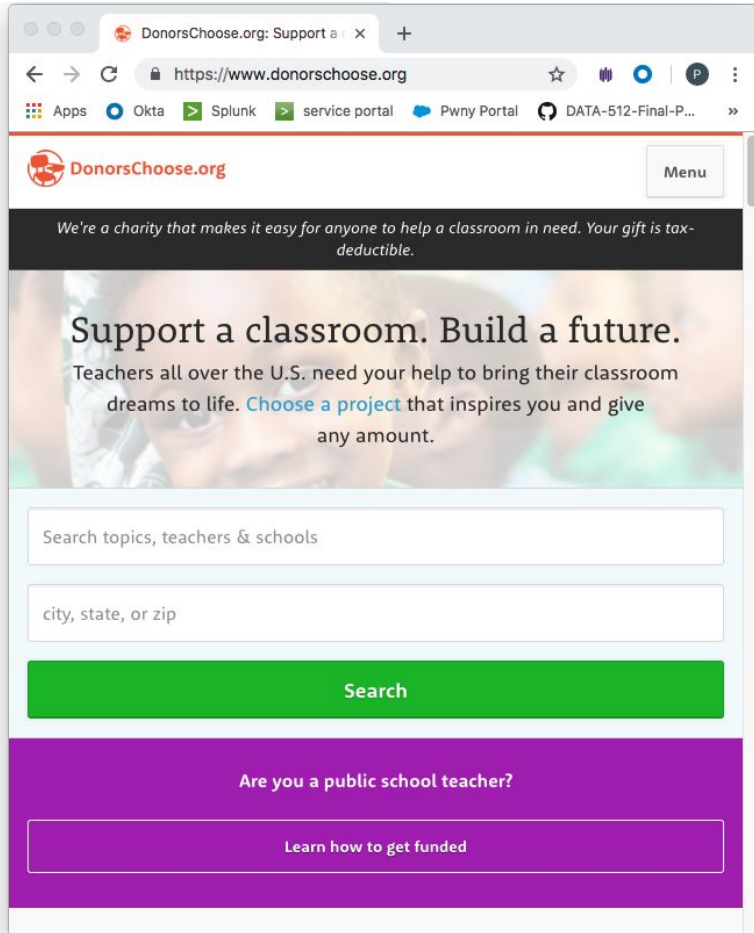


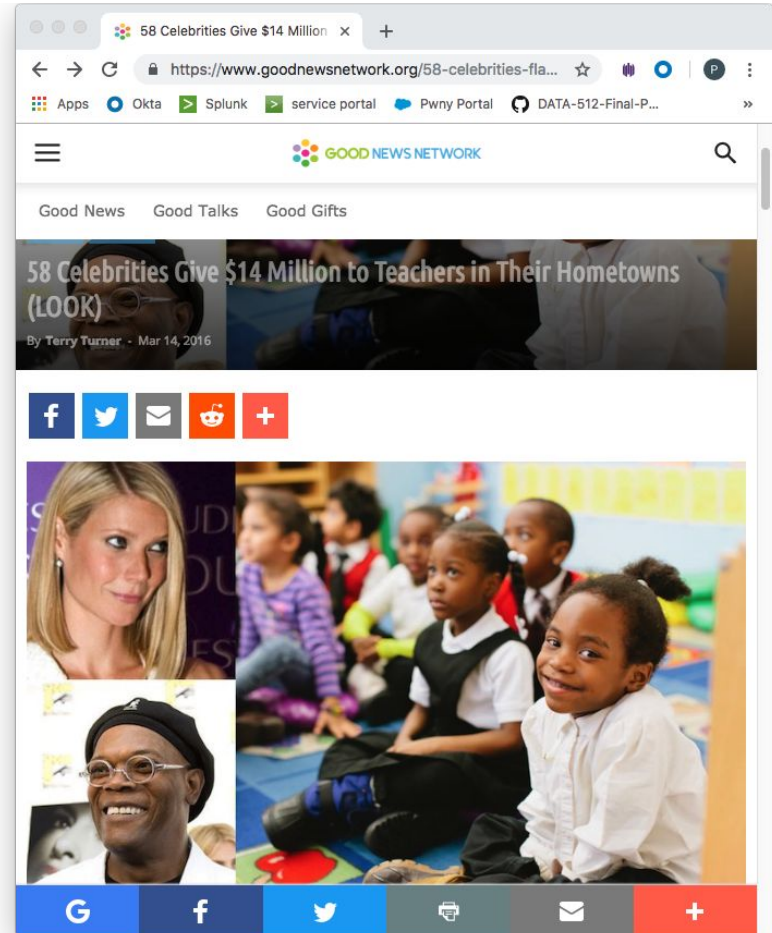
Donors' Choices

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DATA 512

What is DonorsChoose?



The screenshot shows the DonorsChoose.org homepage. At the top, the browser address bar displays 'https://www.donorschoose.org'. The site's logo is in the top left, and a 'Menu' button is in the top right. A dark banner below the logo contains the text: 'We're a charity that makes it easy for anyone to help a classroom in need. Your gift is tax-deductible.' The main heading reads 'Support a classroom. Build a future.' followed by a paragraph: 'Teachers all over the U.S. need your help to bring their classroom dreams to life. Choose a project that inspires you and give any amount.' Below this is a search bar with the placeholder text 'Search topics, teachers & schools'. Underneath the search bar is a field for 'city, state, or zip'. A large green 'Search' button is positioned below these fields. At the bottom, a purple banner asks 'Are you a public school teacher?' and includes a button labeled 'Learn how to get funded'.



Why Donors Choose?

Teachers fund their own classrooms out-of-pocket!

- 94%
- \$479 avg yearly (avg)
- 7% > \$1000 a year

94 Percent of U.S. Teachers Spend Their Own Money on School Supplies, Survey Finds



According to survey findings released by the Department of Education on Tuesday, 94 percent of public school teachers said they paid for supplies without reimbursement in the school year that straddled 2014 and 2015.
Davie Hinshaw/The Charlotte Observer, via Associated Press

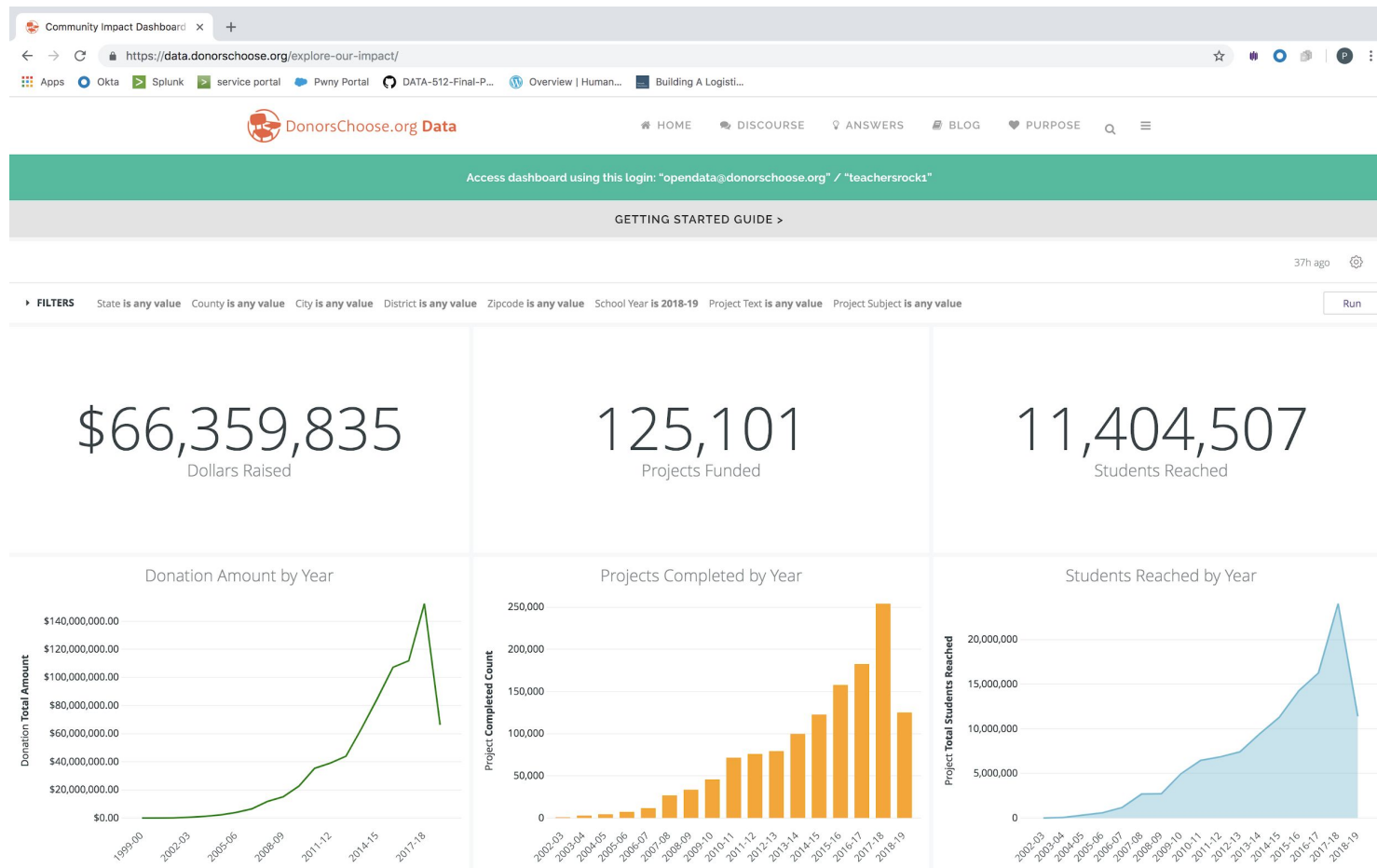
By Niraj Chokshi

May 16, 2018

Andy Yung, a prekindergarten teacher in Queens, is adept at raising money online for ambitious classroom projects, but even he sometimes pays for supplies out of pocket.

And he has company. According to [a federal Department of Education survey](#)

DonorsChoose data



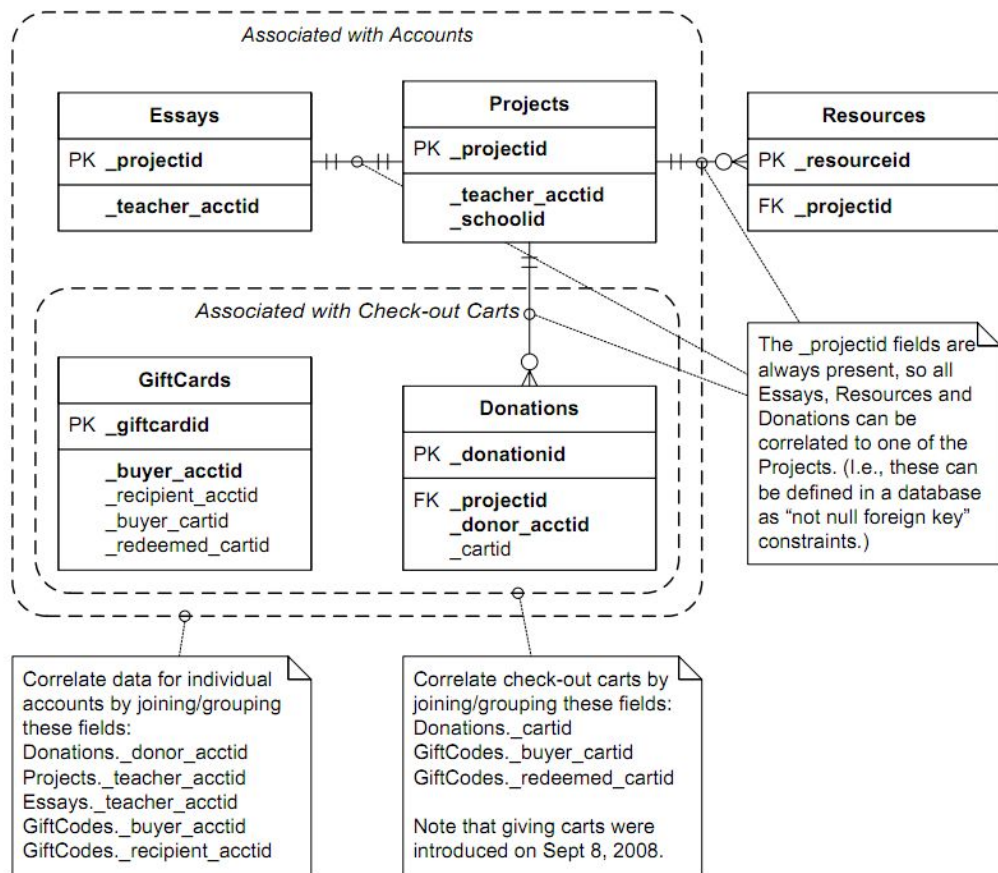
DonorsChoose tells about success! Yay! Celebrities and smiling children!

Question: What is *not* funded?

Specifically: Which subjects correlate to project funding failure vs. success?

First, data wrangling

1. PostgreSQL for joining querying
2. I did *not* succeed with PostgreSQL
3. Perhaps I shall try again after I take DATA 514 this winter



Nonstandard CSVs

1. Source not viewable/loadable as CSV
2. “compressed, quoted, escaped, and without a header” CSVs
3. Tip I learned: pandas read_csv works from a gz archive. Yay!

```
projects = pandas.read_csv('opendata_projects000.gz',
                           escapechar='\\', names=['projectid', 'teacher_acctid',
                           'schoolid', 'school_ncesid', 'school_latitude',
                           'school_longitude', 'school_city', 'school_state', 'school_zip',
                           'school_metro', 'school_district', 'school_county',
                           'school_charter', 'school_magnet', 'school_year_round',
                           'school_nlns', 'school_kipp', 'school_charter_ready_promise',
                           'teacher_prefix', 'teacher_teach_for_america',
                           'teacher_ny_teaching_fellow', 'primary_focus_subject',
                           'primary_focus_area', 'secondary_focus_subject',
                           'secondary_focus_area', 'resource_type', 'poverty_level',
                           'grade_level', 'vendor_shipping_charges', 'sales_tax',
                           'payment_processing_charges', 'fulfillment_labor_materials',
                           'total_price_excluding_optional_support',
                           'total_price_including_optional_support', 'students_reached',
                           'total_donations', 'num_donors',
                           'eligible_double_your_impact_match',
                           'eligible_almost_home_match', 'funding_status', 'date_posted',
                           'date_completed', 'date_thank_you_packet_mailed',
                           'date_expiration'])
```

What “Data Science” Did I Do?

Pearson's correlation: project subject to funding complete

Logistic regression

What is successful?

Logistic regression

| | Subject | P > z |
|---|-----------------------|--------|
| 1 | Environmental Science | 0.002 |
| 2 | Team Sports | 0.003 |
| 3 | Music | 0.003 |
| 4 | Economics | 0.004 |
| 5 | Nutrition | 0.008 |

Correlation (Pearson's)

| | Subject | Corr |
|---|-----------------------|-------|
| 1 | Environmental Science | 0.027 |
| 2 | Music | 0.021 |
| 3 | Health & Life Science | 0.015 |
| 4 | Visual Arts | 0.013 |
| 5 | Team Sports | 0.011 |

What is not successful?

Logistic regression

| | Subject | P > z |
|----|-----------------------|--------|
| 28 | Other | 0,2015 |
| 27 | Parent Involvement | 0.1790 |
| 26 | College & Career Prep | 0.0507 |
| 25 | Gym & Fitness | 0.0464 |
| 24 | Foreign Languages | 0.0464 |

Correlation (Pearson's)

| | Subject | Corr |
|----|-----------------------|--------|
| 28 | Other | -0.027 |
| 27 | Literature & Writing | -0.015 |
| 26 | Early Development | -0.012 |
| 25 | Gym & Fitness | -0.010 |
| 24 | College & Career Prep | -0.010 |

Further research

1. Additional categories (project price, “thank you notes sent”, more)
2. NLP Classifier on the project essays to learn how to write the best project pitch
3. Some has been done using this data on donor retention, more to be done on project success/failure

Donor Retention in Online Crowdfunding Communities: A Case Study of DonorsChoose.org

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ABSTRACT

Online crowdfunding platforms like DonorsChoose.org and Kickstarter allow specific projects to get funded by targeted contributions from a large number of people. Critical for the success of crowdfunding communities is recruitment and continued engagement of donors. With donor attrition rates above 70%, a significant challenge for online crowdfunding platforms as well as traditional offline non-profit organizations is the problem of donor retention.

We present a large-scale study of millions of donors and donations on DonorsChoose.org, a crowdfunding platform for education projects. Studying an online crowdfunding platform allows for an unprecedented detailed view of how people direct their donations. We explore various factors impacting donor retention which allows us to identify different groups of donors and quantify their propensity to return for subsequent donations. We find that donors are more likely to return if they had a positive interaction with the receiver of the donation. We also show that this includes appropriate and timely recognition of their support as well as detailed communication of their impact. Finally, we discuss how our findings could inform steps to improve donor retention in crowdfunding communities and non-profit organizations.

Categories and Subject Descriptors: H.2.8 [Database Management]: Database applications—Data mining

Keywords: Donor Retention; User Retention; Crowdfunding.

1. INTRODUCTION

Crowd-sourced fundraising, or *crowdfunding*, for short, provides a revolutionary way for organizations and projects to collect funding. Online crowdfunding platforms such as Kickstarter.com or DonorsChoose.org allow individuals to post project requests in order to raise funds for the development of new products, to support artistic and scientific endeavors, and to contribute to public education [27, 38]. Anyone can become a donor and direct small contributions to specific projects and this way, the “crowd” collectively contributes to the funding of the project. Even though, projects solely rely on contributions from a large number of individuals, crowdfunding projects have raised over \$2.7 billion in 2012 alone [24].

A critical component for the success of fundraising campaigns is the recruitment of new and engagement of existing donors. *Donor retention* refers to the problem of keeping donors that continue to make donations year after year.

Present donor retention rates are only around 25% for first time donors [3, 35] and increasing donor retention would have significant impact on the effectiveness of online as well as offline fundraising campaigns. First, it can be much more cost-effective to maintain relationships with existing donors than to recruit new donors. And second, even small improvements in donor retention can have a significant impact on the amount of collected funds. For example, a 10% improvement in donor retention could yield up to a 200% increase in obtained donations [35].

Despite the importance of donor retention for fundraising campaigns, many of its basic aspects are still not well understood. Current knowledge about donor retention largely consists of anecdotal evidence from fundraising professionals and small lab experiments in artificial environments (for a survey, see [35]). There are many questions about donor retention that remain open. For instance, are different donor subgroups affected differently by timely acknowledgments? What does timely even mean and what can we infer about the donor’s expectations from their behavior?

Present work: *Donor retention in online crowdfunding communities.* In this paper, we study the *intersection* of crowdfunding communities and charitable organizations by studying an online charity that allows donors to donate to very specific small projects of their choosing (*i.e.*, operating exactly like a crowdfunding platform): DonorsChoose.org (DC.org).

We focus on the problem of donor retention as it is a fundamental problem both for online crowdfunding platforms as well as to a large and rapidly growing sector of non-profit organizations and charities [3, 4, 35].

We analyze a complete trace of donor and project activity from DonorsChoose.org, a U.S. nonprofit organization that allows teachers to easily post requests for donations to purchase materials in support of their classroom. Through DC.org, teachers compose a short essay on their students and project plans and itemize needed materials. An example project is shown in Figure 1 in which an elementary school teacher in a high-poverty district of New York City asks for “\$305 to purchase colorful permanent markers and books to create beautiful paisley art inspired by one of their favorite fruits from India — mangoes!”

Our data contains complete project activity from the inception of DC.org in March 2000 to October 2014. In this time, DC.org attracted over 1.5M donors, 638k projects, and 3.9M donations for a total of \$282M. More than 60% of all public schools in the U.S. have raised money for their classrooms through DC.org to date [9].

Conclusion

1. Donors fund Environmental Science, Music, Sports most often
2. Donors fail to fund College & Career Prep, Gym & Fitness, Parent Involvement most often
3. Be specific: by both measures and by a significant margin, “OTHER” is least successful group