

The Modal Participant

Using the Statistical Mode to Find the “Typical”
Student in the Classroom

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The Idea

- Attempting to an approach described on NPR's Planet Money podcast Episode 936: "The Modal American", featuring Ben Casselman from the New York Times and fivethirtyeight.com.
- This approach avoids specific problems that arise from using means and medians to find central tendencies in multimodal probability density functions (albeit creating new ones)
 - e.g. the mean result of the American population's income is \$60K from labor income and \$10K from Social Security but few, if any, Americans have this distribution of incomes
 - These uncommon instances occur as the mathematical result of a conflation of multiple distinct populations

Central Tendencies

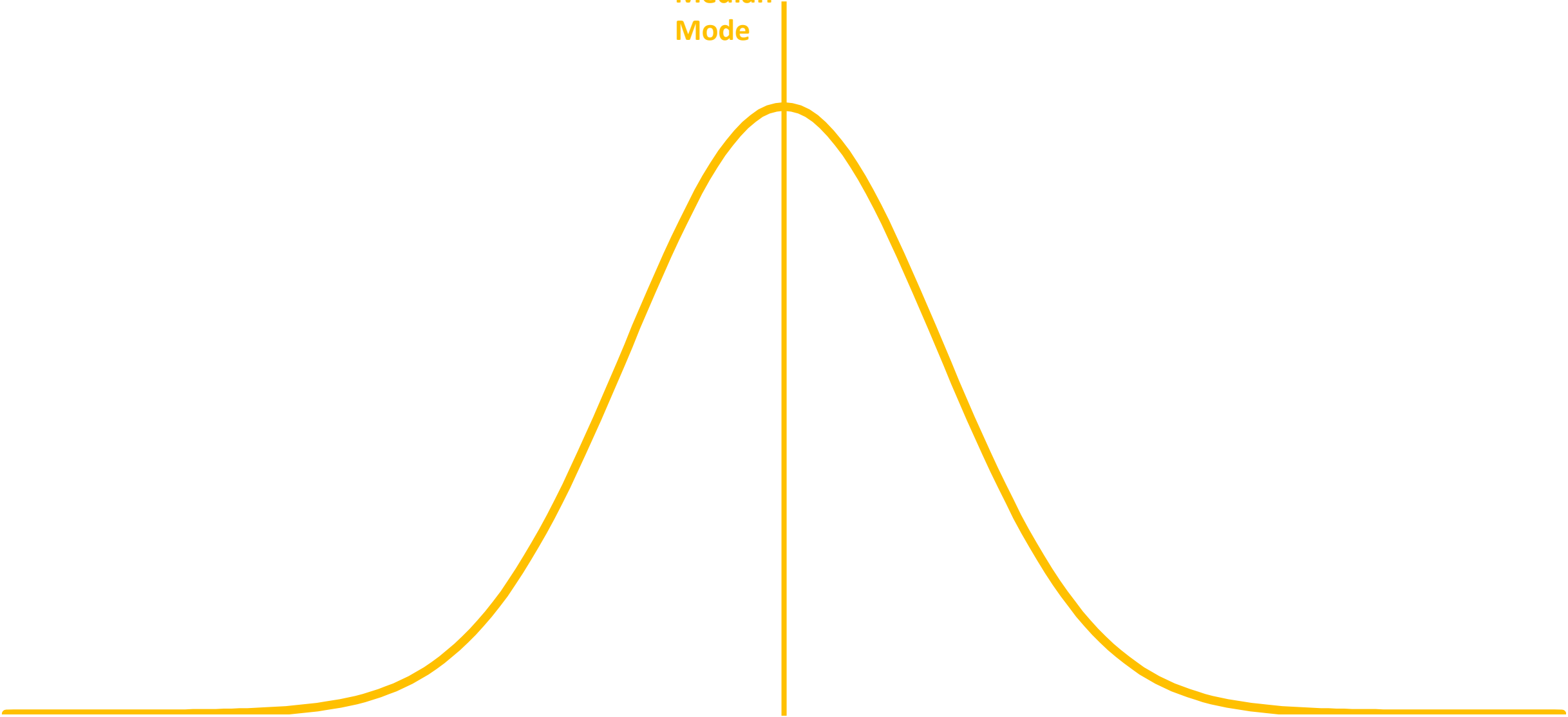
- Mean
 - The sum of a collection of numbers divided by the count of numbers in the collection
- Median
 - The value separating the higher half from the lower half
- Mode
 - The value that appears most often in a set of data values

Example Distributions

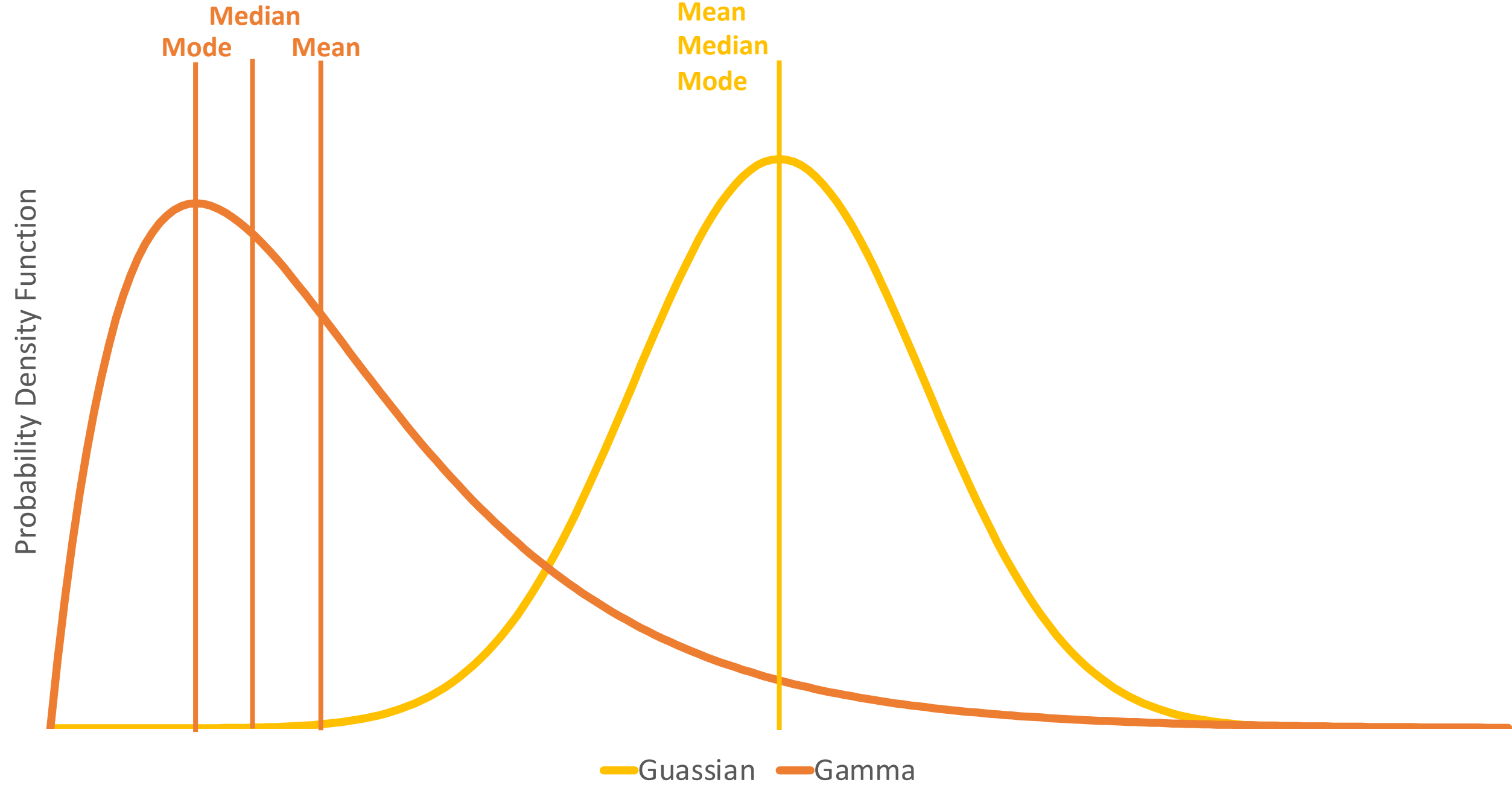
Probability Density Function

Mean
Median
Mode

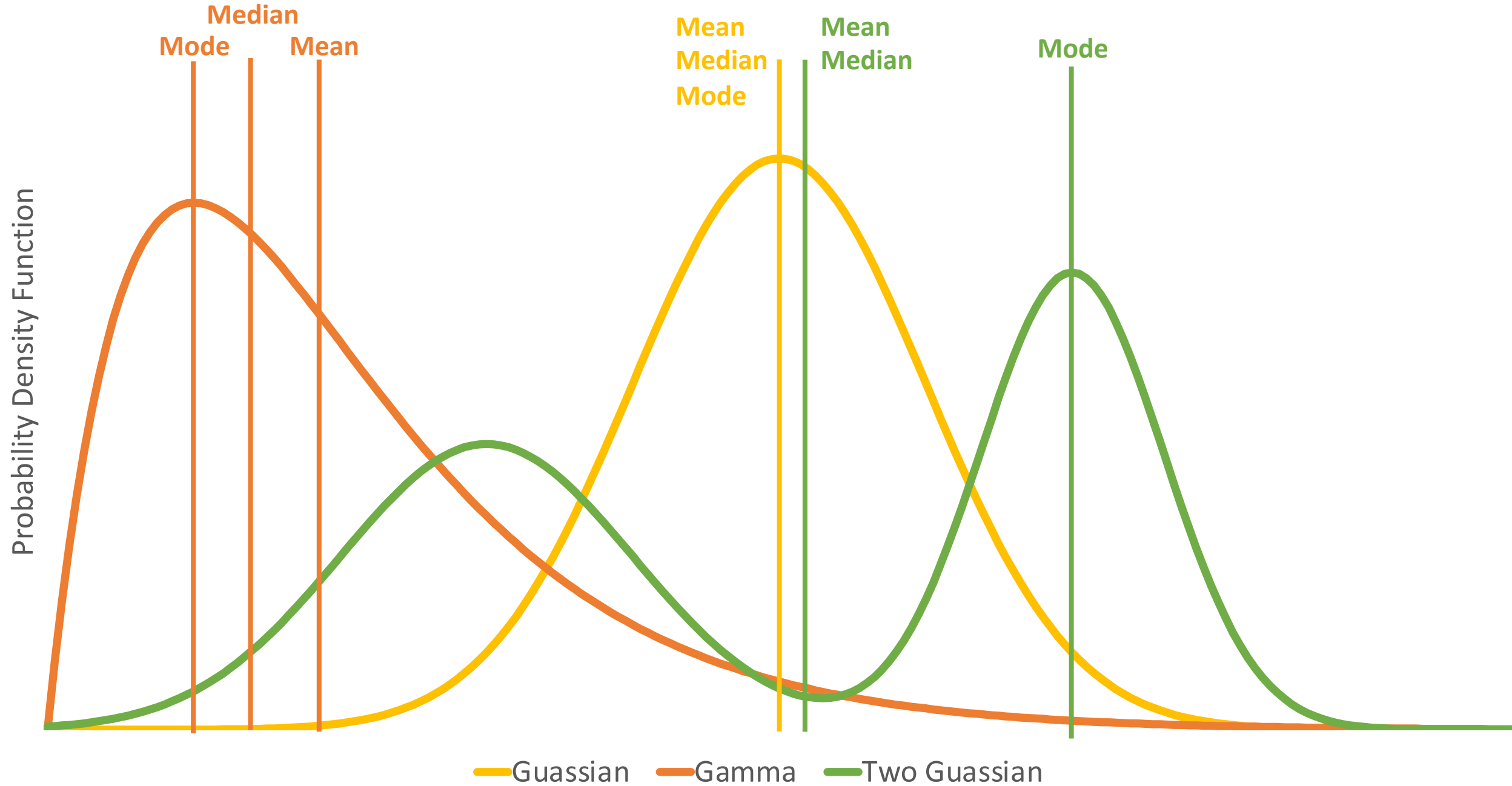
— Guassian



Example Distributions

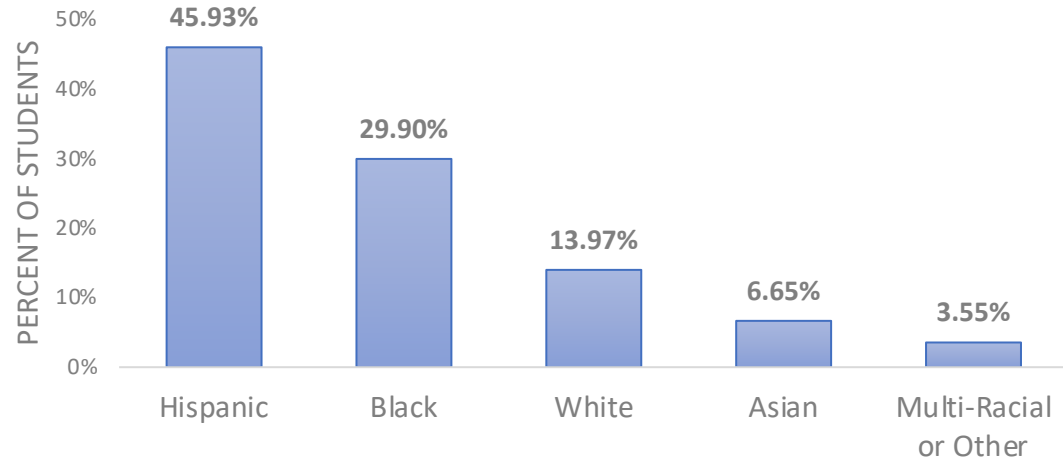


Example Distributions

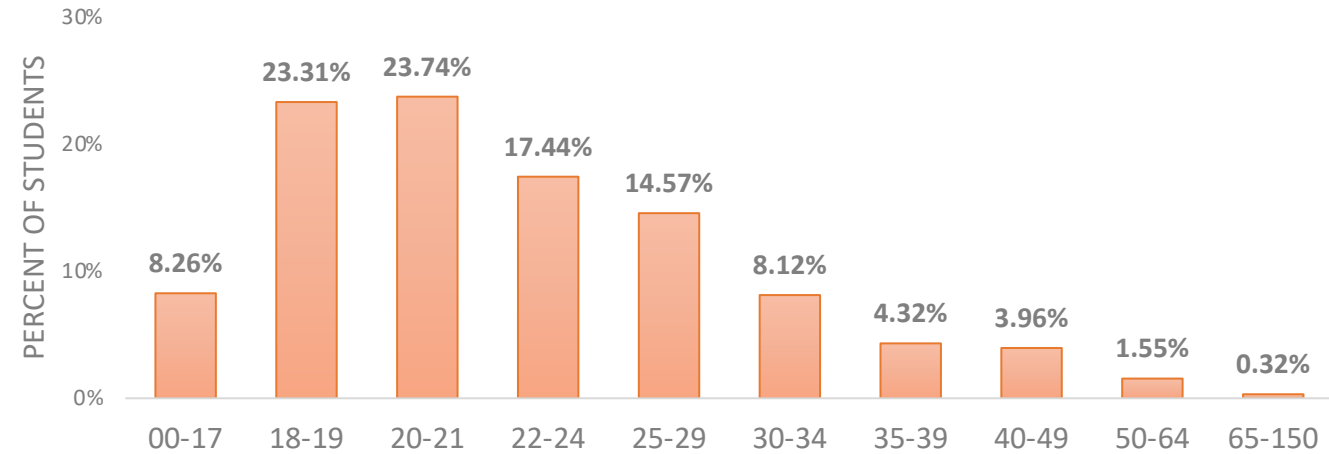


Student Demographics

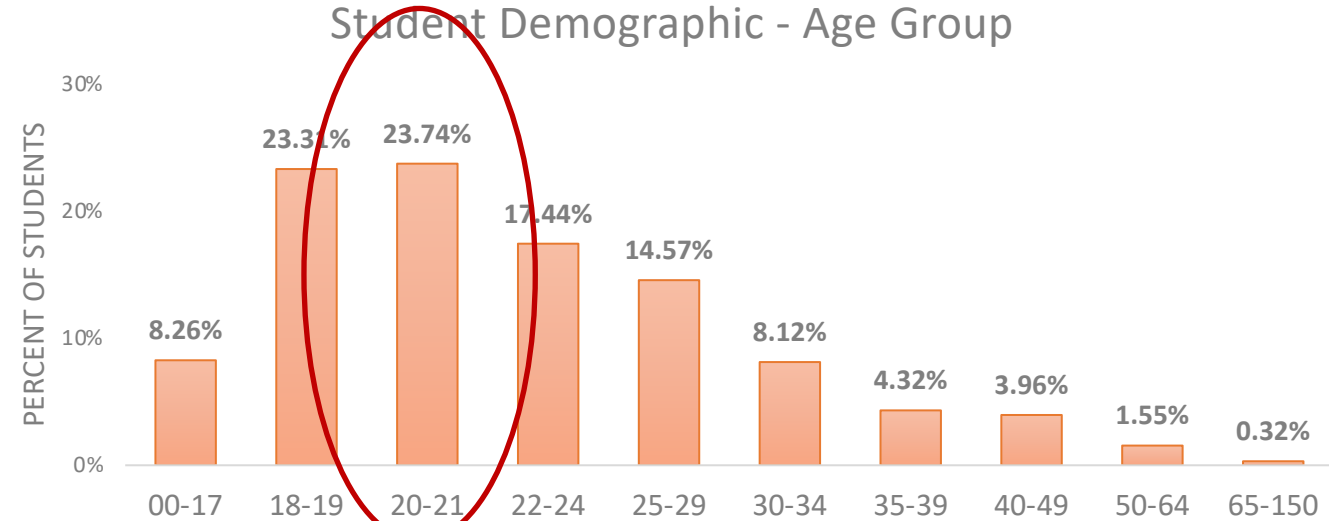
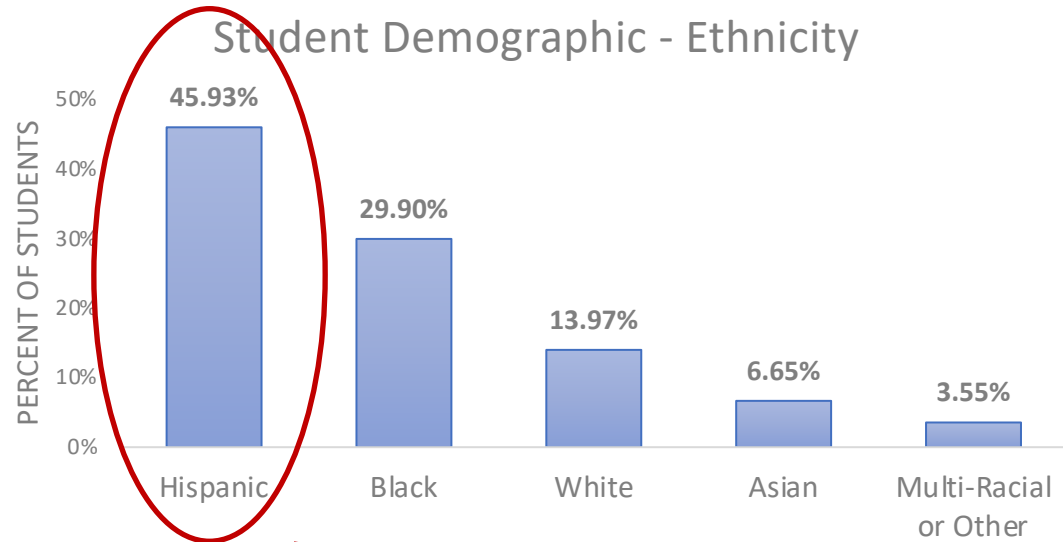
Student Demographic - Ethnicity



Student Demographic - Age Group

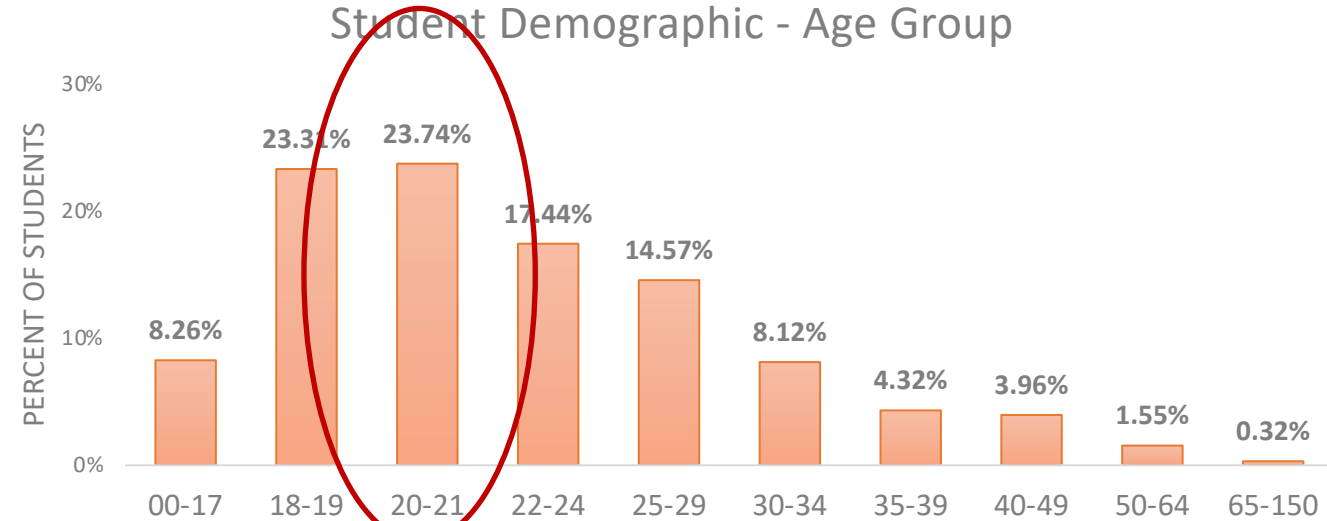
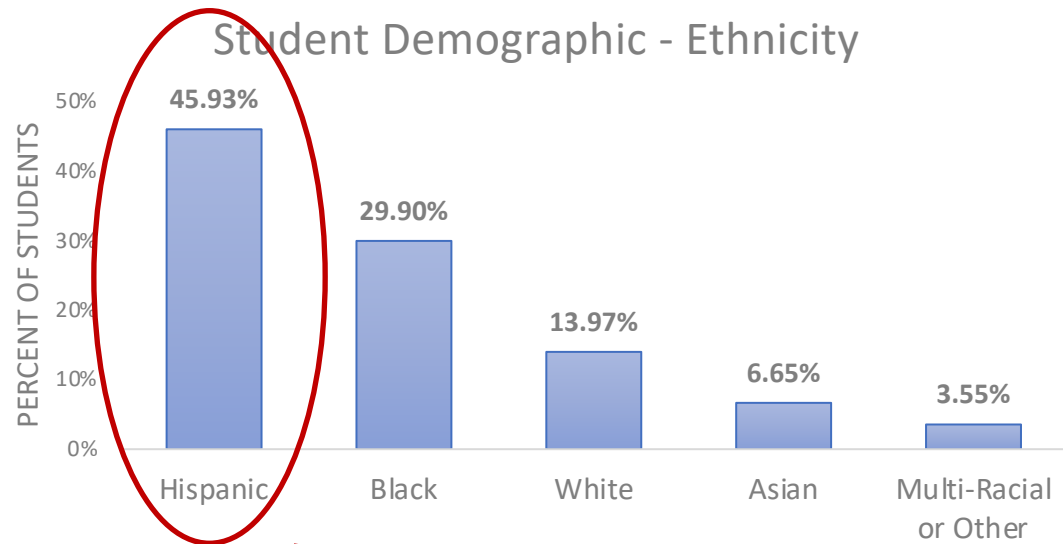


Student Demographics



Modal Fields

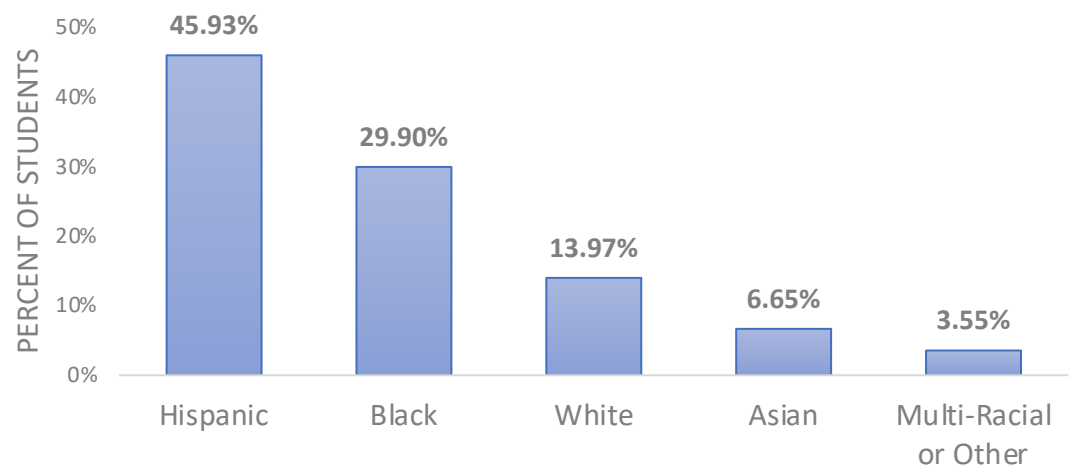
Student Demographics



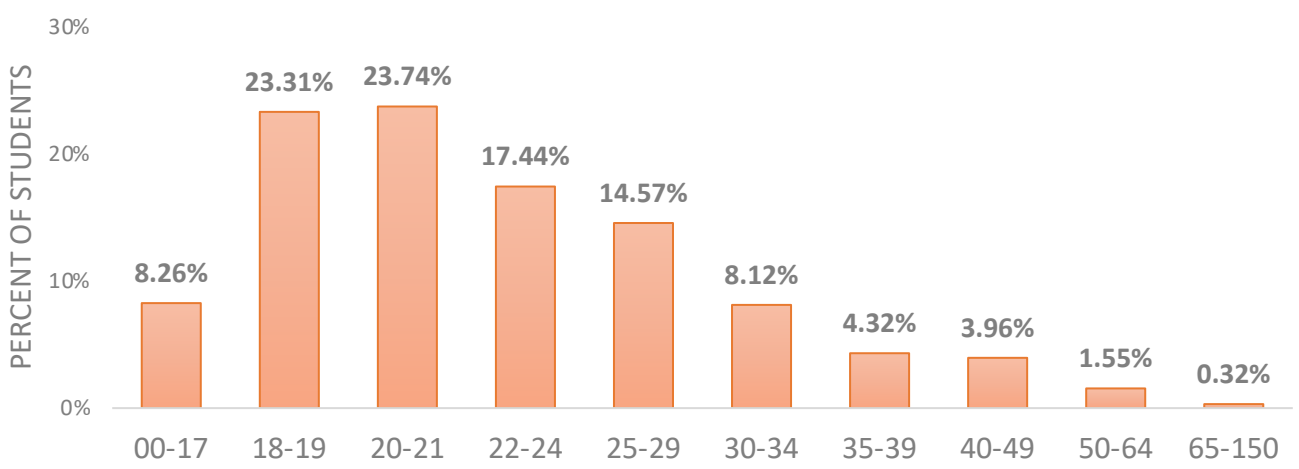
Modal Fields

However, 20-21 Hispanic students are **not** the mode

Student Demographic - Ethnicity



Student Demographic - Age Group



Age Group	Ethnicity				
	Hispanic	Black	White	Asian	Multi-Racial or Other
00-17	21.92%	61.12%	5.28%	6.49%	5.19%
18-19	55.18%	26.35%	9.06%	6.21%	3.19%
20-21	53.86%	22.63%	12.52%	8.00%	3.00%
22-24	49.85%	24.73%	14.04%	8.04%	3.35%
25-29	44.24%	27.99%	16.80%	6.63%	4.33%
30-34	35.51%	33.61%	22.54%	4.46%	3.88%
35-39	29.50%	38.20%	23.76%	5.43%	3.11%
40-49	27.29%	43.90%	20.85%	4.75%	3.22%
50-64	18.61%	51.52%	21.21%	5.19%	3.46%
65-150	10.64%	51.06%	27.66%	6.38%	4.26%
Total	45.93%	29.90%	13.97%	6.65%	3.55%

Age Group	Ethnicity					Grand Total
	Hispanic	Black	White	Asian	Multi-Racial or Other	
00-17	3.94%	16.89%	3.12%	8.06%	12.10%	8.26%
18-19	28.01%	20.55%	15.12%	21.77%	20.98%	23.31%
20-21	27.84%	17.97%	21.27%	28.53%	20.04%	23.74%
22-24	18.93%	14.42%	17.52%	21.07%	16.45%	17.44%
25-29	14.04%	13.64%	17.52%	14.52%	17.77%	14.57%
30-34	6.28%	9.13%	13.11%	5.44%	8.88%	8.12%
35-39	2.77%	5.52%	7.35%	3.53%	3.78%	4.32%
40-49	2.35%	5.81%	5.90%	2.82%	3.59%	3.96%
50-64	0.63%	2.67%	2.35%	1.21%	1.51%	1.55%
65-150	0.07%	0.54%	0.62%	0.30%	0.38%	0.32%

Age Group	Ethnicity					Grand Total
	Hispanic	Black	White	Asian	Multi-Racial or Other	
00-17	1.81%	5.05%	0.44%	0.54%	0.43%	8.26%
18-19	12.86%	6.14%	2.11%	1.45%	0.74%	23.31%
20-21	12.78%	5.37%	2.97%	1.90%	0.71%	23.74%
22-24	8.69%	4.31%	2.45%	1.40%	0.58%	17.44%
25-29	6.45%	4.08%	2.45%	0.97%	0.63%	14.57%
30-34	2.88%	2.73%	1.84%	0.36%	0.32%	8.13%
35-39	1.27%	1.65%	1.03%	0.23%	0.13%	4.32%
40-49	1.08%	1.74%	0.82%	0.19%	0.13%	3.96%
50-64	0.29%	0.80%	0.33%	0.08%	0.05%	1.55%
65-150	0.03%	0.16%	0.09%	0.02%	0.01%	0.32%
Grand Total	45.92%	29.90%	13.98%	6.65%	3.55%	100.00%

Survey Results: Participate “ILO”

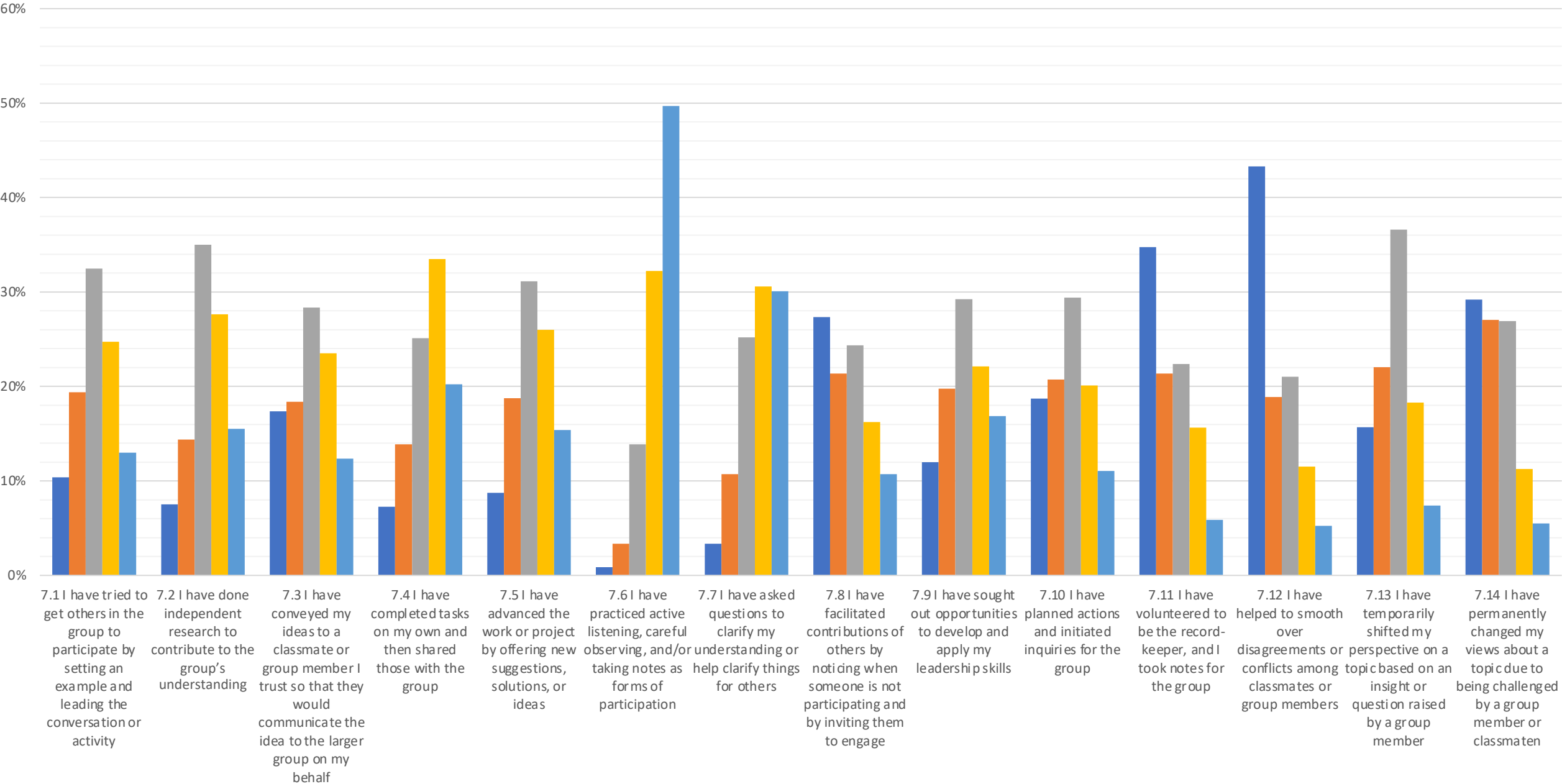
To participate constructively is to engage in action that facilitates progress toward shared ends and includes (but is not limited to) student effort put into group tasks, their manner of interacting with others on team, and the quantity and quality of contributions they make to group/team discussions; this objective includes civic engagement, understood as the ability to participate in activities of personal and public concern that are both individually life enriching and socially beneficial to the community and entails intercultural knowledge, understood as "a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts."

Survey :

- 10 Question banks
- 3 Open ended questions
- Cross referenced with student demographics and course history through their student ID

Question 7 Frequency Breakdown

Never Rarely (once per month) Sometimes (2-3 times per month) Often (1-2 times per week) Always (daily)



A Question Bank in the Participate Assessment

Reflect on the various times this month when you have been in different group or team settings. In this past month, how often have you demonstrated each of the following forms of participation?

1. I have tried to get others in the group to participate by setting an example and leading the conversation or activity:
2. I have done independent research to contribute to the group's understanding:
3. I have conveyed my ideas to a classmate or group member I trust so that they would communicate the idea to the larger group on my behalf:
4. I have completed tasks on my own and then shared those with the group:
5. I have advanced the work or project by offering new suggestions, solutions, or ideas:
6. I have practiced active listening, careful observing, and/or taking notes as forms of participation:
7. I have asked questions to clarify my understanding or help clarify things for others:
8. I have facilitated contributions of others by noticing when someone is not participating and by inviting them to engage:
9. I have sought out opportunities to develop and apply my leadership skills:
10. I have planned actions and initiated inquiries for the group:
11. I have volunteered to be the record-keeper, and I took notes for the group:
12. I have helped to smooth over disagreements or conflicts among classmates or group members:
13. I have temporarily shifted my perspective on a topic based on an insight or question raised by a group member:
14. I have permanently changed my views about a topic due to being challenged by a group member or classmate:

The Modal Student Response

Reflect on the various times this month when you have been in different group or team settings. In this past month, how often have you demonstrated each of the following forms of participation?

1. I have tried to get others in the group to participate by setting an example and leading the conversation or activity: **Null**
2. I have done independent research to contribute to the group's understanding: **Null**
3. I have conveyed my ideas to a classmate or group member I trust so that they would communicate the idea to the larger group on my behalf: **Null**
4. I have completed tasks on my own and then shared those with the group: **Null**
5. I have advanced the work or project by offering new suggestions, solutions, or ideas: **Null**
6. I have practiced active listening, careful observing, and/or taking notes as forms of participation: **Null**
7. I have asked questions to clarify my understanding or help clarify things for others: **Null**
8. I have facilitated contributions of others by noticing when someone is not participating and by inviting them to engage: **Null**
9. I have sought out opportunities to develop and apply my leadership skills: **Null**
10. I have planned actions and initiated inquiries for the group: **Null**
11. I have volunteered to be the record-keeper, and I took notes for the group: **Null**
12. I have helped to smooth over disagreements or conflicts among classmates or group members: **Null**
13. I have temporarily shifted my perspective on a topic based on an insight or question raised by a group member: **Null**
14. I have permanently changed my views about a topic due to being challenged by a group member or classmate: **Null**

The Modal Student **that Completed the Assessment** Response

Reflect on the various times this month when you have been in different group or team settings. In this past month, how often have you demonstrated each of the following forms of participation?

1. I have tried to get others in the group to participate by setting an example and leading the conversation or activity: **Always (daily)**
2. I have done independent research to contribute to the group's understanding: **Always (daily)**
3. I have conveyed my ideas to a classmate or group member I trust so that they would communicate the idea to the larger group on my behalf: **Always (daily)**
4. I have completed tasks on my own and then shared those with the group: **Always (daily)**
5. I have advanced the work or project by offering new suggestions, solutions, or ideas: **Always (daily)**
6. I have practiced active listening, careful observing, and/or taking notes as forms of participation: **Always (daily)**
7. I have asked questions to clarify my understanding or help clarify things for others: **Always (daily)**
8. I have facilitated contributions of others by noticing when someone is not participating and by inviting them to engage: **Always (daily)**
9. I have sought out opportunities to develop and apply my leadership skills: **Always (daily)**
10. I have planned actions and initiated inquiries for the group: **Always (daily)**
11. I have volunteered to be the record-keeper, and I took notes for the group: **Always (daily)**
12. I have helped to smooth over disagreements or conflicts among classmates or group members: **Always (daily)**
13. I have temporarily shifted my perspective on a topic based on an insight or question raised by a group member: **Always (daily)**
14. I have permanently changed my views about a topic due to being challenged by a group member or classmate: **Always (daily)**

The Modal Student that **Thoughtfully** Completed the Assessment Response

Reflect on the various times this month when you have been in different group or team settings. In this past month, how often have you demonstrated each of the following forms of participation?

1. I have tried to get others in the group to participate by setting an example and leading the conversation or activity: **Always (daily)**
2. I have done independent research to contribute to the group's understanding: **Often (1-2 times per week)**
3. I have conveyed my ideas to a classmate or group member I trust so that they would communicate the idea to the larger group on my behalf: **Often (1-2 times per week)**
4. I have completed tasks on my own and then shared those with the group: **Rarely (once per month)**
5. I have advanced the work or project by offering new suggestions, solutions, or ideas: **Never**
6. I have practiced active listening, careful observing, and/or taking notes as forms of participation: **Always (daily)**
7. I have asked questions to clarify my understanding or help clarify things for others: **Always (daily)**
8. I have facilitated contributions of others by noticing when someone is not participating and by inviting them to engage: **Often (1-2 times per week)**
9. I have sought out opportunities to develop and apply my leadership skills: **Rarely (once per month)**
10. I have planned actions and initiated inquiries for the group: **Often (1-2 times per week)**
11. I have volunteered to be the record-keeper, and I took notes for the group: **Never**
12. I have helped to smooth over disagreements or conflicts among classmates or group members: **Never**
13. I have temporarily shifted my perspective on a topic based on an insight or question raised by a group member: **Sometimes (2-3 times per month)**
14. I have permanently changed my views about a topic due to being challenged by a group member or classmate: **Never**

Thank you!