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Describing engagement practices for the Enhance Diversity Study using principles of Tailored Panel Management

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Abstract

The purpose of this chapter is to examine engagement strategies used in a large, multisite evaluation study through the lens of Estrada, Woodcock, and Schultz's (2014) tailored panel management. The evaluation, called the Enhance Diversity Study (EDS), is part of an effort funded by the National Institutes of Health (NIH) to increase diversity in NIH-funded research. The chapter discusses engagement with a large national cohort of student participants and outlines survey administration complexities, tailored engagement approaches, and annual survey response trends. It shows how the EDS expanded Estrada and colleagues' concepts of credibility by integrating branding strategies that permeated all aspects of the study. The resulting practices, as modified over time, extend knowledge of how to increase survey response rates across a multisite, multiprogram, longitudinal evaluation. As data collection continues, subsequent analysis may provide more clarity on the impact of these strategies on retention. Future researchers should explore the impacts of incorporating fully developed branding strategies to enhance study commitment and cohort retention. While past research has guided surveys through phone, mail, and multimodal distribution, more research is needed to understand how to engage participants and retain them in an increasingly competitive and digital world.

INTRODUCTION

Since 2014, Diversity Program Consortium (DPC) awardees have implemented interventions and evaluative practices designed to understand effective approaches to mentoring, student engagement, research capacity building, faculty development, and infrastructure development at undergraduate institutions. The Coordination and Evaluation Center (CEC) at the University of California, Los Angeles, a DPC awardee, is responsible for what has come to be called the Enhance Diversity Study (EDS; see Chapter 1 for evolution of the EDS). The EDS is a longitudinal, consortium-wide evaluation of the training and mentoring interventions put into place by institutions receiving grants through the National Institutes of

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Health (NIH) initiative, BUilding Infrastructure Leading to Diversity (BUILD). Hallmarks of Success were developed to reflect features of students' academic experience that have been found to predict downstream outcomes, such as persistence to STEM careers. Survey data are collected to assess short- and mid-level outcomes over time.

The EDS uses a variety of data collection approaches, including surveys, institutional data, and case studies. EDS survey administration is coordinated by the CEC through high-level collaboration with each of the BUILD awardees to enroll participants from those institutions. Once part of the EDS, participants are surveyed annually through their years in undergraduate education and after graduation. The study collects data from participants involved with BUILD programs as well as from comparison groups—individuals at the same institutions who are not involved in BUILD—to allow for both cross-sectional and longitudinal comparisons of outcomes. While analytical strategies can reduce bias or manage missing data, participant retention and high response rates over multiple years of data collection boost study validity and improve evaluation (Boys et al., 2003; Spiers et al., 2018).

This chapter describes the strategies used to retain EDS participants through the lens of tailored panel management (TPM; Estrada, Woodcock & Schultz, 2014), which strengthens commitment and boosts participation during extended data collection periods. The study collects data from students and faculty recruited through email invitations with small variations in reminder communication. This chapter narrows the discussion to students who comprise the majority of paneled participants by outlining survey administration complexities, document tailored engagement approaches, and annual survey response analysis and trends. The resulting strategies, as modified over time, extend knowledge of approaches that may increase survey response rates across a multisite, multiprogram, longitudinal evaluation.

OVERVIEW OF SURVEY DISTRIBUTION

The Enhance Diversity Study (EDS) launched in the fall of 2015. Data collection follows an academic year timeline, with surveys administered in the fall and the spring (McCreath et al., 2017). The study has leveraged existing national surveys to help contextualize findings. In particular, we gathered data using surveys from the Higher Education Research Institute (HERI) – The Freshman Survey (TFS), The Interim Survey and the College Senior Survey (CSS) – and the Student Annual Follow Up Survey (SAFS), which was developed specifically for the EDS. Enrollment in the EDS is rolling, and students join in the following ways:

- Incoming freshmen were invited to take the TFS in Fall of 2015–2019;
- Juniors and seniors enrolled in Fall 2016 were invited to take the Interim Survey; and
- Students, not previously enrolled but listed on rosters of BUILD program activities, were invited to SAFS or CSS beginning in the Spring 2017.

Once a student is enrolled in the EDS, they receive an invitation to complete a follow-up survey every spring through 2023. The SAFS and CSS are considered follow up surveys and a participant completes the CSS only during the spring of the year they graduate from their undergraduate institution. Participants are followed even after they complete their undergraduate degree.

Through 2016, survey distribution was managed through HERI; it then shifted to Computer Technologies Research Laboratory at the University of California, Los Angeles, and Elder Tree, which resulted in changes to access points and distribution techniques. Detailed descriptions of the data collection methods are found elsewhere (see Norris et al., 2020).

BACKGROUND

Longitudinal approaches offer several advantages that are well suited to the EDS, including the ability to identify and relate events to particular exposures, and to further define these exposures with regards to presence, timing, and chronicity (Caruana et al., 2015). The CEC coordinated with BUILD institutions and developed the infrastructure needed to follow EDS participants over 8 years. Given this length of time, recruiting participants and retaining their participation are key to ensuring our findings are not based on biased samples with large amounts of missing data (Boys et al., 2003). Previous research suggests that survey participation can be optimized through personalized, visually appealing, and repeated contacts, along with small financial incentives (Dillman, 1978, 1991). For online surveys, multiple postal and email contacts can boost response rates (Millar & Dillman, 2011).

Building on this work, Estrada and colleagues (2014) developed the TPM approach to extend theories of social exchange and suggest that retention over time can be improved by establishing norms of participation. The components of TPM foster commitment, leverage participant response, and minimize study attrition:

- **Compensation** is a reward and a reinforcer of participation.
- **Communication** includes ethical components, such as expectations, rights, and explicit agreements. In longitudinal studies, this communication is ongoing, bolsters commitment, engenders excitement, and increases two-way communication.
- **Consistency** means things are predictable, invoke norms, and have clear response patterns and sequences of events that impact compensation and communication.
- **Credibility** refers to legitimacy, which is associated with trust and increased compliance with requests and group commitment.

TPM shifts data collection from a transactional view of interaction with study participants to a communal approach in which responses are framed by a commitment to relationships and community norms.

As we have applied TPM components, local contexts have posed unique challenges. For example, CEC evaluators are not personally engaged with potential participants at BUILD

institutions, and participants need to “opt in” to the EDS through explicit consent. Moreover, they are not necessarily aware of the DPC/BUILD initiative within their own institution or at other awardee institutions, making them unaware of the goals of the EDS. In addition, each BUILD awardee institution has localized evaluations that collect data and compete for the attention of potential EDS participants. Finally, the local, national, and global context, including the national racial reckoning and the global COVID-19 pandemic that paralleled the EDS, have further contributed to the need for a recalibration of our strategies of engagement during the project.

The TPM approach emphasizes the importance of tailoring the overall design to meet the specific needs of study participants in order to bolster community norms that foster commitment. In communication theory, credibility is the perception or judgment a receiver or listener makes in that context about the message, the messenger, and the medium (O’Keefe, 1990). It can change over time and it is multidimensional (Gass & Seiter, 2003); it is interconnected, such that changes in one dimension or type can spill over and evolve (Estrada et al., 2014). Source credibility theory describes how the source of the message can impact the receiver’s perception of credibility (Eisend, 2002; Lowry, Wilson & Haig, 2014). Fogg (2003) extended source credibility theory to online applications and identified *surface credibility* as one of four dimensions. Surface credibility is established nonverbally, through the look, feel, colors, and logos (brand) that impact participants’ constructions of credibility. This broadens Estrada and colleagues (2014) mostly functional view to include theories of branding such as brand culture and brand identity, as approaches to understanding participant perception and aligning with participants’ values to bolster commitment.

We adopted the theoretical framework of brand culture to inform our strategies for branding and marketing the EDS and its surveys to the participants. *Brand culture* refers to the developed cultural codes that embody the fundamental values empowering the brand’s inspiration (Maden, 2013). Brands must be grounded in cultural, historical, and political contexts to be understood (Schroeder & Salzer-Mörling, 2006). More than just the object itself, a brand is a story—a series of images, themes, morals, values, feelings, and sense of authenticity—conjured by the product itself and “become[s] the setting around which individuals weave their own stories” (Banet-Weiser, 2012, p. 4). Establishing a brand that reflects the core values of a study communicates value to participants. As such, integrating principles of credibility and branding into EDS engagement strategies sharpened communication of the core values of the study.

SUMMARY OF ENGAGEMENT STRATEGIES DURING DATA COLLECTION

EDS survey distribution and data collection spanned multiple institutions and stakeholders. Partnership with BUILD awardees and their institutions proved central to the CEC’s role in and success of the EDS engagement plan: BUILD awardees were the bridge to potential participants, provided study context, and allowed for consistent implementation of data collection. Over the course of the study, the engagement plan was collectively tailored to manage survey distribution and boost response and retention rates. To establish a baseline of engagement and discuss the challenges that occurred, in this section we outline the phase of the evaluation prior to approval from the Office of Management and Budget (OMB). We

then highlight changes across compensation, communication, consistency, and credibility during what we call the post-OMB phase.

Pre-OMB phase

The initial EDS engagement plan was hampered by the time required for the CEC to obtain OMB approval. Direct survey management was not permitted until approval was granted. To ensure critical data collection began on time, in Fall 2015 the CEC leveraged the existing survey infrastructure at HERI and partnered with proxies (BUILD awardee staff, local administrators, and HERI) to deliver survey communication and manage incentive distribution. The distance of the CEC to the participants impeded efforts toward consistent communication and building of credibility for the EDS. These efforts were further hampered because BUILD awardee staff were also responsible for implementing local programming, conducting local evaluations, and responding to their institutions' evaluation plans.

HERI's communication approach relied on an institution-provided invitation list with names and emails through which survey invitations could be delivered. The invitations could include a brief message from a local administrator or representative introducing the survey, with institution logos and branding and a link to the HERI-branded survey. While institutional directives provided some credibility, there was still unclear messaging about the benefits of being part of the EDS community. This resulted from the need to distribute multiple surveys quickly, the diversity of local communication, EDS branding limitations (or absent branding), and variable compensation managed by BUILD awardee staff.

Post-OMB phase

OMB approval was obtained in late 2016 and the CEC assumed management of EDS surveys distributed to students in Spring 2017. In this initial CEC-managed launch, participants were provided with individualized survey links. Two issues emerged with this collection design. First, some institutional IT departments did not grant access to the domain sending the survey emails. Second, Google preemptively blocked survey invitations and marked them as spam without any notice to us. As a result, participants were unable to receive the message in their inbox. Site administrators struggled to assist because of the use of individualized survey links. These unforeseen technical issues limited our communication with potential participants.

In Spring 2018, engagement was facilitated by three major improvements: (a) regulatory clearances and the establishment of data-sharing agreements allowed the CEC to have control over implementation of the engagement plan; (b) survey invitation email deliverability issues were resolved with the incorporation of Elder Tree's communication strategies that legitimized distribution; and (c) EDS survey portals were rolled out. Direct management and contact with participants improved the individual experience, laying the foundation for trust and potential long-term study commitment. The EDS survey portal did not rely on individualized links and allowed participants to access surveys via email, text, or mail communication.

Beginning in 2018, CEC administrators turned to an external vendor, Elder Tree, for expertise in deliverability analytics and technical strategies to legitimize distribution with

IT departments at the schools. Elder Tree applied large-scale communication and marketing strategies utilizing a new communication style with email designs that incorporated psychological appeals, messages with photos, and branding with the DPC logo (Figure 1). This differed from HERI's approach, which relied on institutional relationships and branding with institution logos and text only. Stock images representative of our targeted participants were added to survey invitation emails, and messages were personalized with dynamic content—addressees' names and images with reminder messages using different themes and appeals—to build a community around EDS participation.

Since the potential participant pool was so diverse, the EDS engagement plan and messages highlighted the goals of the EDS while broadening appeals to include participants beyond BUILD programs and STEM majors. The diverse participant pool provided a comparison group for evaluation. To reach this target audience, Elder Tree and the CEC emphasized the values of the survey and built on previous communications to improve participation. Table 1 provides an overview of the updates to the EDS engagement strategy over time.

APPLICATION OF TPM COMPONENTS

Compensation

The first component of Estrada and colleagues (2014) TPM approach is compensation, used as an incentive for participants' time and effort. The timing of compensation for the EDS was uneven at first due to institutional constraints and processing requirements. EDS administrators worked each year to implement effective processes to improve delivery to participants. Once OMB approval was received, we were able to manage compensation distribution, and the incentives offered became more consistent. Initially, compensation consisted of \$5.00 to \$10.00 electronic gift cards or the chance to enter a lottery for \$50 or \$100 gift cards. Eventually, all participants received an incentive; in 2022, all participants who complete a survey will receive a \$50 electronic gift card.

Increases and changes in compensation over the years were tailored to participant feedback, efforts to boost response rates, and local and national contexts. For example, the racial profiling and arrest of two Black men at a Philadelphia Starbucks for not ordering food sparked national protests (Tornoe, 2018). EDS student participants were vocal about their disappointment and refusal to support this company. As a result, the choice of an Amazon gift card was introduced over Starbucks, which had been the standard offering. Additionally, we raised incentives to \$25 for the 2020 collection and boosted them to \$50 in the final weeks of the 2021 administration to increase response rates believed to be impacted by pandemic fatigue and overuse of technology.

Communication

Communication was tailored to changing study conditions and participant needs. During the pre-OMB approval period, email communication was managed through HERI and included a brief introduction to the survey and direction to the HERI survey portal. After OMB approval, survey invitations were directly managed by the CEC and tailored to participants. In Spring 2018, personalized text and a generic link brought students to the newly launched

EDS survey portal, thereby improving accessibility. A local administrator or representative (an “influencer”) introduced the collaborative relationship between the institution, the DPC, and the EDS principal investigator in support of EDS goals. Reminder emails were also improved and included themed messages with stock images of people to represent study participants. In Spring 2019, the final reminder email included an embedded video with a call-to-action from BUILD Program representatives asking participants to “Take the Survey.” Future communication methods incorporated institution logos, the EDS logo, and a bi-modal communication strategy, including text messages with email reminders.

Additional engagement emails (i.e., happy holidays and data infographics) were added in 2018 and served two purposes: (1) to further engage participants, and (2) to test the delivery of study email addresses previously approved by institutions. Communication was tailored (e.g., subject lines, spelling out the word dollars) based on email deliverability analytics that informed the EDS team when study emails were not being opened by participants or if IT departments blocked delivery.

Consistency

Predictability or a consistent pattern can offer participants the comfort of knowing what to expect. We were consistent in the description of the study and goals and predictable in collection cycles. Strict adherence to a fixed schedule was not plausible for a multisite evaluation, so the open and close of each survey was decided through collaboration with sites and tailored to program and institutional calendars. Participants were invited to participate, could choose to join the study, and were free to opt out at any time. Engagement processes and strategies evolved over time.

Due to the complexity of the EDS, we developed branding during data collection. In early data collection, the EDS leveraged the brand equity of HERI, the DPC, and local institutions. Participants received communication about the study and how to participate, through the HERI survey distribution. After OMB approval, direct email communication broadened credibility appeals by linking legitimacy to researcher credentials, participant institutions, local school leaders, and stock photos of young people. For example, in 2018 an institutional announcement with school branding was sent from a local leader who introduced the study, with stock images used as visuals. The EDS brand was first introduced in the Spring 2019 survey administration, establishing a new name and logo (Figure 2). Photos of BUILD site influencers were added to institutional announcements and a photo of the EDS principal investigator (Dr. Teresa Seeman) was included in the recruitment emails. As explained in the next section, the EDS brand was further refined in 2020 by a team of communications and marketing experts who introduced branding and engagement strategies such as content marketing and unique campaign themes for each survey administration. These themes were reflected in survey invitation emails, the EDS website, survey portal, and other engagement emails (e.g., messages wishing happy holidays; data infographics). This established greater consistency that has been applied in subsequent survey administrations.

Credibility beyond legitimacy: The role of branding

Credibility, defined as legitimacy, can influence the other components of the TPM model (Estrada et al., 2014). Communication theories of credibility underscore the role of the receiver, who judges what is and is not credible and whose decisions can change over time (O’Keefe, 1990). Estrada and colleagues identified *branding* as an element in building consistency and credibility by promoting familiarity and personal identification with a study. While the TPM approaches brand from a functional perspective, brand theories provide additional tools to bolster commitment and build community norms.

The 2020 survey campaign applied content marketing strategies, prevalent in digital spaces, to strengthen the “authenticity” of the EDS brand and engender participant identification with the study. An EDS communications team led the incorporation of a fully-developed brand and content marketing strategy. This team, in collaboration with Elder Tree, guided the overall creative direction and brand management of the survey administration campaigns. Videos, blogs, emails, and social media are tools used in branding to increase interest and engagement.

To prepare for this, nine BUILD students were interviewed by CEC staff about their backgrounds, research, what they love about science, the value of mentorship, and the importance of diversity in research and science. Three videos with different themes were produced: the importance of diversity in science, of diversity in mentorship, and of feeling confident in one’s science identity. Under this new model of communication, an innovative framework was adopted to strengthen the study’s consistency and build credibility by applying best practices of marketing, including: (a) establishing a strong brand identity in line with the overall brand culture of the DPC (see Inset 1); (b) adopting content marketing by producing original videos from the 2019 footage featuring BUILD students; and (c) expanding the study’s digital presence on social media.

By building a brand identity, applying principles of content marketing, and aligning the EDS brand culture with the overall goals of the study, EDS administrators hoped to bolster participants’ perceptions of the study’s credibility and increase commitment.

RESULTS

Participants who complete surveys in multiple years are of most value in the longitudinal design of EDS. To demonstrate the challenges of engagement as well as the effectiveness of the approaches used, we divided the cohort into three groups according to when they completed their first survey. The first group comprises participants who completed a survey in the pre-OMB phase (Fall 2015 through Fall 2016; $N = 15,233$). The surveys administered during this phase were the 2015 and 2016 TFS and the 2016 Interim Survey. The second group comprises participants who were enrolled at the beginning of the fall term in 2017, 2018, or 2019; the group includes entering freshmen beginning their college experiences ($N = 19,926$ by Spring 2020). The third group comprises participants who completed one of the spring surveys administered by the CEC as their first engagement with the study ($N = 5455$ by Spring 2020).

For each group, we determined what percentage completed a follow-up survey during eligible time periods. For instance, those in the pre-OMB group were eligible to complete four follow-up surveys, in spring 2017, 2018, 2019, and 2020. In the second group, those enrolled in Fall 2018 were only eligible to complete follow-up surveys in 2019 and 2020. Figure 3 presents the follow-up survey completion rates for each group by survey period.

Response rates vary by group and by year. After the first year of follow-up, the pre-OMB group had the lowest rate of follow-up survey completion. Given the challenges with engaging this group in the study, this is not surprising. Those who enrolled as entering freshmen once EDS branding was developed (fall 2017–2019) had follow-up rates 10% to 15% higher than the pre-OMB group. Students who enrolled through the spring surveys had the highest response rates of all. This is likely due to engagement practices as well as having a higher proportion of students engaged in the BUILD programs (16.5%, compared to 3% in pre-OMB and 1.5% in the fall enrollment group).

Response rates varied by survey year as well. The highest rates were in Spring 2019, when the engagement plans included influencer photos and messages that legitimized the EDS on campuses. We also increased incentives during the Spring 2019 campaign. The lower rates across all groups in Spring 2020 may be related to the disruption caused by the COVID-19 pandemic and the protests and demonstrations in response to the death of George Floyd. Specific analyses may help clarify impacts of compensation and branding over the complete course of data collection.

RECOMMENDATIONS FOR FUTURE RESEARCH

Estrada and colleagues (2014) extended the social exchange theories of survey distribution by integrating communal norms to bolster commitment over time. The EDS expanded their concept of credibility by integrating branding strategies that permeated all aspects of the study. We would argue that consistency across communication is a consequence of good branding. In 2020, we increased compensation to \$25 for all student participants. At the same time, we established a well-developed brand identity that focused on the value of student participation to elevate their collective voice—the campaign’s tagline included a call to action to “Tell Your Story. Take the Survey.” By inviting students from diverse backgrounds to voice their experiences through the survey, tailoring communication, images, and videos to elevate student identities, and responding to social justice movements by offering incentive choice, the study administrators operationalized self-reflexivity and applied critical perspectives (Tanaka, 2002). The true impacts of the TPM strategies are hard to detect due to the disruption caused by the unprecedented COVID-19 global pandemic, racial awakening, and national unrest. Many studies have noted depressed response rates attributed to survey fatigue (de Koning, et al., 2021). As data collection continues, future analysis may provide more clarity on the impact of branding and compensation strategies on retention.

Going forward, researchers should explore the impacts of incorporating fully developed branding strategies on enhanced study commitment and cohort retention. Equally important is the impact of brand on surface credibility during participant recruitment. A deeper

understanding of the role of compensation and how it interacts with branding would further support survey design and data collection strategies. While past research has guided surveys through phone, mail, and multimodal distribution, more research is needed to understand how to engage participants and retain them in an increasingly competitive and digital world.

Biographies

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Inset 1**Facets of EDS brand identity**

According to Kapferer (1992), brand identity is made up of six distinct facets that he described in the model of a prism. Application of this model across the EDS redressed communication and consistency concerns while strengthening credibility by embodying the values of the study. The six facets and the ways in which the EDS incorporated them are as follows:

- **Physical** (what the consumer perceives visually): Included a study logo, color palette, typeface, and graphic elements. Added stock images of people to represent study participants, then photos of real participants.
- **Personality** (brand voice): Developed the study’s voice through the “Tell Your Story, Take the Survey” campaign. Included traits such as courage, confidence, optimism, and authenticity. Encouraged participants to identify with the study through these aspirational traits.
- **Cultural** (a brand’s values, philosophy, or myth, shared by its consumers): Maintained the study’s context within the culture of the DPC, reflecting values such as diversity, equity, inclusion, academic excellence, mentorship, student support, and institutional change.
- **Relational** (between the brand and the consumer): The EDS brand treats participants as equals in effort to achieve inclusive excellence and invites them to join in its mission.
- **Reflection** (a brand’s ideal consumer): Featured real participants in the campaign videos—students who value education, represent a diversity of backgrounds, are career-focused, and are willing to share their stories.
- **Self-Concept** (user’s ideal self): Participants may visualize their ideal selves as go-getters, changemakers, and leaders. The EDS brand is poised to help participants achieve their ideals.



DIVERSITY PROGRAM CONSORTIUM

Supported by the National Institutes of Health

FIGURE 1.
Diversity program consortium logo



FIGURE 2.
Enhance diversity study logo

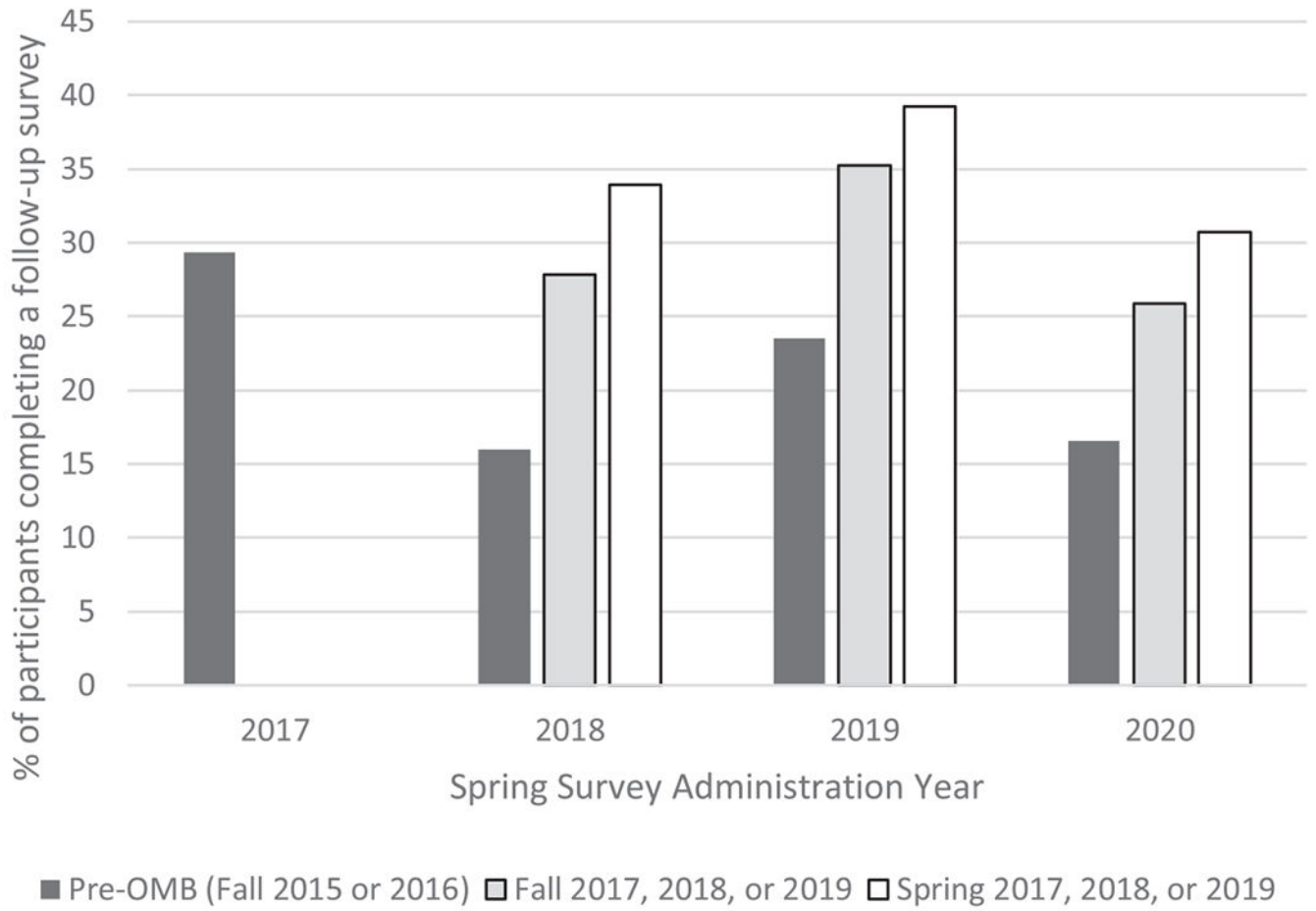


FIGURE 3. Percentage of participants who completed a follow-up survey by baseline survey cohort and study year

TABLE 1

Overview of engagement strategies

	Compensation	Communication	Consistency	Credibility
2016 (Pre-OMB)	Varied by site; ranged from none to small Starbucks gift card	Initial invitation email; three reminder emails Brief, simple email text; generic link to HERI survey	HERI survey management	DPC branding; no logos or photos
2017 (Post-OMB)	Lottery for various incentives; \$5 or \$10 Starbucks gift card	Same as 2016; dynamic email text; individualized link to EDS survey	CEC survey management	Leveraged institution and DPC branding
2018	\$5 or \$10; choice of Amazon or Starbucks gift card	Same as 2017 generic link to EDS survey; "Happy Holidays" email and "Happy New Year" email	Elder Tree survey management; EDS survey portal active	Leveraged institution and DPC branding; stock images added to portray underrepresented groups
2019	No change from previous year	Same emails as 2018; influencer email with photo; invitation email with photo of principal investigator; new theme ("Take the Survey")	No change from previous year	Study brand established with new study name (EDS), logo, website, and videos
2020	\$25 Amazon gift card	Same emails as 2019; text reminders; new theme ("Tell Your Story, Take the Survey"); data infographic email	No change from previous year	Further development of brand identity applied across all communications; original content for email marketing
2021	\$25 Amazon gift card; additional \$25 offered at end of administration window to boost responses	Same communications as 2020; new theme ("Commit to the Future")	No change from previous year	Continuation of brand development
2022	\$50 Amazon gift card	Same communications as 2021; new theme ("Perseverance")	No change from previous year	Continuation of brand development