Click to "like" organ donation: the use of online media to promote organ donor registration

Context—Efforts to promote organ donation have traditionally relied on mass-mediated or interpersonal communication to promote donor registration. Despite its popularity, the use of online media has yet to be carefully evaluated as a platform to promote organ donation.
Objective—To describe results of an intervention to promote donor registration that relies solely on online media to communicate to target audiences.
Design—For 3 years, 6 campaigns were implemented in 3 different online media formats.
Setting—Online media formats included (1) traditional online advertising, (2) student seeders' social networking sites campaigns, and (3) challenge campaigns.
Participants—Online media campaigns primarily targeted college-aged individuals.
Intervention—Each campaign directed individuals to the dedicated project website, where they could access educational material about donation and request a donor registration card.
Main Outcome Measures—Unique website visitors, webpages viewed per site visit, time spent on site, and organ donor cards requested/received were tracked in relation to each online media format.
Results—Traditional online advertising offered greater message exposure but failed to result in a higher proportion of website visitors who registered their donation intentions. Use of student seeders (ie, motivated students who promote donation by using social networking sites) and challenge campaigns resulted in greater attention to the project website, donor card requests, and subsequent returns. Additional research is recommended to reveal the effect of combining 2 or more varying online media formats within a single campaign. (*Progress in Transplantation.* 2012; 22:168-174)

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Faced with an unremitting shortage of organs and tissues for transplant, scholars and public health practitioners routinely report efforts to increase donation ranging from implementation of entertainment-education programming[1] to alteration of donation request strategies at the end of life.[2,3] Paramount among such efforts is a focus on health campaigns designed to improve the public's awareness, attitudes, and knowledge of donation, toward the end goal of increasing donor registration and family notification rates.[4-6] Despite the multitude of public health campaigns promoting the cause, only an estimated 86 million individuals are registered organ donors in the United States[7]—a country with a population of approximately 308 million.[8] Thus, alternative or nontraditional campaign strategies may warrant consideration in advancing the cause of donor registration. In this article, we report results of an intervention to promote donor registration by relying exclusively on online media.

Traditionally, donation campaigns have relied on mass-mediated (eg, televised public service announcements)[9] or interpersonal (eg, peer-to-peer communication)[5] communication efforts to promote organ donation. Such campaigns have a small effect on donor registration, with a recent meta-analysis[10] documenting a mean weighted effect of campaigns on donor registration at

$r=0.05$ ($P<.001$). In order to enhance campaign impact, public health practitioners may wish to consider the use of alternative channels, such as the Internet, for communicating with the public. Although some donation interventions have used online media as a single campaign component,[11] few examples of Internet-based campaigns have been reported.[12]

There are a number of reasons to anticipate the success of online media in promoting donation. First among these is the near ubiquity of Internet use in American life. The Pew Internet and American Life Project[13] estimates 78% of all adults use the Internet, including 95% usage among individuals between the ages of 18 to 29. Adults regularly indicate that use of social networking sites (SNSs), such as Facebook, is part of their daily routine online behavior.[13] SNSs allow users to connect with others in bidirectional relationships by creating a link between 2 friends, or to form unidirectional relationships by allowing an individual to "follow" or "like" a business or public figure. These network links provide numerous opportunities for those promoting a product, service, or cause. Public health practitioners can, for example, encourage individuals on SNSs to pass relevant content (eg, a clever video) along to others in their network or can create advertising content targeting specific SNS users.[14] Research indicates that such behaviors are relatively common occurrences in SNSs. Recent estimates suggest Facebook users share 30 billion pieces of content each month[15] and advertisers spent an estimated $1.2 billion on Facebook advertisements in 2010.[16] Thus, there is potential for high campaign reach in the online environment.

A second benefit of using online media is the popularity of SNSs among young adults. Recent evidence indicates that 61% of Internet users under the age of 30 visit a SNS on an average day.[17] College students, in particular, represent a prime target for donation promotion campaigns. Not only do they show positive attitudes toward donation,[18] but of adults, those from 18 to 34 years old show the highest likelihood of becoming an organ donor.[19] Feeley and Servoss[20] point out that college students are often in good health, which leaves them eligible for donation, but also engage in risky activities (eg, unsafe driving) that may place them at risk of experiencing a donation-eligible death. Additionally, recent research[21] indicates that college students average more than 300 links or connections on Facebook. Thus, relying on SNSs may serve to reach an expansive and densely connected audience of young adults who are already positively predisposed toward donation.

Finally, 2 studies provide evidence that promoting donation online holds promise. Merion et al[12] demonstrate the success of using an educational website to promote donation. Of visitors to their website,[12] 10% linked to an online donor registry and 22.9% used the site to notify a family member of their donor registration decision. Perhaps due to the year of the study, Merion et al[12] relied on a static website that did not prompt individuals to pass content along to their friends, as might occur when relying on SNSs. Second, a recent content analysis[22] notes the existence of online content that is already favorable toward donation. Tian[22] conducted a content analysis of organ donation videos on YouTube and concluded that 95.8% of videos reviewed were positively framed. Thus, individuals may already have online access to resources that are positive toward donation. Because of the popularity of SNSs, the prevalence of SNS use among young adults, and initial evidence of online campaign effectiveness, an online campaign was proposed as a novel and effective way of encouraging young adults to register their donation preferences. The current study provides detailed analysis of these online media efforts to promote donation.

Methods

The current analysis examines efforts to promote donation from 2008 to 2011 via 3 online media formats: (1) Traditional Online Advertising—ads promoting donation were placed on Facebook and Google, (2) Student Seeders' SNS Campaigns—college students were encouraged to promote donor registration to their peers via SNSs, and (3) Challenge Campaigns—teams competed for monetary prizes to encourage their peers to register as donors, again relying on SNSs for promotional purposes. All campaigns were undertaken with the goal of directing individuals to the project's website (www.nydonateslife.com; www.nydonateslife.org). The website provided information about donation (eg, benefits to donation, facts), the opportunity for visitors to share or read positive donation stories, and the ability to view promotional videos. Most importantly, site visitors could complete an online request for a donor registration card. In New York State [NYS], website visitors had to electronically request a paper copy of the donor registration card, as electronic signature to the registry was not yet available. The registration card, a postage-paid return envelope, and a thank-you note were sent to those individuals who completed the donor request form.

Traditional Online Advertising Campaigns

Two traditional online advertising campaigns were undertaken during the course of the project. The first advertising campaign took place on Google and was designed to target NYS residents in their entirety. Eighty-five key terms were provided to Google Adwords, such that advertisements would be placed or would appear when an individual queried a relevant search term. The more successful search terms included "health," "register," "organ donor registration," "kidney donation," "organ donation facts," and "tissue donation."

Table 1 Most successful Facebook advertisements for donor registration through the NY Donate Life website

Advertisement	Ad title/target market	Impressions	Clicks
	Giving the Gift of Life: New York State residents, older than 17 years of age, who enjoy helping others, and are medical and/or science students	60 604	7
	Help Our Future: New York State residents, older than 34 years of age	9 749 674	1530
[See ad above]	Help Our Future v.2: New York State residents, between the ages of 18 and 34	17 691 292	3714
	Are you an Athlete? New York State residents, older than 17 years of age, who are enrolled in college	23 681 071	2779

Fifty different Facebook advertisements were created by the project team. These advertisements were designed to target specific demographic groups across NYS. Facebook places advertisements with specific population segments based on specifications provided by the advertiser with the goal of reaching those who will find the content most relevant. The first Facebook campaign took place in conjunction with the Google advertising campaign for 32 days in summer 2010. The second Facebook campaign took place for 25 days in spring 2011. Advertisements ran for various lengths of time during these 2 campaign periods depending on their ongoing success or failure. Facebook advertisements consisted of a small photograph, simple text, and a link to the project website. The 4 most successful Facebook ads are described in Table 1.

Student Seeders' SNS Campaigns

Two SNS campaigns were undertaken by using volunteer student seeders. Student seeders were undergraduate students who identified themselves as positively predisposed toward organ donation and were willing to promote the cause. Students volunteered to facilitate campaign efforts by spreading pro-donation messages to peers. Specifically, seeders were asked to rely on SNSs to encourage their peers to visit the project website, and ultimately, to enroll in the NYS organ donor registry. (Student seeders were encouraged to use SNSs to promote the project website to their peers. However, it is possible that students also used other methods [eg, face-to-face conversation] to inform others of the project website. Evidence suggests that this did not occur, as 89% of visitors to the project website in the fall 2009 campaign were directed to the site from a hyperlink on Facebook.) The first campaign using student seeders was conducted during the spring 2009 semester and involved a group of 8 undergraduate students recruited from communication classes at the University at Buffalo. The second seeding campaign took place during 3 months in the fall of 2009 and relied on 30 undergraduates recruited from 3 universities in NYS to promote donation.

Challenge Campaigns

Two additional SNS campaigns were conducted by using a challenge campaign format. Similar to using student seeders, challenge campaigns required interested students to work in teams, rather than individually, to use SNSs to promote the project website and donor registration to their peers. Participating teams were given 30 days to complete recruitment efforts. During the challenge campaign portion of the project, individuals who visited the project website could allot a single point to a team of their choosing upon requesting a donor registration card. (During spring 2010, teams received a single point for each requested donation card. During spring 2011, teams received a single point for each returned donor registration card. Methods were changed after noting the final return rate for requested donor registration cards. It is unclear if changes in the incentive system contributed to fewer card requests in spring 2011, or if this was the result of the alternative method of recruiting participating challenge teams.) At the end of the campaign period, the teams with the greatest number of points won $500, $250, or $100 for first, second, or third place, respectively. Participants for the spring 2010 challenge campaign were recruited by using Facebook advertisements and resulted in 10 teams located across NYS. Participants for the spring 2011 campaign were recruited by contacting local colleges, organ procurement organizations, and community service organizations and resulted in the participation of 15 teams.

Measurement

Google Analytics, tracking requests for donor registration cards, and the number of physical enrollment cards returned were the primary methods of measuring key outcome variables associated with the project. Specifically, the project team was able to measure the number of unique visitors to the website, the mean amount of time visitors spent navigating the site, the mean number of pages viewed per visit, and the total page views associated with each campaign. (Google Analytics provides the ability to track the unique IP address associated with each individual device [eg, computer, mobile phone] used to access the project website. Thus, the project team was able to quantify a range of behaviors for each visitor to the website.) The bounce rate, or the percentage of visitors arriving at the site and immediately leaving, was also calculated with respect to each campaign. Finally, the team was able to track the number of enrollment cards requested and returned to project personnel.

Results

Three years of project efforts resulted in 671 requests for organ donor registration cards (Table 2). Of requested cards, 196 were returned, for an overall 29.2% return rate. Challenge campaigns clearly demonstrated the largest number of card requests (n = 387), followed by online advertising (n = 202), and student seeders (n = 82). In contrast, donor card return rates were highest among campaigns associated with student seeders (45.1%) and were similar among challenge campaigns (26.9%) and online advertising (27.2%). The following sections outline process outcomes associated with each of the 6 individual online media campaigns (Table 3).

Table 2 Enrollments based on campaign format

	No. of cards		
Campaign format	Requested	Returned	% Returned
Challenge	387	104	26.9
Online advertising	202	55	27.2
Student seeders	82	37	45.1

Online Advertising

Online advertising campaigns implemented in summer 2010 and spring 2011 resulted in more than 25000 unique visitors to the project website. The online advertising campaign that relied solely on Facebook (spring 2011) resulted in approximately 50% more unique visitors to the project website than the concurrent Facebook and Google ads implemented in summer 2010. During both online advertising campaigns, the project site experienced a high bounce rate—more than 90.0% of people who arrived at the website immediately navigated away from it. Similarly, time spent on the site was the lowest noted over the entire project time period, resulting in average website viewing time of less than 15 seconds.

As noted in Table 1, the Facebook online advertising campaigns were effective at generating target market exposure to the team's message. Specifically, more than 51 million impressions (ie, number of times advertisements were viewed) were generated from the top 4 most successful Facebook advertisements alone. Such impressions resulted in 8030 clicks on the hyperlink within the ad associated with the project website. The 5 Google advertisements, used during summer 2010, resulted in more than 1 million impressions and 2279 clicks on the advertisement hyperlink to the project website.

Student Seeders' SNS Campaigns

Volunteer student seeders attracted 592 visitors to the project website. In both the spring and fall 2009 campaigns, website visitors were relatively attentive to the site spending almost 3 and 2 minutes' viewing time, respectively. Similarly, visitors examined an average of 3.45 webpages per visit during the spring 2009

Table 3 Website traffic and enrollments based on specific campaign

Time period	Campaign type	Unique website visitors	Page views	Pages/visit	Bounce rate, %	Time on site	Cards requested	Cards returned	% returned
Spring 2009	Student seeders	235	900	3.45	31.4	2:45	42	23	54.8
Fall 2009	Student seeders	357	935	2.60	52.0	1:55	40	14	35.0
Spring 2010	Challenge	7007	9267	1.30	86.0	0:30	306	72	23.5
Summer 2010	Online ads (Facebook, Google)	10 480	12 435	1.20	91.0	0:12	106	31	29.2
Spring 2011	Online ads (Facebook only)	15 760	18 659	1.15	92	0:10	96	24	25.0
Spring 2011	Challenge	1876	2837	1.30	82.0	0:50	81	32	39.5

campaign and 2.60 webpages per visit during the fall 2009 campaign. Unlike the online advertising campaigns, student seeders' campaigns resulted in lowest bounce rates noted by the project (spring 2009: 31.4%; fall 2009: 52.0%).

Challenge Campaigns

Challenge campaigns attracted 8883 unique visitors to the project website. Such visitors viewed an average of 1.30 pages per visit, regardless of semester of participation. Visitors spent an average of 30 seconds viewing website material and experienced an 86.0% bounce rate during spring 2010. Similarly, visitors spent an average of 50 seconds viewing website material and experienced an 82.0% bounce rate during spring 2011.

Discussion

The implementation of 6 online media campaigns over 3 years' time resulted in 671 requests for organ donor registration cards and 196 new registrants to the NYS Organ Donor Registry. In terms of effectiveness, the online media campaigns demonstrated great reach, but limited impact as measured by completed organ donor registrations. More specifically, although the various campaigns resulted in millions of advertisement impressions, a minority of those exposed to these campaign messages took the action required to register as an organ donor.

The greatest success of the online media campaigns is demonstrated by the multitude of individuals exposed to campaign messages. Recently, Anker and Feeley[23] applied Latané and Darley's[24] Innocent Bystander Model to the domain of organ donation. This 5-step model proposes that those who are likely to intervene in the organ shortage move from noticing the organ shortage to interpreting the shortage as an emergency and/or as requiring action, to taking responsibility to resolve the shortage, and finally to knowing how to resolve the shortage (ie, register and communicate donation intentions to family). Considering Anker and Feeley's[23] application in the current context suggests that online media campaigns might generate notice of the organ donation crisis, but offer limited ability to move individuals to action.

In examining the 3 campaign formats specifically, traditional online advertising led many to notice the organ donation crisis, as indicated by advertising impressions, but failed to move individuals to action. Upon arriving at the project website, those exposed to an online advertisement quickly "bounced" from the site and spent little time examining website content. In contrast, although comparatively fewer impressions were made by student seeders' SNS campaigns, such campaigns generated greater behavior change. Student seeders' campaigns were characterized by a higher number of website pages viewed per visit, the lowest bounce rate in the project, and the highest percentage of returned donor cards. Although fewer individuals noticed the organ donation crisis under student seeders' SNS campaigns, those who did notice were more apt to take action to resolve the organ shortage, as indicated by the high return rate of organ donor registration cards.

Finally, challenge campaigns seemed to strike a middle ground between traditional online advertising and student seeders' SNS campaigns, both in terms of campaign reach and impact. Challenge campaigns resulted in more than 8000 visitors to the project website. Upon arrival at the site, bounce rates for visitors attracted by challenge campaigns were higher than the bounce rates for visitors drawn to the site by student seeders, but lower than the bounce rates experienced by visitors stemming from online advertising. Of

interest, the challenge campaigns demonstrated the highest number of donor registration card requests, but did not offer the fulfillment of these requests (ie, donor card return rate) provided by student seeders' SNS campaigns.

Recommendations for Promoting Organ Donation Online

A number of factors may contribute to the variable effectiveness of online media in promoting organ donation. First, the current project was conducted in NYS. New York's donor registry is unique in that individuals could not register as donors using an electronic signature at the time of the project. As individual campaigns resulted in donor card return rates of 25.0% to 54.8%, it is speculated that an online campaign may be more effective in states with an electronic donor registry, eliminating the need for returning donor cards. In the current project, many interested individuals simply did not return requested donor registration cards, perhaps finding the paperwork process tedious. It is also plausible that young adults were put off by an organization that does not accept electronic signatures.

Second, it may be that online media is not the most appropriate avenue for promoting organ donor registration. Scholars[25] have indicated the domain of organ donation is fraught with myths and misconceptions. However, online media—particularly general online advertising—may not offer the opportunity to address the concerns held by any specific individual. Research indicates campaigns with an interpersonal message component produce a larger effect on donation outcomes than mass-mediated messages.[10] Thus, synchronous or face-to-face interpersonal messages may provide the opportunity for tailoring messages to peers' specific concerns that is not available with all forms of online media. Unless online messages can be similarly tailored—for example, by initiating online conversations about donation or posting messages to specific peers—perhaps such campaigns do not have the necessary element to move individuals to action. Such reasoning may explain why student seeders' SNS campaigns and challenge campaigns resulted in greater action than traditional online advertisements.

Three years of work promoting organ donation with online media leads to the conclusion that health practitioners most likely should use traditional online advertising only if they seek to increase awareness of donation, rather than to persuade individuals to register as organ donors. In contrast, use of student seeders and challenge campaigns may offer an avenue for future research. Student seeders' SNS campaigns resulted in lower message exposure, but the highest donor card return rate. Similarly, challenge campaigns offered moderate exposure to the project website and the largest number of requests for donor cards. In other states, where electronic donor registration is available, this might well translate to a greater number of enrollees than student seeders' SNS campaigns.

Should health practitioners wish to incorporate online media into a donation promotion campaign, 3 recommendations are offered. First, motivated, prodonation individuals should be recruited to act as advocates for donation and to spread donation messages through SNSs. As indicated by the challenge campaigns, the efforts of such individuals may be amplified by incentives. Second, additional process measures should be considered in evaluating the effectiveness of SNSs for promoting donation. On SNSs, individuals can post a link to a website as a status, exposing all of their network connections to a message, or they can post a hyperlink to a specific individual's page, exposing only that person to the message. It may be that one method of promoting donation on SNSs is more effective than another. Finally, the use of online media may be most effective as a single component of a larger campaign.

Results of the current study demonstrate that online advertising has large reach and that use of student seeders and challenge teams can have demonstrable campaign impact. Online advertising could thus be used to increase awareness of donation, while advocates (ie, student seeders, challenge teams) could be encouraged to facilitate conversations—either online or face-to-face—about donation. Regardless of the method used, it is clear that an appropriate balance will have to be maintained between campaign reach and impact. Not only must individuals notice the organ shortage, but they also must be motivated enough to explore an educational resource (ie, project website) leading them to take action to resolve the crisis.

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