Establishing TikTok as a Platform for Informal Learning: Evidence from Mixed-Methods Analysis of Creators and Viewers

Sourojit Ghosh University of Washington, Seattle, USA ghosh100@uw.edu Andrea Figueroa University of Washington, Seattle, USA afigue@uw.edu

Abstract

Over the past few years, participation in TikTok has rapidly increased, with a large number of people spending several hours per day consuming and creating content. In this study, we explore how such participation leads to informal learning on TikTok, as we explore patterns of how creators teach and consumers learn knowledge or skills on TikTok, making it a community conducive to sharing and learning knowledge or skills. Through a mixed methods study combining content analysis of TikTok videos and empirical investigation of TikTok users, we explore ways in which creators leverage platform affordances to share knowledge or skills on TikTok, and how their viewers learn from them. We observe successful teaching techniques, and produce recommendations for creators based on learners' preferences.

Keywords: TikTok, Informal Learning, Learning In The Wild

1. Introduction

"They sit and stare and stare and sit

Until they're hypnotized by it,

Until they're absolutely drunk

With all that shocking ghastly junk.

But did you ever stop to think,

To wonder just exactly what

This does to your beloved tot?"

Though British novelist Roald Dahl wrote these words in 1964 about the newly-popularized television,

consumers of current news media could be forgiven for thinking these lines are about the social media app TikTok. Launched in 2016 by the Chinese startup ByteDance, TikTok rapidly rose in popularity in 2020 during the COVID-19 pandemic (Kennedy, 2020), boasting over 80 million monthly active users in the United States and over 60% of those being in the age group 16-24 (Doyle, 2022) as of March 2022. A major appeal of TikTok is the seemingly endless amount of content that a user can consume in a single session (Herrman, 2019). This ability to infinitely scroll has been found to have negative effects on the mental health of users (e.g. Price et al., 2022), leading to recommendations to regulate the amount of time spent on TikTok, particularly for children and young adults (Kang, 2022). Such work on the negative effects of TikTok consumption, and others such as causing body image issues (Liu, 2021) and promoting negative stereotypes (Matamoros-Fernández et al., 2022), cannot and should not be ignored, and research into understanding the role of platform affordances and community norms on TikTok in causing such harms should be encouraged.

However, as is the case with most online communities, participation on TikTok does not only have downsides. In this paper, we explore what we consider to be a positive effect of scrolling and participating on TikTok: *informal learning*, i.e. learning outside of formal educational contexts. Given the usage of TikTok as a supplementary educational platform by teachers over the past few years in a wide variety of fields (explained further in Section 2.2), we believe that some users are offering knowledge or teaching skills on TikTok, which are consumed and learned by their viewers. We approach this work with the following research question:

URI: https://hdl.handle.net/10125/102931 978-0-9981331-6-4 (CC BY-NC-ND 4.0) How do users on TikTok create and consume content that aims to share knowledge and/or teach skills?

Through a mixed-methods analysis involving live coding and content analysis of TikTok videos, as well as interviews with users who have found knowledge or learned skills on TikTok, we explore how creators leverage platform affordances and community structures to generate short lessons of *microteaching* (explained in Section 5.1), which are positively received by the community around them. While the videos conveyed information on *how users teach*, the interviews gave us insights on *how users learn*. Our findings allow us to establish TikTok as a platform well-suited for informal learning, as we propose some recommendations to further promote it on TikTok.

2. Related Work

2.1. Informal Learning in Online Communities

Livingstone (1999) defined informal learning as "any activity involving the pursuit of understanding, knowledge or skill which occurs outside the curricula of educational institutions." Studies of informal learning in online communities has shown that users experience informal learning in three different ways – self-directed learning (i.e. learning of their own volition), incidental learning (i.e. accidentally learning by stumbling on to knowledge), and tacit learning (i.e. learning through repeated application) (Schugurensky, 2000).

A special form of informal learning is known as microlearning, which is the process of learning through the consumption of very short pieces of content, ranging between a few seconds to a few minutes (Buchem and Hamelmann, 2010). With human attention spans to Internet content reducing over the years (Gausby, 2015), microlearning is increasingly gaining importance as users' preferred mode of consuming information (Leong et al., 2020). In recent years, microlearning has been used for learning language (Dingler et al., 2017; Inie and Lungu, 2021), programming skills (Aitchanov et al., 2013; Skalka and Drl1k, 2017), and in many other fields. Online communities are highly conducive to informal learning, because they afford users asking and answering questions (Kumar and Gruzd, 2019), resource sharing (Esteve Del Valle et al., 2017), users consuming information at their own pace (Shen et al., 2022), users finding mentors with different levels of expertise (Campbell et al., 2016), among many other things. Though a majority of studies surrounding informal learning in online communities focuses on text-based communities such as Reddit or Twitter, recent research into video-based communities like YouTube (Shen et al., 2022; Tan, 2013; Vizcano-Verdú et al., 2019) has shown that such platforms also afford informal learning in similar ways as their text-based counterparts. This present study intends to add to the scholarship on informal learning on video-based online communities by studying TikTok, a platform that has not been extensively studied so far in this context.

2.2. TikTok

TikTok is a video-based social media app that allows users to create and consume video-based content. Though it is primarily an app, a web version also exists. Users can participate by creating an account, or anonymously without doing so.

Upon entering the app, users land on a "For You" page (FYP), which contains algorithmically-curated content, depending on a user's past content consumption history and the algorithm's perceptions of what the user may like. Users may interact with videos on their FYP in a variety of different ways: they can simply view them and scroll away, they may like them, they can comment on them, they may share them within the app or externally via link, or they may indicate that they are not interested in them.

Creators on TikTok have a variety of platform affordances that they can leverage, beyond the usual features such as adding text overlays or video descriptions. TikTok allows users to add their own audio either during recording or separately after recording or add sounds from a Sounds library, leveraging popular sounds to boost their reach. For similar boosting purposes, they may add a list of hashtags to their videos. Creators can also 'stitch' or 'duet' their videos with other videos to simulate conversations or responses. TikTok also affords a 'text-to-speech' feature, where text added to videos are narrated by a mechanical voice. These, among many others, are some affordances that content creators can make use of when creating videos on TikTok.

As Bresnick (2019) writes, "video creation on TikTok is a conversation'. Though it is not always direct conversations i.e. videos made in response to one another, creators engage in pseudo-dialogue with physically remote viewers (Mustajoki et al., 2018) by creating content with the intention of reaching them but without directly speaking to them. Such asynchronous interactions between creators and their viewers, facilitated by TikTok's affordances for searching, saving and rewatching content, has been identified to be important to informal learning in other content-based online communities (Campbell et al., 2016). TikTok's affordances of commenting on videos, as well as engaging with them as stitches or duets, affords more direct conversations between users.

Research on TikTok has grown over the past few years, parallely to its rising usage and popularity (Kanthawala et al., 2022). Some studied topics on TikTok include algorithmic folk theories (Karizat et al., 2021), misinformation (Basch et al., 2021), advocacy (Lim et al., 2020), imitation (Zulli and Zulli, 2020), identity work (Simpson and Semaan, 2021), political communication (Medina Serrano et al., 2020), to name a few. As it grows as an online community, the various affordances and potentials of TikTok need to be studied in further detail.

During the COVID-19 pandemic, TikTok was used to convey information by health organizations like the WHO (Basch et al., 2020) or the American Red Cross (Li et al., 2021), spreading health-related messages such as social distancing reminders. Due to schools and colleges moving into distance learning modes during the COVID-19 pandemic, some instructors also leveraged TikTok for communicating educational content with great success in a wide variety of fields, such as but not limited to science education (Literat, 2021), language learning (Pratiwi et al., 2021), sports sciences (Escamilla-Fajardo et al., 2021), and religious studies (Aisa and Dewi, 2021).

We are thus motivated to study TikTok as a platform for informal learning by observing examples of creators teaching skills or communicating knowledge, and interviewing learners to understand how they learn on TikTok. We explore how creators leverage TikTok affordances in putting together teaching videos, and how their techniques are received by viewers.

3. Methods

We adopted a mixed methods approach combining content analysis of TikTok videos with interviews of TikTok users, using this two-pronged approach to obtain a stronger understanding of how users teach and learn on TikTok (Arif et al., 2017; Bhattacharya et al., 2019). The study was approved by the University's Institutional Review Board.

3.1. TikTokData Collection

We constructed a dataset of TikTok videos through the use of an open-source scraper¹ that employs the TikTok Web API. We focused on "#LearnOnTiktok", a hashtag that was launched in March of 2021 by TikTok as part of an official campaign to promote learning and skillsharing on TikTok².

To represent the content viewed by a large number of users, we collected the 450 most viewed videos tagged with "#LearnOnTiktok", with over 200 billion collective views. Associated with each video was a set of metadata, such as number of views, likes, comments, followers, etc. in addition to captions, sounds/ song used, and if the creator account was verified.

3.2. Content Analysis of TikTok videos

Once we formed the video dataset, we performed live coding of the videos (Literat, 2021; Parameswaran et al., 2020), as opposed to coding the text of their transcripts to avoid losing visual choices made by individual creators, which are intentional and important. We performed a content analysis (Neuendorf, 2017), beginning with a random sample of 50 videos from our dataset and open-coding (Saldaña, 2014) them with the following questions:

- What are creators teaching?
- How do creators teach?
- How do creators leverage TikTok affordances?
- How do creators establish credibility?
- What sources do creators cite?

The 50 videos were coded by the entire research team, and following the coding process, the coders met to discuss emergent themes (Neuendorf, 2017). We then arrived at a closed codebook for the dataset of videos, as displayed in Table 1.

We used this taxonomy of codes to analyse our remaining dataset of 400 videos (excluding the 50 videos used during open coding), with each video being coded by both researchers. We applied the codes binarily, checking if each code was present or absent in the video. To answer questions of professional training or personal experience, we examined contents of the videos and the creators' TikTok profiles, considering videos in the contexts in which they were created (Aragon et al., 2022). After each set of 50 videos coded, researchers compared codes to discuss disagreements (Epley and Gilovich, 2006). We computed inter-rater reliability scores using Cohen's kappa (1960).

We excluded from our content analysis 20 videos that were not in English, because English is the only common language between all the authors and we did not want to risk losing linguistic details in translation.

¹https://github.com/drawrowfly/tiktok-scraper

²https://newsroom.tiktok.com/en-gb/

didyouknow-you-can-learn-on-tiktok

Code	Definition	Sample Usage
Teaching - Step-by-Step Tutorial	Creator provides a step-by-step demonstration of the topic	"As you can see, I am pouring 100g flour into a large bowl, and making a well in the center. Now, I am adding in an egg yolk"
Teaching - Demonstrational Overview	Creator describes the topic at a high level, while demonstrating	"To make the dough, put your flour in a bowl and add an egg yolk"
Teaching - Narration	Creator verbally describes the topic	Caption: "Step 1: Mix flour and egg yolk, Step 2: Knead until smooth ball forms, Step 3:"
Teaching - Reenactment	Creator demonstrates the topic through a reenactment of a scenario involving the topic	"Chef, how do I make dough? Let me show you!"
Teaching - Q&A	Creator answers some frequently asked questions about the topic	"Why do we knead with our palms? Let me tell you!"
Teaching - Storytelling	Creator teaches through the narration of a story involving the topic	"I learned to make dough when I was 10 years old. Here's how my mom taught me"
Teaching - Evaluative Reviewing	Creator teaches by evaluating someone else performing the topic	"Today, we are going to react to this video of how to make dough. Let's see how it goes!"
Taught topic - Information/Facts	Creator lists a series of facts or some other informational content	"During kneading dough, gluten forms from two proteins within flour, gliadin and glutenin."
Taught topic - Skill	Creator teaches a specific skill	"Today we are going to learn how to make dough."
Video Elements - Stitching	Creator uses TikTok's Stitch feature	-
Video Elements - Images	Creator includes images or screenshots	"In this image of a rested ball of dough, we can see"
Video Elements - Video	Creator includes a video from outside TikTok	"Let's look at this YouTube video of how to make dough."
Video Elements - Text overlay	Creator manually includes text	"cc: Add egg yolk in the well in the center"
Video Elements - Captioning	Creator includes system-generated captions	-
Video Elements - Text to Speech	Creator uses TikTok's text-to-speech feature	-
Video Elements - Speech	Creator visibly speaks in the video	-
Video Elements - Voiceover	Creator speaks while filming something else	-
Video Elements - TikTok Sounds	Creator uses audio from TikTok's Sounds library	-
Credibility - Professional Training	Creator mentions having professional training	"I'm a trained chef"
Credibility - Prior Experience	Creator demonstrates having prior experience	"This is a recipe I make often"
Sources	Creator is listing external sources	"According to this article,"

Table 1. Taxonomy of Codes for TikTok videos

We also excluded a further 32 videos because we agreed that they were neither providing knowledge, nor teaching any skills. We thus ended up with a set of 348 videos from which to observe patterns of sharing knowledge or teaching skills on TikTok.

3.3. Interviews

We supplement our content analysis of TikTok videos with 8 semi-structured interviews with TikTok users (hereafter referred to as P1 - P8) who consume content with the intention of gaining knowledge or learning a new skill. Interviewees were recruited through social media postings and screened by the researchers based on their self-declaration of having learned some knowledge or skill on TikTok. Each interview was 30 minutes long, and focused on users' various experiences with learning on TikTok.

We invited participants to narrate in detail what they learned on TikTok, following up about details of the video. We asked questions around how our interviewees applied or tested out their learning, or if they searched for other TikTok videos teaching similar skills. We also asked about how the creators' mentions (or lack thereof) of credibility affected their opinion of the content being taught, and if they followed up on any sources mentioned in the video. Finally, we inquired about interviewees' choice to search for content on TikTok when they were looking to learn something, or instances where videos they were recommended on their FYPs led to learning.

We analyzed these interviews using a deductive thematic analysis (Braun and Clarke, 2006), open coding them and clustering codes into emergent themes about patterns of consuming knowledge or learning skills. Through our collective analysis of coded videos and the experiences of learners, we present our findings around informal learning on TikTok.

4. Findings

4.1. How do Users Teach?

In our coded dataset of 348 videos, we found that 171 (49%) were teaching some skills, of which the most common ones were cooking, cleaning, and DIY, and 160 (46%) were sharing some type of knowledge, of which the most common ones were ocean facts, history, and chemistry, while 24 (7%) were doing both at the same time, e.g. showing a wood carving technique while talking about the history of the source tree.

The most prominently employed methods of teaching were Demonstrational Overview (used in 125 i.e. 36% videos), Narration (used in 97 i.e. 28% videos),

Step-by-Step Tutorial (used in 87 i.e. 25% videos), Q&A (used in 35 i.e. 10% videos), and Reenactment (used in 28 i.e. 8% videos).

The most commonly used video elements employed in these videos were Speech (used in 139 i.e. 40% videos), Voiceover (used in 111 i.e. 32% videos), TikTok Sounds (used in 97 i.e. 28% videos), Text overlay (used in 87 i.e. 25% videos), Captioning (used in 66 i.e. 19% videos), Images (used in 63 i.e. 18% videos), Stitching (used in 49 i.e. 14% videos), and Text-to-Speech (used in 38 i.e. 11% videos). Several videos contained more than one of these elements.

We also observed that for 247 (71%) videos, the creators did not mention being professionally trained in the topic they are presenting. For creators who did mention having professional training, they most commonly did so by mentioning it in the videos (e.g. "I'm a doctor"), in their usernames or bios (e.g. by adding "Dr."). Further, in 258 (74%) videos, the creators did not mention having any prior experience with the topics. The creators who did mention prior experience also most commonly did so in the videos (e.g. "this is one of my favorite recipes to make") or in their usernames or bios (e.g. by adding "self-taught chef"), and additionally by indicating that they published books or ran classes teaching their topics without alluding to professional training. For a total of 191 (55%) videos, the creators cited neither any professional training nor any prior experience with the topics they were teaching. Finally, we observe that for 275 (79%) videos, the creators do not cite any sources for the topics covered in the videos. Of the authors who did cite sources, they most commonly did so in the forms of links or screenshots of source material, or by including images and videos in their produced content.

Our full results from coded videos, along with Cohen's kappa scores, (1960), are summarized in Table 2. The overall agreement score is 0.77.

4.2. How do Users Learn?

4.2.1. Learning from TikTok Our interviewees reflected upon their decisions to search on TikTok when they wanted some specific information or wanted to learn a skill.

Some interviewees consumed their news on TikTok, following news agencies and journalists' accounts. They did so because watching TikTok allowed them to "consume bite-sized pieces of depressing news before it got overwhelming" (P4). This was true for both breaking news (P1) and for keeping updated on events such as the Johnny Depp - Amber Heard trial (P8).

Applied Code	Frequency of Occurrence	Cohen's Kappa
	(out of 464)	score
Teaching - Step-by-Step Tutorial	87 (25%)	0.90
Teaching - Demonstrational Overview	125 (36%)	0.76
Teaching - Narration	97 (28%)	0.80
Teaching - Reenactment	28 (8%)	0.95
Teaching - Q&A	35 (10%)	0.92
Teaching - Storytelling	7 (2%)	0.96
Teaching - Evaluative Reviewing	10 (3%)	0.98
Taught topic - Information/Facts	171 (46%)	0.84
Taught topic - Skill	160 (49%)	0.82
Video Elements - Stitching	49 (14%)	0.96
Video Elements - Images	63 (18%)	0.94
Video Elements - Video	3 (1%)	0.92
Video Elements - Text overlay	87 (25%)	0.66
Video Elements - Captioning	66 (19%)	0.89
Video Elements - Text to Speech	38 (11%)	0.99
Video Elements - Speech	139 (40%)	0.79
Video Elements - Voiceover	111 (32%)	0.90
Video Elements - TikTok Sounds	97 (28%)	0.70
Evidence of Professional Training	101 (29%)	0.76
Evidence of Prior Experience	90 (26%)	0.52
Providing Sources	73 (21%)	0.74

Table 2. Summary of results from coded videos

All of our interviewees also mentioned preferring to surf TikTok over other platforms like Google (e.g. P2) or YouTube (e.g. P4) when they were looking to gain specific skills. Interviewees appreciated seeing informative videos with written instructions (P2, P5, P7) or voiceovers narrating steps while showing how to implement them (P1, P8) that they could watch, follow along and replay at their own pace (P2, P5, P7, P8) which catered to their attention spans (P3, P4), and because creators could be contacted with questions (P2). Some interviewees also distinguished between TikTok and other video-based platforms like YouTube, talking about how "*TikTok gets to the point faster than YouTube*, *which is better for impatient people like me.* (P4)

Finally, interviewees mentioned that even though they were not looking to learn something on TikTok, they would see content on their FYPs which they found educational. Such content included video game tips (P2), organizing techniques (P3), recipes (P4), and arts and crafts techniques (P7).

4.2.2. Assessing Creators' Credibilities For some interviewees, the credibility of the creators who were sharing knowledge or teaching skills was important.

Interviewees mentioned generally avoiding medical advice from TikTok, especially about COVID-19, unless the creator was affiliated to a health organization they trusted (P3, P4, P8). The same was true for consuming news (P8). Our interviewees who consumed information or news (P1, P3, P8) said that they would have liked to see more creators reference material when they are talking about facts, and were appreciative of times when that was the case (e.g. P8 was appreciative of being able to watch actual footage from the Johnny Depp -Amber Heard trial on TikTok). Having said that, most interviewees (P1, P3, P4, P6, P7, P8) mentioned being skeptical of information they learned on TikTok, and would verify 'facts' from other sources that they trusted. Some interviewees (P1, P4) mentioned that they would like to see more creators cite source material when sharing information, though others (P7) understood that TikTok videos are not held to the same standards as academic publications and that not citing sources was sometimes fine.

For interviewees learning skills on TikTok, one of the best ways to assess a creator's credibility was to try out the skill being shown. Interviewees mentioned trying out recipes (P5, P6), organizing techniques (P3), haircare or makeup routines (P1), and cleaning techniques (P8) demonstrated in videos. If a creator's techniques worked, some interviewees were willing to trust them and "spend some money too, if something else of theirs I wanna try involves getting something" (P8). Some other ways of assessing a creator's credibility involved noticing trends in their content over long periods of time (P8) and considering cultural competence ("I would rather learn a dumpling recipe from an Asian person rather than a white person" - P7).

4.2.3. Combination of Text with Audio/Video All the users we spoke to felt that the videos that contributed the most to their learning contained a combination of text and audio/video features. Since almost all of our interviewees learned cooking skills or recipes from TikTok, it was important that "videos contain lists of ingredients and amounts, even if it is kinda easy to tell from watching (P4). Adding text over videos was also important for accessibility reasons (P3, P6), providing extra information/tips which the creator did not verbally or visibly go over (P7), and referring to secondary source material (P1).

4.2.4. Delivering Content in an Enjoyable Way Finally, for some interviewees, the fact that some content was delivered in an enjoyable way was a reason why they chose to learn from a particular creator. As P3 mentioned, "*This one person I follow shows how to cook different types of pasta, and it's a lot more fun than reading the recipe on a page.*"

Another way in which the presentation of videos affected our interviewees' decisions to consume such content was the use of calming or catchy background sounds in the videos. For instance, P2 follows a creator who teaches video game tips and tricks, of whom they remarked, "the person is very funny and so if I'm stuck in a game, I see his videos to both learn how to progress and because it's a lot of fun."

Thus, we observe a wide range of ways in which users find knowledge or learn skills on TikTok.

5. Discussion

5.1. Establishing TikTok as a Platform for Informal Learning

Based on our observations, we find sufficient evidence for TikTok being a platform conducive to informal learning. Our interviewees experience all three of Schugurensky's (2000) forms of informal learning through their time on TikTok. Users searching for content such as recipes (e.g. P6) or news content (e.g. P8) experienced *self-directed learning*. TikTok's library of recommended hashtags makes it such that creators of content can add a long list of hashtags they consider appropriate, which makes it easier for users looking for a particular genre of video to find it faster.

Users such P2 and P4 experienced incidental

learning when they learned their respective skills based on recommended content that surfaced on their FYPs. Such content was curated by TikTok's recommender algorithm based on their prior interactions with similar videos, and contributed positively to these users.

Finally, users such as P5 experienced *tacit learning* by repeatedly watching and trying out the content they observed on TikTok. Users appreciated the fact that videos were delivered in short amounts of time and they could re-watch it at their own paces several times without it adding up too much. Such short bursts of microlearning were also catering to users' self-claimed short attention spans.

Therefore, we find evidence of TikTok affordances allowing for users to experience all three forms of Schugurensky's (2000) types of informal learning. Creators engaged in pseudo-dialogue with their physically remote viewers (Mustajoki et al., 2018), imparting informal learning upon them in the form of various skills.

5.2. Successful Practices

Through the combination of content analysis of TikTok videos and interviews with TikTok users, we observe trends for ways in which creators leveraged TikTok affordances and their own creative choices to teach that were appreciated by learners.

5.2.1. Providing Detailed Information We observe that Demonstrational Overviews and Step-by-Step Tutorials are the most common forms of teaching, collectively making up over 60% of the coded videos. Our interviewees (P1, P2, P5, P7, P8) mentioned being receptive to such types of videos, where the creators demonstrated the topic they were teaching while providing information about the steps they were following. Such videos were appreciated by learners because they provided in-depth information which learners could replicate.

5.2.2. Adding Text to Videos A major component of Demonstrational Overviews or Step-by-Step Tutorials was the use of text, in the form of Text Overlays or Captioning. Collectively, these were present in 44% videos, and were greatly appreciated by learners. Our interviewees mentioned that text added to videos allowed them to accurately understand the finer points of skills being taught, such as quantities of ingredients for recipes. Adding text to videos also made such videos more accessible, which was appreciated by our interviewees.

5.3. Recommendations for Creators

While we observed several successful strategies for teaching, there is one overarching disconnect between the common trends across coded videos and interviewees' wants, surrounding creators not adequately establishing their credentials while teaching. This is particularly true for citing sources, as only 21% of our coded videos provided sources, yet interviewees mentioned wanting to see sources cited in videos that intended to convey facts or information. However, like P7, the authors realize that TikTok creators might not hold themselves to academic standards and always cite sources whenever they share knowledge. An appropriate middle ground might be creators considering the gravity of the information they are sharing and its potential to do harm to users, as they consider citing sources from which they draw such information. While information that has little potential for harm might not need citations (e.g. the height of the tallest mountain in the world), information such as the effectiveness of certain workout postures could come with citations or warnings to not try them without trained professionals present to avoid injury.

Similarly, we also observe that few videos assert the creator's credibility, either by mentioning Professional Training (30%) or Personal Experience (26%). Given that our interviewees mentioned assessing creators' credentials in consuming their videos, we recommend that more creators consider this, especially when sharing information or facts. This is different from creators who teach skills, because users can try out one teaching and establish a sense of trust or lack thereof with the creator. For creators conveying only information/ knowledge, it is on them to establish their own credentials.

6. Limitations and Future Work

One limitation of our work is the low number of interviewees. A future iteration of this work or an extension could assess patterns of informal learning based on interviews with a wider group of learners, expanding upon the knowledge generated from this preliminary set of interviews.

Secondly, our choice of forming the dataset by collecting videos indexed with "#LearnOnTiktok" might have missed a section of videos that are intended to be teaching knowledge or some skill, but the creators did not choose to use this hashtag. This is a commonly known limitation of research with hashtag datasets (Tufekci, 2014), and future explorations of informal learning on TikTok could consider curating their datasets using different hashtags.

Finally, an interesting extension of this study could be to analyze direct conversations between learners and teachers, such as through content analyses of comments on informal learning videos or interviews with learners/teachers who have had DM conversations with others with the intent of learning. Such a study could supplement our present findings.

7. Conclusion

In this study, we explored questions of how users on TikTok share and consume knowledge or skills, in an attempt to establish TikTok as an online community conducive to informal learning. Through a mixed methods investigation involving content analysis of TikTok videos intending to teach and interviews with users who learned from TikTok, we observe several different forms of informal learning happening through the consumption of TikTok videos, as we explore how creators leverage TikTok affordances to create effective videos that impart knowledge or share skills with learners. We encourage future work along similar lines, diving deeper into user roles and patterns of network formation on TikTok for informal learning.

Acknowledgements

The authors would like to thank all the interviewees for their time and thoughtful conversations, Benjamin Mako Hill for his guidance and feedback along the way, and our reviewers for their detailed and insightful feedback during the submission process.

References

- Aisa, A., & Dewi, M. K. (2021). Z genereations perspective: Analysis of islamic learning through tiktok social media. SCHOOLAR: Social and Literature Study in Education, 1(1), 22–25.
- Aitchanov, B., Satabaldiyev, A., & Latuta, K. (2013). Application of microlearning technique and twitter for educational purposes. *Journal of physics: Conference series*, 423(1), 012044.
- Aragon, C., Guha, S., Kogan, M., Muller, M., & Neff, G. (2022). *Human-centered data science: An introduction*. MIT Press.
- Arif, A., Robinson, J. J., Stanek, S. A., Fichet, E. S., Townsend, P., Worku, Z., & Starbird, K. (2017). A closer look at the self-correcting crowd: Examining corrections in online rumors. *Proceedings of the 2017 ACM conference on computer supported cooperative work and social computing*, 155–168.

- Basch, C. H., Hillyer, G. C., & Jaime, C. (2020). Covid-19 on tiktok: Harnessing an emerging social media platform to convey important public health messages. *International journal of adolescent medicine and health.*
- Basch, C. H., Meleo-Erwin, Z., Fera, J., Jaime, C., & Basch, C. E. (2021). A global pandemic in the time of viral memes: Covid-19 vaccine misinformation and disinformation on tiktok. *Human Vaccines & Immunotherapeutics*, 17(8), 2373–2377.
- Bhattacharya, A., Windleharth, T. W., Ishii, R. A., Acevedo, I. M., Aragon, C. R., Kientz, J. A., Yip, J. C., & Lee, J. H. (2019). Group interactions in location-based gaming: A case study of raiding in pokémon go. *Proceedings* of the 2019 CHI Conference on Human Factors in Computing Systems, 1–12.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77–101.
- Bresnick, E. (2019). Intensified play: Cinematic study of tiktok mobile app. *University of Southern California*, 4(4), 1–12.
- Buchem, I., & Hamelmann, H. (2010). Microlearning: A strategy for ongoing professional development. *eLearning Papers*, *21*(7), 1–15.
- Campbell, J., Aragon, C., Davis, K., Evans, S., Evans, A., & Randall, D. (2016). Thousands of positive reviews: Distributed mentoring in online fan communities. *Proceedings of the* 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing, 691–704.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and psychological measurement*, 20(1), 37–46.
- Dingler, T., Weber, D., Pielot, M., Cooper, J., Chang, C.-C., & Henze, N. (2017). Language learning on-the-go: Opportune moments and design of mobile microlearning sessions. *Proceedings of the 19th international conference on human-computer interaction with mobile devices and services*, 1–12.

Doyle, B. (2022). Tiktok statistics in 2022.

- Epley, N., & Gilovich, T. (2006). The anchoring-and-adjustment heuristic: Why the adjustments are insufficient. *Psychological science*, *17*(4), 311–318.
- Escamilla-Fajardo, P., Alguacil, M., & López-Carril, S. (2021). Incorporating tiktok in higher education: Pedagogical perspectives from a corporal expression sport sciences course.

Journal of Hospitality, Leisure, Sport & Tourism Education, 28, 100302.

- Esteve Del Valle, M., Gruzd, A., Haythornthwaite, C., Paulin, D., & Gilbert, S. (2017). Social media in educational practice: Faculty present and future use of social media in teaching. *Proceedings of the 50th Hawaii International Conference on System Sciences.*
- Gausby, A. (2015). Attention spans.
- Herrman, J. (2019). How tiktok is rewriting the world. *The New York Times*, 10.
- Inie, N., & Lungu, M. F. (2021). Aiki-turning online procrastination into microlearning. *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, 1–13.
- Kang, C. (2022). A coalition of state attorneys general opens an investigation into tiktok.
- Kanthawala, S., Cotter, K., Foyle, K., & DeCook, J. R. (2022). It's the methodology for me: A systematic review of early approaches to studying tiktok. *HICSS*, 1–17.
- Karizat, N., Delmonaco, D., Eslami, M., & Andalibi, N. (2021). Algorithmic folk theories and identity: How tiktok users co-produce knowledge of identity and engage in algorithmic resistance. *Proceedings of the ACM on Human-Computer Interaction*, 5(CSCW2), 1–44.
- Kennedy, M. (2020). 'if the rise of the tiktok dance and e-girl aesthetic has taught us anything, it's that teenage girls rule the internet right now': Tiktok celebrity, girls and the coronavirus crisis. *European journal of cultural studies*, 23(6), 1069–1076.
- Kumar, P., & Gruzd, A. (2019). Social media for informal learning: A case of# twitterstorians. Proceedings of the 52nd Hawaii International Conference on System Sciences.
- Leong, K., Sung, A., Au, D., & Blanchard, C. (2020). A review of the trend of microlearning. *Journal* of Work-Applied Management.
- Li, Y., Guan, M., Hammond, P., & Berrey, L. E. (2021). Communicating covid-19 information on tiktok: A content analysis of tiktok videos from official accounts featured in the covid-19 information hub. *Health education research*, 36(3), 261–271.
- Lim, Y. J. et al. (2020). The pestel model application to ok boomer and tiktok from a public relations perspective. *Journal of Media Research-Revista de Studii Media*, 13(37), 94–110.

- Literat, I. (2021). "teachers act like we're robots": Tiktok as a window into youth experiences of online learning during covid-19. *AERA open*.
- Liu, J. (2021). The influence of the body image presented through tiktok trend-videos and its possible reasons. 2nd International Conference on Language, Art and Cultural Exchange (ICLACE 2021), 359–363.
- Livingstone, D. W. (1999). Exploring the icebergs of adult learning: Findings of the first canadian survey of informal learning practices.
- Matamoros-Fernández, A., Rodriguez, A., & Wikström, P. (2022). Humor that harms? examining racist audio-visual memetic media on tiktok during covid-19. *Media and Communication*, *10*(2), 180–191.
- Medina Serrano, J. C., Papakyriakopoulos, O., & Hegelich, S. (2020). Dancing to the partisan beat: A first analysis of political communication on tiktok. *12th ACM Conference on web science*, 257–266.
- Mustajoki, A., Sherstinova, T., & Tuomarla, U. (2018). Types and functions of pseudo-dialogues. *From Pragmatics to Dialogue*, *31*, 189.
- Neuendorf, K. A. (2017). *The content analysis guidebook*. Sage.
- Parameswaran, U. D., Ozawa-Kirk, J. L., & Latendresse, G. (2020). To live (code) or to not: A new method for coding in qualitative research. *Qualitative social work*, 19(4), 630–644.
- Pratiwi, A. E., Ufairah, N. N., & Sopiah, R. S. (2021). Utilizing tiktok application as media for learning english pronunciation. *International Conference on Education of Suryakancana (IConnects Proceedings).*
- Price, M., Legrand, A. C., Brier, Z. M., van Stolk-Cooke, K., Peck, K., Dodds, P. S., Danforth, C. M., & Adams, Z. W. (2022). Doomscrolling during covid-19: The negative association between daily social and traditional media consumption and mental health symptoms during the covid-19 pandemic. *Psychological Trauma: Theory, Research, Practice, and Policy.*
- Saldaña, J. (2014). Coding and analysis strategies. *The oxford handbook of qualitative research*.
- Schugurensky, D. (2000). The forms of informal learning: Towards a conceptualization of the field.
- Shen, Z., Pritchard, M., Tan, S., & Noteboom, C. (2022). Educative sensemaking on social media: An empirical investigation of informal learning

on youtube. *Proceedings of the 55th Hawaii International Conference on System Sciences.*

- Simpson, E., & Semaan, B. (2021). For you, or for" you"? everyday lgbtq+ encounters with tiktok. *Proceedings of the ACM on human-computer interaction*, 4(CSCW3), 1–34.
- Skalka, J., & Drlık, M. (2017). Conceptual framework of microlearning-based training mobile application for improving programming skills. *Interactive Mobile Communication*, *Technologies and Learning*, 213–224.
- Tan, E. (2013). Informal learning on youtube: Exploring digital literacy in independent online learning. *Learning, Media and Technology*, 38(4), 463–477.
- Tufekci, Z. (2014). Big questions for social media big data: Representativeness, validity and other methodological pitfalls. *Eighth international AAAI conference on weblogs and social media.*
- Vizcaino-Verdú, A., Contreras-Pulido, P., & Guzmán-Franco, M.-D. (2019). Reading and informal learning trends on youtube: The booktuber. *Comunicar. Media Education Research Journal*, 27(1).
- Zulli, D., & Zulli, D. J. (2020). Extending the internet meme: Conceptualizing technological mimesis and imitation publics on the tiktok platform. *New Media & Society*, 1461444820983603.