

PREPARED BY

N.S. Kuhn, S. Sarkar, J. Hoy, C. McCray, and C. Lefthand-Begay

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Image: TikTok video by @supamantiktok, November 17, 2020.

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I. Positionality & Relationality

A. Research Team

- **Clarita Lefthand-Begay**, Assistant Professor, citizen of the Navajo Nation, a leader of the Native North American Indigenous Knowledge Initiative at the Information School, University of Washington, taught the *Indigenous Research Methods* (IRM) class and led the research team engagement with the class.
- **Nicole S. Kuhn**, PhD student, member of the Haida Nation, focuses on Indigenous communities' use of social media, Indigenous research ethics and review boards, and digital youth, led the research team.
- **Shawon Sarkar**, PhD Candidate, non-Native student researcher in information science from India, who aims to increase people's awareness and capability of accessing information, and improve information systems to alleviate barriers people face while seeking information.
- **Josephine Hoy**, PhD student, non-Native researcher who focuses on participatory design methods, community storytelling and collective imagination, and designing technical infrastructures to support care and solidarity.
- **Celena J. McCray**, MPH, CPH, citizen of the Navajo Nation, is a Project Manager at the Northwest Portland Area Indian Health Board (NPAIHB) and provides technical assistance to grant recipients, develops culturally appropriate material and media campaigns for the northwest tribes.

B. Student Teams

Two student research teams were formed in the graduate class IRM at the Information School, University of Washington. The first team of three members included one student who identified as White, another as Asian, and a third as Native who has experience working at a Native health organization. Our second student team was composed of four non-Native researchers. Most researchers were relatively unfamiliar with TikTok with minimal prior exposure to the app and some familiarity with online youth culture.

C. Ethics & Relationality

Consistent with Indigenous research ethics and relationality, we made a number of decisions to ensure our research brings no harm to Indigenous peoples or communities. In this report, we include a selected number of creators' usernames, screenshots and videos from prominent Indigenous influencers who have been previously featured in mainstream media and highlight them as positive examples of Indigenous creators on TikTok. Also, recognizing the sensitivity of youth's data and privacy, we sought to include in our review and process TikTok videos that were shared by creators 18 years of age and over. Lastly, we anonymized all other creators' usernames and data to respect their privacy.

II. Introduction

As early as April 2020, the disproportionate health impacts of SARS-CoV-2 (COVID-19) among American Indian and Alaskan Native (AIAN) communities were becoming more apparent across the United States (U.S.), and tribal leaders were gearing up to fight this new battle. In preparation for the country's vaccination rollout efforts, the Indian Health Service's (IHS) COVID-19 Pandemic Vaccine Draft Plan was published in October 2020. This document highlighted action plans for the distribution of vaccines across Indian Country, and included a communications plan. IHS's communication strategy suggested the use of a wide variety of culturally appropriate messages, materials, and actions to draft communication materials, monitor social media, distribute information, and build trust.

In late December 2021, the Urban Indian Health Institute (UIHI) conducted a survey on vaccine knowledge, attitudes, and beliefs. In their report, UIHI states, "The primary motivation for participants who indicated willingness to get vaccinated was a strong sense of responsibility to protect the Native community and preserve cultural ways" (UIHI, 2021). These data were instrumental in understanding people's intentions to receive the vaccine and what type of focused messaging may be useful in building confidence. Tailoring health messaging to the tribal community is an important step in generating vaccine confidence among the AIAN community. To be effective, such messaging needs to acknowledge the historical mistrust of science, healthcare and the U.S. government by AIAN communities. Because of these combined factors, delivering health information to AIAN communities requires new approaches that include multiple strategies to reach a variety of age ranges across Indian Country.

From March 2021 to June 2021, an interdisciplinary group of students at the University of Washington's (UW) Information School examined two overarching questions through a graduate class titled *Indigenous Research Methods* (IRM). The predominant question was framed by our colleagues and partners at the Northwest Portland Area Indian Health Board (NPAIHB). This report provides an overview of an exploratory research project initiated through this collaboration.

Research Questions

- What are the COVID-Related Messaging for AI/AN youth on TikTok?
- What are some best practices for using this platform to reach Native youth?

Throughout the quarter, and with direction from NPAIHB, we formed three research groups to answer these questions: our Research Team and two IRM student groups. The Research Team sought to answer these main questions and focused their research on Indigenous content relating to COVID-19 more broadly. One IRM student group focused their COVID-19 inquiry on vaccine sentiment and the other on water and COVID-19, knowing clean water and access to water are critical resources needed to fight the COVID-19 pandemic and stay healthy.

III. TikTok Basics

Short-form video applications (apps) and video-sharing social networking platforms are becoming increasingly popular, allowing users to share their daily lives, interests, and opinions more effectively through short, impactful videos that can reach audiences around the world. Among these video-sharing platforms, TikTok is among the most recognized and continues to attract users and views daily. Sharing photos and videos online is one of the most popular activities among teenagers and young adults who constitute the largest group of TikTok users in the U.S. (Pew Research Center, 2021; Tankovska, 2021).

Even though TikTok videos have a default length of 15-seconds (with a 60-second maximum), they are very diverse and include entertaining audiovisuals with dance, culture, identities, social activism, public health information, and celebrity content. The platform is described as more of a creative media than social media and “liberates young people to play without adhering to the visual styles, narratives, and online cultures of the past” (Brensnick, 2019). Unlike other social networking platforms modeled around friends or followers and following relationships, TikTok is very algorithm-driven. It is “a social network that has nothing to do with one’s social network” and an “enormous meme factory, compressing the world into pellets of virality and dispensing those pellets until you get full or fall asleep” (Tolentino, 2019). These design choices make TikTok stand out among its competitors such as Byte, Triller, Zynn, or Likee.

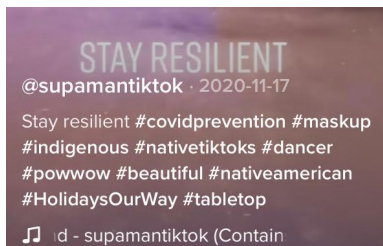
A. Anatomy of TikTok

1. TikTok Interface

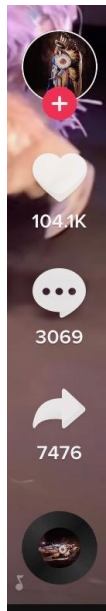
The buttons along the bottom of the TikTok interface are: Home, Discover, Create a Video, Inbox, and Profile. Home returns the user to their “For You” page feed. Discover shows Trending hashtags and provides a search bar for searching hashtags, videos, sounds, and users. The plus sign icon is for creating a new video. Clicking the Inbox icon brings up the user’s messages. The profile icon allows users to manage their accounts and access privacy and safety, accessibility settings, set up notifications and view their user engagement metrics (how many creators they are following, how many followers they have and their number of Likes). There are many how-to's for using TikTok available online, including TikTok's own instructions (TikTok, 2020).



2. TikTok Videos



Text - Bottom Left: At the bottom left of the screen, you will see, from top to bottom, the creator's username (in this example image, it is @supamantiktok) and the date the video was created. Below that is text that contains words and hashtags that the creator added to their video. The last line contains the link to the audio that accompanies the video. The creator's name, hashtags and audio can all be clicked to learn more about each video element.



Icons - Bottom Right: Icons appearing on the bottom right of the video screen are:

- (1) **Creator's profile photo** - Clicking on this icon brings the user to the creator's profile page. TikTok's creator's profile pages are similar to other social media platforms like Instagram or Twitter, displaying the total number of Following, Followers, and Likes. You can click on the red button to Follow this creator and at the bottom of the page, you can view all of the creator's videos as you scroll down. The menu icon (three dots, top right) shows the options to Share the creator's profile, Report the creator, Block the user or Send a message to them.
- (2) **Heart icon** - Click on this icon to Like this video.
- (3) **Chat bubble** - Click here to view, add or like a Comment; similar to other social media sites, users can tag other users in the comments using @ plus their username.
- (4) **Arrow** - Click to share, Report, or Save this video, as well as indicate that you are Not Interested in this video (and ones like it), or Add to Favorites, guiding the algorithm to improving your feed.
- (5) **Spinning circle** - Click to learn more about the video's audio, Add to Favorites, and see what other videos use this same sound.

B. TikTok's Algorithm & "For You" Page

After a user creates an account on Tiktok, the app gives the user an option to choose their interests from a list that includes animals, comedy, travel, food, sports, beauty and style, art, gaming, and science and education (Anderson, 2020). This helps prime Tiktok's content filtering and recommendation algorithms (which analyze user-generated data to make predictions of content that a user might be interested in) to suggest which videos the user will prefer. Unlike other social media platforms that present a content feed that a user scrolls through, TikTok displays one video at a time to a user through their curated "For You" page. The video on view will continue to repeat on loop until the user swipes up or down to move to the next or previous video or taps the screen to pause. The default video feed is the algorithm-driven "For You," but users can also choose to limit their video feed to just the creators they follow at the top of the screen.

Factors	Elements
User interactions	<ul style="list-style-type: none"> · Videos liked or shared · Accounts followed · Commented posted · Content created
Video information	<ul style="list-style-type: none"> · Captions · Sounds · Hashtags
Device and account settings	<ul style="list-style-type: none"> · Language preferences · Country setting · Device type <p>These three factors are included to make sure the system is optimized for performance, but they receive lower weight in the recommendation system relative to other data points because users don't actively express these as preferences.</p>
Adapted from: "How TikTok recommends videos #ForYou." TikTok Blog. June 18, 2021, at https://newsroom.tiktok.com/en-us/how-tiktok-recommends-videos-for-you	

Figure 3.1 Impacts on the "For You" Feed. A list of specific factors that TikTok says it processes when recommending content on the "For You" feed.

Unlike other social media platforms such as Facebook, Instagram, and YouTube, TikTok does not generate video feeds based on the content from the accounts the user follows (Klug et al., 2021). Using natural language processing techniques and computer vision technologies, TikTok's recommendation algorithm analyzes textual and visual objects from previous and continuous user engagement (viewing time, liking, commenting, sharing) and then customizes video content for the individual user's "For You" page, which is also impacted by trending hashtags and sounds. Because TikTok's algorithm is constantly learning from users' previous and current interactions, curating their feed with videos related to their apparent preferences, a user's "For You" page may show very recent and viral videos alongside older ones or videos with only a few Likes, recommending videos with content that is similar to the videos the user previously engaged with (TikTok, 2020). Figure 2.1 shows how the TikTok algorithm populates a users' feed with recommendations.

C. TikTok's Engagement Across Creators

Creators use a variety of unique platform tools that can be used independently and together to engage with one another and their audience, including duets, stitching, audio sounds, and hashtags.

1. Duet

A duet is one of the unique features of TikTok that has helped the app gain popularity (Anderson, 2020). The duet feature encourages everyday creators to make their videos alongside TikTok influencers. If the content creator has enabled the options, the viewer can react to their video by answering with a video of their own or duet to the video. The duet option divides the screen for a

simultaneous comparison performance where one creator responds to another in a previously aired video.

2. Stitching

Stitching is also a novel feature that allows TikTok video creators to clip and integrate scenes from another user's video into their own video, in a different format that allows them to respond to another creator's content and build upon trending videos.

3. Audio

Another engaging feature of TikTok is the connection that is made between videos that use trending or audience-specific audio clips in their videos, which even allow creators to respond to audio trends with their own unique takes on trending sounds.

4. Hashtags

Hashtags are another essential aspect of TikTok engagement. Creators add hashtags to their videos that can be clicked to discover more videos that use the same hashtag. Hashtag challenges are often used to create engagement across creators.

IV. Methods

To understand Native youth's responses to COVID-19, COVID vaccines, and water on TikTok, we first collected video and related metadata from TikTok, and then we took a systematic content analysis approach to examine Native TikTok users' on their content creation practices. In this report we use a combination of the names Indigenous, Native, American Indian and Alaskan Native and First Nations with an emphasis on the latter two populations.

A. Data Collection

We employed two strategies to identify and collect videos relating to Indigenous experiences with COVID-19 and water issues: (1) We first explored Indigenous influencers who have established their identity and credibility and who share content with large audiences on TikTok. (2) Next, we leveraged trending and popular hashtags among Native users on Native culture, COVID-19, and water to find relevant and influential content on these critical issues. To maintain consistency and time, we defined Native youth users as individuals between the ages of 18 - 35 years and we aimed to include videos by creators in this age group, also recognizing privacy concerns about content produced by minors (Marwick & Boyd, 2014).

1. Indigenous Influencers

A social media influencer can be defined as "person with a large and engaged follower base on social media platforms, which one would not know unless one follows them" (Haenlein et al., 2020). Based on the list of Indigenous influencers on TikTok from the MarketCast report shared by NPAIHB and one

additional influencer we had personal knowledge of, we collected data on TikTok influencers from TikTok, two other social media platforms (Instagram, Facebook) and online searches. On TikTok, we reviewed their profile data (including age and tribal affiliation), and engagement statistics (number of Followers and Likes) and we searched their feed for videos made in May 2021, enumerating their total posts and the number of videos that included content or hashtags related to COVID-19. We also searched to find any public Facebook and Instagram accounts, and recorded their number of Followers for their Facebook and Instagram accounts. Finally, we searched online for media articles that discussed their work with a specific interest in any material on their TikTok presence.

2. Hashtag Searches

For our second strategy, we utilized hashtag searches on TikTok to find TikTok videos about COVID-19, COVID-19 vaccines, and water. Primarily, we used Native hashtags found in the MarketCast report, the most popular COVID-19 related hashtags on TikTok that we found using TikTok's "Discovery" tool, and hashtags used by Indigenous creators. Figure 4.1 shows the top hashtags we searched and their total TikTok views, including top hashtags relating to Native identity, COVID-19, COVID-19 vaccines and water.

Native Hashtags		Covid Hashtags		Vaccine Hashtags		Water Hashtags	
From MarketCast Report	TikTok Views	From TikTok search	TikTok Views	From TikTok search	TikTok Views	From TikTok search	TikTok Views
#Indigenous	2.2B	#coronavirus	109.5B	#vaccine	3.8B	#water	19.7B
#NativeAmerican	1.9B	#covid19	58.9B	#vaccines	175.7M	#waterislife	136.3 M
#NativeTikTok	1.7B	#covid	20.58B	#vaccination	157.6M	#cleanwater	79.6M
#NativeHumor	493.2M	#covid-19	3.6M			#waterisprecious	1.2M
#NativePride	370.0M						
#RezHumor	79.3M						

Figure 4.1 Hashtag Views on TikTok by Subject

Among a total 45 videos, 39 were found through hashtag searches and six were found through other means: personal knowledge (4), trending music (1), and TikTok suggestion (1). These videos all provided examples of Indigenous content that strongly related to our subject matter and, when possible, showed high levels of user engagement.

Hashtag 1	AND	Hashtag 2	Total Videos Chosen
#indigenous	AND	#covid19	12
#indigenoustiktok	AND	#water AND #cleanwater	1
#native	AND	#covid	2
	AND	#waterislife	1
#nativeamerican	AND	#coronavirus OR #covid19	1
#nativetiktok			2
	AND	#covid19	3
	AND	#vaccination	3
	AND	#vaccine	1
	AND	#water	3
	AND	#water AND #cleanwater	1
#protectthewater			1
#reservationlife	AND	#nowater #waterisprecious #nativetiktoks	1
#safewater	AND	#rezlife	1
#stopline3			2
#warmsprings			1
#waterislife			3

Figure 4.2 Hashtags Used to Find TikTok Videos for Review

B. Data Analysis

1. Metadata

From these videos, we collected Creator and Video metadata:

Creator Metadata: username, link to user profile, creator's name, number of followers, number of likes, bio, website or other links.

Video Metadata: video link, date posted, date accessed, number of Likes, number of comments, if it contained a duet, if it was a stitched video, audio content description, and all hashtags used for the video.

2. Content Analysis

Next, we transcribed the videos and created descriptions that would help us with thematic coding. We then conducted content analysis of each video, identifying as a group the key elements we wanted to collect as well as allowing for each team to identify emerging elements for review. Some common themes included COVID-19, Indigenous history, cultural preservation, Indigenous languages, staying resilient, humor, call to action, vaccine sentiment, water access, and clean water. Additionally, we coded for the use of PPE and cultural indicators in the videos. These codes also allowed us to compare videos and see what trends emerged across a larger digital landscape. As TikTok videos are multi-sensory, coding was contextualized based on text, visual and audio content as well as behaviors and emotions exhibited in the TikTok post. For example, the audio transcription for one TikTok video did not contain obvious positive sentiments regarding vaccination, however, the subject/creator's smiling and dancing during the video showed a positive attitude toward COVID-19 vaccination and guided the coding of the audio transcription to reflect that enthusiasm.

V. Results

For this project, three teams collected and analyzed a total of 45 TikTok videos collected during the month of May 2021, all of which were focused on Indigenous creators and topics. Of these, 25 were primarily focused on COVID-19, five related to both COVID-19 and water, and 15 were primarily concerned with water. Although these videos are all short in duration with TikTok imposing a maximum time limit of 60 seconds, we found that TikTok creators used multiple layers of audio, text, and visual elements to convey messages, speak to their audiences, and connect with other creators.

A. Indigenous Influencers

We searched TikTok and the internet to learn more about seven Indigenous influencers (six listed on the MarketCast report and one from personal knowledge). Through multiple sources (TikTok, online articles, and other social media platforms), we found these influencers were between the ages of 18 to 34 years old. All had tribal affiliations in either the U.S., Canada, or Mexico and three identified themselves as Indigenous in their TikTok bios by including the term "Indigenous", listing their tribal affiliation and/or including their traditional Indigenous activities (such as throat singing and jingle dress dancing). Each influencer had between 361.4k to 96.2M Likes and between 58.3k to 2.9M Followers on their TikTok accounts (Figure 5.1). All had public Instagram accounts and four had public Facebook accounts. All but two had a higher number of Followers on TikTok than Instagram and we noticed that some influencers shared their TikTok videos on their Instagram accounts. Of the 71 videos shared by these influencers on TikTok during the month of May 2021, no videos were found to contain messaging or hashtags related to COVID-19. Our team observed that at least one influencer has commented that they are focusing more on sharing positive, uplifting content in response to the challenges during the pandemic. A number of these influencers mentioned that they are motivated to create content on TikTok because there has been little representation of Indigenous peoples and cultures in media and on the TikTok platform (Allaire, 2020; Docto, 2021). They want to create and

share content to increase positive representation of Indigenous peoples, increase awareness of Indigenous history and current issues such as water access, Missing and Murdered Indigenous Women (MMIW), and cultural appropriation. They also want to create content for Indigenous youth to feel proud of their identity and culture (Docto, 2021) and for Indigenous youth who may not have access to this information otherwise (Allaire, 2020).

TikTok Username	Full Name	Age	Tribal Affiliation	# Likes on TikTok	# Followers			# Videos Posted May 2021
					TikTok	Instagram	Facebook	
@notoriouscree	James Jones	34	Tallcree First Nation, Alberta	75.8M	2.9M	883k	108.7k	13
@shinanova	Shina Novalinga	22	Inuk	96.2M	2.1M	485k	N/A	17
@tiamiscihk	Tia Wood	21	Plains Cree, Salish	43.8M	1.7M	330k	N/A*	4
@desertndn	Haatepah Clearbear	22	Kumeyaay, Pai Pai, Chichimeca-Guamare	14.7M	769.8k	229k	895	3
@the_land	Theland Kicknosway	18	Potawatami and Cree, Canada	9.7M	394k	402.8k	11.9k	16
@indigenous_baddie	Michelle Chubb	23	Bunibonibee Cree, Canada	14.7M	378.7k	154k	N/A	16
@supaman tiktok	Christian Takes Gun Parrish	[over 18]	Apsaalooke Nation	361.4k	58.3k	93.4k	377k	2

Figure 5.1 Indigenous Influencers on TikTok

*N/A: Not Applicable, public Facebook page was not found

B. Hashtag Searches

1. Creator Metadata

We reviewed 45 videos from 41 unique creators who had between 1672 to 409,700 Followers (with a median* of 43,900). They also had between 73 to 14,700,000 total Likes, with a median of 686,450. We sought videos that centered on Indigenous content and creators. We found that the majority of these creators clearly identified themselves as Indigenous by sharing their tribe or band affiliation in their TikTok bio. They also mentioned their identity in their videos, wore regalia in their profile photos, and used Indigenous terms in their usernames. Based on tribal nations' names listed in bios, it appears that all of the creators for these videos are located in the U.S. or Canada, which is consistent with TikTok's algorithm for showing country or region specific content.

*Median is the middle value of each creator's total number of Followers, for example, and is provided here to illustrate where the middle value is when there may be really high or low numbers in the dataset that could skew the average.

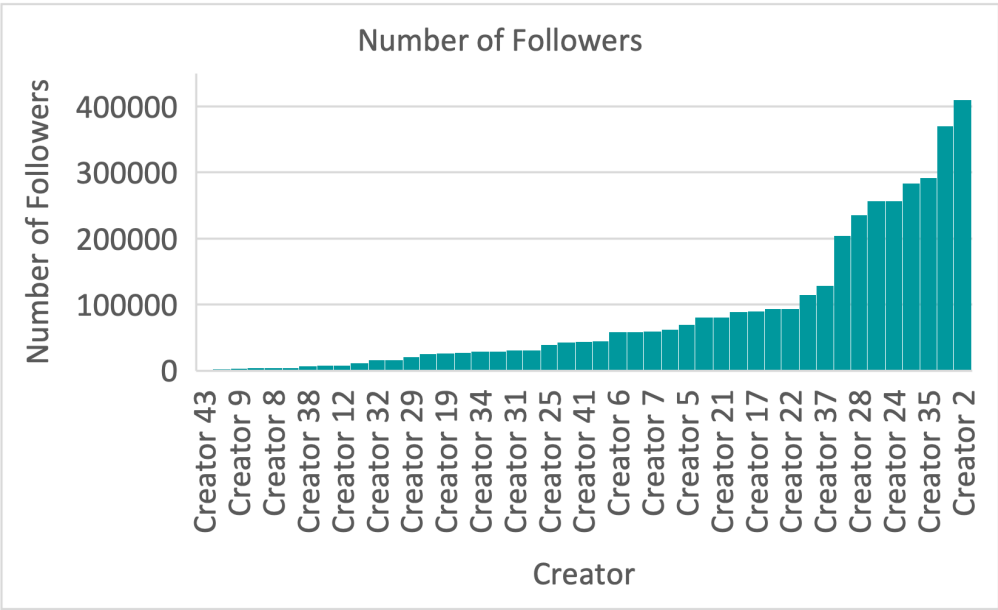


Figure 5.2 Number of Followers for each Creator

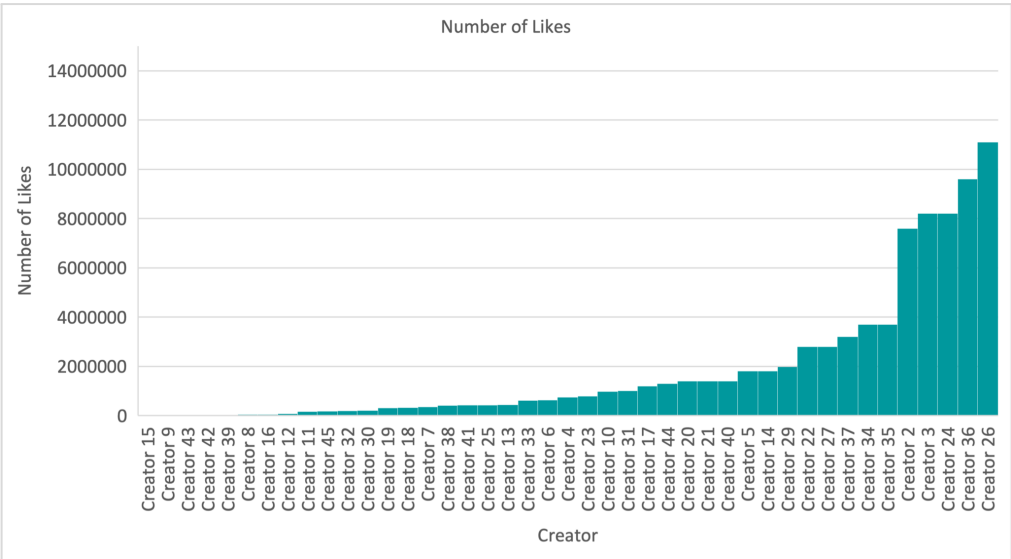


Figure 5.3 Number of Likes for each Creator

2. Video Metadata

We also reviewed videos with a wide range of user engagement metrics. Each video received between 31 to 865,900 Likes, with a median of 8,733. Additionally, these videos were shared between 0 to 74,700 times (with a median of 463), and they were commented on between 0 to 9,377 times (with a median of 289 comments). All videos were created between January 2020 and April 2021.

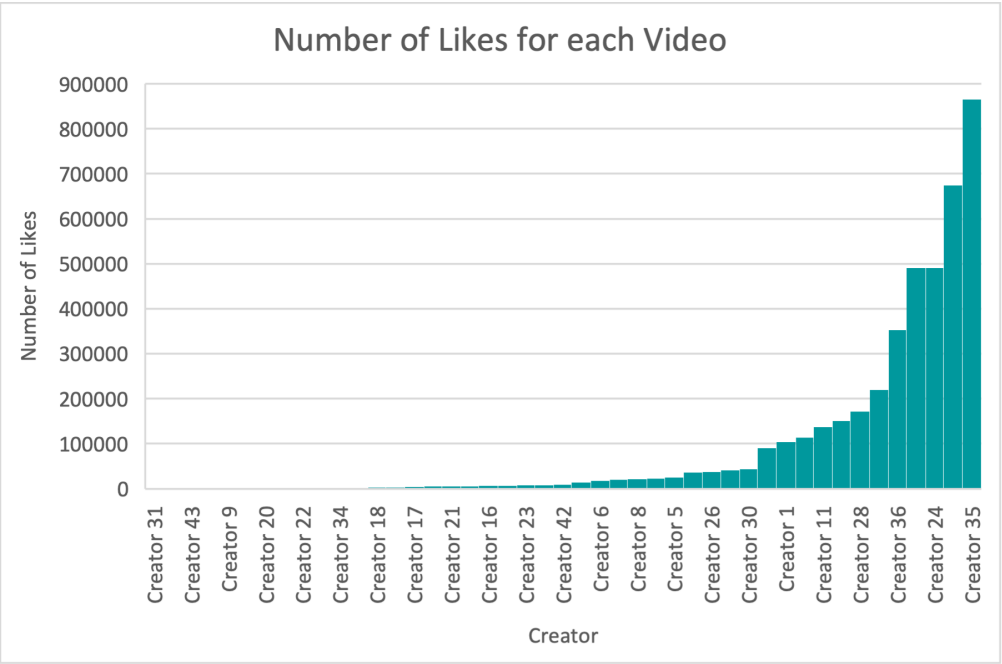


Figure 5.4 Number of Likes for each Video

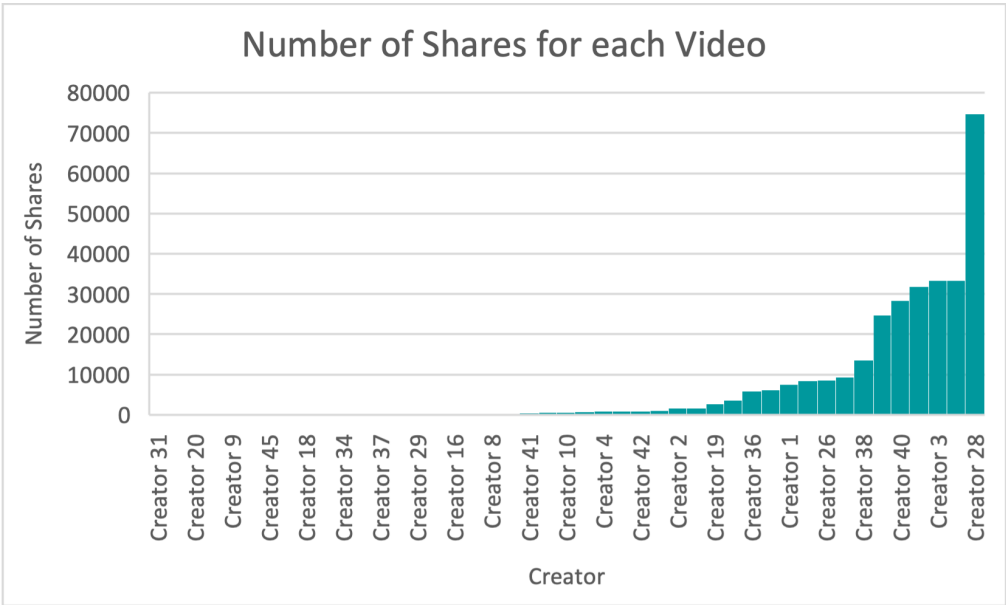


Figure 5.5 Number of Shares for each Video

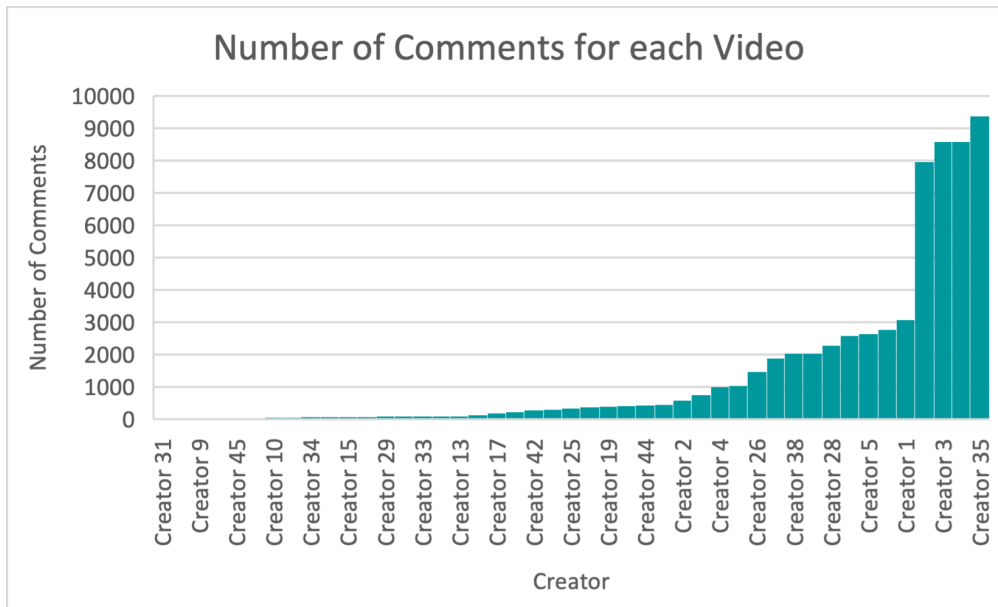


Figure 5.6 Number of Comments for each Video

3. Relationality - Connections between Creators

Creators connect with one another on this platform by using duets and stitching to integrate other creators' videos as well as using the same or trending audio. Among our videos, however, duets were not very common with only three videos including duets and three stitched videos. We found that 24 creators used an “Original Sound” for their audio content with many of these including distinct traditional sounds or music and others using current common music or trending TikTok sounds.

4. Hashtags Used

The following analysis is focused specifically on the 25 out of 45 videos with hashtags relating to Native identity and COVID-19. In this analysis, we describe the most common hashtags found among these videos.

a) **Native identity:** The most commonly appearing hashtags relating to Native identity were: #nativetiktok (11), #nativeamerican (9), #indigenous (7), #nativetiktoks (4), and #native (4). Notably, 15 videos included hashtags relating to a specific tribe or tribal identity (such as #navajo).

b) **COVID-19:** The most commonly appearing hashtags relating to COVID-19 were: #covid19 (12), #covid (4), #coronavirus (#4). Additionally, 4 videos' hashtags included the term #covid (such as #covid2020), 4 related to mask wearing (such as #maskup), and 4 related to healthcare workers. Additionally, of the 11 videos focused on COVID vaccines, we found that #covidvaccine was the most common, found in 6 videos.

c) **Trending:** Hashtags were also used to improve the videos' appearance on users' “For You” page, such as #fyp (12), #foryoupage (5), and #trending (3).

Hashtag Used	Total Videos	Hashtag Used	Total Videos
Indigenous Hashtags		COVID-19 Hashtags	
#nativetiktok	11	#covid19	12
#nativeamerican	9	#covid	4
#indigenous	7	#coronavirus	4
#nativetiktoks	4	includes #covid	4
#native	4	mask related (ex. #maskup)	4
Tribal identity	15		
Trending Hashtags		Vaccine Hashtags	
#fyp	12	#covidvaccine	6
#foryoupage	5		

Figure 5.7 Most Common Hashtags used in TikTok Videos with Indigenous and COVID-19 Content

5. Video Content

a) **COVID-19:** Creators shared messages of encouragement for and about the resilience of Indigenous communities during COVID-19, while also sharing the disparities and challenges that their families and communities were experiencing. A number of creators shared about their experiences getting the COVID-19 vaccine, often using upbeat humor and music as well as sharing their experiences with vaccine side effects. Some spoke about their experiences with COVID-19 infections and being in quarantine and a number of creators modeled the use of personal protective equipment (PPE) used to reduce the risk of COVID-19 transmission by wearing masks in their videos.

b) **Vaccines:** Of the 11 vaccine videos chosen for review, one in particular provided a strong example of good vaccine communication. It showed someone excited about receiving a vaccine as conveyed through memetic content, creating a contemporaneously, relevant, and non-dogmatic message that is accessible to youth. Also, memetic content has a trend factor that others want to “get in on”, therefore increasing viewership and incentivizing the creation of similar videos, which further propagate the desired message, in this case, vaccination. Political polarity surrounding COVID-19 vaccination was eschewed in their content, but not moralizing the choice to get vaccinated. This creates an apolitical quality that excludes no viewers based on affiliation.

c) **Water:** We only found a few TikTok videos at the nexus of Indigenous communities, water, and COVID-19 so the majority of videos we reviewed focused on either COVID-19 or water. There appears to be great untapped opportunities for sharing local water security information. Also, we found that some creators with high levels of engagement have participated in sponsored campaigns or have partnered with other organizations. For example, we found several videos from Native creators which

included #ad to signify that the post had been sponsored, and were the result of a partnership between themselves, Waterless Hair Care, and Dig Deep.

d) **Cultural indicators:** Most videos contained some type of cultural reference, including traditional music (7 videos) such as powwow music and drumming, traditional clothing, hair and jewelry (6) such as braided hair, beadwork, and turquoise jewelry, and speaking Native languages (4). Additionally, videos included traditional dancing and regalia, as well as content about Indigenous experiences such as living on reservations, creators' connections to their traditional lands, and challenges related to COVID-19 responses and living with limited access to clean water.

e) **Emotion / Mood / Tone:** Humor was found in many of the videos we reviewed and we found that videos with both traditional music and contemporary hits often incorporated both humor and dancing. Other videos focused on serious and informational messages (12) including COVID-19 death rates for Indigenous peoples, the impact of the pandemic on healthcare workers and how ongoing lack of access to water greatly impacts Indigenous communities during COVID-19. Many videos also positively demonstrated the strength and resilience of Indigenous culture, sharing how creators are still engaging in cultural practices during the pandemic such as powwow dancing and burning sage. Other videos expressed sadness about the impacts of COVID-19 on themselves, their Indigenous family members and communities as well as frustration about the government's lacking responses.

VI. Best Practices

Drawing upon the themes and patterns that emerged during data analysis and from the literature review and documentation of TikTok's functionality, our research teams developed a set of recommended practices for NPAIHB when communicating through TikTok.

A. Connecting with Indigenous Identity and Culture

<i>Recommended Practice</i>	<i>Suggested Implementation</i>
Incorporate traditional knowledge and culture into videos	<p>Language: Consider using specific AIAN languages when creating messaging. For some videos, NPAHIB might consider creating videos using only the local Native language combined with English subtitles, or vice versa. Or in some videos a mix of both the local Native language and English can be used.</p> <p>Clothing: To create an emotional response and connection with one's audience, TikTok users might dress in their own community's regalia or powwow regalia. Regalia represents a dancer's personality, culture, and pays respects to their history and family. It also illustrates honor and respect.</p> <p>Jewelry: The person featured in the video might choose jewelry, such as beaded or carved medallions/earrings/necklaces and/or turquoise, that expresses their identity.</p>

	Place: Consider the importance of place, creation and story among local tribes. In doing so, this might add a layer of emotion and connection. For example, using a well known watershed, plant or landscape as a backdrop could remind or enforce viewers about the importance of identity, wellbeing and connection.
Incorporate music generated by Native artist, healers and musicians with more contemporary music	Music is central to TikTok. Consider pairing contemporary videos that are popular among the target audience with music that is generated by Native artists. This could help to draw in a wider audience of users.
Incorporate Native pop culture into videos	Pop culture: Incorporating famous lines from iconic movies that are created by Native filmmakers (<i>Smoke Signals</i> , <i>Barking Water</i> , <i>Dance Me Outside</i>).
Appropriately tailor messages to demonstrate tribal values	This can be accomplished by creating messages about protecting elders and community, building and strengthening resilience, benefiting the community, and serving all generations. In addition, as noted above, some Native influencers have the goal to create only positive messages that uplift the community. Therefore, consider how such messages can be developed. Among some tribes, part of ceremony and healing is about having and emanating a good mind and spirit. Consider what this means in the local context and illustrate such teachings in video ideation.
Instill confidence and trust by illustrating cultural competency	In a time when trust in healthcare workers and scientists has been eroded, community members want to hear from people who look like them. In this case, we suggest that NPAIHB work with individuals who are accepted by the community, represent the community, and share similar experiences. Working together with these individuals provides opportunities to create messages that build a cultural connection with the audience. Examples of a trusted individual to collaborate with include an elder, a well-known baseball player or skateboarder in that community.
Understand the importance of reciprocity by creating a digital potlatch or give-away as an incentive	When appropriate, offer small gifts of appreciation such as medicines (teas, sweetgrass) or other healing items important to that region and community.
Create a compelling video that incorporates multiple cultural elements	Develop a video with one clear message but consider compelling ways to contextualize the video. For instance, incorporate the local Native language spoken along with the creator dancing in a men's Traditional or women's jingle regalia.

Figure 6.1 Connecting with Indigenous Identity and Culture

B. Creating Compelling Messaging and Content for TikTok

<i>Recommended Practice</i>	<i>Suggested Implementation and Considerations</i>
Craft messages and videos with the input of, or under the direction of, members of the intended audience	<p>When creating content on this particular platform, including the intended audience and community in these decisions will result in more relevant content.</p> <p>NPAIHB should consider appointing their adolescent health projects as key stakeholders throughout the process to ensure the target audience is engaged and content is ideal for that audience.</p>
Use humor in TikTok videos when appropriate	<p>Communicating with humor is common on the TikTok platform and it is an approach that results in engagement from users: “[I]n a cross sectional analysis of mask use and promotion, humor was the statistically significant factor that exerted an effect on view-count averages” (Basch et al., 2021).</p> <p>Humor can also be particularly useful when communicating with Native communities. A recent report about COVID-19 vaccine information in Indigenous communities notes that “Comedy serves as a valued communication style in many Native communities.”</p> <p>Researchers found that the ability to identify humor on TikTok had a steep learning curve, as its humor can be fast-paced and self-referential in a way that is difficult to grasp or keep current with if you aren’t fully-immersed in TikTok. Additionally, humor can be very culturally and situationally specific. This is a particularly important area with which to consult with the NYAB, since humor is dependent on cultural context and can be generational.</p>
Use and engage with memetic content and TikTok trends or challenges	<p>Music, humor, and dance are common facets of TikTok videos, which are also included in videos that convey vaccine and COVID-19 sentiments. Memetic content, though ephemeral media, are pertinent and common aspects of TikTok material.</p> <p>Content that aligns with TikTok “challenges” or memes can be relatable, understandable, and have more reach. Engaging in “duets” or “stitching” with TikTok influencers or other users may also make content more relatable and memetic.</p>

Vary content types and styles of TikTok videos	<p>While humor is a particularly compelling form for content, TikTok is a fast-moving stream that supports a diversity of forms and styles.</p> <p>TikTok's video recommendation algorithms and interface are designed to capture users' attention by continually surfacing content similar to what users have already expressed interest in (through video views, likes, or follows).</p> <p>Using a variety of video content types, styles, and tones (e.g. educational, humorous, cultural, reflective, interactive) the app can generate novel content that keeps viewers engaged with NPAIHB, helps vital health messaging stand out amidst a flood of content, and builds long-term trust by demonstrating how NPAIHB is an organization that is competent, reliable, and trustworthy across a range of communication settings.</p> <p>Varying content types can also help connect NPAIHB's messaging to audiences that TikTok has associated with different content-type preferences.</p>
Provide materials/resources for content creators to use in videos	<p>In addition to engaging with existing memetic content and TikTok trends, NPAIHB could create materials that TikTok creators can use when making their own videos that amplify NPAIHB messages or campaigns. For example, vaccination sites could hand out free swag such as stickers, handouts, or custom band-aids that content creators could incorporate into their videos. Digital swag, such as AR filters or photo backgrounds, could also be provided for use in videos.</p>
Have one topic of focus per video (or set of videos)	<p>TikTok videos are very short and users typically watch many videos back-to-back. Focusing on one topic per video (or one theme per set of videos) can help viewers remember the main message or action item and find the video later.</p>
Use on-screen text for accessibility and retention of information	<p>Because videos are short, they often used multiple layers of information to communicate, such as audio, visuals, and on-screen text.</p> <p>TikTok videos tend to use on-screen captioning text to ensure accessibility and to emphasize information. Where possible, sharing the same information across multiple layers (audio, visual, text) can help more people access and retain information.</p>

Figure 6.2 Creating Compelling Messaging and Content for TikTok

C. Building Community & Extending Visibility and Reach on TikTok

<i>Recommended Practice</i>	<i>Suggested Implementation</i>
Lean on existing relationships and resources	Trusted community voices can help craft and convey effective and appropriate messaging. NPAIHB could utilize trusted faces within its community to “star in” TikTok videos and campaigns to share their culture and perspective with other TikTok users.
Launch strategic, targeted campaigns in partnership with Native influencers on TikTok	<p>Influencers have a significant audience and reach on TikTok.</p> <p>Partnering with well-known creators within a relevant topical area or community can help ensure that content is relevant, personalized, engaging, and that messages are reaching that community.</p> <p>We recommend financial compensation and recognition for these influencers as a way to recognize Native TikTok creators.</p>
Use a variety of relevant hashtags when posting videos	<p>It is unclear to us whether or how TikTok’s algorithm weights and prioritizes different hashtags in its “For You” page and in video search. Therefore, NPAIHB should use a wide variety of strategic hashtags to extend reach and attract a greater audience.</p> <p>Using multiple hashtags (e.g. #NativeTikTok, #IndigenousTikTok) when posting videos can help extend reach (or, conversely, can help limit reach to a specific audience or community).</p>
Develop centralized hashtags related to NPAIHB campaigns	<p>Many hashtags are in use on TikTok, but it is not always clear how these contribute to a video’s visibility to different audiences.</p> <p>NPAIHB can provide a centralized hashtag to track TikTok videos about vaccination in Native communities, similar to the #VacciNATION hashtag, and then provide an incentive for people to share using this hashtag. An incentive could be as simple as having a showcase of people’s TikTok content (and other social media posts) on display in a public area, perhaps at a vaccination site, to encourage people to share their own experiences. Similarly, NPAIHB can share these videos to help the creators get additional visibility (should they want this).</p>

Figure 6.3 Building Community and Extending the Visibility and Reach of NPAIHB Content on TikTok

VII. Limitations

We encountered challenges during the course of this exploratory study that resulted in limitations to the certainty and generalizability of our findings. These challenges resulted from this research being a project within a time-bound university course that includes students with a range of research skills and disciplines and—perhaps more importantly—representing a variety of identities and cultural backgrounds, including non-Native researchers, all of whom are over the age of 18. Understanding culturally-specific content created by and for a target audience of Native youth may not be appropriate or even possible for people without this community membership and cultural grounding, and thus may lead to a loss of depth and nuance in data analysis. Further, TikTok videos are often

created in response to fleeting trends, remixes, and memes. Knowledge of the TikTok ecosystem and its current referents and trends is important to both data analysis and video creation.

The opacity of TikTok's algorithm also contributed to challenges. While we can make recommendations based on videos that received engagement as measured by TikTok's metrics of views and likes, we don't fully understand how TikTok's "For You" recommendations are generated or what attributes of a video are most likely to rank in Search. Much of TikTok seems to rely on previous user behavior, combined with location-based moderation and promoted videos, which made finding videos to include in our data set—even after using popular hashtags—difficult. This contributed to difficulty in finding both videos that matched the criteria for content relevance and accounts, despite our small sample size for analysis.

Finally, while we measured "success" for a video using the public-facing metrics of engagement, we don't have a way to operationalize "success" for a TikTok video with regards to measuring the efficacy of its messaging in driving "real-world" change. This may be an area for future research.

VIII. Future Work

From this exploratory study, we have identified a few future areas of research that could provide timely insights to further support and develop engagement with Indigenous youth on TikTok. We highlight our suggestions for future work below.

A. Indigenous Youths' Experiences

Expanding upon our initial observations of the platform, we would seek to understand more about the experience of Indigenous youth as users of TikTok through:

1. Talking Circles

Small group interviews or discussions could help elucidate how Indigenous youth use TikTok as well as the Indigenous and health-related content they prefer to interact with. This would help expand our definition of "success" for TikTok videos from initial user engagement metrics (number of Likes, Shares, Followers) to understanding more fully what makes a video engaging for Indigenous youth. For example, these methods could be used to answer questions such as: How do you use TikTok to find videos that are interesting? What videos from Indigenous creators do you, or would you, like to see? Have you seen any health information on TikTok that you've found interesting or useful?

2. Surveys

Confidential surveys may help us understand more about user experiences with health information, particularly that which is not evident from platform observation and user engagement metrics, as youth may not always want to publicly Like or Share sensitive content that they are interested in.

3. Co-Design Sessions

Participatory design sessions could support the NPAIHB adolescent health projects as they seek to design TikTok content to positively impact their peers, informing both current COVID-19 content and future health information campaigns. Such sessions could also further our understanding of how members of the adolescent health team conceptualize the TikTok platform and its potential for providing Indigenous youth with health information.

B. Indigenous Influencers

1. In Depth Interviews

Structured or semi-structured interviews could further examine the various roles of Indigenous influencers and seek to understand their messaging across all their recent videos, their most popular content and video formats, and their personal reasons for making these videos. This could help us identify the different types of Indigenous influencers, including micro vs. macro influencers (Haenlein et al., 2020) and consider how NPAIHB's adolescent health projects could engage Indigenous influencers on the platform most effectively to deliver health information (for example, by connecting with them through duets, stitching and music) and connect with the organization through partnerships / sponsorships. Additionally, we identified that some influencers are engaged in advertising partnerships. From these interviews, we could learn more about how these partnerships came about, the influencers' goals and what made these partnerships successful for the influencers, all of which could be very relevant for NPAIHB. Interviewing Indigenous influencers could be an excellent way to engage the adolescent health projects in enriching activities that provide opportunities for them to build their research capacity and interview experience. This could also be used to help the adolescent health projects with developing their own strategies for creating TikTok videos.

C. TikTok Toolkit

A TikTok Toolkit could serve as an accessible, how-to resource for using TikTok to reach Indigenous youth with health messaging, which can additionally aid in the development of outreach materials that can be utilized by NPAIHB's adolescent health projects. The TikTok Toolkit could possibly be shared with other Tribal communities in the future. We suggest creating this resource after engaging more fully with Indigenous youth in focus groups, surveys, and design sessions to more fully develop our understanding of TikTok and ensure the content accurately reflects the experiences of Indigenous youth.

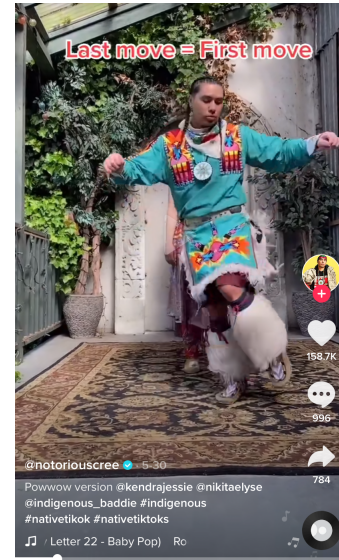
IX. Appendix

A. References

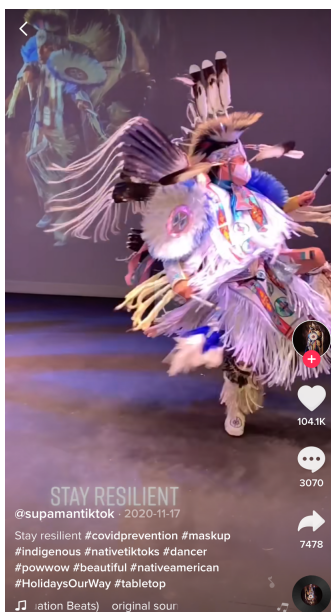
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B. Sample Videos

@notoriouscree: "I think it's important for young people to see that there's somebody like [them] who comes from a place [they] come from, who's been through the things [they've] been through, who are succeeding and doing well." Followers have reached out expressing how they want to try hoop dancing, growing out their hair, and learning more about their language. "To me, that's one of the most rewarding things I can get from making content" (Docto, 2021).



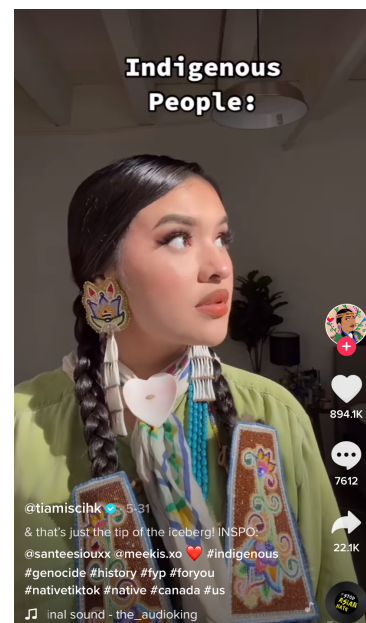
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@supamantiktok "We went to all the powwows when we were young. At that time, children could not dance. Only people over 50 years of age could dance. Most people do not know this. That the government forbid children to dance Indian. And that was so they could wipe out the culture in the young people, and then finally the new generation would never know what happened." [audio clip from Smoke Signals movie plays] (TikTok Video)

@tiamiscihk (Tia Wood) "It's so important to share because, growing up as a young Indigenous girl, I have never seen people that look like me in the media. I have never seen people that came from where I come from in the magazines or on the radio. For me (and I'm sure many others), it's so important to have that representation because it shows young Indigenous kids that they are capable of being anything they want and going wherever they desire in life, regardless of where they came from or the color of their skin. As for the teachings, it's important because a lot of kids don't have access to resources to learn more about themselves or their culture, but what do they have access to? Their phones and TikTok" (Allaire, 2020)



[click to view](#)