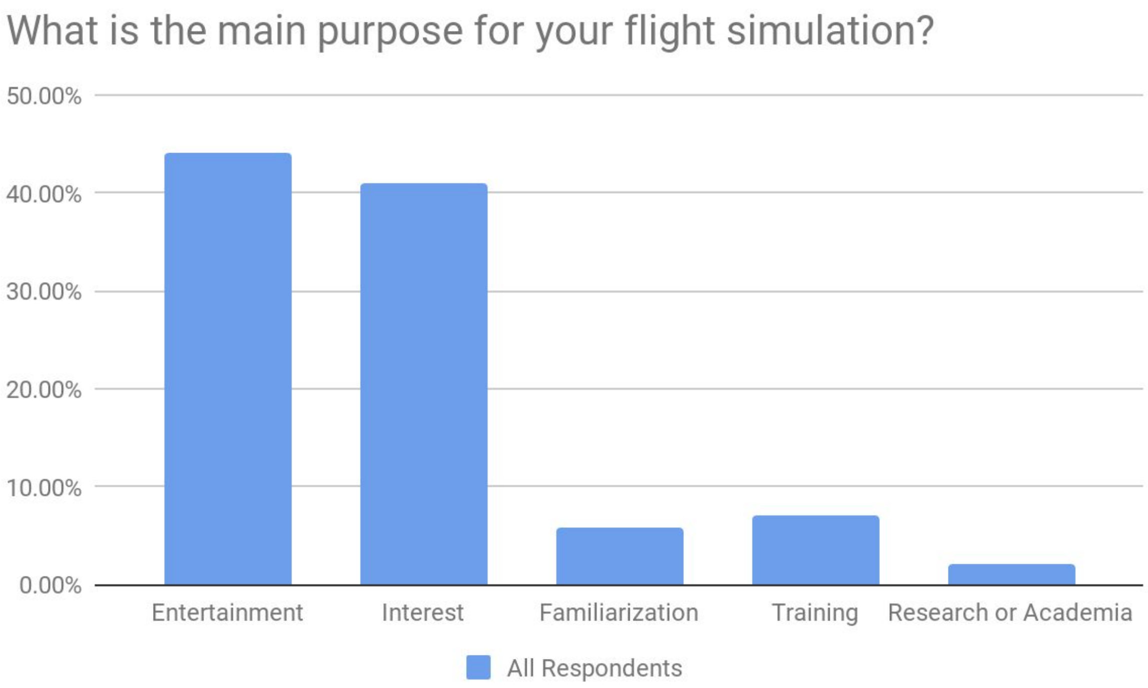
Hours per Week	**All Respondents**
0	69.00%
5	20.15%
10	6.66%
15	1.97%
20	1.22%
25	0.31%
30	0.28%
35	0.04%
40	0.18%
45	0.01%
50	0.08%

2.4.4. Airports

The table below shows the most popular departure and arrival airports among all respondents.

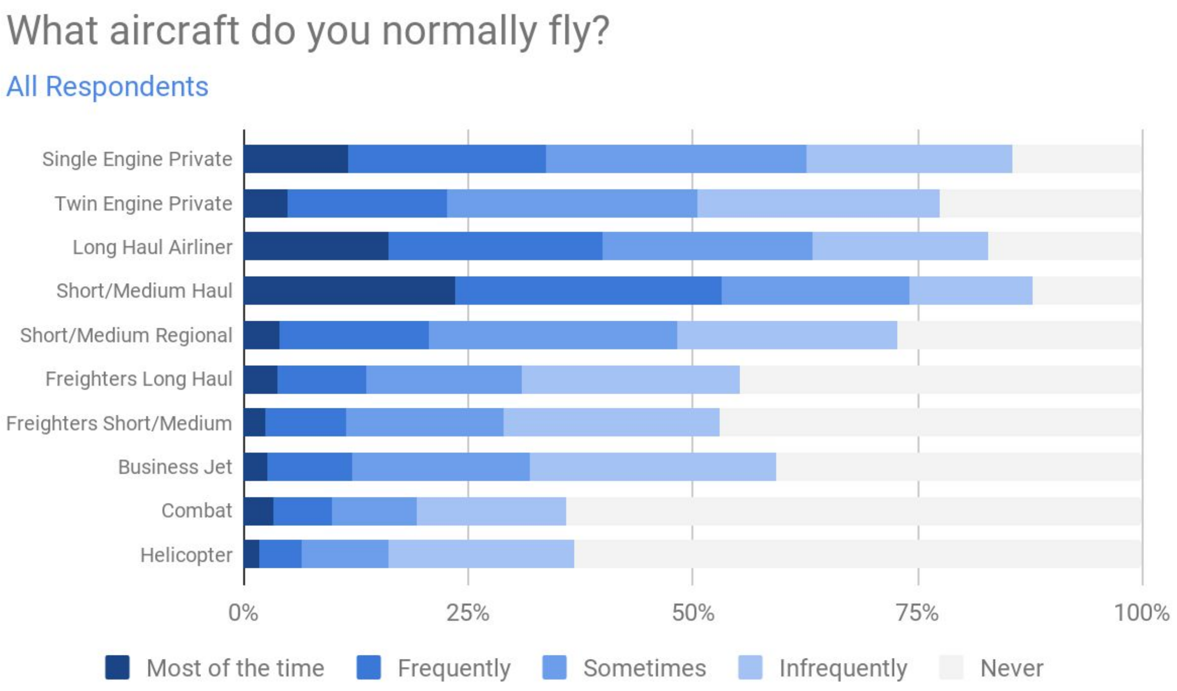
Departure Airport	**Arrival Airport**
EDDF	EDDF
EHAM	EGLL
EGLL	EHAM
EGKK	KSFO
EGCC	KLAX
KSFO	EDDM
EDDM	KATL
YSSY	LOWI
KLAX	EGKK
LSZH	KJFK

2.4.5. Purpose

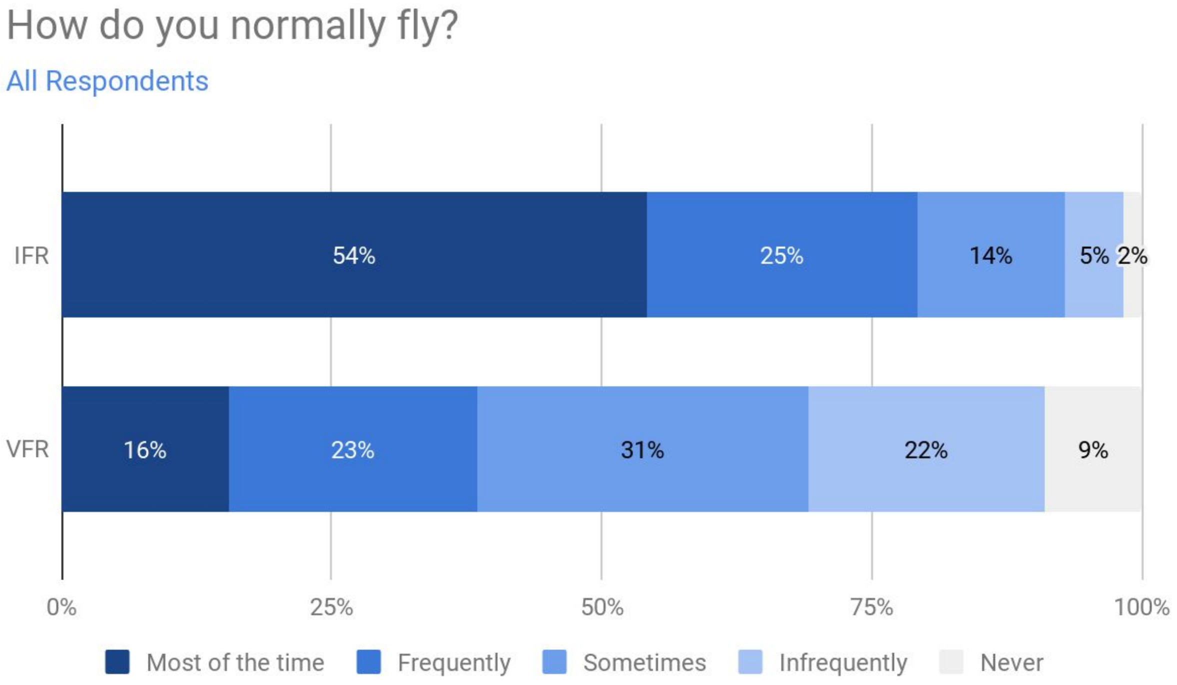


	All Respondents
Entertainment	44.17%
Interest	40.96%
Familiarization	5.88%
Training	6.98%
Research or Academia	2.01%

2.4.6. Aircraft Types

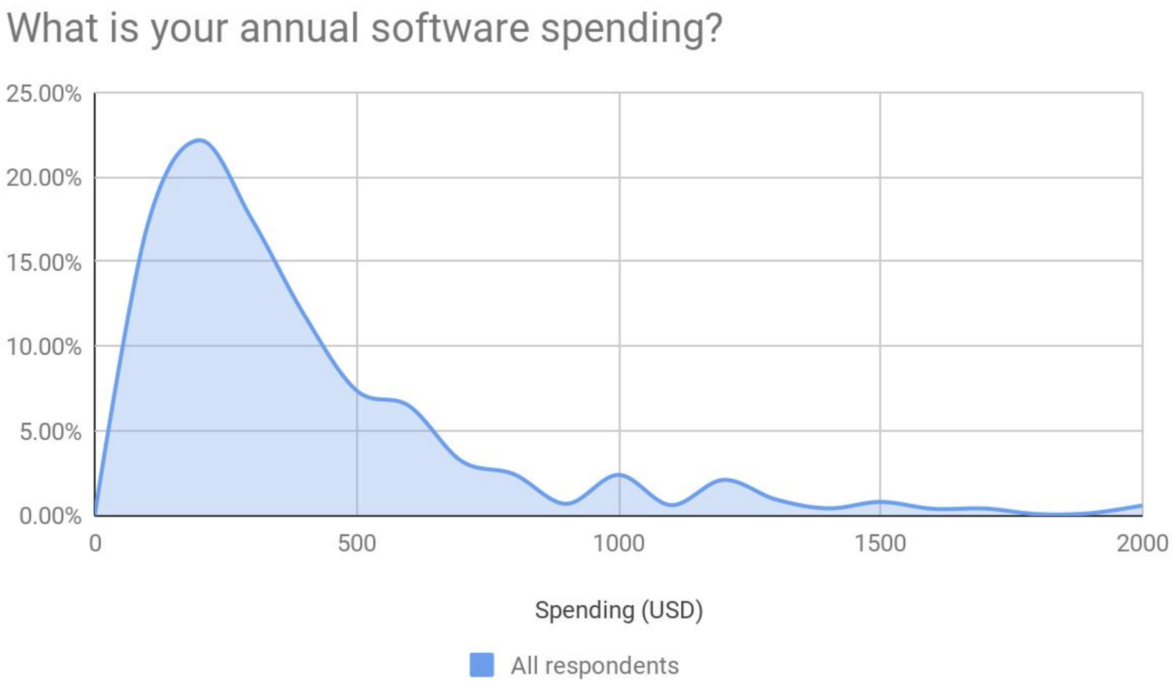


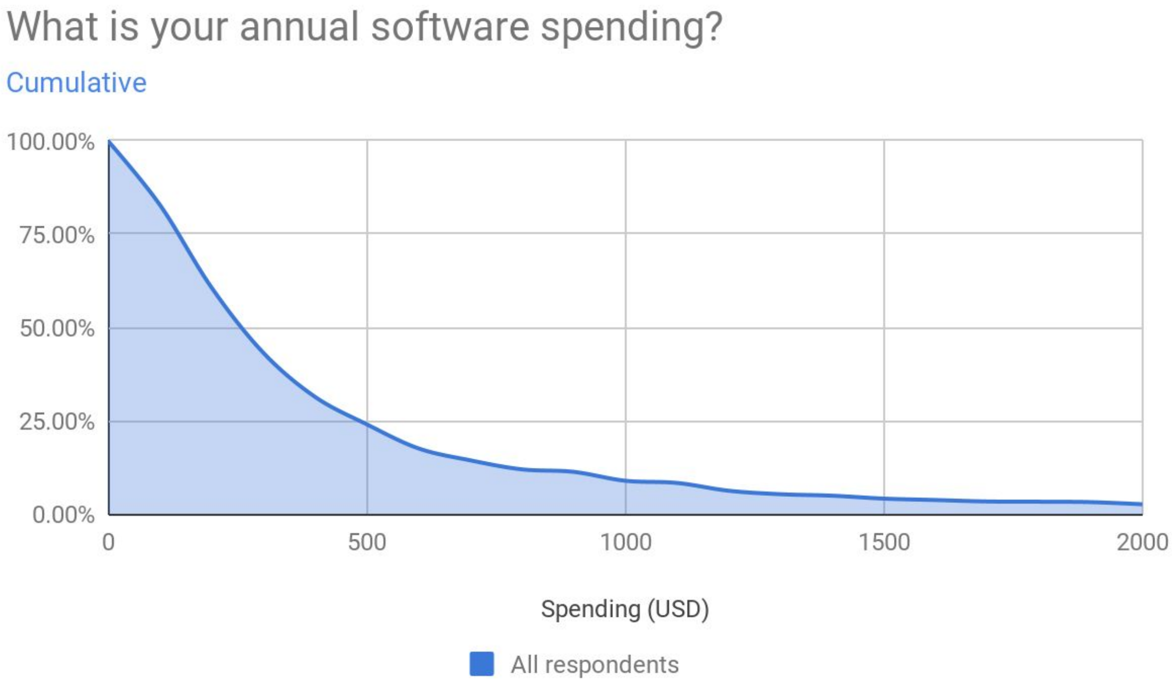
2.4.7. Flight rules



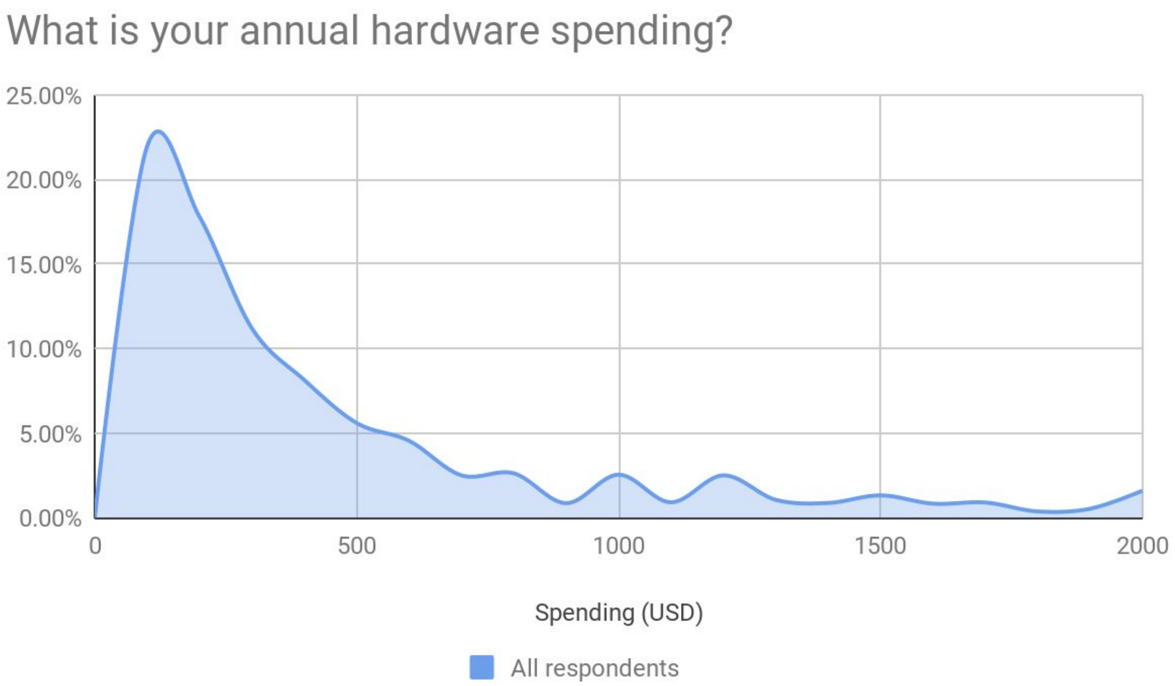
2.5. Consumption habits

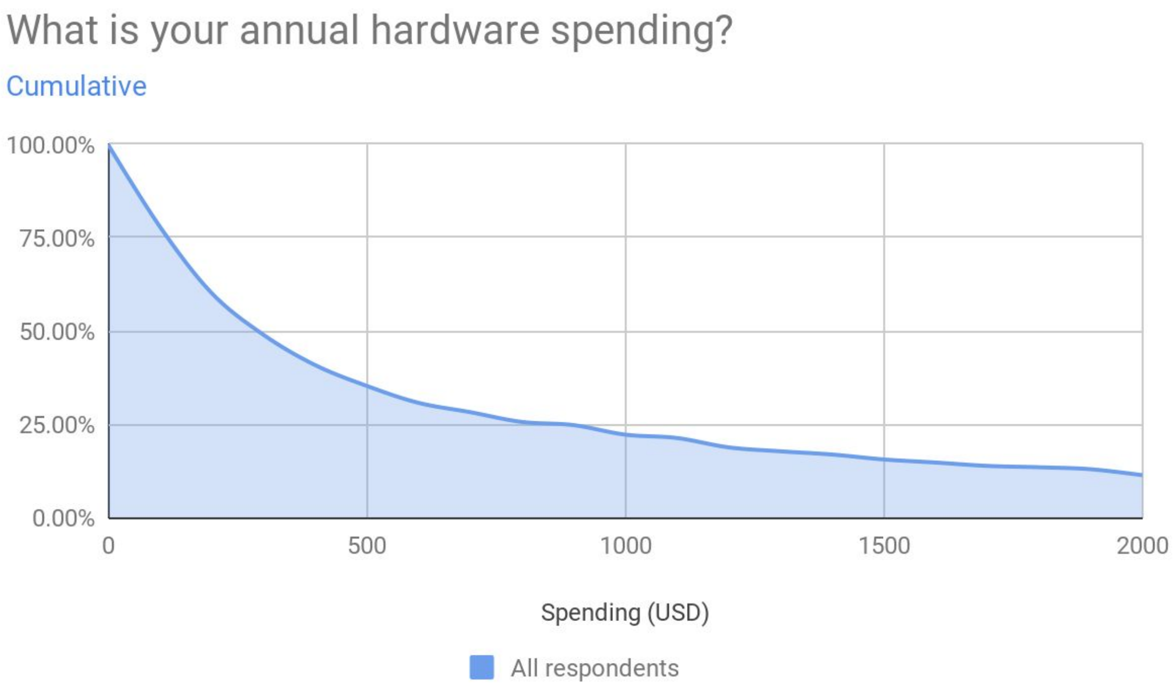
2.5.1. Software Expenses



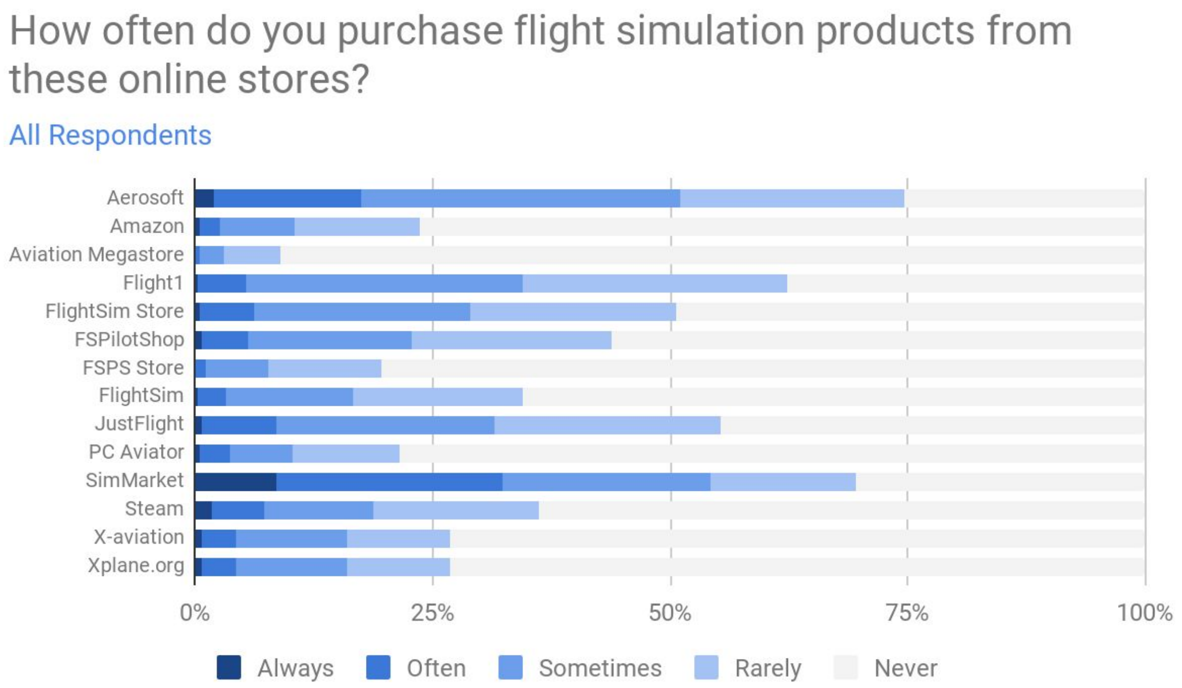


2.5.2. Hardware expenses

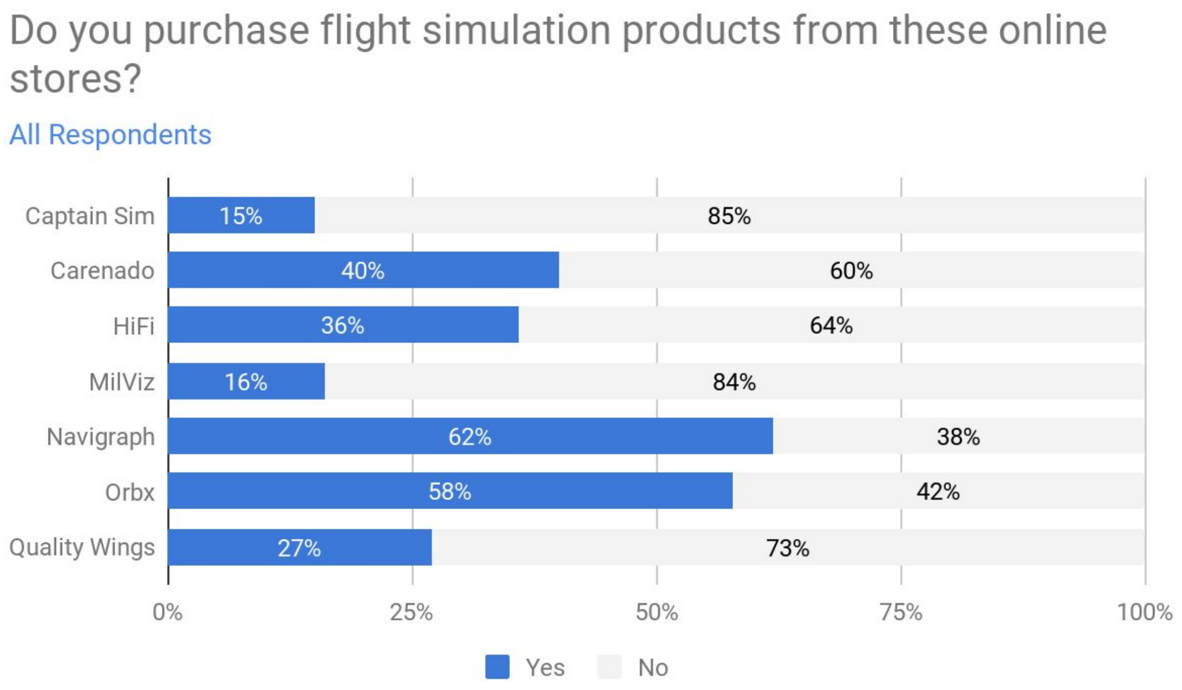




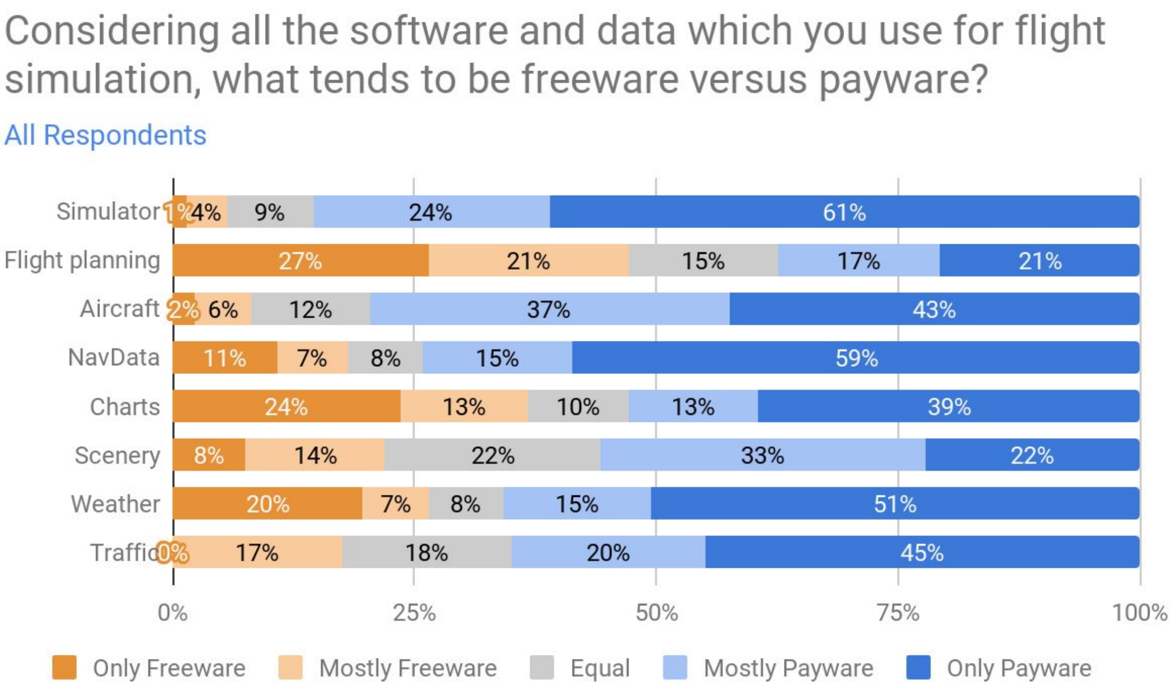
2.5.3. Preferred Generalist Stores

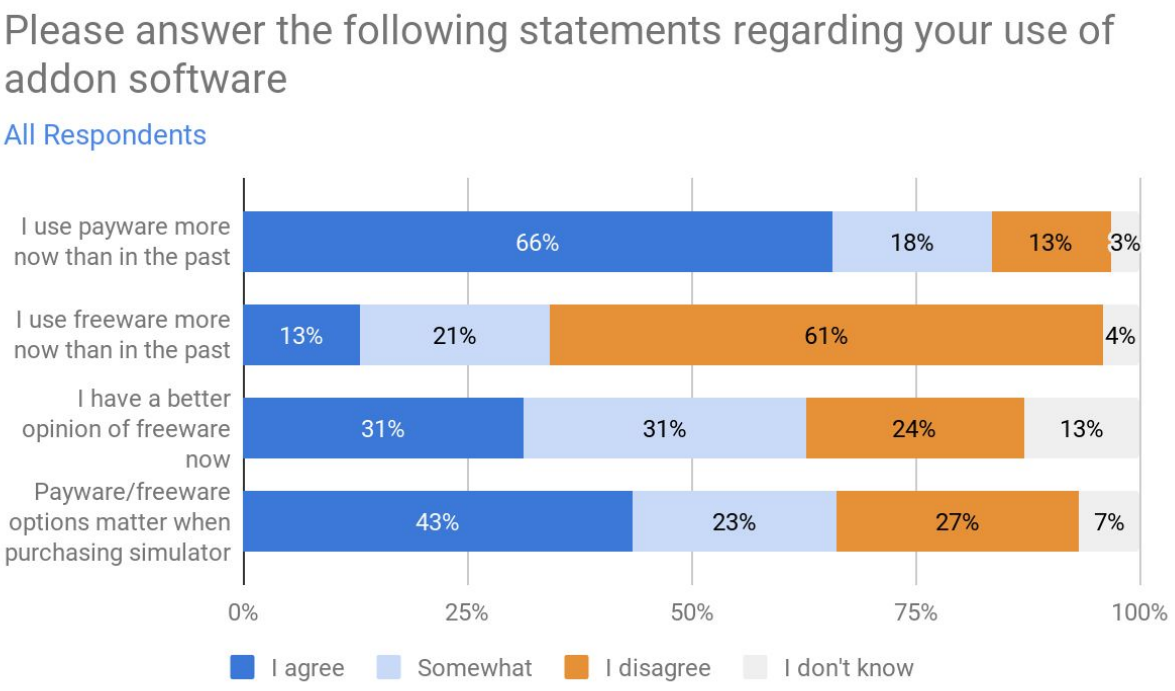


2.5.4. Preferred Specialist Stores



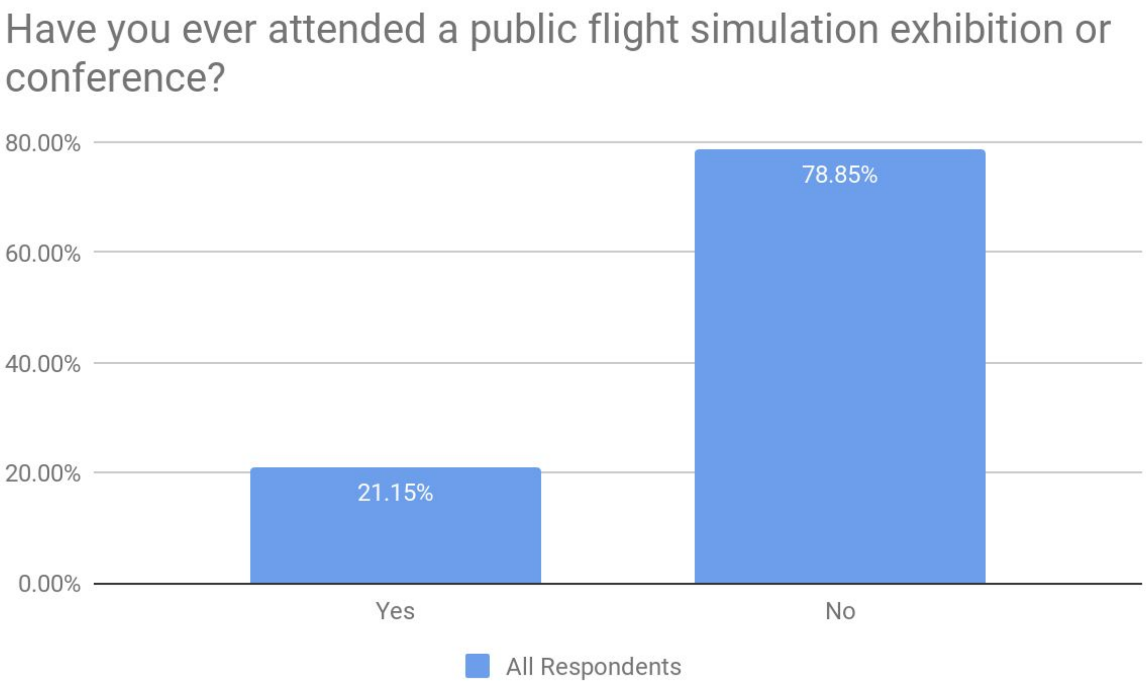
2.5.5. Freeware Versus Payware



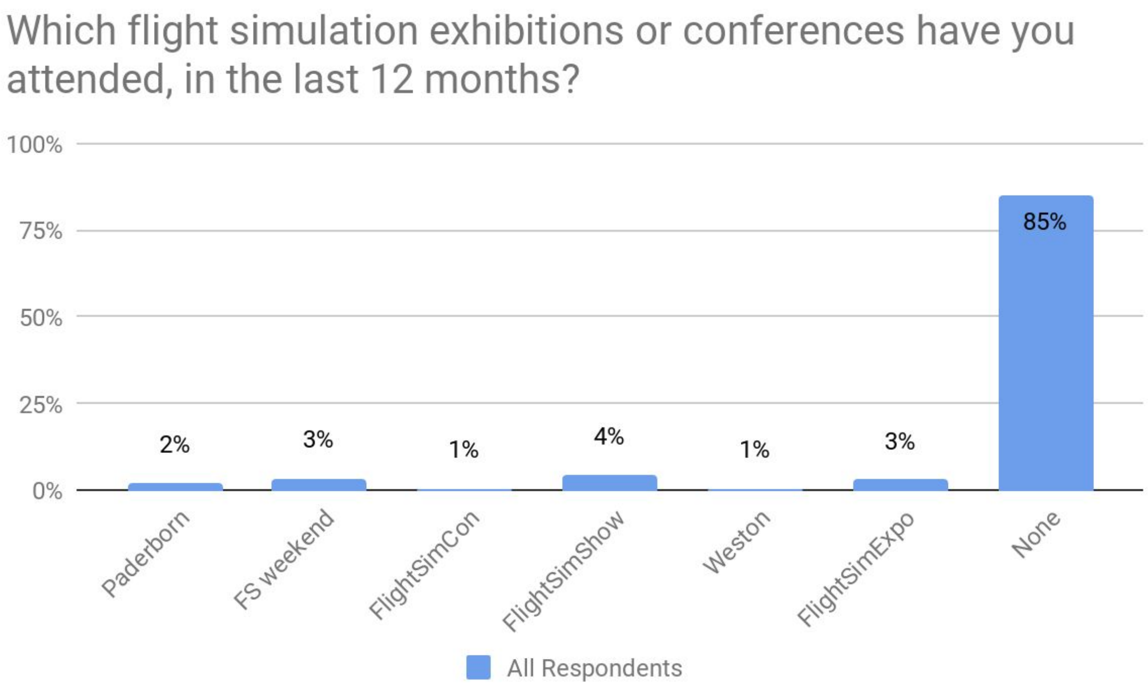


2.6. Community

2.6.1. Conference Attendance



2.6.2. Popular Conferences

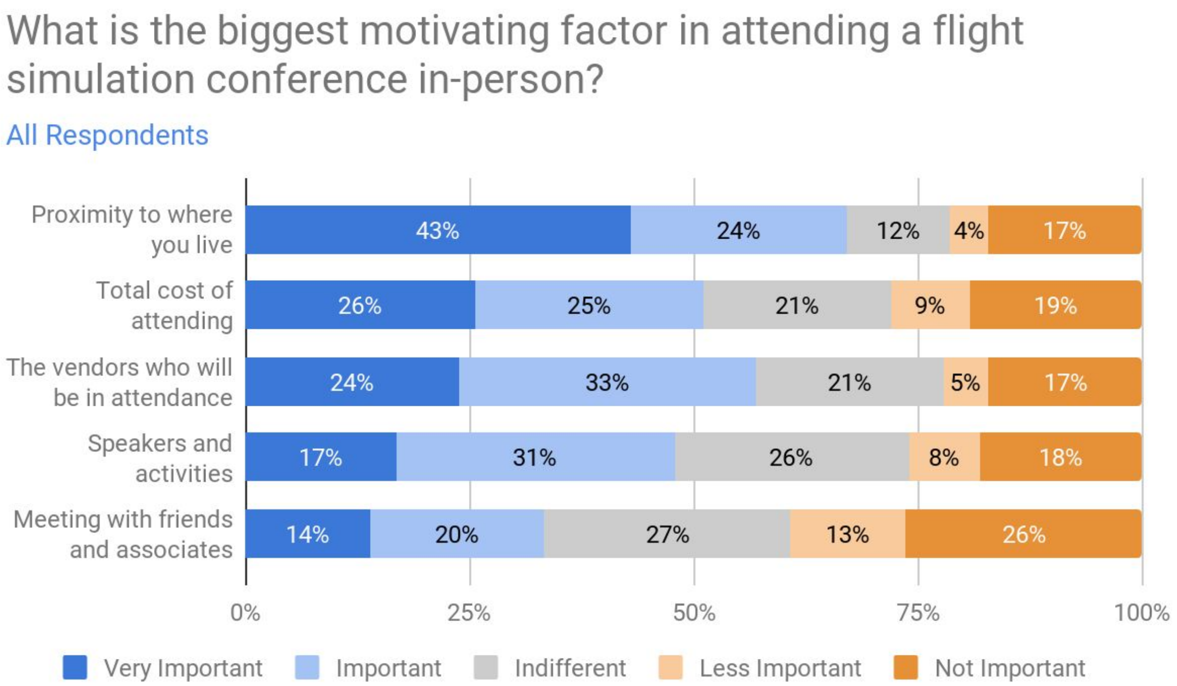


2.6.3. Future Conference Attendance

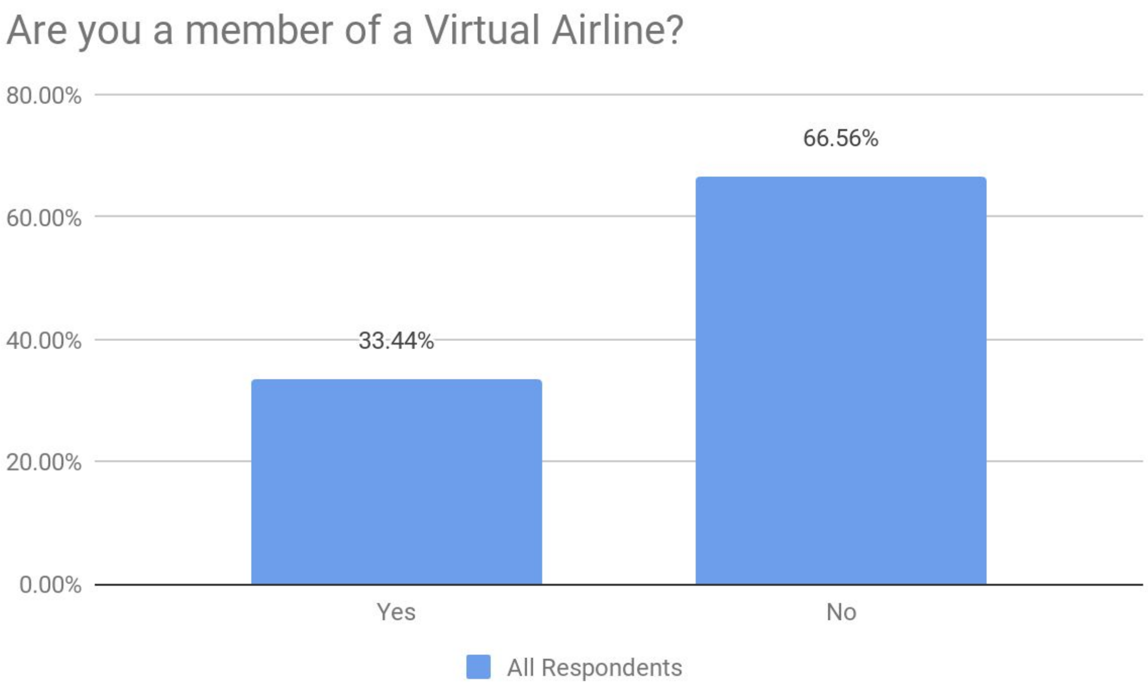
These are the most frequently mentioned conferences respondents plan to attend:

- Flight Sim Show, Cosford, UK
- FS Expo, Orlando, US
- FS Weekend, Lelystad, NL
- German Flight Simulation Conference, Paderborn, DE
- Oz Flight Sim Expo, Wollongong, AU
- Madrid AirSim Meeting, Madrid, ES

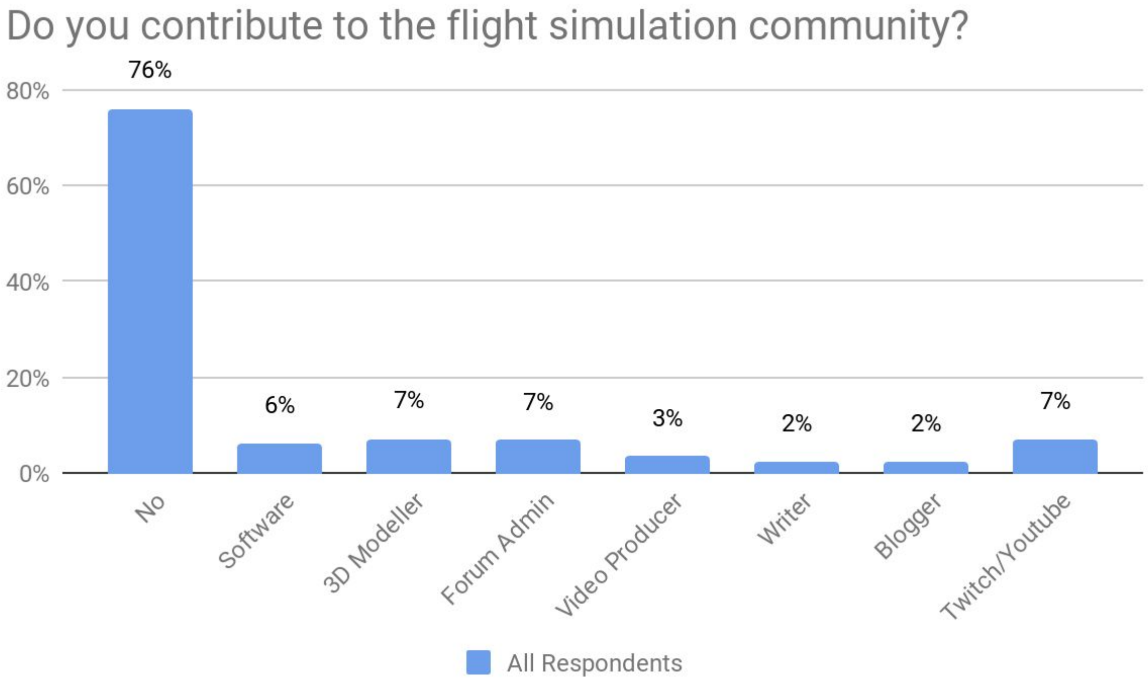
2.6.4. Conference Preferences



2.6.5. Virtual Airline Membership

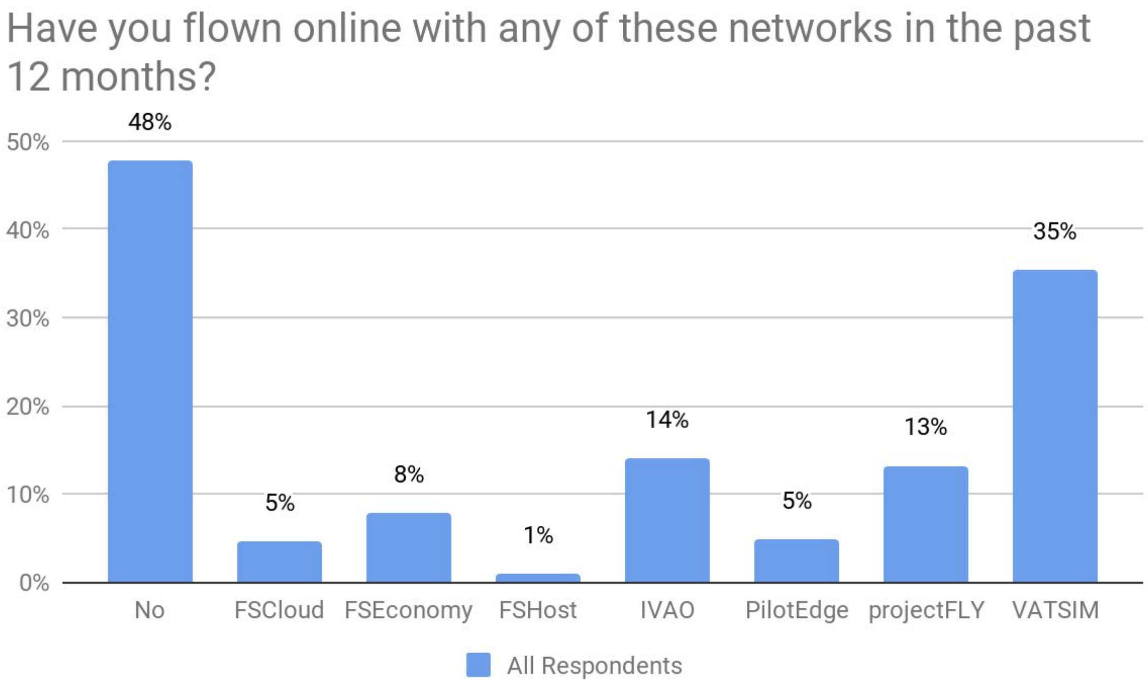


2.6.5. Contribution



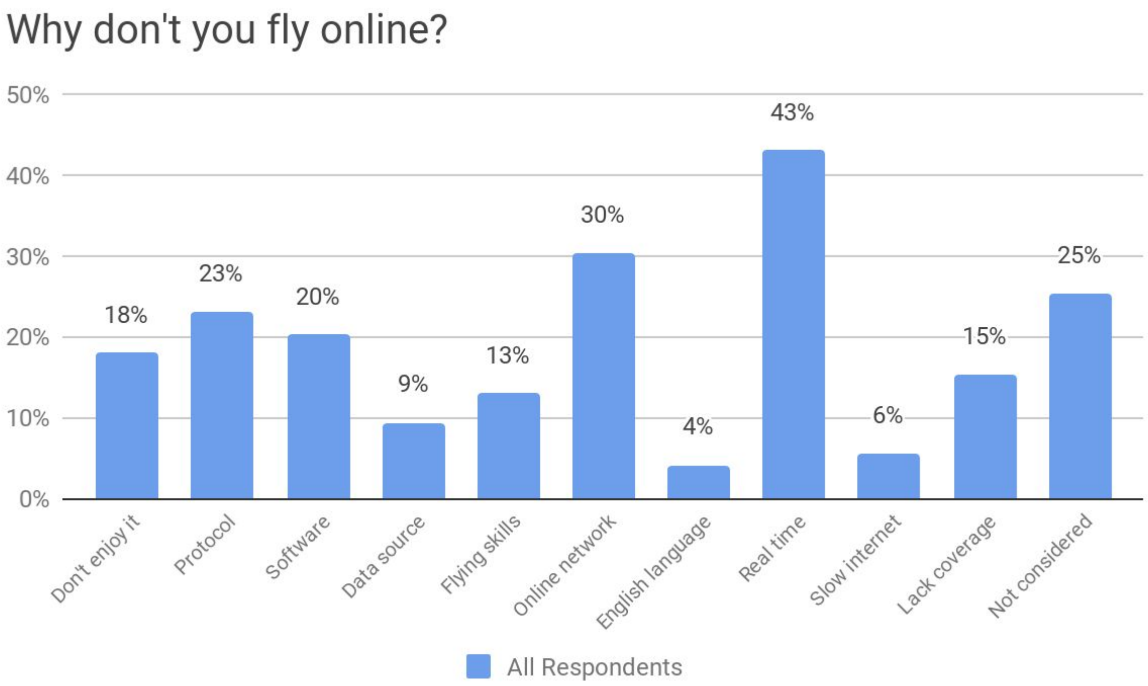
10% of the answers provided in the “Other” answer option free text field by all respondents were variations on “beta tester”.

2.6.6. Online Flying



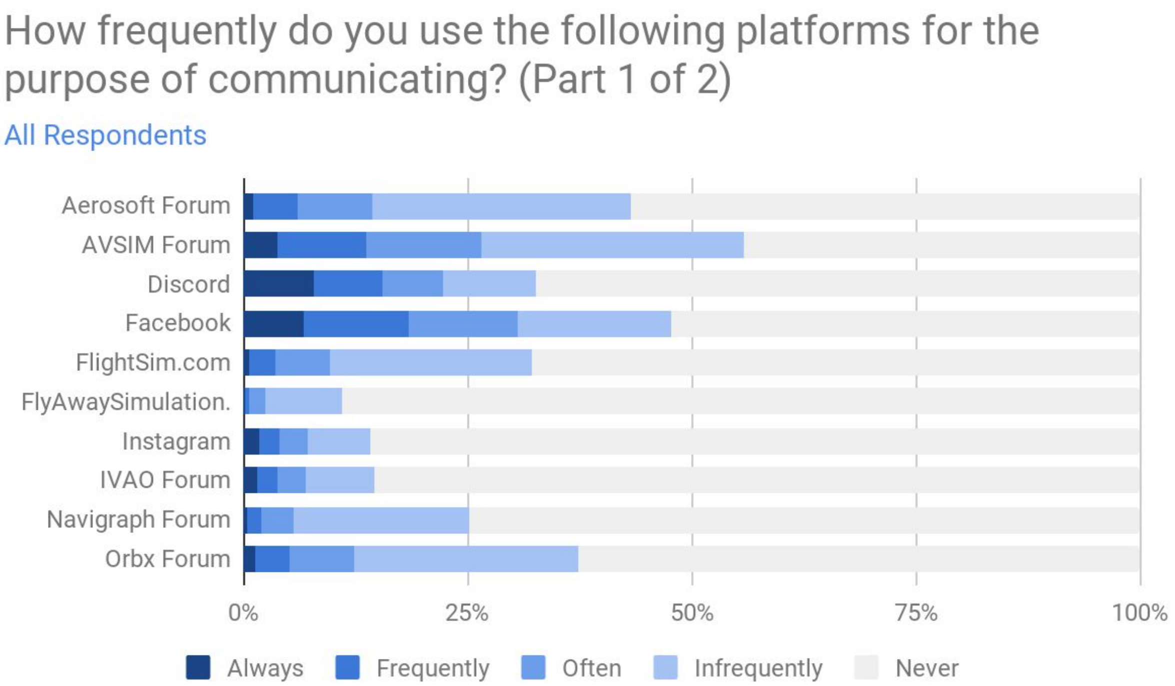
2.6.7. Reasons for not Flying Online

This question was only shown to respondents that stated they did not fly online.



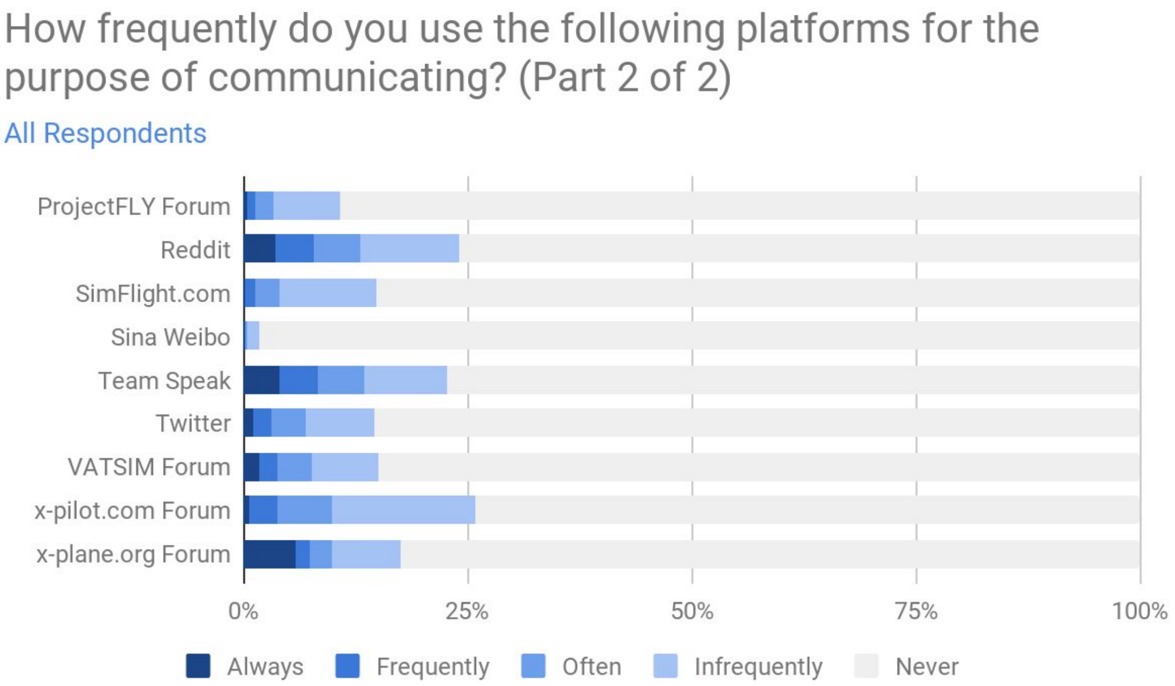
	All Respondents
I don't enjoy it	18%
I don't know how to speak to air traffic controllers (protocol and radio alphabet)	23%
I don't know which software to use or how to configure it	20%
I don't have the same charts or data source as the air traffic controllers	9%
I don't know how to fly well enough	13%
I am not a member of an online network	30%
I don't speak English well enough	4%
I can't commit to fly in real time or want to be able to pause my simulation	43%
My internet connection is too slow or not stable	6%
Lack of controller coverage	15%
Never considered it	25%

2.6.8. Communication Platforms



How frequently do you use the following platforms for the purpose of communicating? (Part 1 of 2)

All Respondents

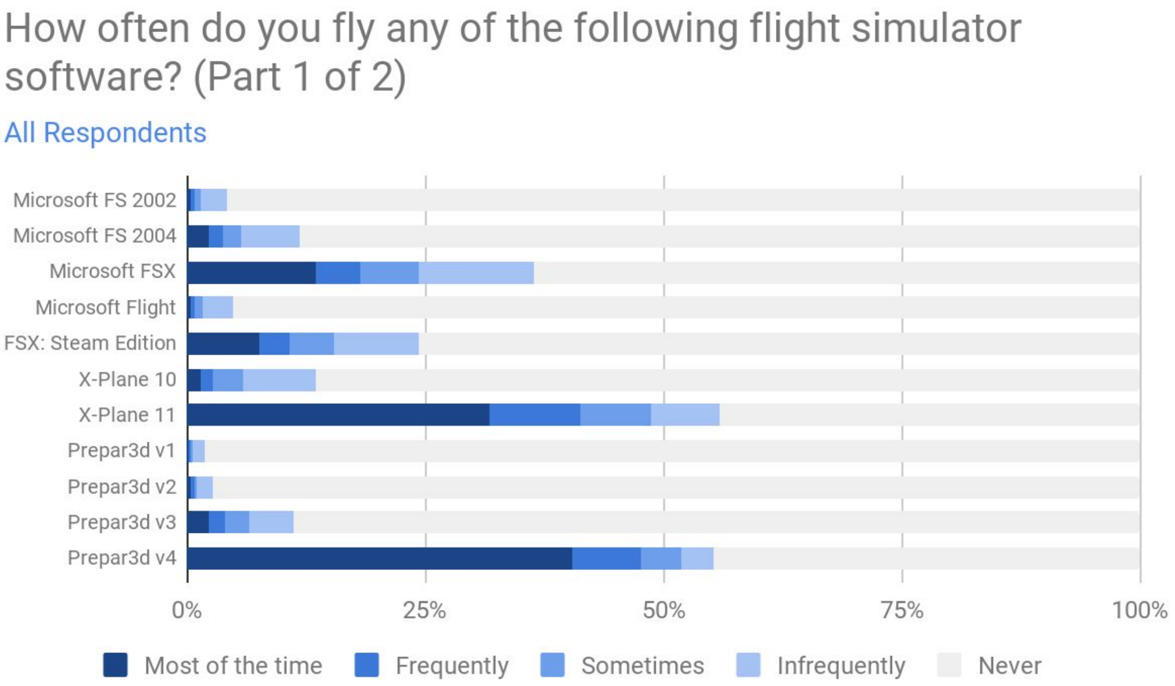


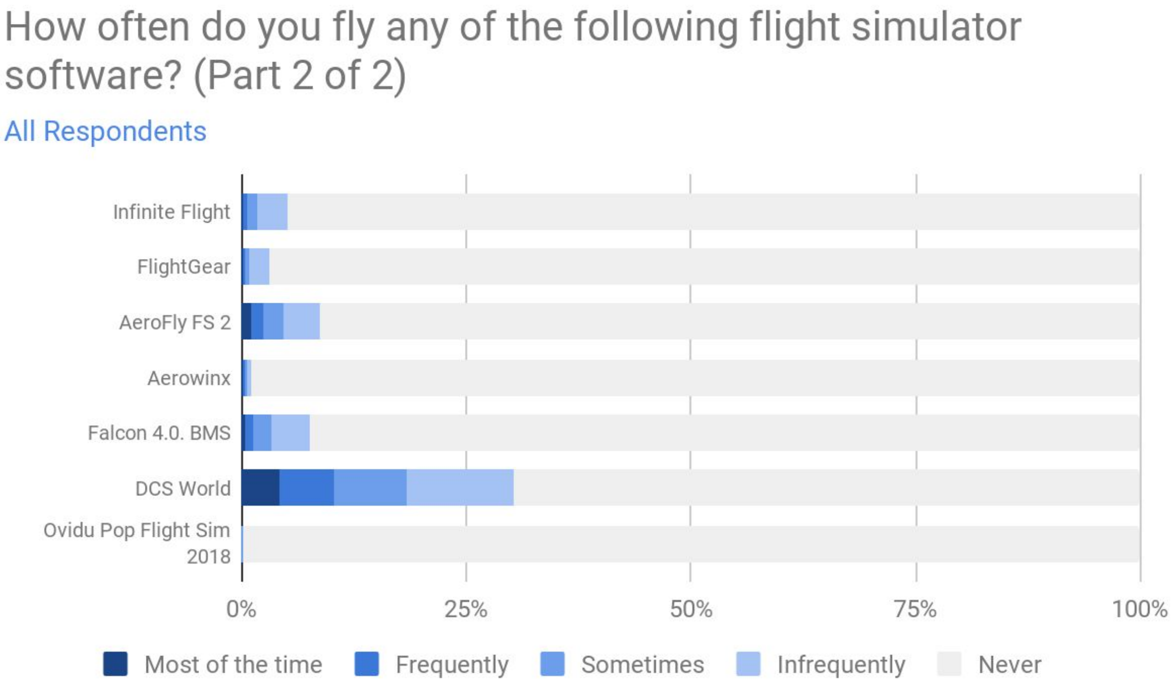
How frequently do you use the following platforms for the purpose of communicating? (Part 2 of 2)

All Respondents

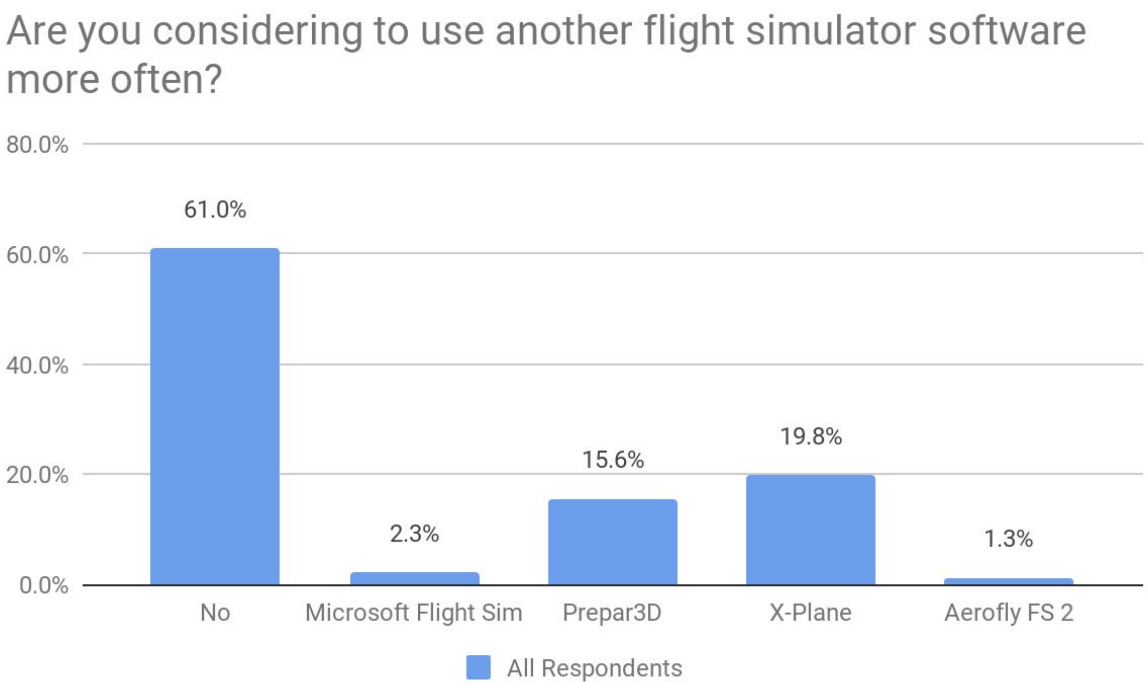
2.7. Simulator Platform

2.7.1. Primary Simulator Software



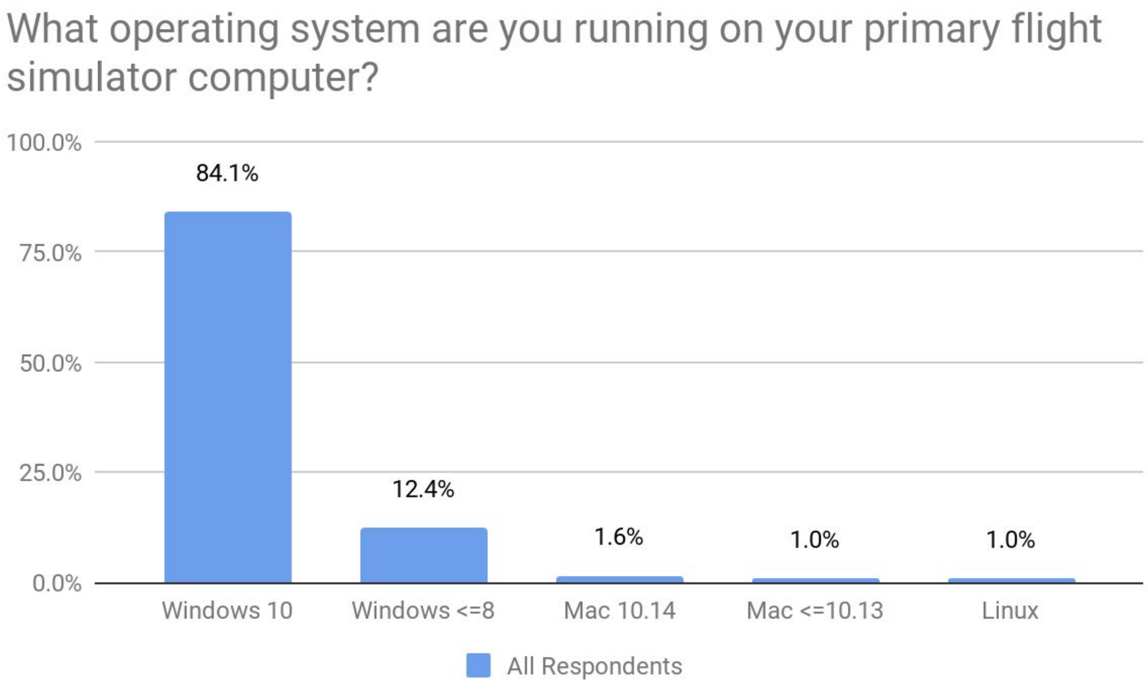


2.7.2. Simulator Software Change

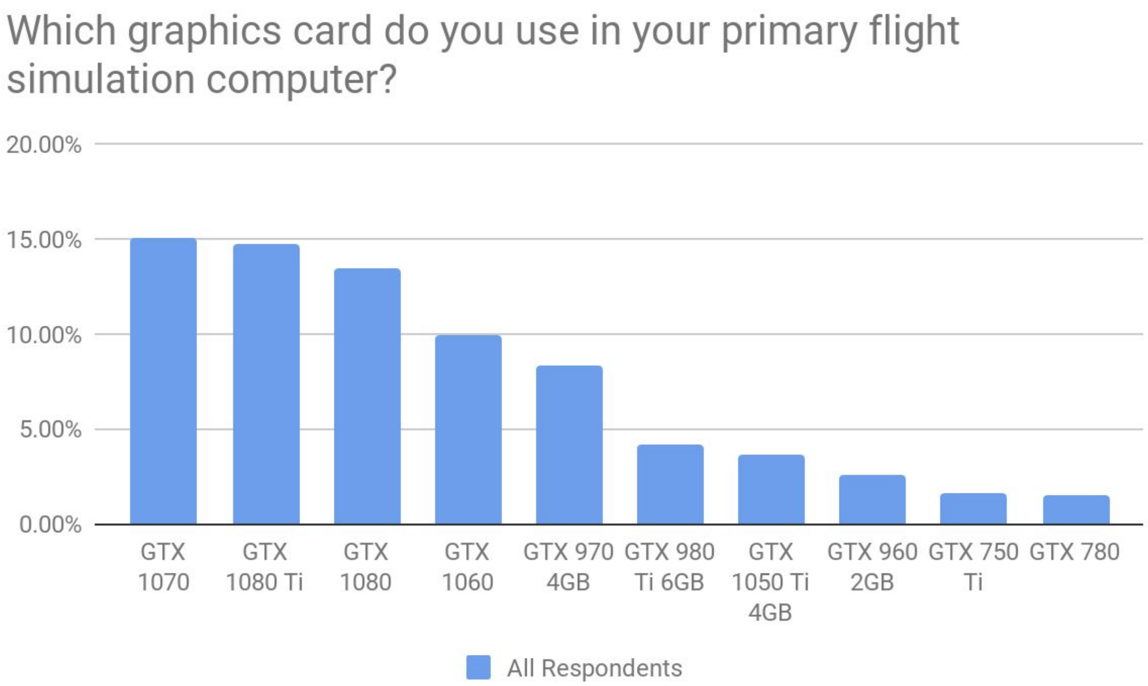


	All Respondents
No	61.0%
Microsoft Flight Sim	2.3%
Prepar3D	15.6%
X-Plane	19.8%
Aerofly FS 2	1.3%

2.7.3. Operating System

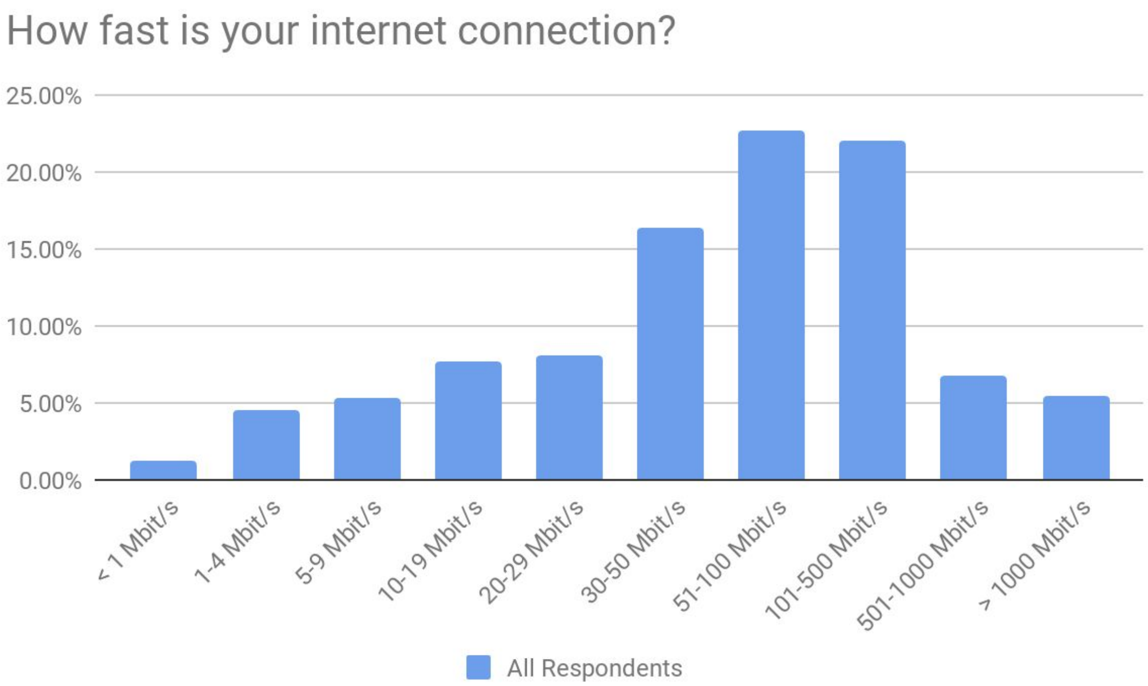


2.7.4. Graphics Card



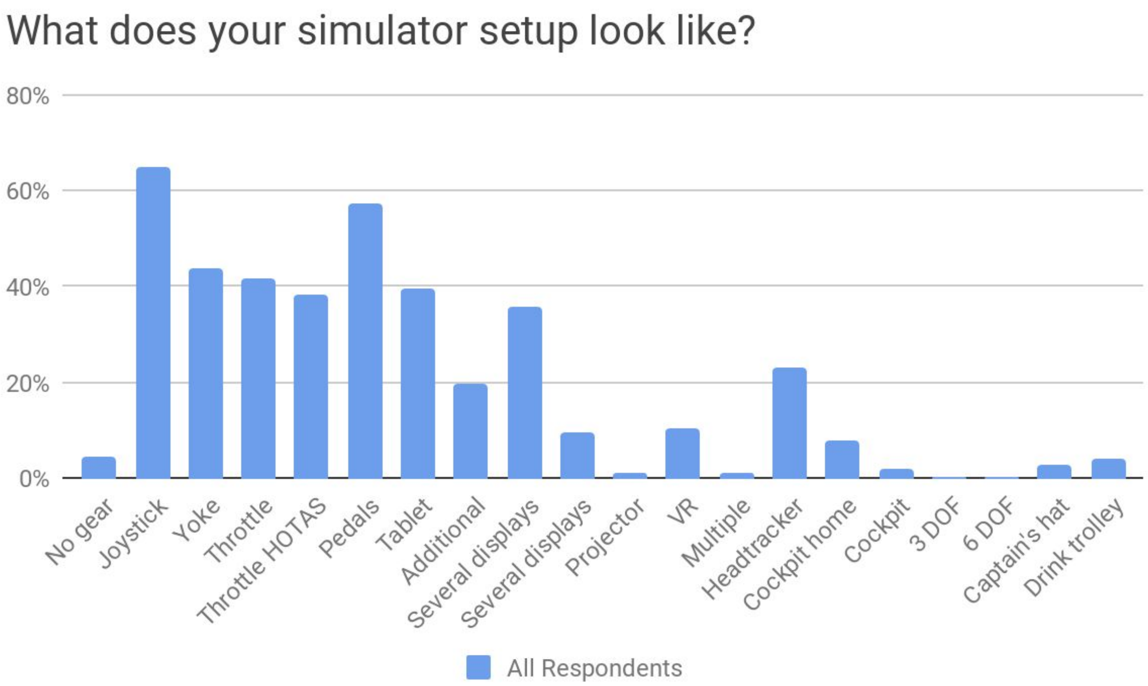
Graphics Card	All Respondents
GTX 1070	15.05%
GTX 1080 Ti	14.71%
GTX 1080	13.43%
GTX 1060	9.92%
GTX 970 4GB	8.36%
GTX 980 Ti 6GB	4.15%
GTX 1050 Ti 4GB	3.64%
GTX 960 2GB	2.57%
GTX 750 Ti	1.65%
GTX 780	1.53%
GTX 1050	1.39%

2.7.5. Internet Connection Speed



Internet Speed	**All Respondents**
< 1 Mbit/s	1.18%
1-4 Mbit/s	4.52%
5-9 Mbit/s	5.31%
10-19 Mbit/s	7.70%
20-29 Mbit/s	8.09%
30-50 Mbit/s	16.36%
51-100 Mbit/s	22.63%
101-500 Mbit/s	22.07%
501-1000 Mbit/s	6.73%
> 1000 Mbit/s	5.40%

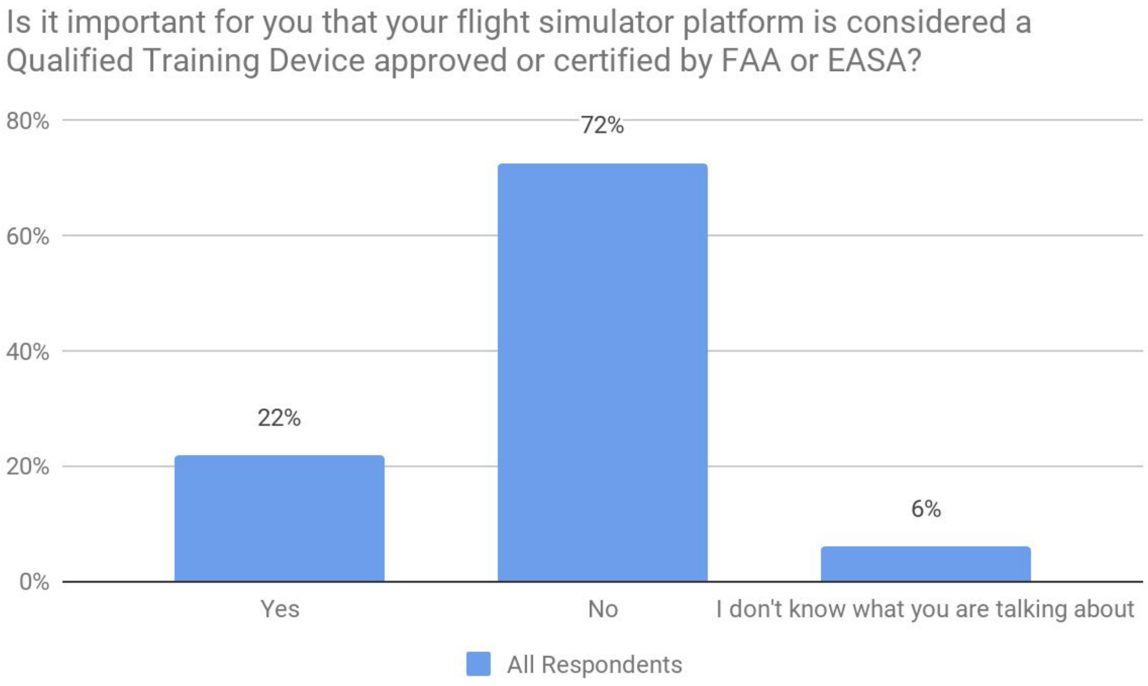
2.7.6. Auxiliary Systems



Gear	**All Respondents**
No gear	5%
Joystick	65%
Yoke	44%
Throttle	42%
Throttle HOTAS	38%
Pedals	57%
Tablet	40%
Additional computer(s)	20%
Several displays	36%
Several displays Panoramic	9%
Projector	1%
VR	11%
Multiple projectors	1%
Headtracker	23%

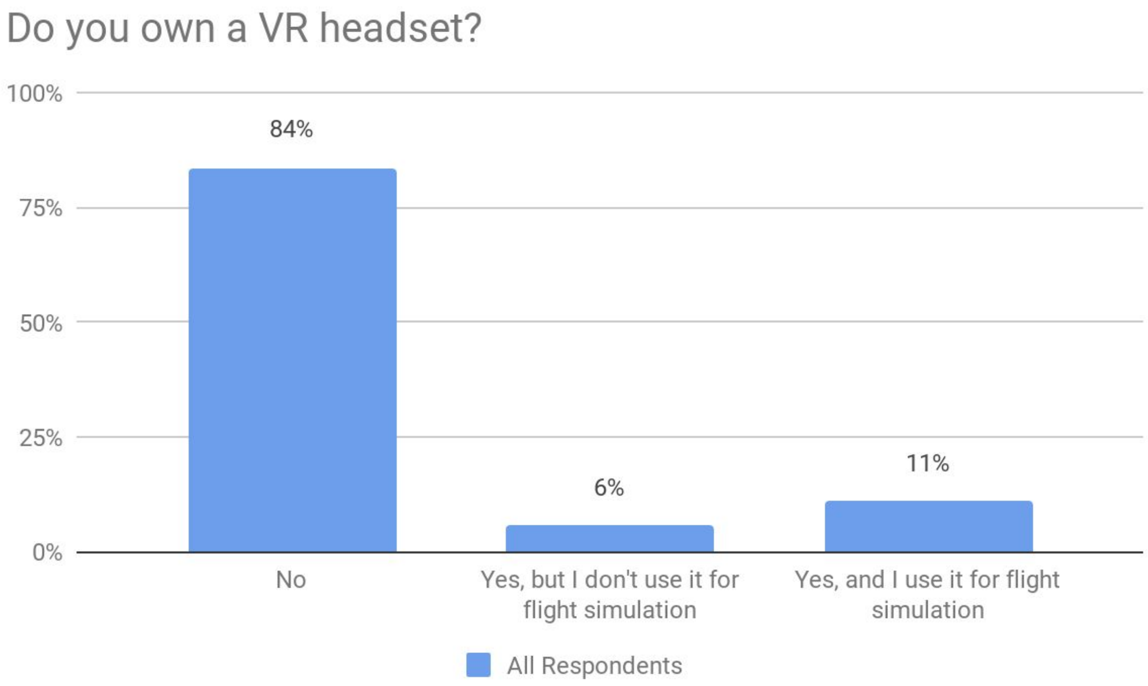
Cockpit home project	8%
Cockpit professional	2%
3 DOF	0%
6 DOF	0%
Captain's hat	3%
Drink trolley	4%

2.7.7. Qualified Training Device


Is it important for you that your flight simulator platform is considered a Qualified Training Device approved or certified by FAA or EASA?

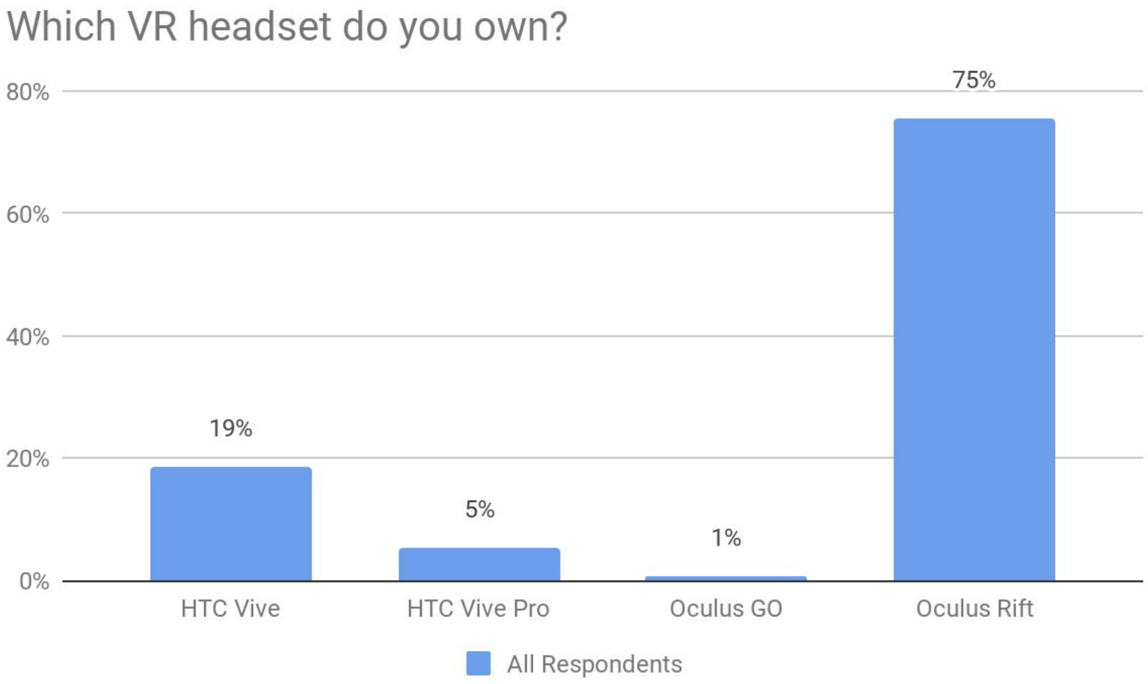
2.8. Virtual Reality

2.8.1. Ownership

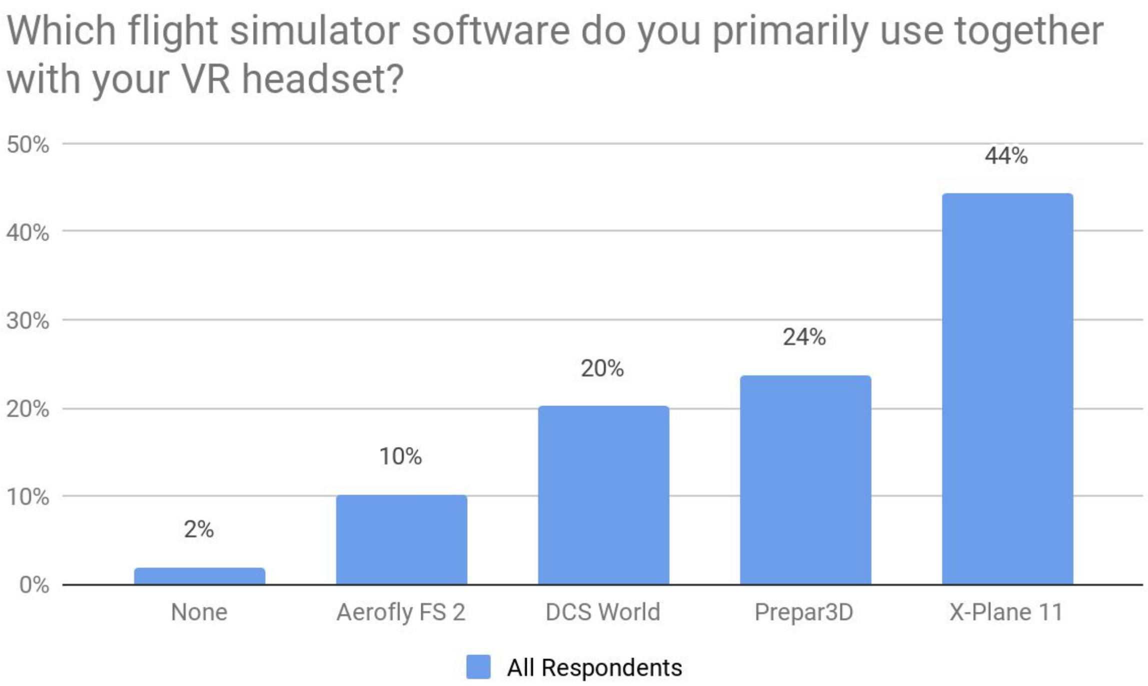


2.8.2. Brand

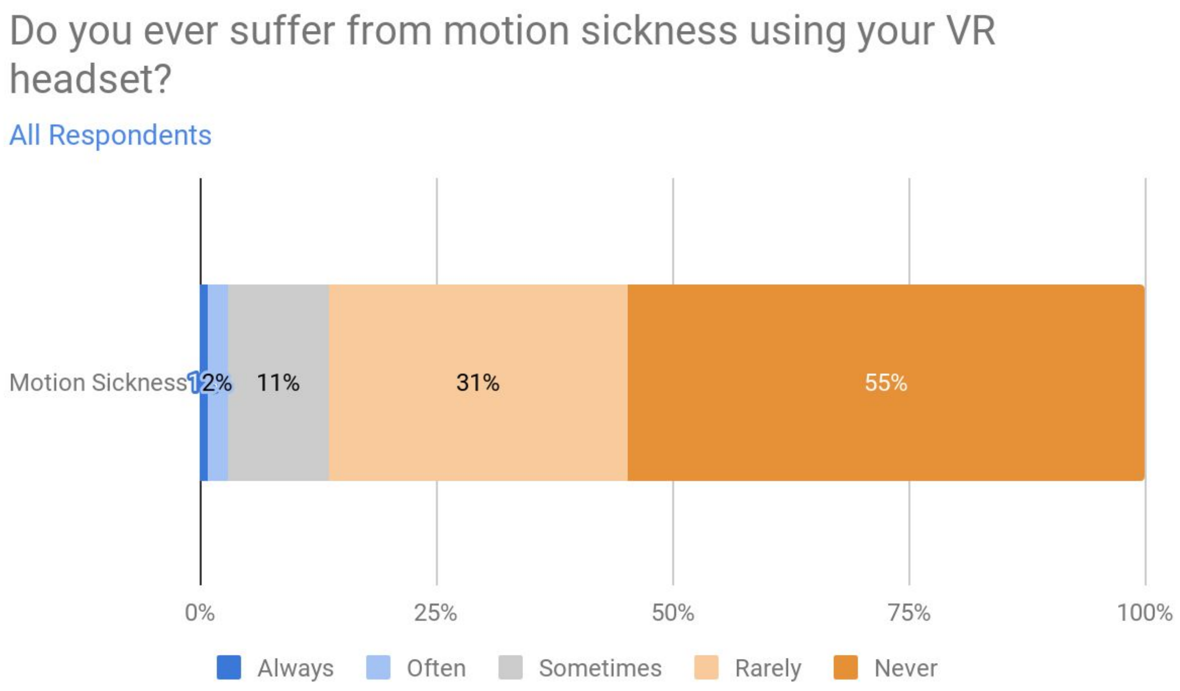
The following questions regarding VR were only asked to respondents who stated they owned a VR headset.



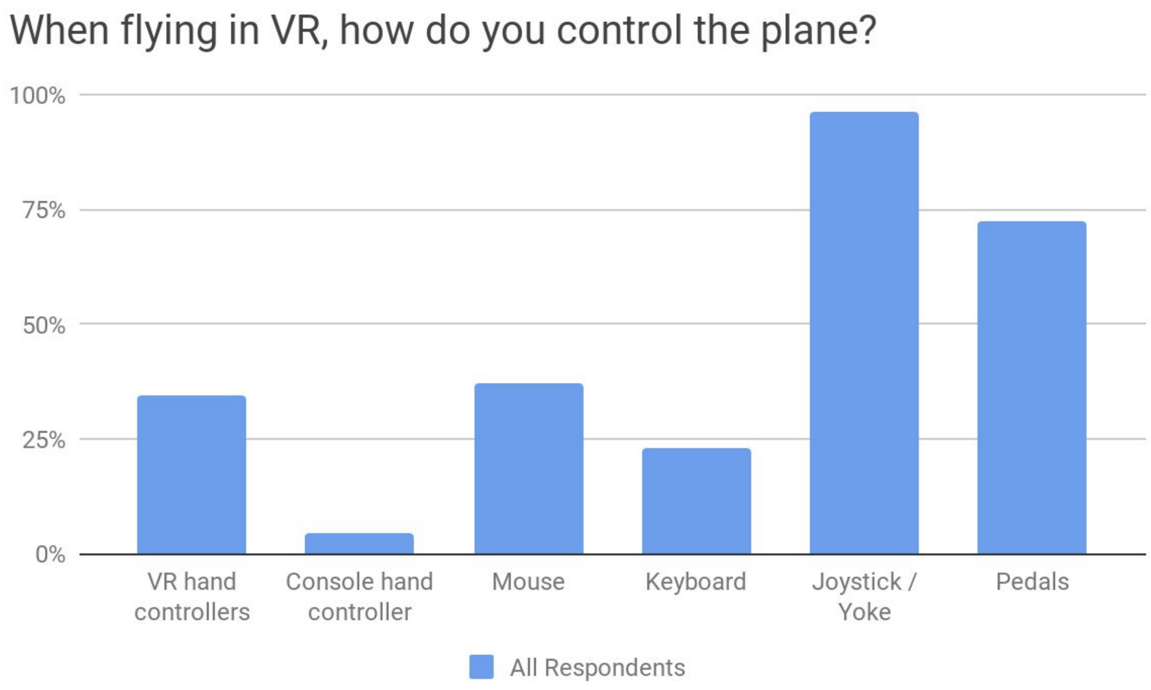
2.8.3. VR Simulator Software



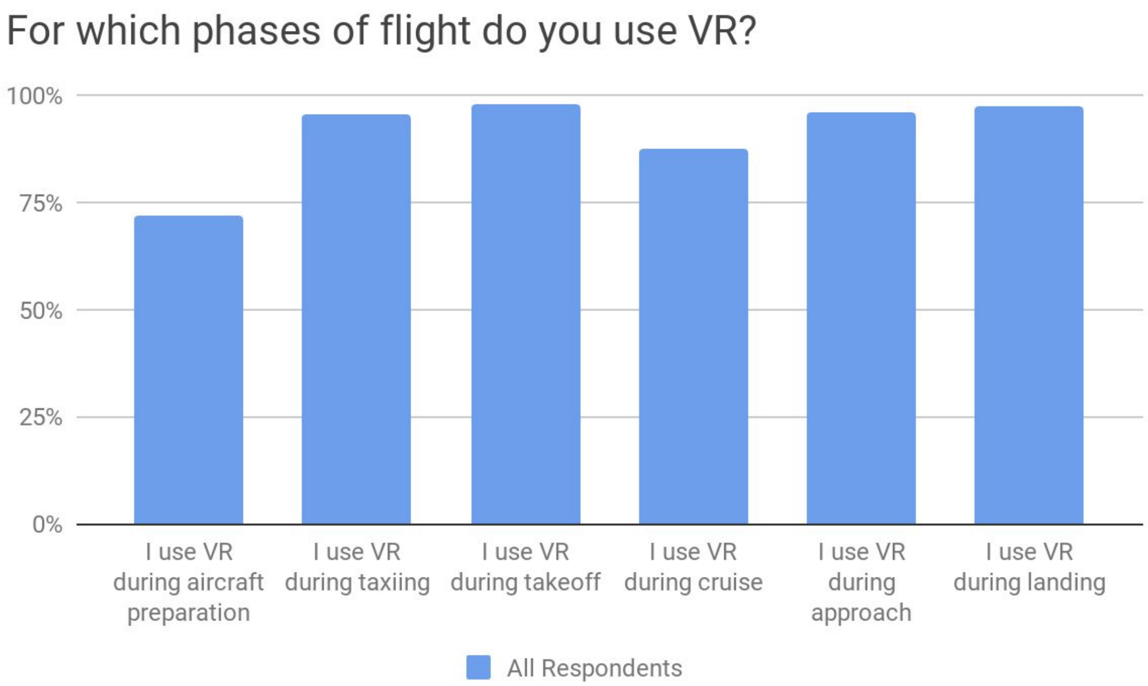
2.8.4. Motion Sickness



2.8.5. VR Controls

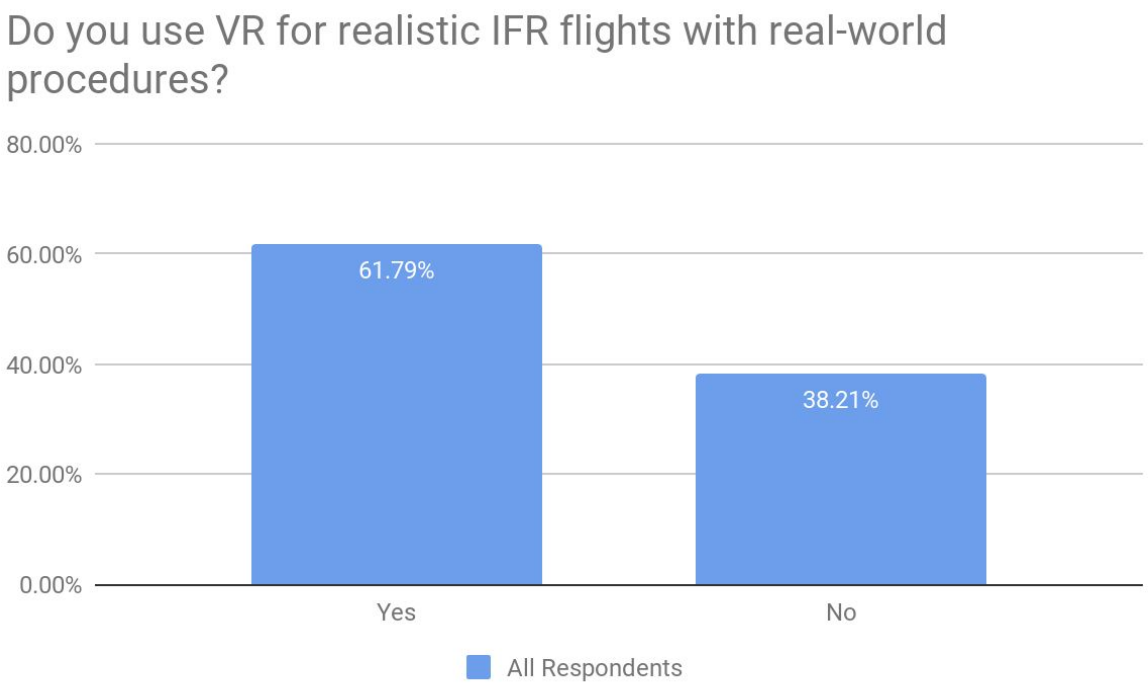


2.8.6. Flight Phases in VR



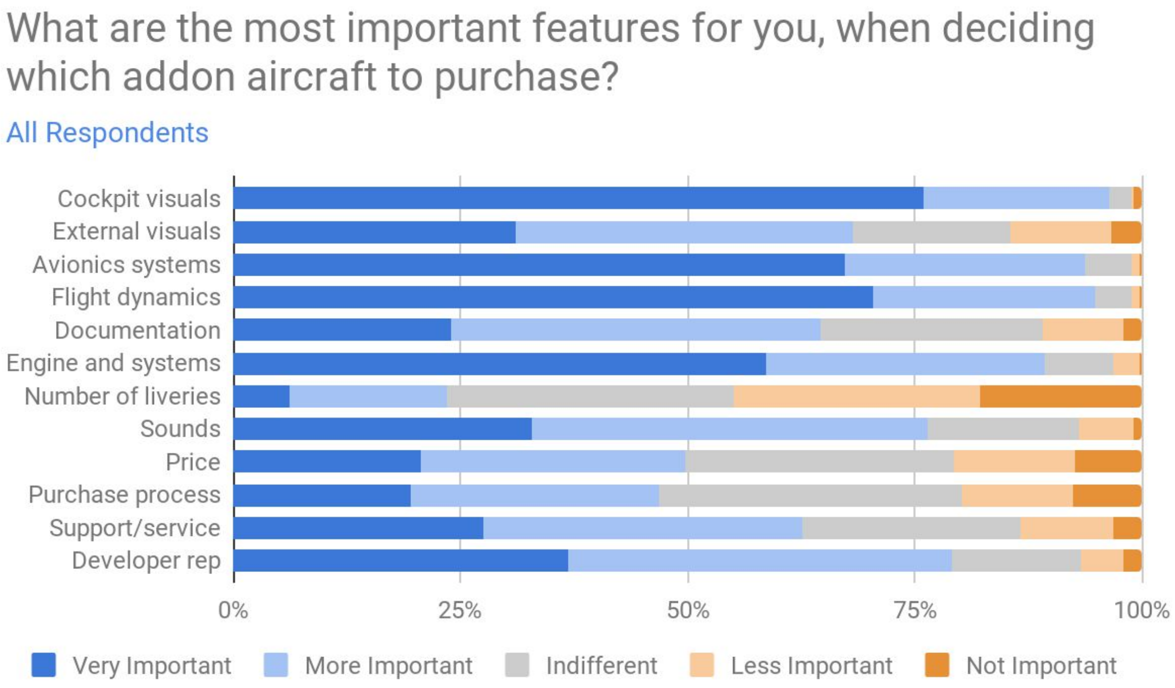
	All Respondents
I use VR during aircraft preparation	72%
I use VR during taxiing	95%
I use VR during takeoff	98%
I use VR during cruise	88%
I use VR during approach	96%
I use VR during landing	98%

2.8.7. VR for IFR flights

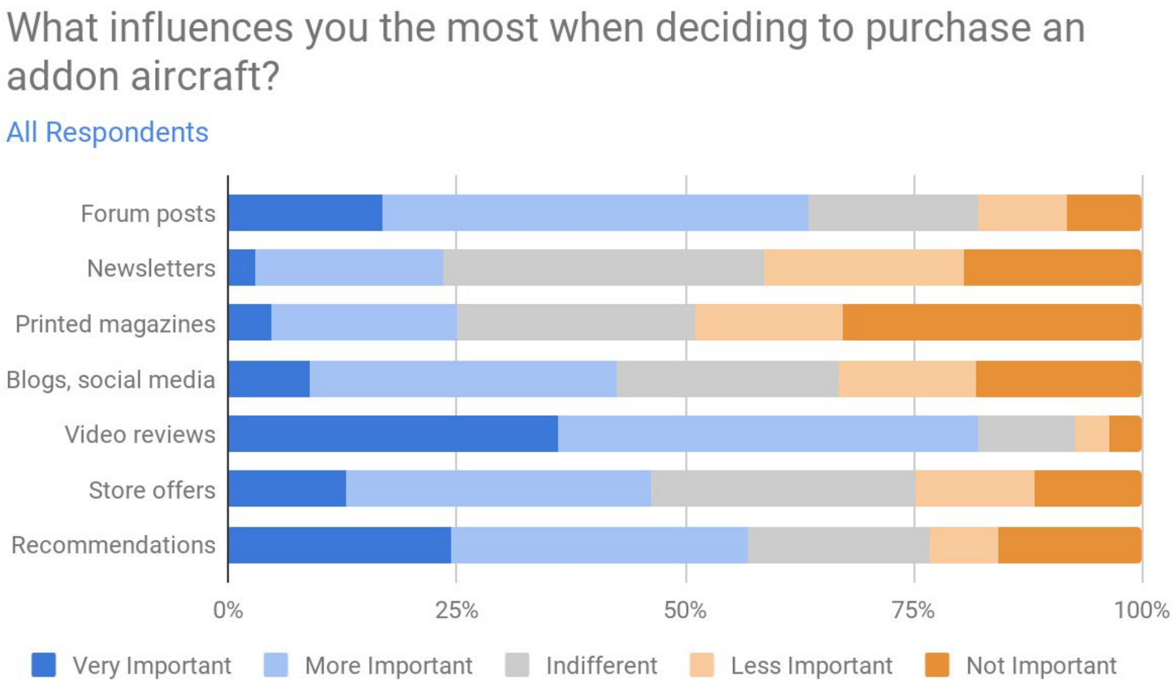


2.9. Aircraft Addons

2.9.1. Aircraft Feature Importance

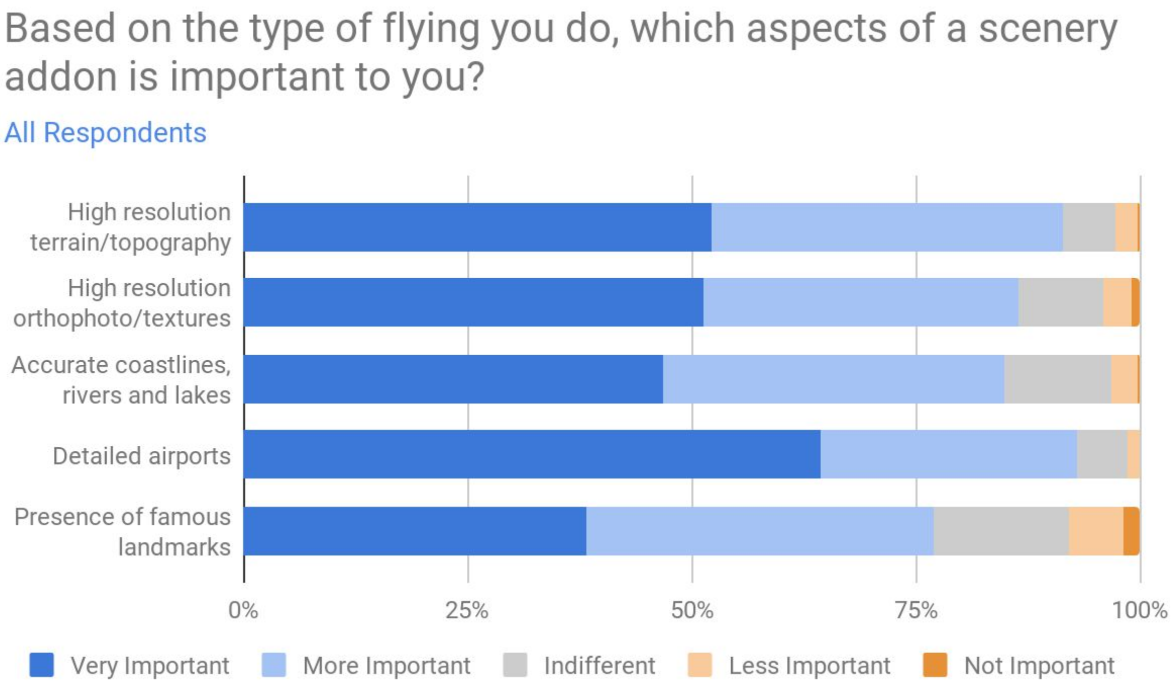


2.9.2. Purchase Influences

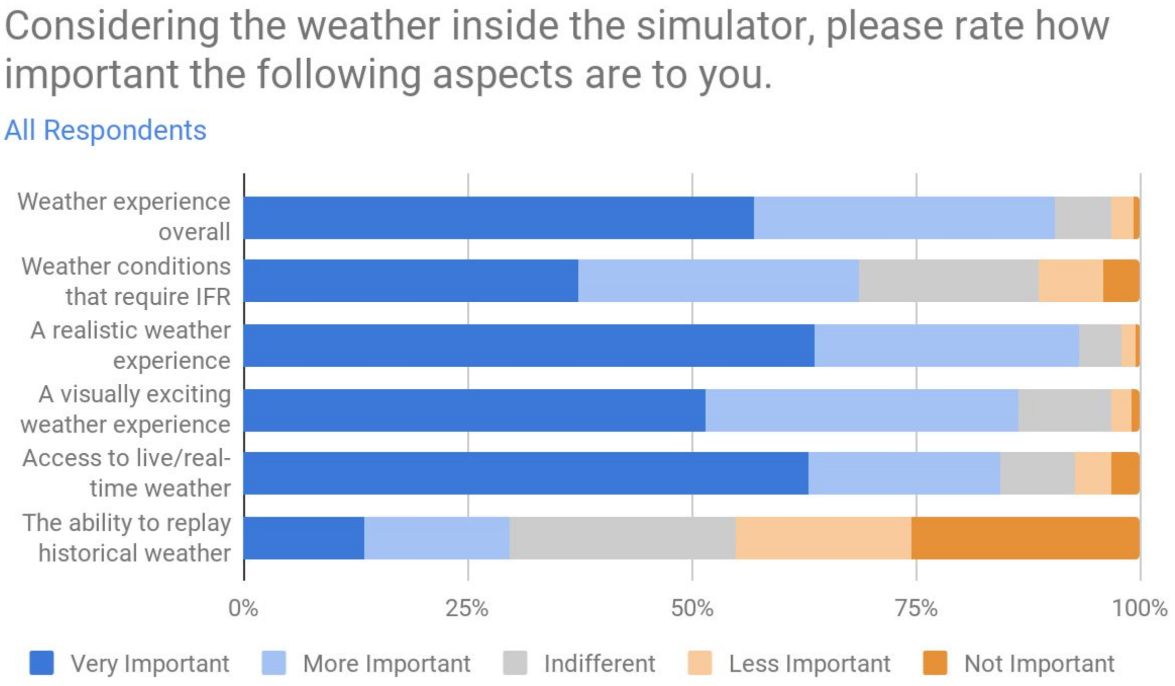


2.10. Scenery and Weather

2.10.1. Scenery Importance

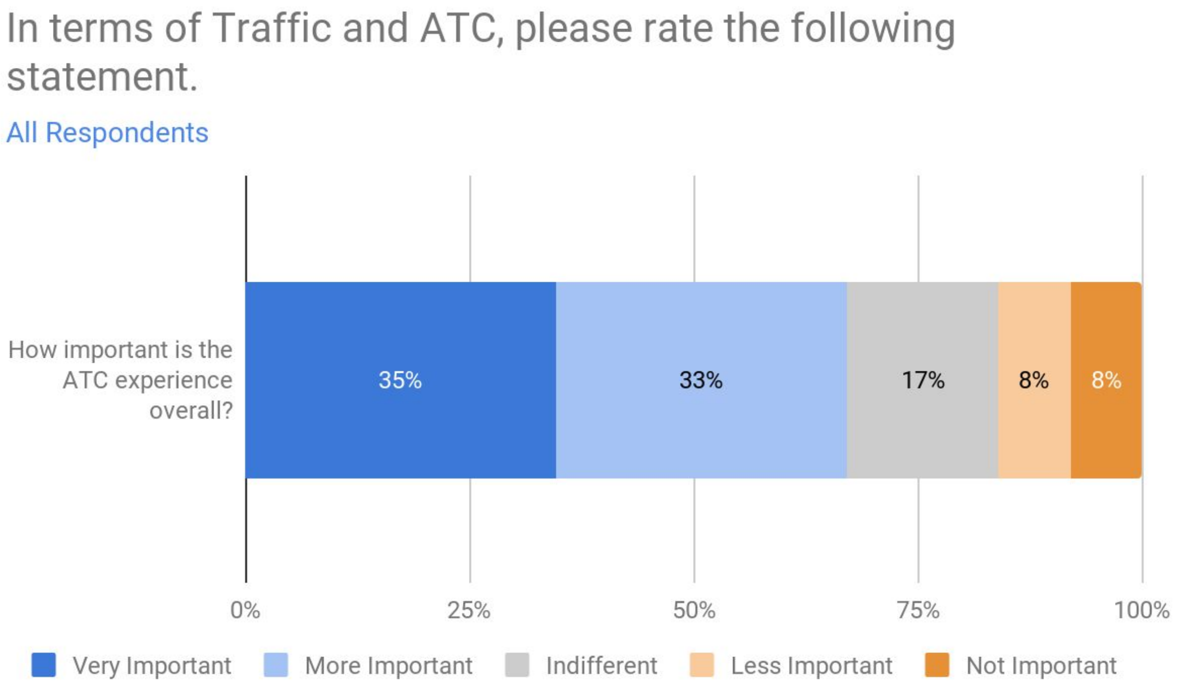


2.10.2. Weather Importance

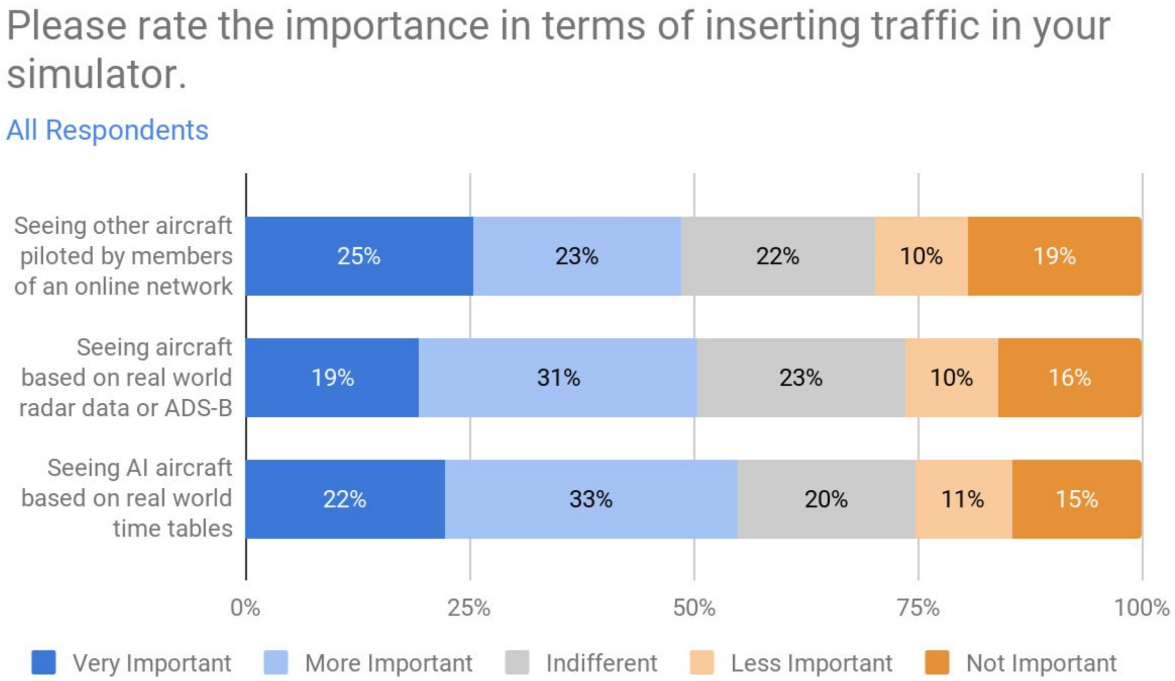


2.11. Traffic and Air Traffic Control

2.11.1. ATC Importance

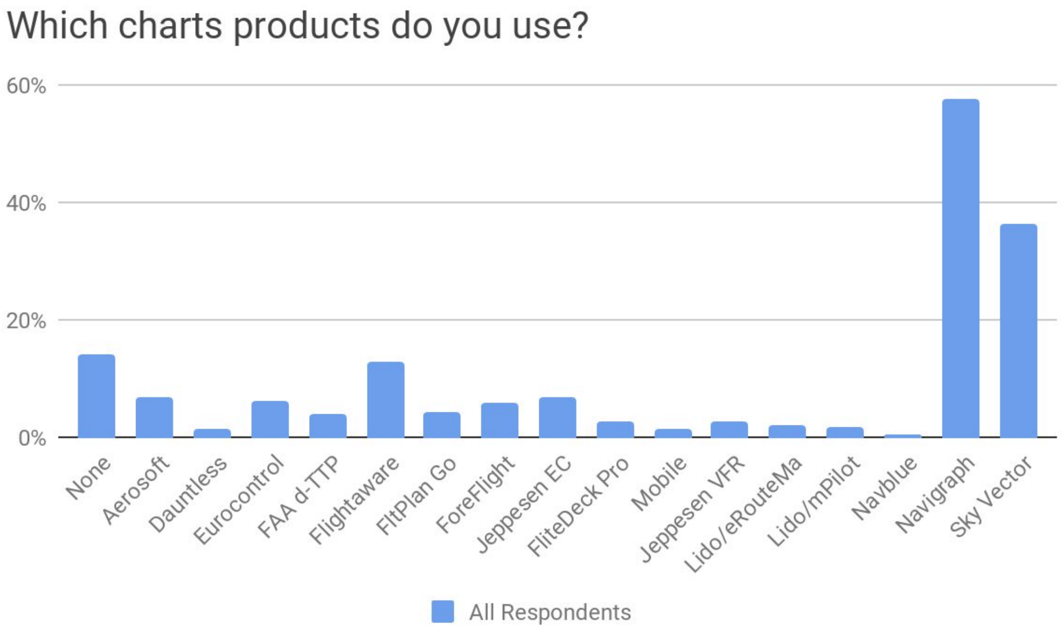


2.11.2. External Traffic



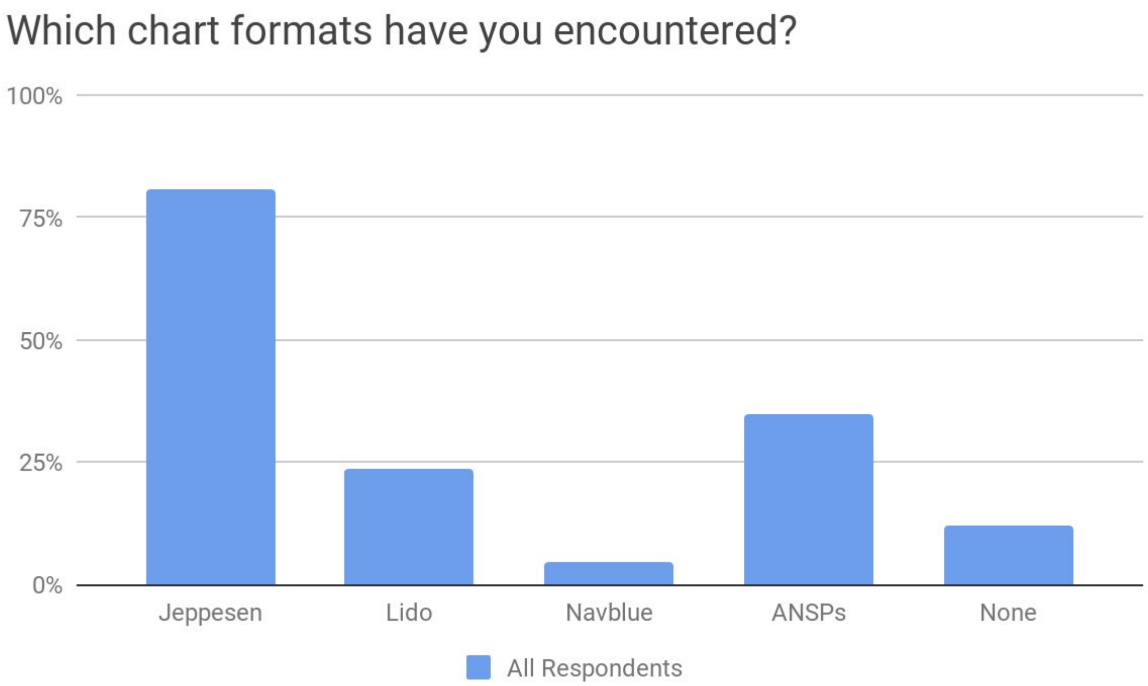
2.12. Charts Products and Addons

2.12.1. Charts Products Popularity



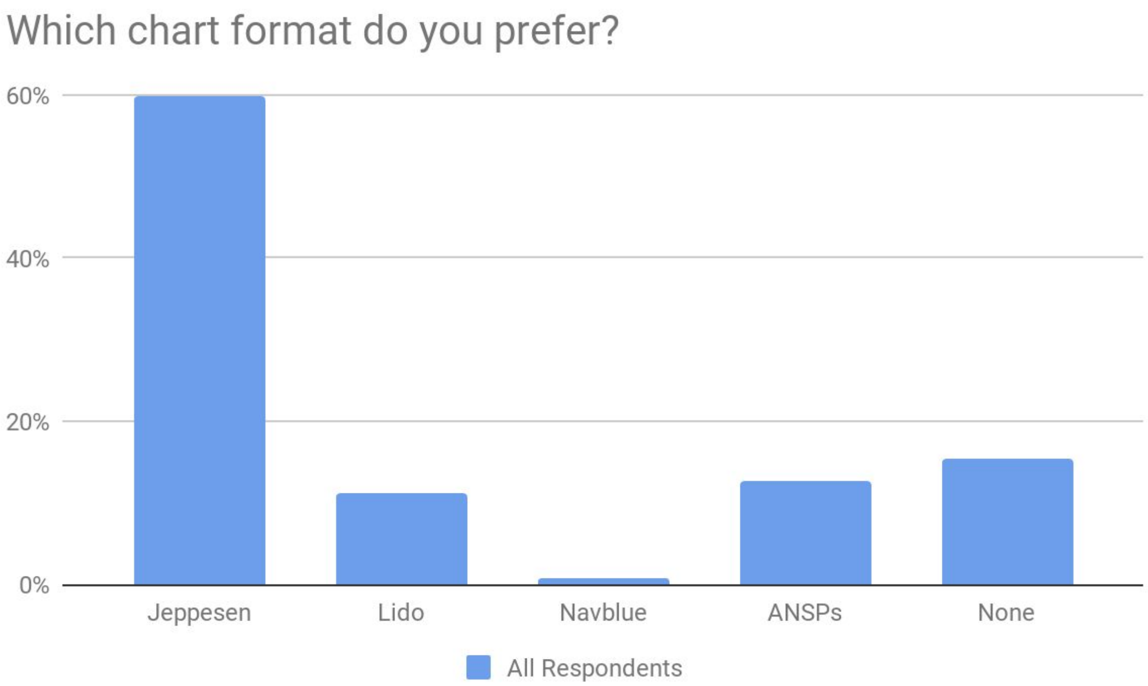
	All Respondents
None	14%
Aerosoft NavDataPro	7%
Dauntless Aviation SimPlates	2%
Eurocontrol EAD	6%
FAA d-TTP	4%
Flightaware	13%
FltPlan Go	4%
ForeFlight Mobile EFB	6%
Jeppesen EC	7%
FliteDeck Pro	3%
Mobile FliteDeck	2%
Jeppesen VFR Manual	3%
Lido/eRouteManual	2%
Lido/mPilot	2%
Navblue (formerly Navtech/EAG) Charts+	0%
Navigraph Charts	58%
Sky Vector	36%

2.12.2. Charts Products Awareness



Product	**All Respondents**
Jeppesen	81%
Lido	24%
Navblue	5%
ANSPs	35%
None	12%

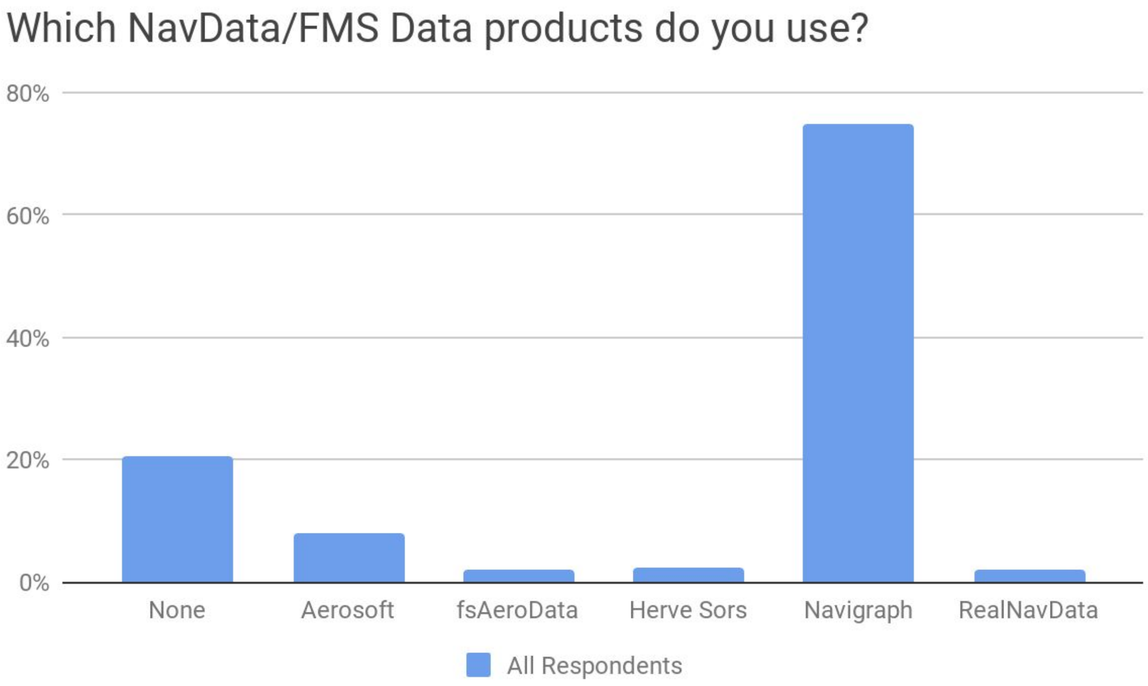
2.12.3. Charts Preference



	All Respondents
Jeppesen	60%
Lido	11%
Navblue	1%
ANSPs	13%
None	15%

2.13. NavData/FMS Data

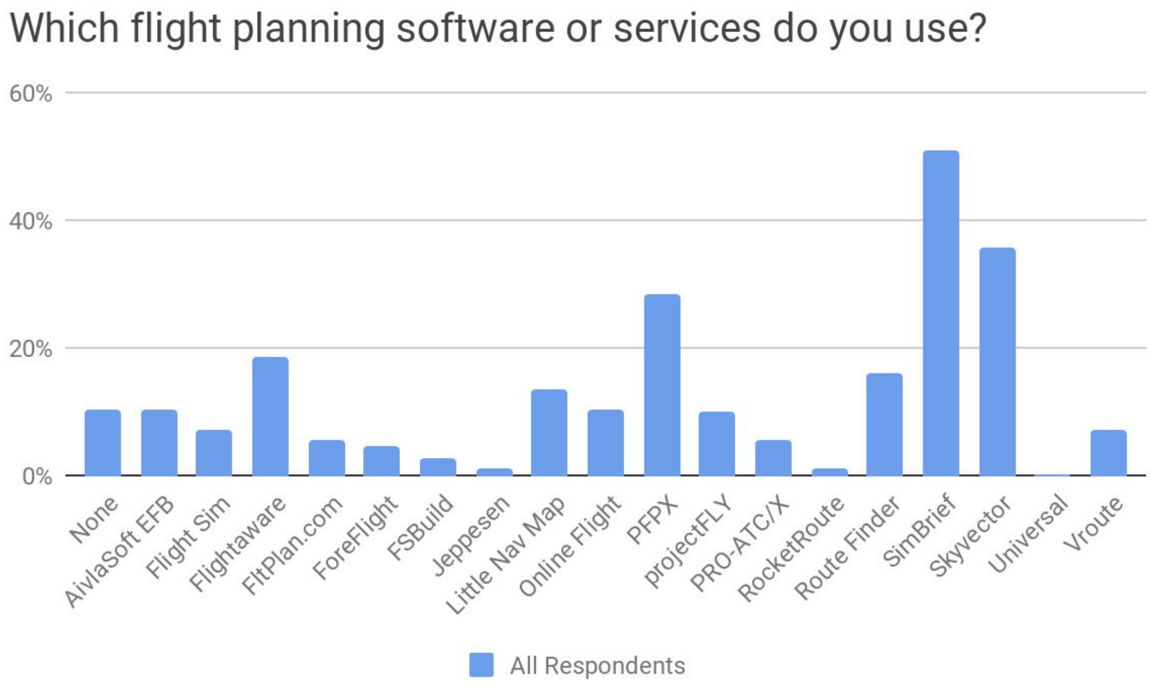
2.13.1. NavData/FMS Data Products Popularity



	All Respondents
None	21%
Aerosoft	8%
fsAeroData	2%
Herve Sors	2%
Navigraph	75%
RealNavData	2%

2.14. Flight Planning

2.14.1. Flight Planning Products Popularity

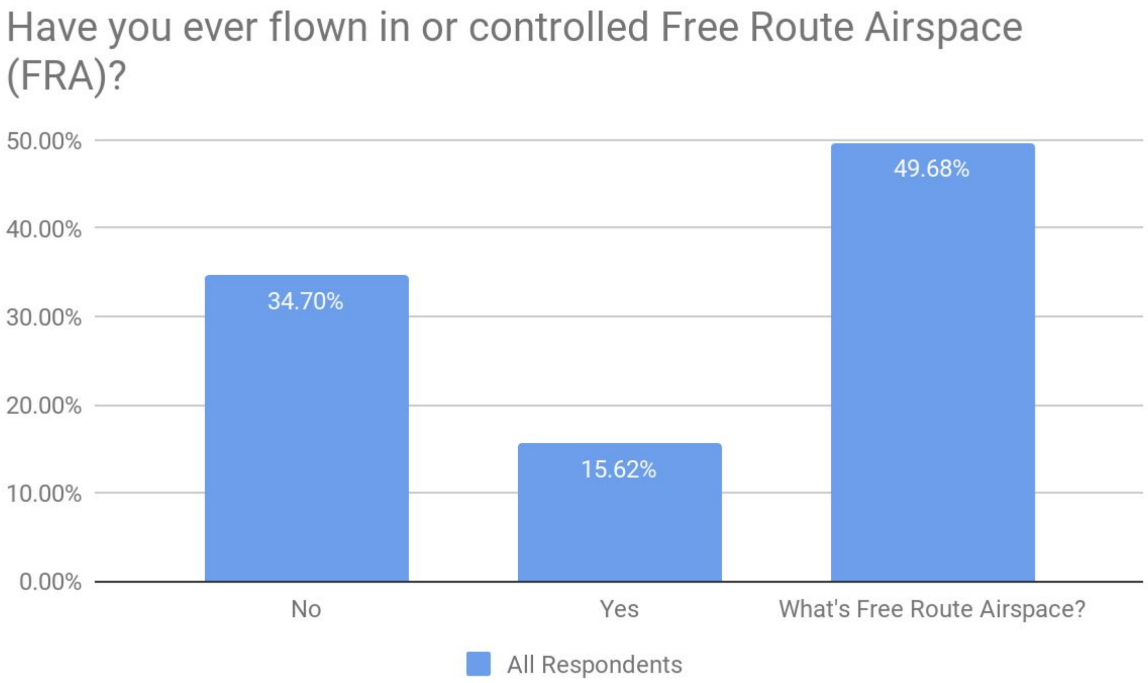


	All Respondents
None	10%
AivlaSoft EFB	10%
Flight Sim Commander	7%
Flightaware	19%
FltPlan.com	5%
ForeFlight Flights	5%
FSBuild	3%
Jeppesen FliteStar	1%
Little Nav Map	13%
Online Flight Planner	10%
PFPX	28%
projectFLY	10%

PRO-ATC/X	6%
RocketRoute	1%
Route Finder	16%
SimBrief	51%
Skyvector	36%

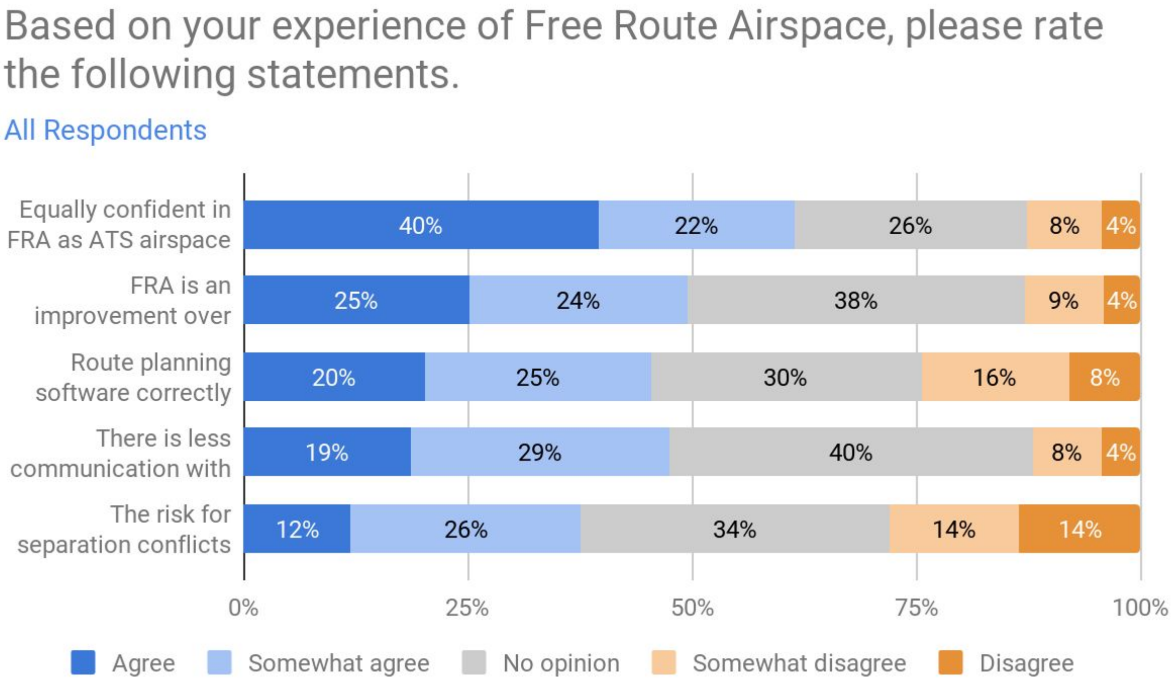
2.15. Free Route Airspace

2.15.1. Experience



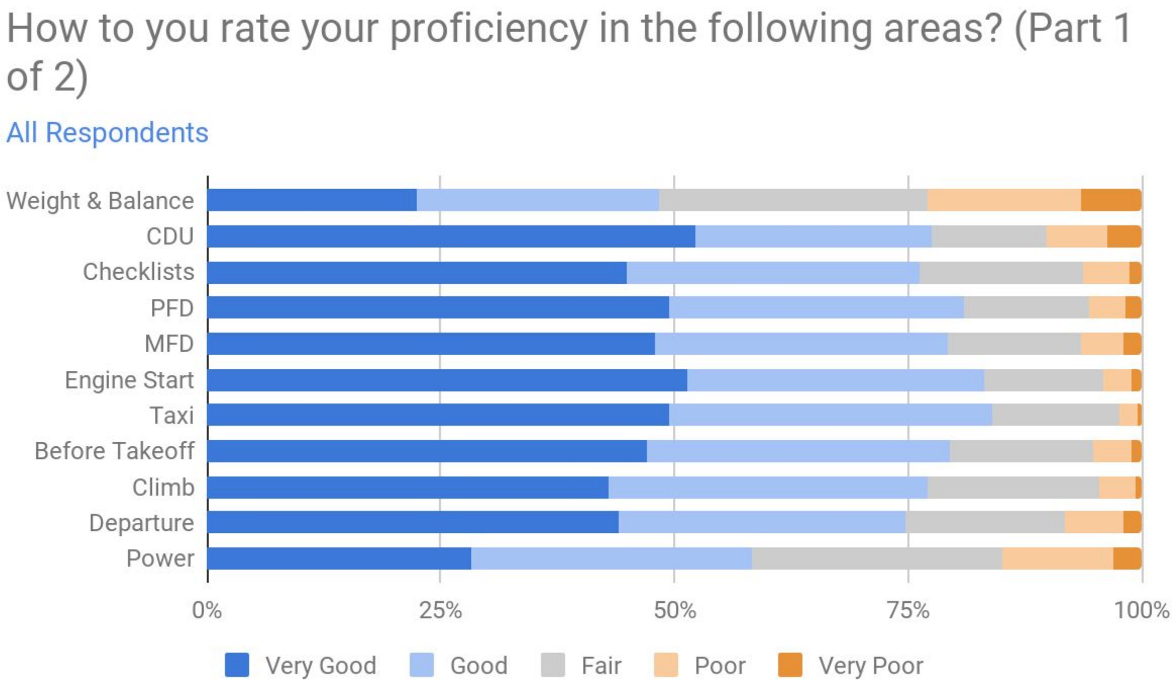
2.15.2. Opinion

The following question was asked to the respondents who said they have experience with FRA.

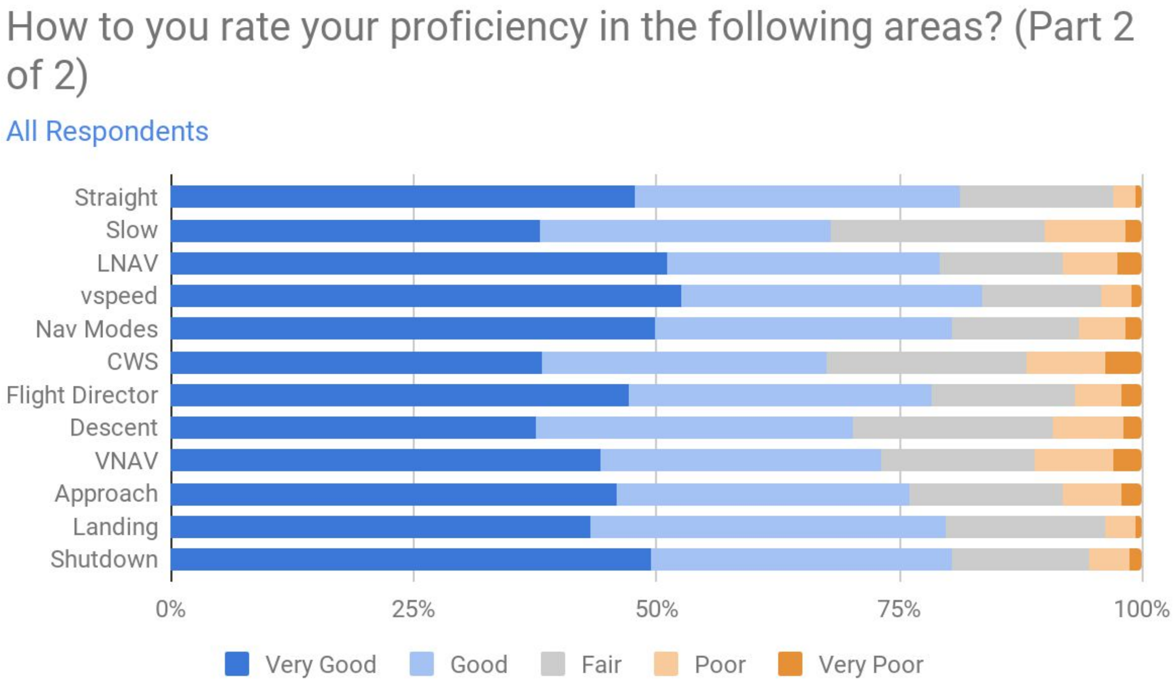


2.16. Proficiency

2.16.1. Training proficiency


How to you rate your proficiency in the following areas? (Part 1 of 2)

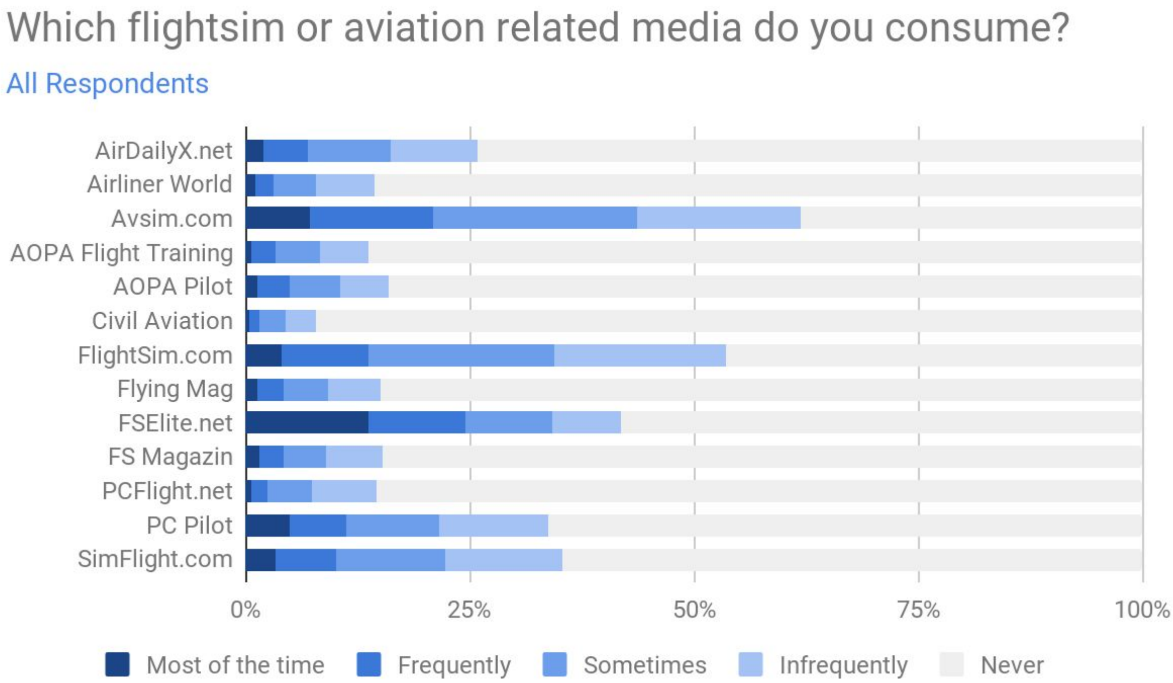
All Respondents


How to you rate your proficiency in the following areas? (Part 2 of 2)

All Respondents

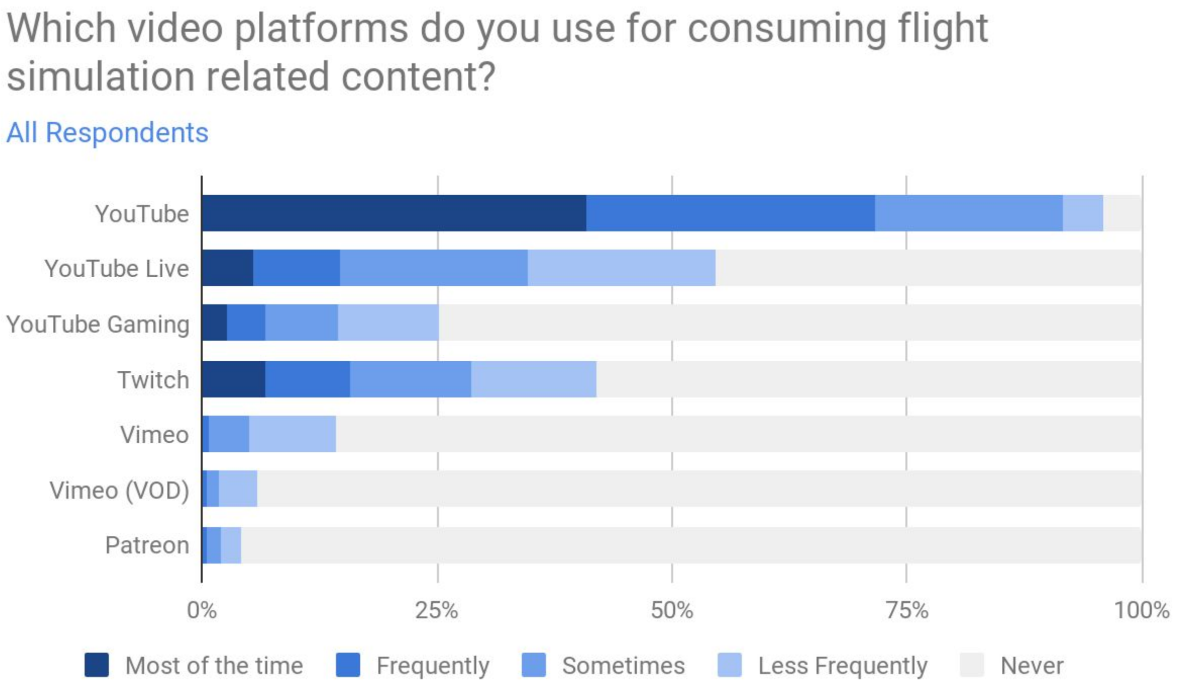
2.17. Media

2.17.1. Media Consumption



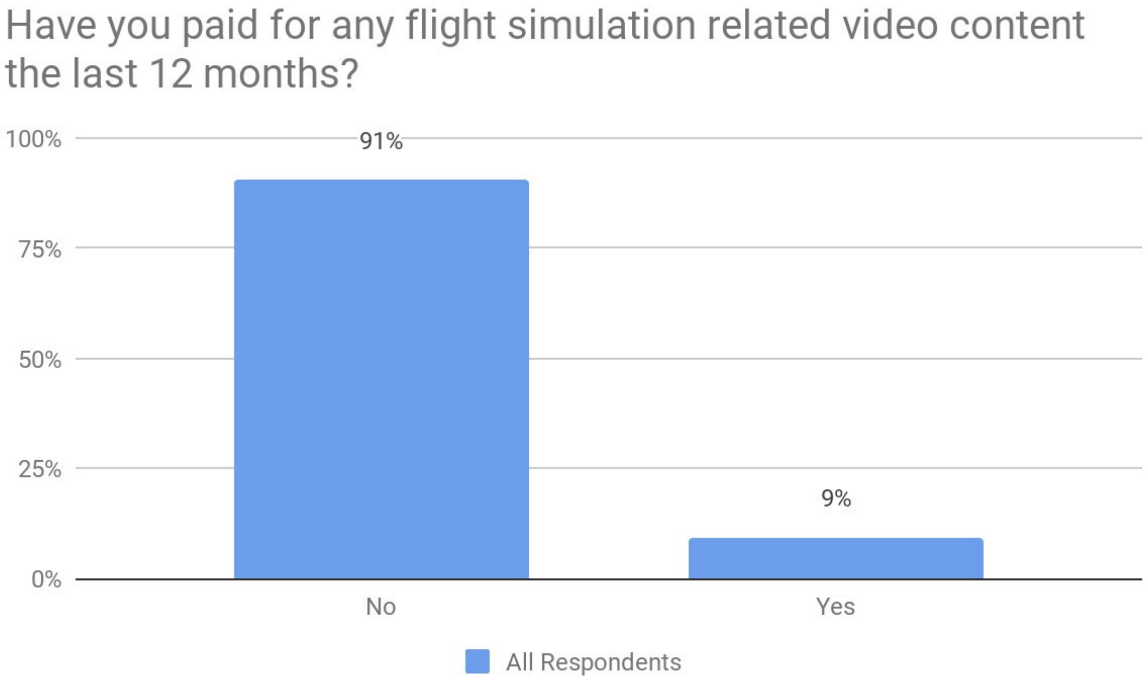
2.18. Video

2.18.1. Platform Preference



2.18.2. Paid Content

- 9.42% of all respondents have paid for flight simulation related video content during the last 12 months.



3. Conclusion

The typical flight simulator enthusiast is a 43 year old male from the United States. He flies simulators 2-3 times per week for about 5-10 hours in total and was introduced to flight simulation 20 years ago. There is a 27% likelihood he already has some sort of pilot license. If so, he was introduced to flight simulation before he pursued his pilot license. Moreover, he has a bachelor's degree, is full time employed, makes 50,000 USD per year before tax, and spends about 250 USD on software and 200 USD on hardware annually. He prefers X-Plane 11, but Prepar3D v. 4 is also popular.

These are some of the conclusions from the annual FlightSim Community Survey 2018 organized by Navigraph together with 19 partners. More than 15,000 respondents contributed which makes this survey the largest of its kind. With 77 questions it is also the most comprehensive, covering demographics, as well as simulation preferences and habits. This year the survey also incorporated specific questions on Virtual Reality and Free Route Airspace.

The results are shared openly with the community for everyone's benefit. Each partner is also receiving a customized report presenting their user group in respect to the total community to promote development and recruitment of more pilots to the flight simulation hobby.

To track trends another survey will be published in November 2019. The emphasis will be on diversifying the sample by including additional partner organizations. Companies, organizations, and developers within the flight simulation community are already now invited to contact Navigraph to discuss next year's set of questions.

3.1. Comparison with Previous Work

As mentioned in 1.4. Previous Work other flight simulation surveys exist. While it is interesting to compare and try to identify potential trends readers are cautioned that the surveys have different sample sizes and also draw respondents from different user groups.

3.1.1. Primary Simulator Software

A survey comparison could indicate that X-Plane continues to grow also this year.

In the 2016 Navigraph respondents could only select between three simulator platforms. The results were:

- Microsoft FSX 60%
- Lockheed Martin Prepar3D 30%
- Laminar Research X-plane 10%

In the 2017 survey, more simulator platforms were added. As seen in the table below, illustrating the 2017 Navigraph survey results, X-Plane nearly doubled (19.58%), FSX lost more than half (23.46%), and Prepar3D remained (30.72%).

In the 2018 survey, the question was expanded to include how frequently a respondent uses a particular simulator software. It is clear to see that X-Plane has continued to grow and is now on par with Prepar3D. While respondents tend to fly both simulators, most of the time is spent in Prepar3D, as seen from the graph in 2.7.1. Primary Simulator Software.

We would also like to highlight that many of the respondents indicated that they fly DCS World. This platform was not included in the 2017 survey, which further emphasizes the fact that comparisons are not straightforward.

Simulator Platform	**2017**	**Rank 2017**	**Rank 2018**
Microsoft FS 2002	0.61%		
Microsoft FS 2004	3.81%		
Microsoft FSX	23.46%	3	3
Microsoft Flight	0.22%		
Dovetail Microsoft FSX Steam Edition	9.73%		
Laminar Research X-Plane 9 or earlier	0.00%		
Laminar Research X-Plane 10	2.16%		
Laminar Research X-Plane 11	19.58%	2	1
Lockheed Martin Prepar3D v1	0.00%		
Lockheed Martin Prepar3D v2	0.57%		
Lockheed Martin Prepar3D v3	6.72%		
Lockheed Martin Prepar3D v4	30.72%	1	2
FlightGear	0.07%		
AeroFly FS 2	0.04%		
Aerowinx	0.43%		
DCS World	*	*	4
Other	1.8%		

* Not an answer alternative in 2017 survey

3.1.2. Flight Rules

In the 2017 survey, over 75% of the respondents stated that they fly IFR most of the time. Only 10% stated that they fly VFR most of the time. In this year's survey, judging from the graph in 2.4.7. Flight rules, it seems like VFR is more popular. However, the conclusion from this comparison is once again possibly an effect of the new user groups reached in this year's survey.

3.1.3. Online Flying

In terms of online flying, projectFLY has doubled its users. FSEconomy was promoted from last year's "other" field and has indeed many pilots.

Network	**2017**	**2018**
VATSIM	39%	35%
IVAO	18%	14%
projectFLY	6%	13%
PilotEdge	4%	5%
FSHost	*	1%
FSEconomy	*	8%

* Not an answer alternative in 2017 survey

3.1.4. VR

In the 2017 Navigraph survey the question was asked "Are you interested in Virtual Reality?". This year, the question was asked "Do you own a VR headset?". To compare the two questions only the VR headset ownership was considered. The trend for 2018 is that more pilots own a VR headset and use if for flight simulation.

Headset Ownership	**2017**	**2018**
Doesn’t own a VR headset	*	84%
Owns a VR headset, but not for flight simulation	4%	6%
Owns a VR headset, for flight simulation	3%	11%

* Not an answer alternative in 2017 survey