STORYTELLING, MATHEMATICS, AND COMMUNITY

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In this plenary discussion, Dr. Chao presents his research framework and reflections from engaging in Digital Mathematics Storytelling within Black, Asian American, and Asian American communities in multiple countries. The framework, based heavily around storytelling, counter-storytelling, and Critical Race Theory, has been employed as a workshop to elicit mathematics video stories from youth and mathematics teachers. Here, Dr. Chao reflects on what he's learned from these workshops and how he's started to recognize not only the power of storytelling for forging mathematics and community identities, but the dangers to our society because of social media and weaponized uses of mobile video everywhere. He ends by calling for a new critical digital media literacy within our field of mathematics education.

Keywords: Equity, Inclusion, and Diversity; Social Justice; Technology

Objectives

Storytelling, a fundamental thread in the fabric of human culture, serves as the original medium through which knowledge, traditions, and values get passed down from generation from generation (de Jager et al., 2017; Prusak et al., 2012). Storytelling can be seen as the original form of culturally sustainable pedagogy, embodying the essence of shared human experiences across diverse cultures (Paris & Alim, 2017). Storytelling also entices young minds, particularly opening up space for voice and agency from young peoples from oppressed communities to express themselves (Love, 2014; Nunez-Janes & Cruz, 2013). Furthermore, storytelling can serve as an inclusive tool for acknowledging and respecting the heterogeneity of all cultures and communities (Solórzano & Yosso, 2002).

Furthermore, storytelling plays a significant role in decolonizing educational practices (San Pedro & Kinloch, 2017). Focusing on storytelling challenges the hegemony of Western epistemologies by recognizing and centering knowledge as emerging from the people and the community, rather than imposing knowledge bases from outside the community as absolute truth (Matias & Grosland, 2016). This is particularly crucial in indigenous and marginalized communities, where traditional knowledge systems have often been undervalued or entirely erased.

In the context of mathematics education, storytelling offers an innovative approach to learning. Storytelling enables youth to not only showcase the ways they engage with mathematics within their communities but also facilitates their self-positioning in relation to mathematics (Chao et al., 2022). Through stories, learners can relate mathematical concepts to their lived experiences, thus making learning more relatable and meaningful (Zazkis & Liljedahl, 2009).

The objective of this plenary discussion is to weave together the intricate threads of storytelling, community, and mathematics, and envision how they are intricately intertwined. This is a snapshot of my thinking in progress, as I engage in the work of how storytelling and mathematics connect through my own lenses as a Chinese American cisgender male living in the United States. I have engaged in this research work with Black, Asian American, and Asian communities in various parts of the United States, Vietnam, and Indonesia. This plenary

discussion serves as a place to collect my reflections and insight on what I think I'm learning. And what I am finding is that storytelling in mathematics, in this moment, is significant not only for educational researchers but also for individuals who are listeners, amplifiers, and storytellers in the modern digital landscape. Through our conceptual and community imagination, I hope this plenary discussion details how storytelling can be harnessed as a transformative tool in mathematics education and community-building, especially within our modern technology-driven, hyper-connected, and polarized society.

Theoretical Perspectives

Storytelling: The Heart of Community

Storytelling serves as the backbone of human civilization. In an era where technology is rapidly evolving, storytelling remains a steadfast medium through which traditions, values, and knowledge are continually passed down (Prusak et al., 2012). For centuries, communities have relied on stories to fortify their cultural heritage and impart wisdom to subsequent generations. Furthermore, storytelling can foster inclusive environments in which youth develop strong senses of identity and agency, often based upon their community, family, and heritage.

However, with the advent of the digital age, mainstream media has (in)advertently created a disconnect between individuals and their traditional storytelling roots. The dominant narrative structures, often aligned with Western storytelling formats, overshadow the rich diversity of storytelling that defines various cultures. This creates a single format for how stories are shared, creating a true single-story experience, one in which all stories have a traditional protagonist who must go through Acts 1, 2, and 3 to culminate in a nice, tidy ending. This mono-cultural storytelling dominance robs children of the variance of storytelling types and formats from diverse cultures and narratives. Commercialized mainstream media not only shows the same types of stories over and over again, be it in books, movies, and YouTube videos, but encourages passive viewership of youth to consume, not just large amounts of media, but also goods and services (Hill, 2011). *So while we live in a world surrounded by stories and technology to create our own stories, I see that many of the stories we see are still only the stories from the dominant groups, and they are not used to share important knowledge or culture, but rather to sell, to influence, and to propagate, rather than helping all of us develop our own storytelling skills or learn to grow closer to our communities.*

We are Inherent Storytellers

Human beings have been guardians and purveyors of stories since the dawn of consciousness. The rich tapestry of our shared heritage is painstakingly embroidered with narratives passed down through millennia. In the Black and Asian American communities I have been working within, storytelling ascends beyond tradition; it becomes the lifeblood that courses through generations, linking the past to the present and foreshadowing the future. From the profound ancestral lore among Asian American families to the sagas of defiance and resilience among Black American families, our stories are interwoven into our very fabrics of existence.

And so, our children are natural-born storytellers. Their vines of imagination and their buds of narration germinate early. However, traditional education structures often weed out these budding storytelling skills, especially when connected to mathematics. A folk science myth that continually lives within our schools is the archaic dichotomy of a "left brain" that focuses on logic versus a "right brain" that focuses on creativity, wrongfully separating mathematics from creativity and completely dissociating from storytelling (Geake, 2008). In truth, we know that mathematics is an art, intrinsically tied to our storytelling ability (Zazkis & Liljedahl, 2009). But

the straitjackets of standardized mathematics teaching continue to suffocate this creative link between mathematics and storytelling. *So, this is not a mere call to arms; it is a clarion call for an intellectual insurgency to reclaim spaces within mathematics education that allow children to unfurl their stories and, through this, bolster their cultural identities and critical thinking: All of us and our children are mathematical storytellers.*

Narrative Identity and Counter-Storytelling

Identity is not only embodied within the stories a person tells about themselves, but also encompasses the actual act of narrating or storytelling (Sfard & Prusak, 2005). Identity is a verb, made and remade through the act of storytelling. Our stories are not merely descriptions of a static reality, but rather dynamic constructs that can change over time and context. Our narratives serve as constructs that embody our range of experiences, characteristics, and expectations, thereby defining the creation and evolution of our personal and social identities. Even more important than telling a story to explore our identity is the way that identities are reified and endorsed through the acceptance, validation, and re-telling of our narratives. Simply put, our stories are our identities.

Counter-storytelling, therefore, involves sharing stories and experiences that challenge existing dominant (and oppressive) narratives and stereotypes (Solórzano & Yosso, 2002). Counter-storytelling is a tool for individuals in marginalized communities to highlight their experiences and perspectives, and challenge destructive narratives that perpetuate harmful stereotypes. Through counter-storytelling, individuals and communities reclaim their own narratives and thereby their own identities (Chao et al., 2021). *And we only learn how to tell counter-stories if we know how to tell stories first.*

Need for Creating Safe Spaces for Sharing Stories

The transformative kiln of storytelling happens during the moment of collective sharing - around campfires, across kitchen tables, or over steamers of dim sum. Magic happens when individual narratives, through collective listening and feedback, metamorphize into a story for the community during the sharing that happens in a *storycircle*. I build on this concept of storycircles, using Lambert's StoryCenter model (2013), as a safe space for a small group of storytellers to share their stories in progress, not just to elicit feedback and commentary from others, but to also feel out various parts of themselves as they take on and inhabit their own stories.

In Black and Asian American communities, our youth already navigate an intricate labyrinth of identity and marginalization based on the many shifting ways they are positioned and how they position themselves. Engaging in a storycircle, then, in which a young person shares a story in progress, a story they are still feeling out, to others who are listening and not judging, serves as a crucible for self-realization, self-actualization, and agency. Here, sharing is not just cathartic, but an act of defiance and self-assertion. I am no longer just the way you see me; I am telling my story and together, we are remaking who I am through this story.

I see a parallel the storycircle in the realms of ciphers, written about extensively in the hip-hop education world (Alim et al., 2023; Emdin, 2016; Love, 2014). As a fan of hip-hop, I am enthralled at the magic that happens when artists encircle and express their truths, building off each other to create rhymes and stories. These ciphers become sanctuaries of unrestrained creativity, solidarity, and expression in which artists embody their full selves. However, the main barrier for entering a hip-hop cipher is the ability to rhyme or spit. The cost for entry can be perceived to be quite high. In contrast, my conceptualization of storycircles is that they are a "soft" option for anyone to be able to share their story in whatever manner they want, be it

verbally, through text, or image. I position the storycircle as an inviting space of collaboration, to collectively generate, define, and revise our community mathematics stories. *My emphasis on the safe space of a storycircle is to refocus our gaze from the polished, finished story and instead on the intricate, delicate process of how we collectively weave our mathematics stories together.*

Grounding Principles of Black Lives Matter

While the Black Lives Matter movement started as a collective call for systemic justice against police murder of Black people in the United States, the movement itself has become a global call for justice for all oppressed peoples, particular the violence endured under the vestiges of imperialism and white supremacy (*What We Believe*, 2018). The Black Lives Matter movement has significantly influenced my scholarship, my activism, and my thinking, particularly the movement's guiding principles (Chao & Marlowe, 2019). These thirteen guiding principles are: (1) Restorative Justice, (2) Empathy, (3) Loving Engagement, (4) Diversity, (5) Globalism, (6) Queer Affirming, (7) Trans Affirming, (8) Collective Value, (9) Intergenerational, (10) Black Families, (11) Black Villages, (12) Unapologetically Black, and (13) Black Women (Mathews & Jones, 2022). While each of these guiding principles is important, in this storytelling work, I find connections to the guiding principles of (2) Empathy, (3) Loving Engagement, (4) Diversity, (5) Globalism, (8) Collective Value, and (9) Intergenerational.

A focus on storytelling emphasizes listening to each other, creating opportunities to hear each other's stories, and practicing *empathy*. And through hearing each other's stories and sharing our stories with each other, we engage in *loving engagement*, seeing, listening, and recognizing each other as fellow humans. When we hear more and more of each other's stories, we gain an appreciation for the *diversity* of all of us, collectively, and start to see that our own life histories are *global*, are intertwined with a much deeper, much more ancient narrative than what we have been taught at school. And it is these stories, often from voices unheard, that help define *collective value*, allowing every single individual a space to share their story, to share their voice, to share their identity. And the power of stories is that, when they are shared, they often do not focus just on one perspective or one generation, they connect generations, they connect us to our ancestors, biological or chosen, so that we see ourselves as part of a much deeper *intergenerational* dynasty. So, while I do not position my work as an active part of the Black Lives Matter movement, I do align heavily with these guiding principles and hope that my framing of storytelling can also build on what I see as important guiding principles for all our youth from oppressed communities.

AsianCrit

Asian American identity is a tapestry in itself, forged through political solidarity against the onslaught of imperial forces that wrought havoc across Asia over the past four centuries - tearing asunder histories, languages, and communities (Lee, 2015; Takaki, 1998). This identity, tethered not only to ancestral bonds, but to the shared tales of survival, coalition-building, and triumph, is nurtured and perpetuated through storytelling. Even the very term *Asian American* is a political one, created as an act of collation building during the Third World Liberation movement to fight for Asian American studies and acknowledge the solidarity between the Asian American community and the Black Power movement (Takaki, 1998).

To fully examine and position the Asian American experience through a critical lens, I use AsianCrit, a subbranch of Critical Race Theory (Iftikar & Museus, 2018; Museus & Iftikar, 2013). AsianCrit offers a lens through which the experiences and identities of Asian Americans can be analyzed and understood, going beyond surface-level perceptions, and delving into the complexities that define the Asian American experience. The seven tenets of AsianCrit are: (1)

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Asianization, (2) Transnational Contexts, (3) (Re)Constructive History, (4) Strategic (Anti)Essentialism, (5) Intersectionality, (6) Story, Theory, and Praxis, and (7) Commitment to Social Justice.

While each of these tenets is deeply connected to my own history and voice as an Asian American scholar, I focus heavily on the sixth tenet: Story, Theory, and Praxis. I recognize the power of storytelling as a mechanism of voice and communication within the Asian American community and how the multiple and complex stories of Asian Americans that counter racist stereotypes and destructive narratives have been rare in our history (Chen & Buell, 2017). An AsianCrit perspective centers the ways storytelling is a powerful tool in unraveling the rich tapestry of experiences, while not only challenging stereotypes and promoting social justice, but also engaging in the complicated journey of both building a collective Asian American community. This is complex, as this work must both recognize the many and multiple groups that too often are essentialized under the banner of Asian American while promoting community solidarity, which is basically the fourth tenet, Strategic (Anti)Essentialism. This complexity is one of the paradoxes of Asian America, to both celebrate one's unique ethnic and ancestral heritage, while also acknowledging the necessary ways that collective solidarity in the United States is built under the general category of Asian American. *And to me, there is no better way to engage with these paradoxes than through telling the stories of people who live in and around these paradoxes while creating their own counter-stories of what it means to be Asian American.*

Our Technology Won't Save Us, But We Can Save It

I want to address the role of video storytelling in today's age of *TikTok*, *YouTube*, and *Instagram*. When I first started my work in digital media, back as an undergraduate in the late 1990s, I was fascinated with the ways I could capture so much video data onto a single MiniDV tape and then edit that footage in a lossless format. A future in which everyone had access to a virtual television studio seemed on the horizon. Now, more than twenty years later, that future has come alive in a way few of us could imagine. Yes, we live in world in which almost all of us can make engaging, polished videos seemingly instantly on our mobile devices, capturing all aspects of our lives to share with the public. Yet, other developments in the evolution of digital video have happened too.

Mobile Video as Democracy. First, the ubiquity of live streams have allowed for documenting police brutality as it happens, effectively allowing the world to bear witness to the inhumane treatment that Black people face in their everyday lives (Hockin & Brunson, 2018). This use of video is not only powerful, but it has also transformed the conversation around racism in the United States through video evidence that systemic violence, so brutal and jarring that many of those who live within unaffected communities had trouble believing that this type of violence could still existed. Videos of Black individuals being murdered during routine traffic stops and videos of elderly Asian Americans being attacked on the street continually pop up on my own social media feeds. I'm often not in the mental space to watch them, because they are triggering. Yet I understand the power these images have in sparking anger, in creating action, and demanding change.

Mobile Video Spreading Extremism. Second, however, the salaciousness of these violent videos brings up another side effect of the "video everywhere" era of today: clickability. Because so many videos are accessed through social media sites focused on generating views, engaging viewers to spend more and more time on their sites, and on collecting user data, the extremeness of videos that are immediately clickable or enticing has created an increase amount of videos that push on extreme viewpoints (Crain & Nadler, 2019). The amount of young people who claim to

have been radicalized to a particular cause because of being served a more extreme YouTube video after a more extreme YouTube video is alarming, in which viewers are recommended videos with extreme or dark views after watching videos with relatively mainstream viewpoints (Ribeiro et al., 2020). This radicalization is scary and has major implications in the ways our young people are engaging with the world today. I certainly did not imagine that a byproduct of the democratization of video production would be that our world views would become extremely fractured, that our societies would become so polarized, or that once dead and buried philosophies such as fascism, eugenics, or race-based mathematics intelligence would find new communities of supporters.

The Need for Digital Media Literacy. Third, the ever presence of mobile video media has pawned significant dangers surrounding our own privacy, mental well-being, and safety. Students deal with bullying at school but on their social media feeds, feelings of isolation or depression can be magnified when staring at seemingly perfect photographs of one's peers, and issues of privacy abound as students and teachers can be captured on video at any time. *Digital media literacy* is a general term that encompasses the ways that students can be literate not just about the digital media they are surrounded with, but also be aware of how to safeguard their privacy, their mental sanctity, and be conscious of the psychological warfare being waged on them through social media (Park, 2012). A focus on digital media literacy allows young minds to critically engage with digital content and learn how to leverage digital media not just in a safe way, but to actually effect change within their communities (Yue et al., 2019).

And so, it is within this world that I am hoping to explore how to bring things back (while looking forward) by using storytelling. The digital video revolution brings both opportunities and challenges. While it offers unprecedented avenues for sharing and amplifying stories across the globe, potentially enriching educational experiences and fostering a sense of community, the unregulated nature of social media and video streaming apps pose terrifying dangers, such as misinformation, cyberbullying, extremism, the destruction of democracy, and global genocide. Our students and us need to walk into this technological landscape warily, with tools for our own protection, and safeguards so that our children can navigate through it safely.

This is not just a call for revolutionizing mathematics education through storytelling but my urgent plea for a larger systemic metamorphosis. The same colonial forces that thrived on both a "divide and conquer" strategy to create infighting rather than solidarity and "bread and circuses" strategy to create distracting entertainment to dissuade revolution are mirrored in the divisive nature of social media. Our youth must be shielded and ready to fight.

I believe that as our children learn about mathematics in the world to better navigate it, they should also learn about how to navigate the digital landscape carefully and conscientiously, learn about their own power as digital storytellers while being vigilant of its potential, extremism-inducing pitfalls. We can weave together a safe space for mathematics storytelling, digital media literacy, and community building for our young minds to make their world a better place.

The Digital Mathematics Storytelling Workshop

The centerpiece of this research is the *Digital Mathematics Storytelling Workshop*. This workshop is structured around a few key modules or exercises, designed to engage young individuals or mathematics educators in the art of storytelling and its connection to mathematics. These workshops can last for as little as three days to as long as six weeks. In each of these workshops, I enact a participant action research framework, in which the participants themselves decide how the research should be enacted, what sorts of data they interested in, and the

relationship between the workshop and the research study (Bang & Vossoughi, 2016; Kindon et al., 2007; Mirra et al., 2015). This aspect, of asking participants to decide what the research should look like, does not always go smoothly. Overall, the workshop involves these modules:

1. **Mathematics in Daily Life**: In the initial stage, participants create brief videos that capture the essence of mathematics as it manifests in their homes, families, and communities. This stage is critical as it helps participants see the ubiquity and relevance of mathematics in their own everyday life.
2. **Drafting and Sharing**: Then, participants dedicate time to crafting a rudimentary story centered around the mathematics they saw or their personal relationship with it. This story is then shared within small groups through a structured format known as a Storycircle. In a Storycircle, each participant narrates their evolving story to others who listen intently without interruption.
3. **Reflection and Refinement**: After the Storycircle, participants reflect upon the feedback received and consider the emotional experience of narrating their story to an audience. Armed with this insight, they meticulously refine their stories.
4. **Video Creation**: In this stage, participants adapt their revised stories into video format. This phase allows them to experiment with different multimedia elements to further enhance the expressiveness of their narratives.
5. **Community Screening**: In the final stage, we organize a community screening party where all participants share their stories to friends, family, and community members. Each storyteller presents their stories; the screening becomes a platform for dialogue as the audience provides feedback and engages in discussions inspired by the stories.

I am continually revising these modules, hoping to attain the research goals of fostering and eliciting participants' mathematics and storyteller identities. I have found that this process starts the process of bridging the gap between mathematics and storytelling, encouraging participants to embrace their mathematics selves as an integral and meaningful part of their narratives and communities. Yet, I still struggle to foster stories that reflect the breadth of the incredible stories and ideas that participants share during their storycircles.

Reflections on My Research Findings

In this section, while I do not report direct research results, I offer some broader findings and reflections, based on my undertaking on digital mathematics storytelling in various contexts.

Storycircle is Life: We Must Have Space to Tell Mathematics Stories

Storytelling is a quintessential human tradition. And yet, so many of the youth and the teachers I have worked with have very little confidence in their abilities as a storyteller. I think this is due to two things. First, in the vast amount of media we consume, often we see the same Eurocentric story structures again and again. So, when participants have a template in their mind of what a story should look and feel like, they often have a traditional three act story structure in their mind. This might feel disconnected with the ways that they might be thinking about or perceiving stories in their mind, so it makes them hesitant to share their story. Not all stories have to follow the same format as a blockbuster Marvel or Pixar film. Second, many of them have never had the opportunity to think about their own mathematics-connected stories, outside of devising a story problem. For them, a mathematics story must involve some sort of mathematics operation or number sentence, which limits the types of stories they can tell.

A poignant instance of this is a simple observation made during one of my first digital storytelling studies: a 7-year-old Black girl was intricately arranging beads in rows and telling me a story about how she was counting the beads in each row. As a mathematics educator, I am always mesmerized when listening to a child show me their counting strategies. However, one of the adult educators from the community was nearby and astutely recognized what the child was doing and asked the child if she was counting up how many beads she wanted in each braid of her hair. Immediately, the child excitedly said yes, and the story morphed into one about the mathematics behind the beading patterns she envisioned for her hair. Something I, as someone who has less familiarity with Black hair culture and braiding, did not pick up on when listening to the story. What this anecdote showed me is why we need to share our stories in progress to others in our community, who are there not just to offer feedback, but to help us better connect to what these stories even mean to ourselves.

I have found that when my participants engage in their first storycircle, it is a difficult and vulnerable space. But it is these difficult spaces that are crucial in helping them start to see that they have the power to tell stories using their own voice. While our students might have multiple opportunities in their daily school experiences to engage in some form of mathematics and opportunities to periodically engage in story creation in their literacy or arts classes, they have probably never had the opportunity to engage in any form of mathematics storytelling. All of us, not just our students, need these conducive spaces to inspire us to perceive and weave our mathematics stories divergently, to tell our mathematics narratives in our own voice. And this development is not instantaneous; it requires time, nurturing, and exposure to an array of storytelling forms. So, we need spaces like the storycircles, so that, in the end, all of us can be the storytellers we are meant to be.

Screenings Matters: The Collective Sharing of Stories

Public sharing and collective feedback imbue storytelling with a transformative energy that fosters community building, social change, and identity affirmation. I have always loved the celebration that occurs when young people can share their stories publicly, to showcase all the hard work they put into making their story happen. Often, this screening is a catered event, with family, friends, and the community invited to view the stories.

However, I have since learned that this screening is an important also a part of the process. Just because a video is "finished" for a screening, does not necessarily mean it is completed. During the screening, particularly when the screening is attended by the storyteller's peers, the discussion that erupts around the story helps better connect the mathematics to the story. Or the discussion helps the storyteller better understand what the story means to them. For example, during one screening, a 7th-grade Asian American girl made a story about how she makes earrings and is trying to figure out how much to charge for those earrings. In the discussion, students brought up the concept of a wage, how the idea of trying to figure out how much money made from the profit of making and selling one earing might be too volatile, but as a worker, you are deserving of a steady wage for your labor. I was astounded at this insight and realized that this discussion, during the final screening, was an extremely mathematical conversation that also led us to connect to ideas of the role of capitalism in our society. What this showed me is that the final screening opens many opportunities for important discussions that can extend the mathematics in the original video.

Beware The Video Everywhere Era

While platforms like *TikTok* and *YouTube* have opened a whole new and exciting space for video storytelling for today's youth, I have begun to feel, from my participants, how wary they

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are about the fact that they are continually surrounded by peers with phones that could be recording them at any time. I want to be clear here. Yes, while I use digital video heavily in this work, I also want us, as mathematics education researchers, to advocate for our youth as they navigate environments where the ubiquity of constant video recording is becoming a source of anxiety. In almost every single digital mathematics storytelling workshop I have done recently, I have heard stories of people being filmed without their consent and ridiculed on social media. I have also heard from teachers who are constantly vigilant about phones in their classrooms, wary that they are being filmed and can be vilified on social media.

So, while I see endless possibilities for community engagement and education through video media, so are the dangers. With the omnipresence of phones everywhere, we must be aware that many of our youth and teachers are extremely apprehensive about invasions of privacy and the potential misuse of their images. We must also be aware of the ways online video tools can be weaponized against vulnerable individuals or communities, often bullying or shaming people based on the same categories of gender, race, ability, or language that we see attacked again and again. In recent work, I have completely rethought my use of public community screenings, instead offering opportunities for participants to have smaller, more intimate screenings of their stories, so that they do not feel as vulnerable or exposed.

Critical Digital Media Literacy

Finally, I have come to realize that we live in an exciting, but fragile time, an era beset by a deluge of information and misinformation, with no real way for any of us to discern what is real and what is spin. The construct of digital media literacy might not be enough, as it focuses heavily on the curation and sharing of digital media in and of itself. What we need for our students and ourselves are stronger skills to better critique and harness the swirling currents of the digital age, skills that help us create systems of basic safety, skills that help us recognize how to consume thoughtful media versus extreme media.

I believe our youth can be equipped not only with the skills to navigate the digital world but also with the knowledge and conviction to utilize these platforms in ways that uplift themselves and their communities. I am generally referring to these skills as *Critical Digital Media Literacy*, a loose grouping of the skills I see as necessary for youth to critically analyze the content they watch, understanding the psychological impact of the social media the engage with, and learn how to utilize digital media for positive change. So, as we embrace storytelling and its evolution through digital media, let us not lose sight of what we are trying to do. We are at a crossroads, where our digital spaces have largely been overtaken by traditional capitalist notions focused on generating the largest number of users to sell things to or control. But we can envision a better digital space, one based on the community knowledges and ways of knowing that come about in the stories we tell. It is our responsibility to cultivate spaces where diverse stories flourish, where communities find solace and power, and where the next generation are not merely consumers but conscientious creators and guardians of narratives that shape their world.

Discussion

My journey using Digital Mathematics Storytelling has taught me so much, not only about how to get people to make and share mathematics story videos. What I have learned is where the edges of our world of mathematics education and our digital society are not clear, where our models break, where there needs to be more definition, and where our role comes in. What I have also learned is that this intersection between storytelling, community, and mathematics education

is much more difficult to navigate than I anticipated. Below are spaces where I am still struggling in this work.

Reciprocity between Storytelling and Mathematics. What I still do not have a strong handle on is the reciprocal relationship between storytelling and mathematics, how stories illuminate mathematical concepts and, in turn, how mathematics enriches the fabric of the stories. I know that it can happen, but I am still not exactly sure what it looks like and how to elicit it. In theory, I know that when children associate mathematical theories with their daily lives through storytelling, they internalize concepts with an intensity that rote learning may never achieve. But what does this look like? The stories that my participants tell still dance around this deeper connection to mathematics.

Engaging in Counter-Storytelling. Engaging marginalized communities through counter-storytelling is where I thought this work would take me. And yet, even with setting up nurturing environments where individuals can engage in counter-storytelling to challenge dominant narratives and stereotypes, this is not what they choose to do. The prospect of storytelling is so visceral and so personal, I feel somewhat inauthentic suggesting that their stories need to have a political purpose, that their stories must also fight stereotypes while talking about mathematics.

Sustainable Community Building and Identity Formation through Storytelling. We know that communities are formed through storytelling. Yet, in the storytelling workshops I have helped create, I cannot help feeling that the whole community falls apart once the workshops are over. How can we authentically create communities that are based on the identities that come out during the storytelling, that become true communities about individuals and not just a storytelling workshop?

I end with these wonderings and hope that sharing my story with you has helped you in your own journey. I hope to hear your story too.

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