

# Slacktivism: Its Effectiveness and Potential to Save the Chandra X-Ray Telescope from Being Defunded

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## **ABSTRACT**

This paper evaluates the potential of slacktivism as a tool to save NASA's Chandra X-ray Observatory from significant budget cuts. With NASA facing nearly \$1 billion reduction in its budget, the Chandra telescope is at risk of becoming defunct by 2029. The evaluation begins with a literature review that examines the criticisms and support for slacktivism, and analyzes previous cases where minimal-effort actions on social media have either helped or harmed a movement's progress. This is followed by an assessment of the current state of activism regarding Chandra, and proposes which previous successful slacktivism strategies should be applied to best influence Congress to prevent the telescope's decommissioning. This paper concludes that while slacktivism has its limitations, it works well alongside other traditional forms of activism; for Chandra specifically, the ultimate goal would be wider and sustained engagement to pressure Congress. This could be done through creating and sharing promotional videos, encouraging the general public to sign e-petitions, and increasing media coverage of the issue alongside other forms of activism.

## Introduction

As the use of social media takes the world by storm, slacktivism has been on the rise as a way for millions of social media users to "slackly" participate in supporting a cause. Perhaps one of the most criticized yet popular forms of activism, slacktivism describes public advocacy through minimal actions (Zohouri et al., 2020, 179) such as: liking a post, sharing a post, signing online petitions and using hashtags. Many movements, such as #MeToo, BLM, and protests against SOPA and PIPA, have leveraged slacktivism to fuel their growth. Despite this, a debate has sparked among sociologists, academics, and other experts supporting and criticizing the use and effectiveness of slacktivism as a form of activism.

Space research funding has recently become the subject of substantial online activism. NASA is facing significant budget cuts of nearly \$1 billion, or 12%, of its proposed budget due to the Fiscal Responsibility Act of 2023 (Weintraub, 2024). One of NASA's four great telescopes, the Chandra X-ray Observatory, which requires an annual budget of \$70 million, is experiencing a budget cut down to \$41 million for 2025 and just over \$25 million for 2026 (Weintraub, 2024). NASA proposed the budget plan claiming they were facing a "challenging budget environment" and thus had to make "difficult decisions" because of their \$1 billion budget cut due to the Fiscal Responsibility Act. Congress will have the final call on the budget (O'Callaghan, 2024).

If implemented, the X-ray telescope, which has brought in numerous ground-breaking discoveries about black holes, supernova remnants, and galaxy clusters (Weintraub, 2024; Dickinson, 2024), would become defunct by the end of 2029. Physics and Astronomy Professor Pooley from Trinity University warns that the loss of Chandra will "be disastrous for X-ray astronomy" (Weintraub, 2024). Given that around 200 scientists are working under Chandra (Shen & Tang, 2024), Pooley notes that "it is unclear how and even if X-ray astrophysics in the U.S. will survive these cuts" (Weintraub, 2024). Though scientists are looking at upcoming proposed X-ray telescope projects, currently there are no appropriate replacements for the Chandra X-ray Observatory (O'Callaghan, 2024).



This paper will investigate how slacktivism and online activism more generally can best be used to save Chandra. To do so, I will first summarize prominent criticisms and support of slacktivism, integrating both scholarly and non-scholarly sources to characterize the current state of public discussion on the subject. Then, I will proceed with a literature review of research on what factors make slacktivist movements more effective, including analyses of past and present case studies. Finally, I will examine the current state of Chandra activism and identify how improvements can be made.

# Support and Criticisms of Slacktivism

The debate over slacktivism can be mainly split into three areas: attention vs. impact, further involvement vs. superficial feeling of accomplishment, and whether or not slacktivism addresses the "root cause" of the issue a movement is trying to address or solve.

Before proceeding with the literature review, there are two important things to note. Firstly, "success" is not the same for every social movement – for instance, certain movements may have a goal of pressuring governments into changing certain legislation, while others may aim to serve as a platform for minorities to shed light on their stories. Therefore, certain advantages and disadvantages of slacktivism may affect some social movements more than others. Secondly, slacktivism is often not the only kind of activism that a movement uses, and is rather employed alongside other traditional methods of activism (Zohouri et al., 2020, 180). Therefore, it can be hard to isolate the effect of slacktivism in particular on the outcome of a movement. There is often a positive correlation between the success of a movement and the attention it gets from slacktivism, such as in the cases of #MeToo and BLM, but whether it is slacktivism that has caused its increase in funding, protests, or other forms of support so far has remained inconclusive (Messina, 2024).

## Attention vs. Impact

With a repost, like, or share, slacktivism is a minimal effort and low barrier to entry (Madison & Klang, 2020, 36) form of activism which allows for information to disseminate rapidly (Zohouri et al., 2020, 29). Whether attention is beneficial varies from movement to movement. For instance, a recent news article titled "Does 'slacktivism' work?" discusses a university blog post that reveals that movements such as BLM and MeToo raised millions of dollars in a short span of time from the viral attention they received (Messina, 2024). However, as political science professor Hahrie Han notes in her interview with the World Economic Forum, "a lot of social movements mistake attention for power" (World Economic Forum, 2022). Thus, just because a specific post receives millions of likes and shares does not mean the movement will succeed in getting actual change. For instance, the AI-generated viral post of "All Eyes on Rafah" garnered a lot of attention online towards the war in the Gaza Strip, but did not lead to any tangible changes for the involved parties, despite receiving millions of views, likes and retweets (Messina, 2024). The post itself lacked information on how to help and donate, or any call to action. Additionally, Zohouri et al. claim in "Slacktivism: A Critical Evaluation" that rapid dissemination may influence the public to believe that certain opinions are more correct than others just because they are popular, and may thus hinder others with different opinions from sharing their own thoughts – especially with the rise of cancel culture, which is itself a contentious issue (Zohouri et al., 2020, 181).

#### Further Involvement vs. Superficial Feeling of Accomplishment

This contentious topic spreads across multiple sources. Zohouri et al. claim that slacktivism helps empower people, whether it be through finding and forming connections within communities with similar viewpoints, or through helping social media users become more involved in political activities (Zohouri et al., 2020, 175). They state that slacktivism and online activism are often the initial steps for one to discover and learn more about a movement, after which they will contribute more. However, Nora Madison and Mathias Klang observe in their paper "The Case for Digital"



Activism: Refuting the Fallacies of Slacktivism" that low-risk activism approach can lead to social media users feeling a superficial sense of accomplishment in doing minimal action, and avoid any high-risk activism or more involvement in the movement (Madison & Klang, 2020, 34). This claim is supported by the findings of Kim et al.'s 2023 article, "The moral license of a click". The researchers conducted an experiment in which participants were assigned to different kinds of clicktivism or a control condition, after which their donation behavior was observed. Its results conclude that "the initial 'moral' act of clicking on the online petition 'freed' the individual from the need to engage in other forms of action... resulting in lower donation intentions" (Kim et al., 2023, 2).

Additionally, the common occurrence of ingenuity within the use of slacktivism appears often with celebrities (Zohouri et al., 2020, 181); celebrities or corporations participate in slacktivism to receive positive attention and applause from other social media users and to profit off of the movement. Even within a single social media platform, online activism varies widely in its effectiveness. Cnattingius and Gustafsson found in their 2019 paper, "Act or interact? The perceived influence of social media on millennial prosocial behaviours", that "Facebook does motivate millennials to engage in online activism, but it does also encourage them to perform substantial and costly actions, which are signs of non-slacktivism behaviors" (Cnattingius & Gustafsson, 2019, 12). However, in a separate research paper "The Structure of Online Activism," Lewis et al. discusses that out of the massive Facebook group, all 99.76% of members never donated to the movement on Facebook (Lewis et al., 2014, 2). This clash shows that while certain movements receive a lot more funding after slacktivism, others do not.

# Addressing the Root Cause of the Movement and its Main Objective

Further building upon the earlier concern about celebrities leveraging slacktivism for self-benefit rather than actual impact and change for the movement, it is also commonly questioned whether slacktivism addresses the root cause or main objective of a movement. Often, simple posts that go viral from likes, comments, reposts and shares, fail to capture the severity of the social or political issue the movement is trying to address. These issues may instead become a trend (Zohouri et al., 2020, 181). Referring back to "All Eyes of Rafah", though it brought consensus across social media to shed light on the Palestinian victims in the Gaza Strip, even many Pro-Palestinian users were aggravated by the "sanitized" version of the brutal murder of thousands (Wilson, 2024).

## What Makes Slacktivism Successful or Unsuccessful

In recent years, there have been multiple, high-profile cases of slacktivism, including both successful and unsuccessful movements.

Successful slacktivism involves maintaining sustained engagement and a deeper involvement with social issues, rather than just liking or sharing content (Cnattingius & Gustafsson, 2019, 2). It effectively integrates online activities with traditional forms of activism, such as protests, and focuses on addressing the root causes of social issues (Christensen, 2011). Clear goals with clear metrics to measure progress helps drive action. Additionally, the ability to adapt to changing circumstances and feedback, alongside providing emotionally engaging messaging, is key to driving meaningful impact (Foster et al., 2020, 6).

This section will summarize existing research on slacktivist movements, grouping findings by the movement in question.

#### The Iranian "Green" Revolution of 2009

In 2009, after a corrupt presidential election in Iran, Iranians carried out protests and mass demonstrations which were often organized through social media. It was also here that they would post photos and videos of the outcome of their protests (Jones, 2013, 4). This revolution achieved significant success through massive international support via



Twitter, hashtags, and reposting, which provided visibility and validation. When Neda Agha-Soltan was shot at a protest in Tehran, videos of her death spread rapidly across the internet; #Neda trended on Twitter on the day she passed (Jones, 2013, 5). This case demonstrated the power of digital engagement in amplifying voices and garnering global support, as well as how slacktivism and other forms of activism can work in cohesion to garner support for the movement both online and offline (Jones, 2013, 5). However, the movement also faced challenges, such as government suppression and the risk of online actions not translating into effective offline activism (Jones, 2013, 5).

# Kony 2012

The Kony 2012 campaign initially appeared quite successful. Viral posts effectively pointed out the root cause of the movement stemming from the criminal offenses made by Ugandan militant Joseph Kony and the posts gave clear next steps for social media users to help the movement by donating to Invisible Children, Inc., a charitable organization dedicated to raising awareness about, and providing aid to, children harmed by Kony's actions (Jones, 2013, 7). A viral video, reaching over 100 million views in the first six days, spread rapidly and successfully brought in donations of millions of dollars to Invisible Children, Inc. as people demonstrated empathy towards the movement (Jones, 2013, 7). However, there were a few flaws in the adaptability of, as well as sustained engagement within, the movement. For instance, the "Cover the Night" initiative lacked sustained engagement as it dispersed groups to act locally, disconnecting online and offline activism (Carroll, 2012). Many social media users also claimed that Invisible Children, Inc.'s video was an overgeneralization and mischaracterization of the issue of sexual abuse of children in Uganda (Jones, 2013, 8).

#### Occupy Sandy

Occupy Sandy was a successful movement that had real-time responses and effectively prepared different needed resources for the victims of Hurricane Sandy, which struck the mid-Atlantic region of the US in 2012. Homes, infrastructure and transportation routes were destroyed (Jones, 2013, 10). In addition to sourcing over \$700,000 in donations, the movement also used platforms like Craigslist and Couchsurfing to address housing needs. The viral spread of information about the hurricane also garnered a lot of sympathy, leading to many volunteers spontaneously signing up to help (Burdick & Rundgren, 2017).

#### MeToo

Despite the backlash the MeToo movement faced, it was very successful overall, uniting women around the world to speak out about their experiences with sexual abuse and harrassment. In the research paper, "What makes people engage in civic activism on social media?", Hyehyun Hong and Yeuseung Kim identify that MeToo's success came primarily in the form of more people using online platforms to express opinions, rather than systemic change in the form of policy decisions (Hong & Kim, 2021). Psychology researchers Foster et al. conducted an experiment in 2020, which concluded that tweeting about sexism motivated further activism, including greater in-person activism as well (Foster et al., 2020, 23). The researchers conducted an experiment simulating a Twitter paradigm under one of two different conditions. Women were exposed to sexism and then were randomly assigned to either tweet a response or not to tweet. The experimenters found that those who tweeted a response felt a strengthened social identity from doing so, and it led to more intentions of taking further action (Foster et al., 2020, 26).



# **Summarizing Chandra Activism**

There are, and have been, numerous efforts to save Chandra. Astronomers have built the Save Chandra website, www.savechandra.org, through which they spread awareness of the importance of Chandra and reiterate how the only way to save Chandra is through Congress. The website includes 3 steps on how to help: (A) sending Congress a message that the astronomers have already written out, (B) showing support through signing an in-progress community letter to NASA and Congress, and (C) encouraging people to share the website and the #SaveChandra hashtag everywhere on social media. Furthermore, an open letter addressed to NASA SMDs (Science Mission Directorate), sent out in mid-March of 2024, was signed by more than 700 astronomers, astrophysicists, professors, physicists, researchers and scientists (U.S. X-ray Astrophysics, 2024).

News articles by multiple space news websites have expressed the urgency of saving Chandra. Certain major news sites, such as USA Today, CNN and Washington Post have also published articles regarding the urgency to save Chandra. Moreover, a famous STEM YouTube Channel, Veritasium, published a YouTube Short that has amassed over 13 million views and 23 thousand comments –thousands more comments than other popular YouTube Shorts from the channel (Veritasium, 2024). A few videos regarding saving Chandra from budget cuts have emerged on the platform, but often only have a few hundred views. Based on where the majority of posts and news about Save Chandra emerge from, the main audience interested in saving Chandra are astronomers or science enthusiasts.

# Political Slacktivism and Saving Chandra

Due to Congress having the final call on the budget (O'Callaghan, 2024), the most logical way of resolving the Chandra budget cut is through convincing Congress. With the help of strategic political slacktivism, there is still hope for the Chandra telescope.

It is important to consider what factors into political change when it comes to slacktivism. In contrast to the previous section, this section will focus on slacktivist movements that led to specific policy changes. These cases will be analyzed to identify major takeaways that can then be applied to strategizing how to save the Chandra telescope.

## Previous Political Slacktivism Cases and Takeaways

#### Case 1: SOPA and PIPA

SOPA and PIPA, the Stop Online Piracy Act and the PROTECT IP Act, were two proposed bills intended to crack down on online piracy in the US. However, many members of the public were concerned it could be used to censor unrelated content, sparking a series of protests. Major sites such as Wikipedia and Reddit went dark to raise awareness of this issue, and an online petition that opposed the bills gained over 7 million signatures. This massive spread led to 18 senators withdrawing their support for PIPA within 24 hours, and ultimately both bills were shelved (Vargas, 2013, 47).

### Takeaway 1: The Impact of Online Petitions

Though SOPA and PIPA's case is not identical to Chandra's, it did share the same goal as Chandra's –having influence over a decision in Congress. Aside from the online petition's crucial role in the success of having both bills shelved, online petitions have been proven effective in many other studies such as Leonel et al.'s research paper "Firms' response to Slacktivism: When and Why are E-Petitions Effective?" and Chou et al.'s paper "From slacktivism to activism: Improving the commitment power of e-pledges for prosocial causes". Leonel et al.'s empirical data demonstrate that "e-petitions shared on social media pose a credible threat to firm image" (Leonel et al., 2023, 32); while firms and governments are different, the credibility of e-petitions in driving change and affecting the public perspective on organizations remains significant across different contexts. Additionally, Chou et al. empirical research from



a variety of experiments, conclude that e-pledging one's initials was much more effective than simply liking a post (Chou et al., 2020, 16).

## Case 2: March for Our Lives

Following the school shooting in Parkland, Florida in February of 2018, the biggest youth-led protest in American history emerged. Hashtags such as #EnoughIsEnough, #NeverAgain, and #ParklandStrong were trending online. The movement extended past raising awareness. These students continued with other forms of activism; as news article "America's youth finally destroyed slacktivism" specifies, they "[attended] interviews, penned op-eds, made music, and held a statement-making CNN town hall" targeting the National Rifle Associations and specific politicians. This then led to an in-person protest against gun violence which over 1 million people attended on March 24th, 2018 (Gallucci, 2018). Since then, March for Our Lives claims to have had a measurable impact on gun legislation with over 300 gun safety laws being passed since the movement began and multiple "NRA cronies" being voted out of Congress (March for Our Lives, n.d.).

## Takeaway 2: Merging Different Forms of Activism

A 2020 research study (Cheas et al., 2020) shows that the students' social media activism was taken seriously by mainstream media, with students' tweets making up 27% of all tweets included in news coverage of the shooting and its aftermath. Along with Gallucci's news article on the interviews, protests and other forms of activism, all of these forms of activism drove the movement towards success. This article explains that of how other movements have failed to gain momentum when only using a few forms of activism (Gallucci, 2018); combined with their analysis of the success of March for Our Lives, this supports the idea that change does not simply come from slacktivism alone – news coverage, interviews, protests and other forms of activism are needed alongside online activism in order to significantly influence Congress and government legislation. Emulating this strategy of merging different forms of activism could influence Congress and, in turn, save the Chandra telescope from severe budget cuts.

## Case 3: Arab Spring

The Arab Spring was a series of anti-government protests that successfully overthrew multiple autocratic governments in Arab nations. These protests occurred both in person and online, first emerging in Tunisia in December 2010, but eventually spread across Egypt, Libya (Zohouri et al., 2020, 4), Syria, Iraq, and Yemen (Blakemore, 2019). This spread was precipitated by the dissemination of information globally (Blakemore, 2019) across social media platforms such as Facebook, Twitter and Youtube (Gire, n.d., 1). This spread of information also continued despite government attempts of repression (Blakemore, 2019). As O'Donnell observes in a Washington University article "New study quantifies use of social media in Arab Spring", a week before the president of Egypt's resignation, the number of tweets within the country "ballooned from 2,300 a day to 230,000 a day", and the top 23 Youtube videos regarding the protest had gone viral, garnering over 5.5 million views (O'Donnell, 2011). Gire's paper "The Role of Social Media in the Arab Spring" describes that although the Arab Spring movement was mainly non-violent (Gire, n.d., 6), it forced out multiple governments, in part due to the use of social media.

#### Takeaway 3: Rapid Unity that Emerges from Slacktivism and Pressure on Governments

In the case of the Arab Spring, social media served a crucial role in shaping political narratives to challenge oppressive governments, despite government censorship efforts to prevent the spread of the movement (34). Gire's paper highlights research conducted by New York University professor Clay Shirky, who argues that social media usage affects how users form their political opinions by allowing relatable "unfiltered information" to reach different people (Gire, n.d., 3). O'Donnell's article explains that "In Tunisia…less than 20 percent of the population uses social media, but almost everyone has access to a mobile phone", enabling such rapid dissemination of information (O'Donnell, 2011). The article also mentions how this massive spread of information, whether it be through tweets or videos, developed a "public sense of shared grievance and potential for change can develop rapidly" (O'Donnell, 2011). Such a rapid



surge in the tweets on Twitter, or views on YouTube, in a span of a few days led to unity, international support, and sympathy for the movement, which pressured various presidents of Arab nations to resign (Gire, n.d., 5-6). Chandra's funding is obviously a very different case from the Arab Spring, but the relevant takeaway that can be applied in this case is that slacktivism helps with rapid spread and engagement in an urgent and short span of time, which, in turn, can effectively pressure governments.

## Summary of Takeaways from Previous Slacktivism Cases

Table 1. Major takeaways broken down based on previously successful slacktivism cases

Case	Role of Slacktivism	Major Takeaways
The Iranian "Green" Revolution	Amplified voices, garnered global support, and provided visibility and validation for the 2009 Iranian protests through digital engagement (e.g., hashtags, sharing videos) (Jones, 2013, 5)	Consistent updates and discussion lead to better engagement, and visibility and validation of protestors
Kony 2012	Viral video posted by Invisible Children, Inc. garnered empathy from multiple viewers which brought in donations worth millions (Jones, 2013, 7)	Having viral videos help bring in more engagement, and they can influence social media users to find more profound ways to contribute
Occupy Sandy	Gathered sympathy from the public which led to a surge in volunteers and donations, and helped solve housing issues (Burdick & Rundgren, 2017)	Easier to attain goals if movement sets out clear, measurable goals for how social media users can contribute
МеТоо	Encouraged different people to share about their experiences with sexual abuse and harrassment, strengthening and uniting social identity so people continued to take more action (Foster et al., 2020, 26)	Providing users with a reason to be connected and emotionally invested in the movement leads to more engagement and future contributions from members of the movement
SOPA and PIPA	Attracted millions of signatures on epetition that ended up having both bills that were being protested, shelved (Vargas, 2013, 47)	Having a large number of signatures on a petition can help pressure Congress to change legislation
March for Our Lives	Worked alongside other forms of online and offline activism to bring in massive support for the movement, leading to influencing over 300 gun safety laws being passed (March for Our Lives, n.d.)	Slacktivism is not sufficient alone, but works in cohesion with other forms of activism



Arab Spring	Caused rapid rates of engagement in the span of just a few days, which in turn	Slacktivism is especially useful for immediate change in a short
	caused unity among different social media	span of time and unity across
	platforms, pressuring government officials	different platforms can
	to resign (Gire, n.d., 5-6)	effectively influence and
		pressure governments

# Applying Takeaways to Saving the Chandra X-ray Telescope

#### The Main Problem

One thing that all these successful cases of slacktivism have are massive numbers of members in the movement and massive outreach. Each individual involved does not have to take costly or significantly intensive actions, as what the term slacktivism suggests, because these minimal efforts combined are sufficient for change. Whether it be the millions of signatures on e-petitions concerning SOPA and PIPA (Vargas, 2013, 47), or the hundred of thousands of tweets about the Arab Spring (O'Donnell, 2011), these all came from minimal efforts from the general public. Unfortunately, activism for Chandra is far from the size of previous successful movements. Based on the fact that most articles about saving Chandra are from popular space news sites, and the fact that the open letter was signed by over 700 astronomy and science-related experts (U.S. X-ray Astrophysics, 2024), the high barriers to entry of Chandra activism lead to there being fewer opportunities for the general public to get involved.

#### Step 1: Lower Barriers to Entry

To solve this, the Save Chandra movement can imitate some of the strategies used by the McToo movement; referring back to Hong and Kim's research paper, women were more involved in the movement when tweeting about their personal opinions and experiences (Hong & Kim, 2021). Though the Chandra X-ray telescope does not evoke the same emotional depth as women experiencing harassment and sexism, providing a reason for new viewers to be connected and emotionally invested in saving Chandra can lead to more people tweeting and sharing the issue. The site www.savechandra.org was created by astronomers for Chandra activism, and it does a good job of answering the question of why the average individual should care and take action. The website compellingly explains how Chandra provides more answers to the existence of humanity in the cosmos, bridging how saving the X-ray telescope is relevant to human progress and our understanding of humanity as a whole. However, the mere mention of this idea on the website is not enough; there is still an absence of Chandra activism across social media.

#### Step 2: Spreading Awareness

The issue of Chandra's budget cuts is still not discussed as much as the subjects of previous online activist movements; for instance, the viral video with the most reach about Chandra's budget cut amassed 13 million views on YouTube shorts as of August 2024, having been released four months earlier, while the viral video from Invisible Children, Inc. received over 100 million views in its first 6 days of release, receiving attention across multiple platforms such as Facebook and Twitter and millions of donations (Jones, 2013, 7). Empirical data from research papers such as Jones' "Slacktivism and the social benefits of social video: Sharing a video to 'help' a cause" show that video postings can "successfully prompt cause-related sharing from viewers tend also to prompt viewers to find out more — a prerequisite for subsequent meaningful engagement" (Jones, 2015). Therefore, continuing to partner with large content creators,



especially major STEM based content creators first, would be beneficial in reaching a larger audience of potential supporters of the movement.

Aside from videos, petitions are great vehicles for translating minimal effort actions into substantial change for Chandra. Despite the criticism that slacktivism can lead to a false sense of accomplishment when users do the bare minimum, petitions have been proven to be effective in influencing government decisions if they get enough signatures, as demonstrated in the case of SOPA and PIPA (Vargas, 2013, 47). Currently, Save Chandra already has a community letter in progress for people to sign on its website. This initiative should be mentioned in the videos or news articles being shared about Chandra to give clear steps for how people can contribute.

#### Step 3: Merging Slacktivism with Other Forms of Activism

Slacktivism works well alongside other forms of activism, as the success of the Iranian "Green" Revolution and March for Our Lives indicates. This claim is well-supported in the literature, such as by Oser et al.'s 2022 meta-analysis of 48 studies and Henrik Christensen's 2011 research article. Similar to March for Our Lives, in addition to attempting to make viral posts, Chandra would have greater outreach by dispersing their message and goals in interviews, short videos across different platforms, and other news outlets that have audiences who have yet to learn about the X-ray telescope's budget cut. This approach is particularly useful in gaining a rapid surge in attention and pressuring governments through popular, unified demands for change.

## **Conclusion**

In conclusion, while the debate regarding the effectiveness of slacktivism is still ongoing, slacktivism has had an obvious impact on the growth or lack thereof of certain social and political movements. This article's literature review summarized the major findings and controversies from this debate, and examined whether the use of slacktivism was advantageous or disadvantageous towards certain movements. This information was then used to investigate how slacktivism could best be used to save the NASA X-ray telescope Chandra from severe budget cuts.

Through analyzing the current efforts in Chandra activism as well as success factors from previous successful movements using slacktivism, this review concludes that slacktivism has the potential to help save Chandra. We can summarize this strategy to save Chandra with the help of slacktivism in three main steps. Firstly, Save Chandra must reach a larger audience by lowering barriers to entry –essentially providing the general public with a reason to join in. Secondly, Save Chandra should continue to spread awareness about the budget cuts on a greater scale, whether it be through the use of videos or e-petitions. Lastly, as can be ascertained through analyzing previous successful movements, slacktivism itself is not sufficient to Save Chandra. Instead, our evaluation of previous cases and academic research on the efficacy of slacktivism in driving political change suggests that slacktivism actually works best in concert with other forms of activism. Therefore, merging slacktivism with other forms of activism, both online and offline, would be an effective method of pressuring Congress to re-evaluate the budget cuts and saving Chandra. The future of Chandra remains uncertain, but even small efforts, when combined, could ultimately help save one of the greatest telescopes in history.

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## References

Blakemore, E. (2019, March 29). *The Arab Spring—facts and information*. National Geographic. Retrieved August 31, 2024, from https://www.nationalgeographic.com/culture/article/arab-spring-cause

Burdick, L., & Rundgren, G. (2017, September 29). *After the Flood: Lessons from Occupy Sandy - resilience*. Resilience.org. Retrieved August 31, 2024, from https://www.resilience.org/stories/2017-09-29/after-the-flood/

Carroll, R. (2012, April 21). Kony 2012 Cover the Night fails to move from the internet to the streets. The Guardian. Retrieved August 31, 2024, from https://www.theguardian.com/world/2012/apr/21/kony-2012-campaign-ugandawarlord

Cheas, K., Juvonen, N., & Kannisto, M. (2020). #MarchForOurLives: Tweeted teen voices in online news. *ISOJ Journal*, 10(1), 61-83. https://isoj.org/research/marchforourlives-tweeted-teen-voices-in-online-news/

Chou, E. Y., Hsu, D. Y., & Hernon, E. (2020). From slacktivism to activism: Improving the commitment power of e-pledges for prosocial causes. *Plos One*, *15*(4), 1-21. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0231314

Christensen, H. S. (2011). Political activities on the Internet: Slacktivism or political participation by other means? *First Monday*, *16*(2-7). https://doi.org/10.5210/fm.v16i2.3336

Cnattingius, L., & Gustafsson, E. W. (2019). Act or interact? The perceived influence of social media of millennial prosocial behaviours (Dissertation) https://www.diva-portal.org/smash/get/diva2:1335129/FULLTEXT01.pdf

Dickinson, D. (2024, March 28). *An Early End for the Chandra X-Ray Observatory?* Sky & Telescope. Retrieved August 31, 2024, from https://skyandtelescope.org/astronomy-news/an-early-end-for-the-chandra-x-ray-observatory/

Foster, M., Tassone, A., & Matheson, K. (2020). Tweeting about sexism motivates further activism: A social identity perspective. *Psychology Faculty Publications*, 107, 1-51. https://doiorg.libproxy.wlu.ca/10.1111/bjso.12431

Gallucci, N. (2018, March 27). *America's youth finally destroyed slacktivism*. Mashable. https://mashable.com/article/trump-era-end-of-slacktivism

Gire, S. (n.d.). The Role of Social Media in the Arab Spring. *Pangaea Journal*. 5. https://sites.stedwards.edu/pangaea/the-role-of-social-media-in-the-arab-spring/

Hong, H., & Kim, Y. (2021). What makes people engage in civic activism on social media? *Emerald Insight*, 45(3), 562-576. https://www.emerald.com/insight/content/doi/10.1108/OIR-03-2020-0105/full/html

Jones, C. (2013). Activism or Slacktivism? The Role of Social Media in Effecting Social Change. (Research Paper) https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=36cd8ccff14d3b3b6a793323aedf66615cc91152

Jones, C. (2015). Slacktivism and the social benefits of social video: Sharing a video to 'help' a cause. *First Monday*, 20(5). https://firstmonday.org/ojs/index.php/fm/article/view/5855/4458



Kim, N., Kim, H. K., Tan, S. J., Wang, W. H. K., & Ong, K. H. (2023). The moral license of a click: How social observability and impression management tendencies moderate the effect of online clicktivism on donation behaviour. *Sage Journals*, 1-22. https://doi.org/10.1177/14614448231153971

Leonel, R., Rehbein, K., Westermann-Behaylo, M., & Perrault, E. (2023). Firms' Response to Slacktivism: When and Why are E-Petitions Effective? *Journal of Management Studies*, 1-36. https://doi.org/10.1111/joms.13010

Lewis, K., Gray, K., & Meierhenrich, J. (2014). The Structure of Online Activism. *Sociological Science*, *1*(1), 1-9. https://doi.org/10.15195/v1.a1

Madison, N., & Klang, M. (2020). The Case for Digital Activism: Refuting the Fallacies of Slacktivism. *Journal of Digital Social Research*, 2(2), 28-47. https://doi.org/10.33621/jdsr.v2i2.25

March for Our Lives. (n.d.). *On Legislation*. March For Our Lives. Retrieved August 31, 2024, from https://marchforourlives.org/on-legislation/

Messina, R. (2024, May 31). *Does 'slacktivism' work?* The Week. Retrieved August 31, 2024, from https://theweek.com/politics/does-slacktivism-work

O'Callaghan, J. (2024, March 21). *NASA Slashes Budget for Chandra, Its Greatest X-ray Observatory*. Scientific American. Retrieved August 31, 2024, from https://www.scientificamerican.com/article/nasa-slashes-budget-for-chandra-its-greatest-x-ray-observatory/

O'Donnell, C. (2011, September 12). *New study quantifies use of social media in Arab Spring*. University of Washington. Retrieved August 31, 2024, from https://www.washington.edu/news/2011/09/12/new-study-quantifies-use-of-social-media-in-arab-spring/

Oser, J., Grinson, A., Boulianne, S., & Halperin, E. (2022). How Political Efficacy Relates to Online and Offline Political Participation: A Multilevel Meta-analysis. *Political Communication*, *39*(5), 607-633. https://doi.org/10.1080/10584609.2022.2086329

Shen, K., & Tang, A. (2024, April 4). *NASA's budget cuts for the Chandra X-ray Observatory could leave a gaping hole in the field » MIT Physics*. MIT Physics. Retrieved August 31, 2024, from https://physics.mit.edu/news/nasas-budget-cuts-for-the-chandra-x-ray-observatory-could-leave-a-gaping-hole-in-the-field/

U.S. X-ray Astrophysics. (2024, March 14). *US X-ray Astrophysics*. Retrieved August 31, 2024, from https://static1.squarespace.com/static/65ef9450c5609f1ad469073d/t/660592b86451fa042ad6bd85/1711641272275/US+X-ray+Astrophysics.pdf

Vargas, K. (2013). The Online Activism Feedback Loop: A Case Study of SOPA/PIPA. *University of Michigan Library* (Thesis). https://deepblue.lib.umich.edu/bitstream/handle/2027.42/98854/kvarg.pdf?sequence=1

Veritasium. (2024). *Congress is about to make a huge mistake for astronomy*. https://www.youtube.com/shorts/sE-RUu9ClsU



Weintraub, K. (2024, April 11). *NASA's Chandra X-ray Observatory slated for budget cuts after 25 years*. USA Today. Retrieved August 31, 2024, from https://www.usatoday.com/story/news/nation/2024/04/11/nasa-telescope-budget-cuts-chandra-x-ray-observatory/73106444007/

Wilson, B. (2024, June 1). *Breaking down the viral 'All Eyes on Rafah' social media post*. CBC. Retrieved August 31, 2024, from https://www.cbc.ca/news/world/all-eyes-on-rafah-viral-post-1.7219132

World Economic Forum. (2022, August 31). What makes the perfect social movement? An expert explains | World Economic Forum. The World Economic Forum. Retrieved August 31, 2024, from https://www.weforum.org/agenda/2022/08/social-movements-hahrie-han-expert-explains/

Zohouri, M., Darvishi, M., & Sarfi, M. (2020). Slacktivism: A Critical Evaluation. *Journal of Cyberspace Studies*, 4(2), 173-188. 10.22059/JCSS.2020.93911