



School Screenings of **STRAWS**

Engaging Youth With Film
to Make a Difference

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About



See Change is a research institute devoted to studying and shaping behavior change programs for the greater good. Backed by theory, tested with data, and designed with care, we develop, implement, and evaluate efforts to solve issues that matter to us the most.



Founded in 1983, **Video Project** launched in order to provide the best media programming available on critical social and global issues to classrooms and communities to help advance awareness and encourage action on the most important concerns of our times.



By the Brook Productions, LLC offers a full range of producing, editing and video production services. Founded in 2005 by Producer/Director Linda Booker, By the Brook creates award-winning documentary films for social and environmental justice issues, including *STRAWS* (2017), *BRINGING IT HOME* (2013), *LOVE LIVED ON DEATH ROW* (2006) and *LUMBERTON* (currently in production).

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Executive Summary

In this report, we present findings from a school screening tour of the short documentary film *STRAWS* in greater Los Angeles. Released in 2017, *STRAWS* was an official selection in over 30 film festivals and won 3 audience awards. Advocacy groups from Malibu to Nantucket used the film as a centerpiece in their local single-use plastic advocacy campaigns and onegreenplanet.org named it one of “the top 5 documentaries that will make you rethink single-use plastic.”

An initial pilot was conducted in Dallas in 2018, with EarthX Foundation funding 20 screenings across the Dallas-Ft. Worth area. The program included live speakers and NGSS/STEM/STEAM lesson plans. Survey findings were used to inform the design of the Los Angeles tour, including partnering with a former teacher for promotion and opportunities for students to win prizes (i.e., metal straws).

The LA tour occurred in Spring 2019; from April-June, a total of 6,500 students in 220 classrooms saw the film. After the screenings, we sent a survey to students and teachers, with just over 3,000 total responses. The film screenings received high marks and students reported increased knowledge and behavioral intentions related to single-use plastic. More specifically:

- 91% of students have a better understanding of the problem of plastic pollution
- 89% of students are more aware of how their actions affect the natural environment
- Nearly 80% of the students committed to using alternatives to plastic whenever possible
- 84% of students are more concerned about the impact of plastic pollution on marine life as a result of seeing *STRAWS*

Of interest for future school screenings, we found that screenings accompanied by a guest speaker led to students’ reporting a greater intention to take action than screenings without a speaker. There was no difference between screenings where the speaker was the filmmaker or a local activist, which is useful for future screenings because local partners are more cost-effective than filmmaker travel.

Teachers also rated the *STRAWS* screening highly. One teacher said, *“Even those that did not seem interested came out very impacted talking about straws and plastics in the environment and their own lives. They enjoyed the lessons on plastic movement in the ocean and loved the guest speaker. It was a positive experience all around.”*

Our findings suggest that *STRAWS* positively impacted students by helping them understand and engage in more pro-environmental behaviors. The *STRAWS* team is currently fundraising for a national tour of the film and will integrate these findings to continue to improve this project and gain general insight about how to facilitate impactful school screenings.

Background

The STRAWS film is a part of a greater movement that starts a conversation about single-use plastic, a critical step to tackle the estimated 8.3 billion straws on the world's coastlines.¹ The distribution of plastic straws and other single-use plastics in major waterways is leading to microplastics and nanoplastics showing up in 83% of tap water globally.² In the United States alone, consumers use an average of 500 million plastic straws each day, equalling enough straws to wrap around the Earth's circumference 2.5 times³. As a result, efforts are underway to create and sell reusable straws and to ban plastic straws in cities and companies.

STRAWS is a 33-minute documentary film by Director/Producer Linda Booker that highlights the devastating levels of straws and other plastic pollution in our waterways and oceans. With colorful straw history animation and segments narrated by Oscar winner Tim Robbins, the film inspires action by illustrating how individuals, groups and business owners around the globe are reducing plastic straw use through education, outreach, policy development and utilization of non- plastic alternatives.

The idea for a film about plastic straws was suggested to Producer and Director Linda Booker by in 2015. Says Booker,

"Once I started researching plastic straws in 2015, I was alarmed that something that small could be a huge contributor to plastic litter and, what we now know is, a threat to marine life. It's estimated every day 500,000,000+ plastic straws are used once and tossed in the U.S. alone. As a filmmaker who's doing the producing, interviewing, and editing, I feel responsible for decisions that could affect what viewers think about. I hope that after watching STRAWS, audiences feel like they can make the effort to change their habits about plastic straws and possibly commit to more actions to be part of the solution for plastic pollution."

STRAWS premiered in the Spring of 2017 at the Sonoma Film Festival and was signed by the documentary film distributor Video Project in May 2017 for all worldwide rights plus the development of an impact campaign plan. Although made on a modest budget and small crew, STRAWS has held its own against documentaries with millions of dollars in funding and huge resources. It won three film festival awards, appeared in over 30 festivals, and inspired viewers of all ages in 40 countries.

¹ Borenstein, S. (2018, April 20). Science Says: Amount of straws, plastic pollution is huge. *Associated Press News*. Retrieved from <https://www.apnews.com/c1b6f8666138441d9af6054d8c096086>

² Carrington, D. (2017, September 5). Plastic fibres found in tap water around the world, study reveals. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2017/sep/06/plastic-fibres-found-tap-water-around-world-study-reveals>

³ Eco-cycle (n.d.). Be Straw Free Campaign: Frequently Asked Questions. Retrieved from <http://www.ecocycle.org/bestrawfree/faqs>

The film was ahead of the curve when in production (Spring 2015- Winter 2017) and was a catalyst of the anti-straw movement, along with a viral video of a sea turtle with a straw in its nostril (featured in the documentary). Many ocean conservation groups across the U.S. used STRAWS as an audience engagement tool. International organizations including The Jane Goodall Foundation Hong Kong, Zero Waste France, More Clay Less Plastic Italy and Plastic Free Greece were contributing foreign language subtitles and using the film for hosting community and educational screenings in their country. More than 20 prominent NGOs came on board and were provided discount codes to use with their outreach. NGO's involved include Plastic Pollution Coalition, Lonely Whale, Pier 39, Surfrider Foundation, 1% for the Planet, and the California Coastal Commission.

STRAWS has had long lasting impacts such as influencing local governments, schools, and businesses to support and pass policies limiting the use of plastic straws and other single-use plastic items in establishments. Highlights from the campaign include:

- 5 international airlines have licensed STRAWS for in-flight viewing.
- Discovery Education created a special STRAWS virtual viewing party with segments of the film and Director Linda Booker that was viewed in 4,802 classrooms on Earth Day 2019.
- The San Francisco Pier 39 held a press conference and special screenings in its Sea Lion Center in the summer of 2018 and Skip the Straw promotions for all of its 34 member restaurants and establishments.
- After a screening at Appalachian State University, plastic straw usage on campus decreased by 444,000 in the year following a STRAWS screening that launched awareness and campus action.

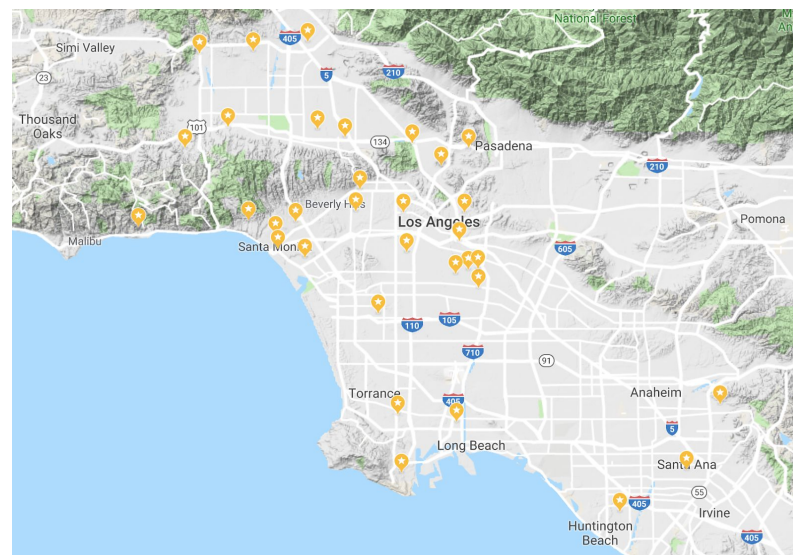
As of June 2019, STRAWS has screened over 600 times to NGOs (270), K-12 schools (178), colleges (116), and companies (40). The 30-minute format seemed especially ideal for K-12 classrooms, allowing time for screening, Q&A, discussion and survey results in a one hour period. Students in the film are featured in discussion about plastic pollution and alternatives, and the tone provides young viewers with simple information on what they can do to rid family, schools and restaurants of plastic straws and other single-use plastics. As such, the STRAWS team decided to follow the momentum of the film festival and other ad hoc screenings to center its focus on public K-12 schools, with the goal of reaching 250,000 students across the U.S. with free screenings and resources. [Plastic Pollution Coalition](#) and [Plaine Products](#) underwrote the NGSS/STEM/STEAM lesson plans for K-12 schools. The remainder of this report will discuss these school screenings and their impacts, with a focus on the second pilot in Los Angeles.

About the Screenings

EarthxFilm, a program of EarthX Dallas, recognized the impact potential created by the emotional reaction of young viewers to STRAWS and funded 20 screenings in 2018 across the Dallas - Ft. Worth region with the filmmaker Linda Booker in attendance as a speaker. We (See Change Institute) partnered with the STRAWS team to distribute and analyze a survey assessing students' reactions to the film throughout these screenings (see appendix for methods). While overall, student responses in Dallas with regard to student engagement and enjoyment of the film were strong (as captured in this [3 minute video](#)⁴), their self-reported intention to change their behaviors with regard to straws or plastics was not high. On average, only 28% of the sample said they would participate in activities/events listed as follow up action items, only 32% of the sample said that they will stop using single- use plastic straws, and only 33% said that they will ask their friends and family to stop using single-use plastic straws. This lack of commitment to action was a surprise given the high level of engagement with the film content. The team's response to this finding was to modify methods of engaging students with the content in the next iteration and Los Angeles was set as the target city.

The film's impact producer, Michael Kuehnert, teamed up with a retired LAUSD teacher and raised funds from private donors for the LA screening tour. Outreach began in late January and the last screening of the series was completed in mid-June. Participating schools were located in all corners of Los Angeles (see image right), covering a broad array of geographic areas and school types.

Intra-school sharing of STRAWS DVDs by teachers happened frequently. This was a pleasant surprise, but also made it more difficult to track exactly how many students viewed the film; therefore the 6,500 student number is conservative. The film and lesson plans will remain at the schools and can be used repeatedly, so we estimate that at least 10,000 students at 50+ schools will view the film by the end of the campaign.



⁴ Video project (2018). STRAWS Film - Students & Teachers React [Video]. Retrieved from <https://vimeo.com/271558892>

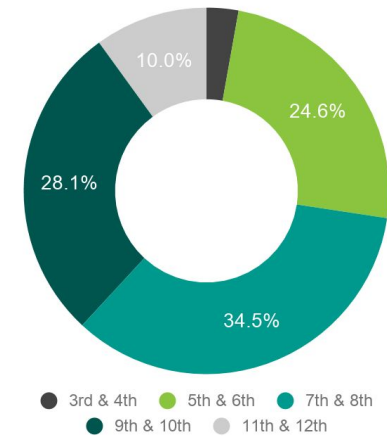
A total of 6,500 students at 35 different schools in 220 classes viewed STRAWS in a classroom or general assembly setting. Approximately half of the participating schools had a student population where a majority of the students qualified for federal free or reduced-cost lunch, making this campaign an environmental outreach program for a traditionally under-served youth populations. The age of participating students ranged from grades 3rd to 12th (see chart right).

The findings from Dallas were used to inform the Los Angeles tour, including partnering with a former public school teacher for outreach, offering opportunities for students to win prizes (i.e., metal straws), and increasing attention on calls to action. Over half of the screenings had one or more speakers in attendance (see below), who were trained to focus on four primary take-aways:

1. Plastic is made of fossil fuels.
2. It is ingested by, harms and kills marine animals.
3. It causes pollution worldwide; 8 million metric tons of plastic goes into oceans every year.
4. Students can help by refusing single-use plastic items when possible.

Metal and paper straws were used to reward students at screenings and model the purchase and use of these items for others.

Survey Respondents by Grade Level



Los Angeles School Tour - Speakers

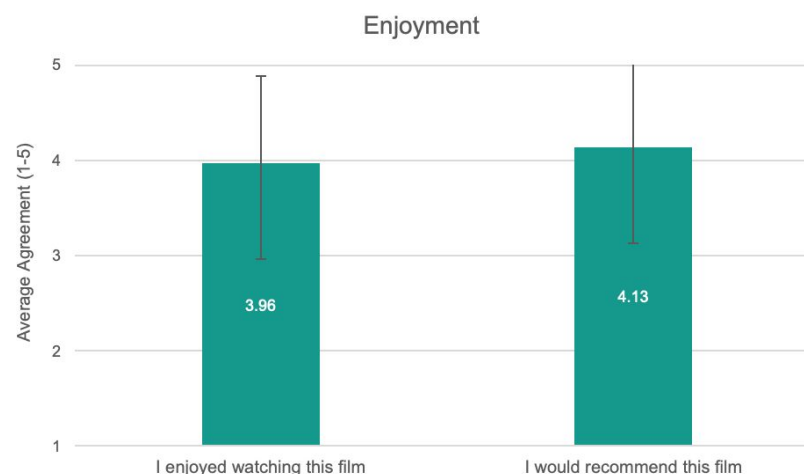
Name	Title, Company
John Zalvaney	Retired, LAUSD teacher
Jackie Nunez	Founder, The Last Plastic Straw Program Manager, Plastic Pollution Coalition
Dianna Cohen	CEO, Plastic Pollution Coalition
Andrea Arria-Devoe	Executive Producer, STRAWS Board member, Plastic Pollution Coalition
KC Fockler	Member, Surfrider Foundation Huntington/Seal Beach
Bronwyn Major	Sustainability leader, Santa Monica College

About the Impact

Similar to the Dallas tour, we conducted an evaluative survey to assess students' reactions to the film (see Appendix for methods). Of the 6,486 students who saw the film, 2,981 completed a survey. Survey questions focused on four key areas: enjoyment, knowledge, concern, and behavior (see appendix for methods).

Enjoyment

Enjoyment questions inquired about whether or not the students enjoyed the film. Overall enjoyment and recommendation ratings were high. Of the students who participated in the survey, 79% indicated that they agree or strongly agree that they enjoyed watching the film, and 81% indicated that they agree or strongly agree that they would recommend this film to other kids their age (see figure).⁵



"I am glad that videos like this are being shown at my school because I am against using straws and I use reusable ones and encourage the people around me to also use them. Sometimes people don't listen because I am just a kid but when people hear it from organizations it could mean more to them."

"I really enjoyed this film. In my opinion I think if we show this film to a lot of people and speak out on what plastic can do to our environment, I think we'll be able to make a huge and positive impact on the earth and especially to marine mammals."

"I think it is important for children our age and really any age to be informed about this because we are the next generation and if we learn about it early we can all do our best and make an impact in the future."

⁵ The vertical lines in each figure represent the amount of variation in responses to each item. Longer lines indicate a wider range of responses, while shorter lines suggest that most students responded to the item in a similar way.

Knowledge and Concern

Questions about knowledge and concern assessed whether students learned anything or if the film was effective in changing their attitudes or behaviors toward the topic at hand (i.e., plastic pollution).

Survey results indicated a high increase in knowledge. 91% of survey respondents indicated that they agree or strongly agree that they have a better understanding of the problem of plastic pollution, and 89% said that they agree or strongly agree that they are more aware of how their actions affect the natural environment (see figure).



"I thought the documentary was absolutely amazing and it taught me a lot about plastics and how I could help the ocean. It taught me about alternatives for plastic I didn't know about. I think other kids should definitely watch it."

"I learned a lot. I feel strongly about our marine life on this planet because I love most of its animals. The turtle with a straw up its nose was tragic, and I want to do something about it. We don't have that much space on our little planet, so we should take care of it for generations to come."

"I am happy that I saw this film because it showed me how bad the plastic problem really is. I promised myself to stop using plastic straws, and so far, I have done that. I want to help save the world!"

The film also increased concern about plastic pollution. 84% of participants indicated that they agree or strongly agree that they are more concerned about the impact of plastic pollution on marine life as a result of seeing STRAWS.

"I liked the screening of STRAWS... It got me thinking about how that turtle is just one of the many animals who have died or have gotten hurt by our pollution... It's not right that we are creating a problem and the animals have to pay the price."

Behavior

Questions about behavior assessed if the film would impact students' future choices related to single-use plastics, specifically straws.

After watching the film, many students said that they will stop using straws. This data shows that, with this audience, the film did exactly what it had intended to do—begin to curb the use of single-use plastics. This result is a marked improvement from the responses the team received in Dallas.

"Though I'm very passionate about environmental preservation, reducing plastic, energy, or resource consumption always seemed very difficult, discouraging me. However, by focusing on an easily reduced material, I feel I am able to make a difference."

"Right after this I immediately went on Amazon and bought a metal straw. I think this video was really thought provoking and inspiring"



The majority of students committed to taking action on plastics. 63% said that they are personally committed to action on plastics, while 57% said that they will tell others to stop using single use plastic straws and 79% said that they will use reusable alternatives to plastic whenever possible. Students were most likely to agree to use reusable alternatives, for example:

"After watching the STRAWS screening, I am committed to going 100% plastic-free and will encourage my family to do the same."

The intention to not only change one's behavior but also share the information with others is particularly compelling, as it shows that STRAWS has reach beyond its immediate audience. For example:

"I showed my family the video where the sea turtle got a straw in its nose and the next day my brother told all of his teachers about it. His whole school knows now, and I am proud to be the one that led him deeper into understanding the straws problem."

Variables Impacting Student Responses

Our evaluation methodology enabled us to not only assess overall results, but also to investigate whether other factors, such as demographic variables or screening type, impacted students' ratings. We found the following:

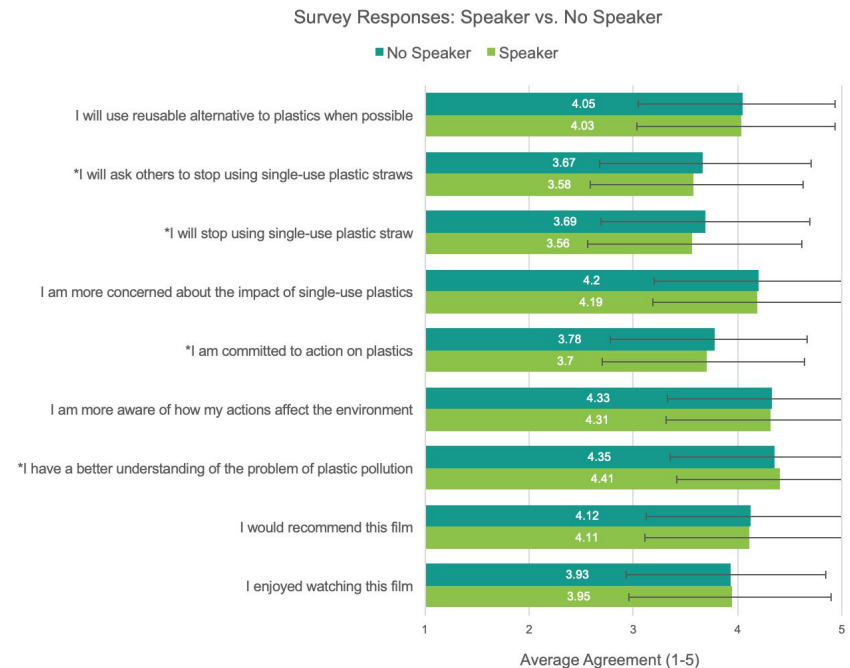
Does grade level matter?

While no clear patterns emerged in differences of outcome based on grade level, we did identify a few interesting trends. The most notable is that 11th & 12th graders rated almost every measure statistically significantly higher than 7th & 8th graders. In general, 7th & 8th graders consistently had the lowest ratings, while 11th & 12th graders consistently had the highest. 11th & 12th graders also rated commitment and behavior measures significantly higher than 9th & 10th graders.

Does a speaker have an impact?

Although having a speaker did not appear to improve the audience's experience watching the film or increase the knowledge gained from the film compared to non-speaker events, it did increase reported behavioral intentions. Students who attended an event with a speaker indicated significantly higher levels of agreement related to their commitment to take action on plastics, their intentions to stop using single-use plastic straws, and their intentions to ask others to stop using plastic straws (see figure, *left*).⁶ Despite meeting the criteria for statistical significance, the effect sizes of these differences are relatively small. Therefore, it's recommended that readers interpret these findings with caution.

"I liked how our host, Diane, shared her and her family's story related to plastic. The film really help understand things I did not know about plastic."



⁶ Items that were statistically significantly different between groups are indicated with an asterisk preceding the item label.

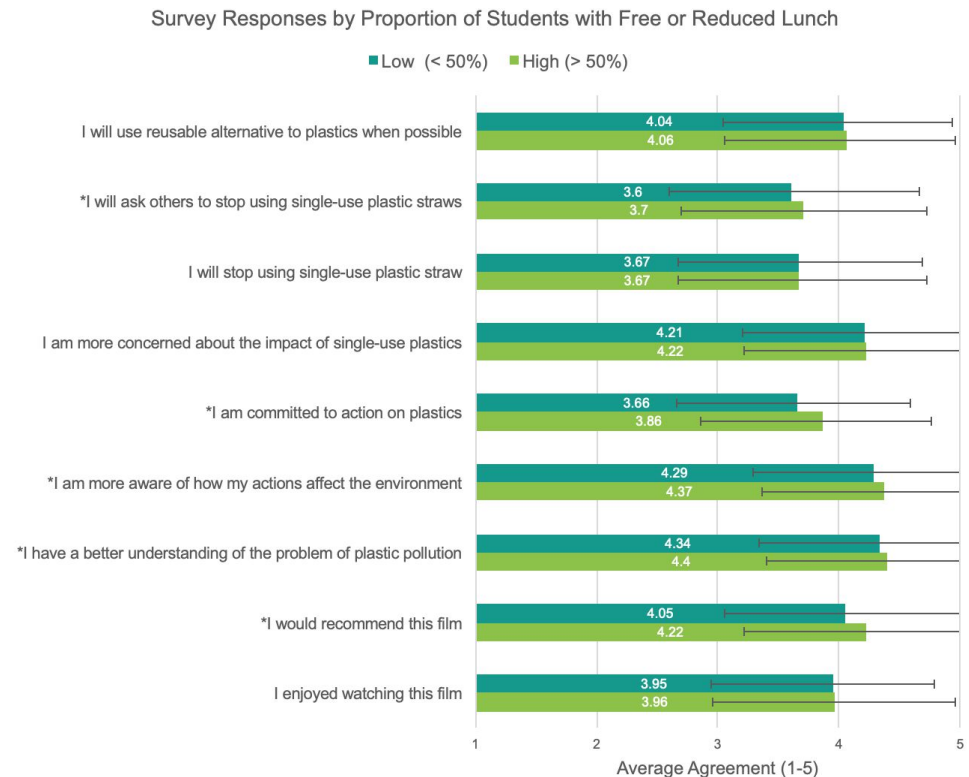
Does screening type matter?

Intention to stop using single-use plastic straws was the only survey item with statistically significant differences between classroom and general assembly screenings. Students who partook in a general assembly screening indicated higher intentions to stop using single-use plastic straws than those who partook in a classroom screening.

Does socioeconomic status matter?

We discovered through this research that, more than any other variable, socio-economic status (schools with students on Free/Reduced-Cost Lunch programs) and racial diversity had the biggest impact on student outcomes—more than any other facet of the screening.

Schools with over 50% minority students and over 50% of students with Free/Reduced-Cost Lunch (FRL) rated almost every measure statistically significantly higher than majority white and higher income (i.e., low proportion of students with FRL) schools (see figure, *left*).⁷ Of all the variables we tested, these ethnic and socioeconomic differences had the strongest effects. In particular, attending a school with a majority of non-white students was the strongest and most robust predictor of high ratings for all variables.



⁷ Items that were statistically significantly different between groups are indicated with an asterisk preceding the item label.

Teacher Survey

In addition to gathering data from students, we sent surveys to participating teachers towards the end of the tour. From the 35 participating schools, we received 23 teacher responses. Below is a summary of findings from this survey.

Impact. Overall teacher response to the STRAWS film screening experience was positive. All felt that the film positively impacted and educated students. Many followed up the film with lively discussion and complimented the film's ability to engage their students.

"The film really engaged my students in the civic action of changing their fellow students and teachers minds about single use plastics. Especially straws. They took it into their own hands to order metal straws for their entire 8th grade class. Many bought reusable straws themselves and encouraged teachers who brought drinks with straws to rethink their habits. It was fabulous to see!"

"For the most part the students loved it and were fascinated. Of the 100+ students I showed this to only one said he just didn't think it was that big of a deal. We did a follow up lesson on the chemistry of plastics and how plastic contributes to fossil fuel usage. This helped them understand how behavior impacts the environment as well. I even had 4-5 students that went out that night to buy metal straws and they would show up with their starbucks drinks in the morning with metal straws the rest of the semester."

Recommendations. Teachers also provided various helpful recommendations for future implementation of the STRAWS program that will be helpful as the tour grows across the country.

"Have an immediate campaign ready to start to build on the momentum."

"I would encourage teachers to include a pledge or action item at the end of the screening for students to be accountable to."

"Guide the Q and A more. There were good questions, but not probing questions. When presenting the middle school students, reminders of expected behaviors and reinforcement would be helpful. I thought too many students were talking or half listening and missing information as a result."

Conclusion

Survey results indicate that STRAWS is a useful and engaging method for educating and inspiring students about plastic straw use and plastic pollution and can lead to increases in knowledge, pro-environmental attitudes, and intention to take action on the issue. Additionally, several variables were identified that impact the effectiveness of these screenings (e.g., having speakers or showing the film through an assembly setting). Most surprisingly, the data indicated that the make-up of the audience, particularly with respect to socio-economic and racial diversity, contribute significantly to student outcomes.

With each iteration of school screenings, the STRAWS team has become better equipped and more effective at both providing educational and engaging opportunities for young people and at refining the methods used to implement these opportunities. As shown through pilots in Dallas and Los Angeles, the STRAWS team is consistently improving their approach to engage students with this content—attitudes and behavioral intentions have improved with each iteration. With this in mind, it is reasonable to expect that a national tour can have wide-reaching impact potential.

Next Steps

STRAWS will be released on consumer platforms in Fall 2019, and following the success of the Dallas and Los Angeles pilots, the impact campaign will expand nationally, including a targeted campaign in North Carolina. The STRAWS film Screening In Schools Campaign is designed to educate and inspire up to 250,000 youths across the U.S. to take action to end the use of plastic straws and other single use plastics in their schools and communities. The overall goals of these screenings are to raise awareness about plastic pollution and to inspire transformative action. Screenings will be organized through partnerships with national and regional NGOs and made possible by corporate, individual, and foundation support.

Future Research

Further research on how films like STRAWS can influence value-development among younger children may help maximize the future impact of these films on children's conservation-related behaviors. We recommend the following research directions:

- Research finds making a public commitment to be an effective way to motivate environmental behavior change.⁸ We recommend further research on the potential of commitments to reduce single-use plastic use. This could be in the form of pledges, petitions, or even a big poster/sheet that everyone in a class/school can sign to be displayed in a common space.
- Students who saw STRAWS as part of general assembly reported higher behavioral intentions, but not higher enjoyment over students who saw STRAWS in a classroom environment. This begs the question: Are students more effectively influenced in larger group settings? We recommend further research on the effect of screening type on attitudes and behavioral outcomes.
- We found a slight upward trend in positive outcomes among high school students, but the data was not clear enough to draw concrete conclusions. We recommend further research on how grade level affects students' experience, knowledge, attitudes, and behavior related to the film and plastic straws. This could have implications for future educational distributions of the film.
- Our survey results do not explain a potential relationship between enjoyment of the film and behavioral intentions. Our findings varied between Dallas and L.A. Students in both cities really enjoyed the film experience; however, behavior shifting was more obvious in L.A. We therefore recommend further research on the relationship between these two variables.
- Our most robust differences were found between majority white and majority non-white schools and majority FRL and majority non-FRL schools on nearly every measure (i.e., majority non-white and majority FRL rated all measures significantly higher). However, we don't know *why* this was the case. Lower income, non-white communities are more likely to experience the detrimental effects of environmental problems, so higher ratings could correlate with the perceived personal impact of environmental issues. However, cultural differences in the ways people respond to likert scales are well-documented. For example, one study found that white Americans tend to avoid the "extremes" on 5-point likert scales (i.e., 1 and 5), while non-white Hispanics are more likely to use the full scale (note that this effect diminishes with a 10-point scale).⁹ We recommend further research to discern the cause of these between group differences.

⁸ Lokhorst, A. M., Werner, C., Staats, H., van Dijk, E., & Gale, J. L. (2013). Commitment and Behavior Change: A Meta-Analysis and Critical Review of Commitment-Making Strategies in Environmental Research. *Environment and Behavior*, 45(1), 3-34.

⁹ Hui, C. H., & Triandis, H. C. (1989). Effects of Culture and Response Format on Extreme Response Style. *Journal of Cross-Cultural Psychology*, 20(3), 296-309.

Appendix: Evaluation Methods

Dallas

After the film was screened, staff distributed pen-and-paper surveys to attendees, divided into four sections:

1. **Attitudes** - Five Likert scale statements related to interest and engagement (1=Strongly Disagree, 5=Strongly Agree).
2. **Behavior** - Six pro-environmental behaviors with binary (yes/no) response
3. **EarthX interest** - List of Earthx activities; students were asked which they would like to be involved.
4. **Demographics** - Age and grade

Los Angeles

Student survey distributed immediately or within one day following screening with 12 statements on a five-point Likert scale (1=Strongly Disagree, 5=Strongly Agree). Statements were divided into four sections:

1. **Experience** watching the STRAWS film.
2. **Knowledge** of plastic pollution and its effects on the environment.
3. **Attitudes** attitudes towards plastic pollution as a result of viewing the film.
4. **Behavior** intentions to reduce plastic waste.

Students also indicated their grade and had the option to provide open-ended feedback about their STRAWS screening experience.

Following the full screening series, an additional survey was emailed to teachers with the following questions:

- What other elements were included as part of your screening experience (ie guest speaker, action plans, etc.)
- What was their impression of their students experience with the film?
- What suggestions do they have for the STRAWS team regarding future events?
- Would they recommend this program to other teachers? Why/why not?