Jan 7th, 12:00 AM

# How YouTubers Participate in a Social Media Campaign: A Culture-Based analysis of #TeamTrees

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## Introduction

#TeamTrees was a 2019 collaborative fundraising campaign that managed to raise US$ 20 million before 2020 to plant 20 million trees. The hashtag #TeamTrees was used more than 453,000 times and content related to the campaign garnered more than 300 million views.

Using culture-based analysis, we examined #TeamTrees to investigate how the participatory and celebrity cultures of YouTube affect the creation styles and the **reach and engagement** of campaign videos.

- **RQ1.** How do YouTubers at different celebrity levels make videos in different styles to participate in #TeamTrees?
- **RQ2.** What effect do YouTubers' celebrity levels and participation activities have on the **reach** of #TeamTrees videos?
- **RQ3.** What effect do YouTubers' celebrity levels and participation activities have on **engagement** with #TeamTrees videos?

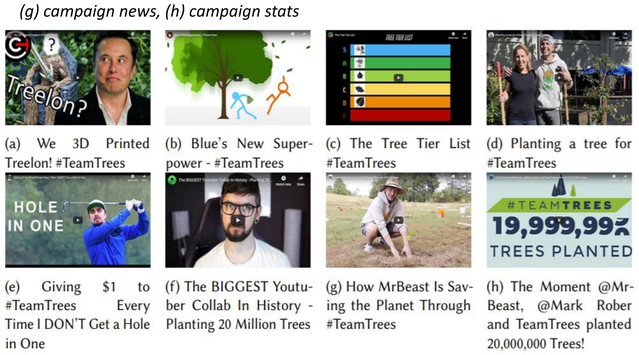
| Culture | Component | Concept |
|---|---|---|
| Participatory Culture | Creation | YouTubers create videos as innovative self-expressions of meaning, skill, value, and agency to engage their YouTube audience. |
| | Connection | YouTubers learn with other YouTubers about emerging subjects or video creation skills and create videos on a similar theme. |
| | Participation | YouTubers form and maintain social connections with channel subscribers, fans, and fellow YouTubers through uploading videos regularly |
| Celebrity Culture | Celebrity | Celebrities are professionals with an established reputation on YouTube and a large fan community, who are role models for amateurs and professionals. |
| | Professional | Professional YouTubers create content drawing on recognizable media forms and genres for the public and usually receive monetary benefits. |
| | Amateur | Amateurs are beginners who upload videos for leisure purposes and use the YouTube platform for their training and to grow friendships with others. |

*Table 1. The framework of this study's culture-based analysis*

## Methods

- **Crawling videos:**
  Using YouTube API with keywords "#TeamTrees" for videos published between 10/25/2019 and 12/31/2019. Final data set has 470 videos.
- **Annotation by crowdworkers and authors:**
  **Video Style, Quality Rating**
- **Measuring viewer engagement:**
  **Reach**: number of views, average views per day, relative view (Table 3)
  **Engagement**:
  ***Quality rating***: subjective rating on 5-point Likert scale
  ***Like rate***: percent of difference between like and dislike count
  ***Comment rate***: number of comments for every 100 views

*Fig 1. Examples of video styles in Appendix Table 4: (a) create items, (b) animation or performance, (c) explain knowledge, (d) plant trees, (2) donate, (f ) spread the word, (g) campaign news, (h) campaign stats*




(a) We 3D Printed Treelon! #TeamTrees (b) Blue's New Superpower - #TeamTrees (c) The Tree Tier List #TeamTrees (d) Planting a tree for #TeamTrees

(e) Giving $1 to #TeamTrees Every Time I DON'T Get a Hole in One (f) The BIGGEST Youtuber Collab In History - Planting 20 Million Trees (g) How MrBeast Is Saving the Planet Through #TeamTrees (h) The Moment @MrBeast, @Mark Rober and TeamTrees planted 20,000,000 Trees!

## Results

### RQ1: Participation of YouTubers at Different Celebrity Levels

**The most common video styles in #TeamTrees were predominantly connection videos that spread the word, followed by videos about creation of tree-related artistic content** (refer to Table 4 Appendix for video styles)

- Celebrities' content dominated campaign popularity, although professionals and amateurs made more videos than celebrities. Connecting viewers by mentioning the events was the most common.
- Pearson's chi-square showed that celebrity YouTubers were more likely to make videos showing themselves planting trees, while professionals likely to make videos showing the creation of items or livestream games, and amateurs spreading the word or campaign stats.

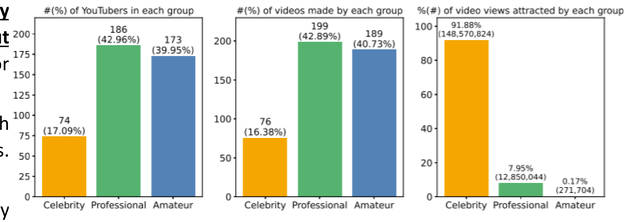



*Fig. 2. From left to right: (1) number of celebrity, professional, and amateur YouTubers; (2) number of videos created by each celebrity group; (3) percentage of video views attracted by YouTubers in the three celebrity groups.*

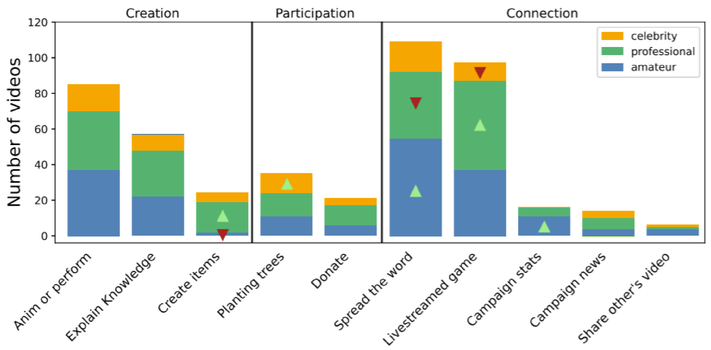



*Fig. 3. (left) Number of videos in each video style and distribution among celebrities, professionals, and amateurs. Triangles: significantly higher (green) and lower (red) than the expected values of Fisher's exact test.*

| Celebrity level | Classification criteria |
|---|---|
| Celebrity | More than 1 million subscribers |
| Professional | Between 10,000 and 1 million subscribers |
| Amateur | Fewer than 10,000 subscribers |

*Table 2. Categorization of YouTubers by subscriber number*

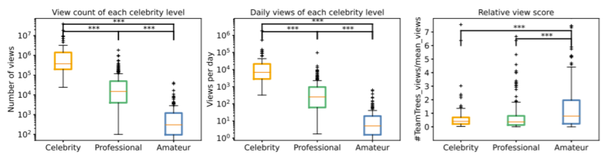
### RQ2: Reach of #TeamTrees Videos

**Celebrity level solely predicted breadth of reach**

- In the prediction of *rel_vw* and $vw\_ct$, the only significant coefficient was $cel\_lvl$ ($p_{cel\_lv} < 0.0001$) (Fig. 4)
- Video length and video style did not significantly affect reach.

**#TeamTrees videos benefited amateurs by improving their channel reach**

- Amateurs' #TeamTrees videos were viewed 2.71 times more than the mean view count of all of their videos, significantly higher than celebrities' 0.74 and professionals' 0.97




| Measurement | Celebrity | Professional | Amateur |
|---|---|---|---|
| view count ($vw\_ct$) | 1,954,879.30 (5.14e6) | 64,573.09(1.76e5) | 1437.59 (4.31e3) |
| daily view ($day\_vw$) | 49,924.60 (2.18e5) | 1,560.90 (7.15e3) | 25.32 (73.71) |
| relative view ($rel\_vw$) | 0.74 (1.19) | 0.97 (2.69) | 2.71 (6.54) |

Fig. 4. View counts ($vw\_ct$), (2) daily views ($day\_vw$), and (3) relative views ($rel\_vw$) of videos made by celebrities, professionals, and amateurs. Asterisks indicate $p$ values from the Wilcoxon test ($p^*$ < 0.05, $p^{**}$ <0.01, $p^{***}$ < 0.001). The table shows the mean(SD) of each measurement.

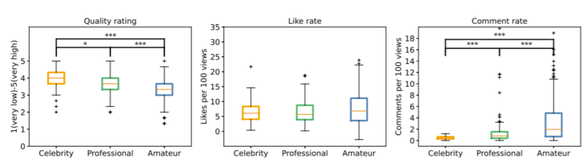
### RQ3: Viewer Engagement of #TeamTrees Videos

**Celebrity levels and participation act predicted average quality rating**

- CREAT and PART videos *qual_rt* is higher than that of CXN videos
- Celebrities' videos had significantly higher average of *qual_rt* than professionals and amateurs. (Fig. 5)

**Celebrity levels and participation act influenced like and comment rate**

- Lower celebrity levels had a higher number of comments per 100 views, but no effect for participation act
- CREAT videos has more likes than PART and CXN, but no effect for celebrity level




| Measurement | Celebrity | Professional | Amateur |
|---|---|---|---|
| quality rating ($qual\_rt$) | 3.89 (0.61) | 3.69 (0.60) | 3.27 (0.70) |
| like rate ($like\_rt$) | 6.41 (3.55) | 6.53 (3.55) | 7.21 (7.49) |
| comment rate ($cmnt\_rt$) | 0.48 (0.27) | 1.33 (2.09) | 4.09 (6.63) |

Fig. 5. (1) Subjective quality ratings ($qual\_rt$), (2) like rate ($like\_rt$), and (3) comment rate ($cmnt\_rt$) of videos made by celebrities, professionals, and amateurs. Asterisks indicate $p$ values from the Wilcoxon test ($p^*$ < 0.05, $p^{**}$ < 0.01, $p^{***}$ < 0.001). The table shows the mean(SD) of each measurement.

## Discussion

- ***YouTube Cultures in a Social Media Campaign***
- ***Influential Celebrities and Growing Amateurs***
- ***Division of Campaign Roles***
- ***Encouraging Creativity and Participation***

## Conclusion

We have shown how YouTube cultures affected video styles and reach and engagement of campaign videos. These results indicated that celebrities, professionals, and amateurs had preferred participation activities. Because more SMCs will occur on video-sharing platforms, platform and algorithm design should take these variances into account and supporting different user groups with appropriate features.

Future studies will extend the findings of the present work to advance knowledge about supporting creative activities and event collaboration on video-sharing platforms.

## Appendix

| | Factor | | Var name | Description |
|---|---|---|---|---|
| Independent | celebrity level | | $cel\_lvl$ | The celebrity level of the video creator |
| | participation activity | | $part\_act$ | The main participation activity of a video (CREAT, PART, or CXN) |
| | video length | | $vid\_len$ | The length of the video in seconds |
| | days on YouTube | | $days\_on$ | Number of days since released on YouTube |
| Dependent | reach | view count | $vw\_ct$ | Number of views of the video |
| | | daily view | $day\_vw$ | Average views per day |
| | | relative view | $rel\_vw$ | Relative view is view count divided by mean view count of all videos made by the same YouTuber |
| | engagement | quality rating | $qual\_rt$ | Subjective rating of the video quality |
| | | like rate | $like\_rt$ | Video's rate of receiving likes |
| | | comment rate | $cmnt\_rt$ | Video's rate of receiving comments |

*Table 3: The independent and dependent variables in multivariate analysis*

| Style | Description | Participatory |
|---|---|---|
| Create items | A show-how video about creating a real or virtual item related to #TeamTrees | Creation (CREAT) |
| Animation or performance | An animation, comedy, drama, or other art or performance related to #TeamTrees | |
| Explain knowledge | A video to explain knowledge related to #TeamTrees (e.g., trees and climate change) | |
| Plant trees | A video showing the YouTuber planting trees | Participation (PART) |
| Donate | A video showing the YouTuber donating to the campaign | |
| Spread the word | A specific video or an in-video announcement to spread the word | Connection (CXN) |
| Campaign news | A video commenting on news of the campaign | |
| Campaign stats | A video presenting donations and participant stats | |
| Share others' video | A video to share or comment on a #TeamTrees video made by others | |
| Livestreamed | game A livestreamed game video made by a gamer who mentions #TeamTrees | |

*Table 4. Ten video styles identified from the grounded theory analysis*