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## Data analysis of the “2021 COVID, Equity and Social Justice showcase”

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### Cover Page Footnote

The authors will like to acknowledge the financial support received from Collaborative for Leadership, Education, and Assessment Research (CLEAR, 2021) and its project: About STEM for Success. (2021). STEM for Success. <https://www.stemforsuccess.org>

# Data analysis of the “2021 COVID, Equity and Social Justice showcase”

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During the “2021 STEM for All Video Showcase” (NSF, 2021) funded by the National Science Foundation, 287 short videos showcasing federally funded projects aimed at improving STEM and CS education were presented.

The videos highlight strategies to engage students during COVID-19 and address educational inequities.

## Research questions

This is a great opportunity to answer the following research questions.

- Which states have more participating videos on the showcase?
- What keywords are they using to self-report their videos?

- What Keywords are the most commonly selected?
- What are the keywords most use on the titles?
- Is there any correlation amongst titles and keyword selected?

Each video includes the following grant information: State, Institution, Award number and Award title.

A total of 43 unique states, 2 inhabited territories and 1 federal district participated. The four states with more participations are Massachusetts, California, Florida and New York all with more than 20 videos figure1.

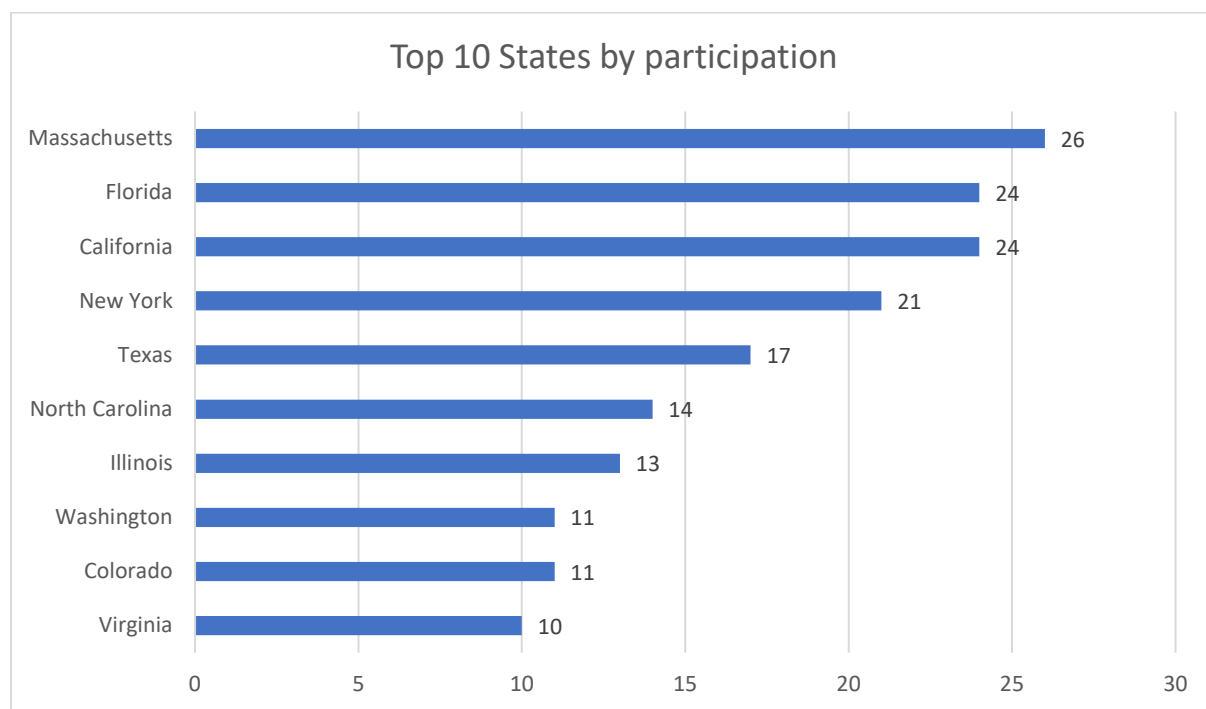


Figure 1.- Top 10 States by participation.

Additionally, each submission could add 3 keywords to self-identify their work.

The present is a report on the analysis of this keywords.

A total of 861 keywords are included, only 17 unique words were identified table 1.

### Unique word count

Unique Keyword	Count of Keyword01	Count of Keyword02	Count of Keyword03
Addressing NGSS	0	1	20
Broadening Participation	9	56	80
Citizen Science	4	15	3
Computer Science	27	16	0
Emerging Technologies	10	16	5
Engineering	26	12	0
Informal Learning	0	9	45
Instructional Materials	2	26	17
Integrating STEM and CS	16	10	10
Mathematics	47	1	0
Mentoring	5	25	9
None	0	8	44
PD Models	11	24	12
Research / Evaluation	17	29	9
Science	96	16	2
Technology	16	15	5
Workforce Development	1	8	26
Subtotal	287	287	287

Table 1.- Unique word count by keyword 1-3.

- All 287 Videos have at least one keyword.
- 279 Videos have only one keyword.
- 251 Videos have only two keywords.

This led to the creation of table 2 to showcase the weight by category.

### Percentile distribution

Unique Keyword	Count of Keyword01	Count of Keyword02	Count of Keyword03	% of KW1	% of KW2	% of KW3
Addressing NGSS	0	1	20	0.0%	0.3%	7.0%
Broadening Participation	9	56	80	3.1%	19.5%	27.9%
Citizen Science	4	15	3	1.4%	5.2%	1.0%

Computer Science	27	16	0	9.4%	5.6%	0.0%
Emerging Technologies	10	16	5	3.5%	5.6%	1.7%
Engineering	26	12	0	9.1%	4.2%	0.0%
Informal Learning	0	9	45	0.0%	3.1%	15.7%
Instructional Materials	2	26	17	0.7%	9.1%	5.9%
Integrating STEM and CS	16	10	10	5.6%	3.5%	3.5%
Mathematics	47	1	0	16.4%	0.3%	0.0%
Mentoring	5	25	9	1.7%	8.7%	3.1%
None	0	8	44	0.0%	2.8%	15.3%
PD Models	11	24	12	3.8%	8.4%	4.2%
Research / Evaluation	17	29	9	5.9%	10.1%	3.1%
Science	96	16	2	33.4%	5.6%	0.7%
Technology	16	15	5	5.6%	5.2%	1.7%
Workforce						
Development	1	8	26	0.3%	2.8%	9.1%

Table 2.- Percentile distribution by keyword 1-3.

On the first key word selected, the word “Science” represents 33.4% and the word “Mathematics” represents 16% being the two most commonly selected of the first keywords.

The word “Broader Participation” is the most commonly selected second (19%) and third (28%) word.

From the Table 2 we obtain the statistics shown on table 3.

Statistics	Value
Max	96.0
Median	11.0
AVG	16.9
Min	0.0
Range	96.0

Table 3.- Static values from percentile distribution.

Using the “above average” rule, we obtain the following table 4:

Unique Keyword	Count of Keyword01	Count of Keyword02	Count of Keyword03
Addressing NGSS	0	1	20
Broadening Participation	9	56	80
Citizen Science	4	15	3
Computer Science	27	16	0
Emerging Technologies	10	16	5
Engineering	26	12	0

Informal Learning	0	9	45
Instructional Materials	2	26	17
Integrating STEM and CS	16	10	10
Mathematics	47	1	0
Mentoring	5	25	9
None	0	8	44
PD Models	11	24	12
Research / Evaluation	17	29	9
Science	96	16	2
Technology	16	15	5
Workforce Development	1	8	26

Table 4.-Above average top keywords.

And using the “top 5” rule, we obtain the following table 5:

Unique Keyword	Count of Keyword01	Count of Keyword02	Count of Keyword03
Addressing NGSS	0	1	20
Broadening Participation	9	56	80
Citizen Science	4	15	3
Computer Science	27	16	0
Emerging Technologies	10	16	5
Engineering	26	12	0
Informal Learning	0	9	45
Instructional Materials	2	26	17
Integrating STEM and CS	16	10	10
Mathematics	47	1	0
Mentoring	5	25	9
None	0	8	44
PD Models	11	24	12
Research / Evaluation	17	29	9
Science	96	16	2
Technology	16	15	5
Workforce Development	1	8	26

Table 5.-Top 5 keywords.

## Word cloud

The word cloud of the titles shows the following figure 2:





Showing a strong positive correlation on the titles using the word “Science” with the keywords self-selected “Science”. Giving the circumstances this expected outcome was shown to be true.

Lastly it is interesting to find a focus on “Youth/Learning” in the titles.

## Acknowledgments

The author will like to acknowledge the financial support received from Collaborative for Leadership, Education, and Assessment Research (CLEAR, 2021) and its project:



*About STEM for Success. (2021).  
STEM for Success.*

<https://www.stemforsuccess.org>

## Sources

CLEAR. (2021). *Collaborative for Leadership, Education, and Assessment Research*. <https://csla.njit.edu/clear>

NSF. (2021, May 11). *2021 STEM For All Video Showcase*. 2021 STEM For All Video Showcase. <https://stemforall2021.videohall.com/>