ABSTRACT

Title of Dissertation:	STETHOSCOPES TO #SELFCARE: THE TRANSFORMATION OF EXPERTISE DYNAMICS IN DIGITAL ENVIRONMENTS
	Celia Liya Chen, Doctor of Philosophy in Information Studies, 2025
Dissertation directed by:	Professor Jennifer Golbeck, College of Information

This dissertation examines how expertise is communicated, performed, and assessed across different digital environments through three complementary case studies: physicians on Twitter/X, mental health content creators on TikTok, and graduate students assessing AI-generated content. Each study reveals how traditional markers of authority operate when moved into digital spaces with distinct features and affordances.

The research demonstrates that digital platforms do not simply host expertise claims, but actively reshape how expertise can be signaled, validated, and perceived. When traditional markers of professional authority such as credentials, specialized vocabulary, and visual signifiers move online, they undergo transformations specific to each platform's architecture. On Twitter/X, physicians leverage profile features to

display credentials while developing content that serves multiple audience segments. TikTok's visual emphasis requires mental health creators to perform expertise through new hybrid forms that combine professional knowledge with platform-native styles. The AI study reveals how graduate students develop mental models for evaluating seemingly authoritative non-human content produced without domain knowledge.

The central contribution of this work is documenting how digital environments transform traditional mechanisms of expertise validation, creating conditions where expertise communication adapts to platform-specific environments. These findings extend beyond individual platforms to inform our understanding of how expertise signals operate across different digital contexts and how users approach the assessment of competing knowledge claims in increasingly AI-mediated spaces.

The dissertation provides insight into how different platform affordances, professional domains, and audience expectations create varied conditions for expertise communication while revealing common patterns in how authority adapts to digital constraints.

STETHOSCOPES TO #SELFCARE: THE TRANSFORMATION OF EXPERTISE DYNAMICS IN DIGITAL ENVIRONMENTS

by

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Dedication

For my grandfather, whose memory and unwavering belief in curiosity and innovation continue to guide my academic journey, and for my grandmother, who has waited so patiently to finally call me “Dr. Chen” – this achievement honors his legacy and fulfills her pride.

In memory of Merlin, the most loyal canine companion through every chapter before this one.

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Chapter 1: Introduction

In a hospital hallway, a surgeon's white coat signals medical authority. In a university lecture hall, a professor's command of technical language establishes scholarly expertise. In a courtroom, an attorney's formal attire and confident references to case law convey legal mastery. These traditional markers of professional authority have long served as foundations upon which expertise is recognized and validated: artifacts, language, and embodied performances. When these signals move online however, they often undergo transformation.

On digital platforms, the surgeon's white coat may be represented by a profile photo. The professor's technical vocabulary might need to fit within character limits. The attorney's authoritative presence can be compressed into short-form video. As professional communication migrates to digital spaces, traditional signals of authority are often translated, adapted, and sometimes reimagined to function within the features and affordances of these environments.

This transformation creates a two-sided dynamic: how experts communicate their authority on digital platforms, and how audiences assess expertise in these contexts. A physician on Twitter/X may construct credibility through tweet content and platform-specific practices rather than relying solely on clinical credentials, while audiences apply existing assessment strategies to evaluate these claims. A mental health content creator on TikTok might compress psychological concepts into engaging 60-second videos instead of demonstrating expertise through lengthy client sessions, interacting with audiences who bring their own models for evaluating expertise. However, when artificial intelligence (AI) systems generate seemingly authoritative content, a fundamental shift occurs: although users still need to assess expertise, the "expert" is no longer presenting authority signals but rather mimicking them without intention or understanding.

This dissertation examines this two-sided expertise dynamic across three distinct digital contexts: medical professionals navigating Twitter/X's text-based environment, mental health content creators establishing credibility on TikTok, and graduate students assessing content generated by AI systems. The first two cases examine how human experts adapt traditional authority signals to platform affordances, while building on established literature about how audiences assess expertise online. The third case explores the novel question of how users evaluate expertise when confronted with non-human sources that lack intentionality in their presentation.

Research Context and Problem Statement

Expertise has traditionally operated within established professional contexts where authority is supported by institutional structures, physical environments, and established social norms. These contexts include hospitals, courtrooms, and classrooms. However, as professional communication migrates to digital platforms, new questions emerge about how expertise operates in environments governed by different features and affordances.

Digital platforms don't simply provide new venues for established forms of authority; they actively reshape how expertise can be communicated, validated, and perceived. Character limits, algorithmic content distribution, and the inherent limitations of text-based interaction all influence how professional knowledge can be conveyed and how audience trust can be established. These platform-specific conditions create challenges for expertise communication and recognition.

A substantial body of research has examined how users evaluate expertise online across various contexts. Studies have investigated cognitive heuristics used to assess credibility (Metzger & Flanagin, 2013; Jo et al., 2019), evaluation of health information (Kessler & Zillich,

2018), and differentiation between expertise and misinformation (Vraga & Bode, 2020). Research has also studied how platform structures influence expertise assessment, whether through collaborative systems like Wikipedia (Niederer & van Dijck, 2010), social media affordances (Marwick & boyd, 2011; Evans, 2017), or search algorithms (Noble, 2018). These studies establish a robust foundation for understanding how audiences assess expertise signals in digital environments.

	General Expertise Theory	Profile-Based	Long-Form	Micro-Blogging	Short-Form Video	AI Content
How People Assess Experts	-Collins & Evans (2007) -Donath (2007) -Metzger & Flanagin (2013) -Vraga & Bode (2020)	-Marwick & boyd (2011) -Gillespie (2010) -Pronk et al. (2021) -Kedrowicz et al. (2016)	-Jo et al. (2019) -Luzon (2018) -Kessler & Zillich (2018)	-Cahill & Carlson (2023) -Hsia & Kong (2022) -Sinnenberg et al. (2017) -Nakagawa et al. (2022)	-Barta & Andalibi (2021) -Milton et al. (2023) -O'Donnell et al. (2023) -Basch et al. (2022)	**CH 5**
How Experts Present to People	-Ford (2015) -Menking & Erickson (2015)	-Horne et al. (2019)	-Berger et al. (2013) -Atef et al. (2023)	**CH 3**	**CH 4**	N/A

Table 1. Research landscape of expertise by communication style.

Table 1 maps the current landscape of research on expertise in digital environments, highlighting how this dissertation addresses specific gaps in understanding expertise dynamics. As the table shows, existing literature has thoroughly examined how people assess expertise across various digital contexts, but less attention has been given to how experts adapt their communication to platform affordances. Some studies have examined expertise presentation in long-form content like blogs (Berger et al., 2013) and YouTube videos (Atef et al., 2023), but research on expertise communication in microblogging and short-form video remains limited.

Unlike human experts who adapt their presentation to digital environments, AI systems produce outputs that mimic authority signals without intentionality or understanding, making the question of 'how experts present to people' not applicable (N/A) for AI content. These areas, along with AI-generated content assessment, form the unique contribution of this dissertation.

The Twitter/X and TikTok studies address gaps in understanding how established professionals adapt traditional markers of authority to platform-specific affordances. The strategies physicians employ on Twitter/X or mental health content creators on TikTok ranging from credentialed professionals to individuals claiming expertise through personal experience—represent responses to both platform constraints and audience expectations about expertise signals. By examining these adaption strategies, this dissertation complements existing literature on expertise assessment with insights into expertise communication.

The third study on AI-generated content extends this investigation by exploring a novel context where expertise signals appear without intentional human authorship. Unlike the previous cases that examine human experts, this study focuses on how users evaluate seemingly authoritative content when they know it originates from an AI system. This creates the research question: How do users evaluate seemingly expert content when they are aware the source is non-human?

This dissertation addresses this gap by examining three distinct cases of expertise in digital spaces: physicians on Twitter/X, mental health content creators on TikTok, and graduate students interacting with AI-generated content in their academic and technical work. Specifically, the third study examines how HCI graduate students evaluate AI systems that generate technical guidance for coding and design tasks, provide explanations of course readings, and assist with academic writing. The first two cases expand our understanding of how human

experts adapt traditional authority signals to platform affordances, while the third explores the new frontier of expertise assessment when the "expert" is non-human and does not actually possess expertise. Together, these cases provide insight into the broader transformation of expertise dynamics in digital environments.

Research Purpose and Questions

This dissertation examines how expertise is communicated, perceived, and validated across different digital environments. The investigation of three distinct cases highlights broader patterns in how expertise signals can transform when moved into digital spaces. Each case represents a different combination of platform affordances, content creators, and audience dynamics.

Three primary questions guide this research:

1. **How do established experts adapt traditional authority signals to the features and affordances of digital platforms?** This question explores how professionals with formal credentials and institutional validation translate their expertise into platform-appropriate forms. Through analysis of physicians on Twitter/X, I examine how medical professionals navigate platform features while maintaining professional credibility.
2. **How do platform-specific affordances shape the presentation and reception of expertise in public-facing content?** This question investigates how different platform affordances influence which forms of expertise gain visibility and traction. By analyzing mental health content on TikTok, I explore how the platform's notable affordances shape the strategies through which content creators signal credibility to broad audiences. These affordances include its short-form video format and algorithmic promotion.

3. **How do users evaluate expertise signals in content generated by non-human sources?** This question examines how people assess seemingly authoritative content produced by systems that process patterns from training data rather than possessing human-like understanding. Through studying graduate students' interactions in an HCI program as they interact with AI-generated technical and academic content, I investigate how traditional markers of academic authority are reinterpreted when encountered in AI-generated contexts.

These questions converge on a shared interest in the adaptation, transformation, and evaluation of expertise signals across digital contexts. The multi-case approach reveals broader patterns in how digital environments reshape the communication and validation of expertise, while avoiding a narrow focus on any single platform or professional domain.

Methodology Overview

This dissertation employs a multi-method approach across three complementary studies to examine expertise in different digital contexts. Each study is designed to address specific aspects of how expertise is communicated, performed, and assessed online, with methodological choices tailored to the particular platform and research questions.

The first study investigates how physicians signal expertise on Twitter/X through content analysis of physician posting behaviors and engagement patterns. The analysis examines both the content of physicians' tweets and their use of platform-specific affordances to construct professional authority. This approach reveals how medical professionals combine traditional markers of expertise with platform-specific practices to maintain credibility while engaging with diverse audiences.

The second study explores mental health content on TikTok through a mixed-methods approach combining content analysis and computational methods. The research examines creator profiles, video presentations, and audience engagement patterns to understand how mental health expertise is constructed and performed through the platform's affordances. This methodological approach captures both the visual performance of expertise and the platform-specific strategies used to establish credibility.

The third study examines how graduate students evaluate AI-generated content through surveys, interaction transcripts, and semi-structured interviews. This approach focuses on understanding the frameworks students develop for assessing seemingly authoritative content generated by AI systems in their academic and technical work. The longitudinal design captures how these evaluation strategies evolve over time as students gain more experience with these systems.

Together, these complementary methods enable a comprehensive examination of expertise across different digital contexts. The combination of content analysis approaches for social media platforms with interview-based methods for understanding user perceptions provides both breadth and depth in addressing the research questions. This methodological diversity reflects the nature of expertise in digital spaces, where both performance and assessment play roles in how authority functions.

Significance of the Research

This dissertation contributes to our understanding of how expertise functions in digital professional and educational contexts. By examining how expertise signals are adapted and transformed across different digital environments, this research offers insights for multiple stakeholders.

From a theoretical perspective, this work extends our understanding of expertise by examining how authority operates in environments with distinct features and affordances. Building on Collins and Evans' (2007) social construction approach and Donath's (2007) signaling theory, this dissertation examines how digital platforms transform not just the venue but the fundamental mechanisms of expertise communication. The findings demonstrate how platform-specific affordances influence which forms of expertise gain visibility and validation.

For practitioners across various domains, this research offers insights into how professionals navigate digital environments while maintaining credibility. The findings reveal specific strategies physicians employ to signal expertise on Twitter/X, approaches mental health content creators use to establish authority on TikTok, and mental models that students develop for evaluating seemingly authoritative AI-generated content. These insights have implications for professional communication, educational practice, and platform governance.

The examination of how students evaluate AI-generated content addresses emerging challenges in contemporary learning environments. As the practice of embedding AI into tools and applications becomes more prevalent, understanding how users distinguish between different forms of expertise signals becomes essential for developing effective educational policies and practices. The findings suggest approaches for helping students develop critical evaluation skills while leveraging new technological tools appropriately.

For platform designers and policymakers, this research highlights how specific platform features create affordances that shape the visibility and validation of different forms of expertise. The findings reveal tensions between platform optimization for engagement and the effective communication of professional knowledge, which could inform the development of platform features that better support responsible information sharing.

Methodologically, this dissertation demonstrates the value of examining expertise across different digital contexts using complementary approaches. The combination of content analysis, computational methods, and qualitative interviews enables a more comprehensive understanding of how expertise signals function in digital spaces, providing a template for future research examining other forms of communication across digital environments.

Overview of Dissertation Structure

This dissertation is organized into six chapters that collectively examine how expertise is communicated, perceived, and validated across different digital environments.

Chapter 1, Introduction, establishes the research context, presents the core research questions, and outlines the significance of examining expertise in digital spaces. It provides an overview of the dissertation structure and methodological approach.

Chapter 2, Theoretical Perspectives on Digital Expertise, develops the conceptual foundation for the dissertation by examining social construction and signaling theory perspectives on expertise. The chapter clarifies concepts of expertise and related constructs, distinguishing between expertise possession, performance, and assessment. It examines how these theoretical approaches provide complementary lenses for understanding expertise in digital environments. The chapter establishes the analytical tools used throughout the subsequent empirical chapters.

Chapters 3, 4, and 5 present the empirical studies that form the core of this research:

Chapter 3 examines how physicians translate traditional markers of medical authority to Twitter/X's text-based platform. Through content analysis of physician posting behaviors and engagement patterns, this chapter reveals how medical professionals adapt conventional

expertise signals to digital constraints while developing new platform-specific strategies for establishing credibility.

Chapter 4 investigates how mental health expertise is constructed and performed on TikTok. Using mixed-methods analysis of creator profiles, video content, and engagement patterns, this chapter explores how TikTok's unique affordances shape the presentation and reception of mental health expertise.

Chapter 5 analyzes how graduate students evaluate content generated by AI systems that mimics expertise signals. Through interviews with students using these systems for academic purposes, this chapter examines the mental models users develop for assessing seemingly authoritative content produced by non-human sources. Unlike the previous chapters that focus on expertise presentation, this study explores how expertise is evaluated when traditional signals are generated without intentionality or understanding. Since AI systems don't possess expertise but rather mimic signals without intention, the 'presentation' aspect of expertise dynamics is not applicable in this context.

Chapter 6, the final chapter, synthesizes findings across the three studies to identify broader patterns in how expertise is presented and evaluated across different digital environments. It examines how the empirical findings contribute to our understanding of expertise in contemporary digital contexts, considers potential implications for digital communication, and suggests directions for future research. The conclusion reflects on how different platform affordances, professional domains, and audience expectations appear to create varying conditions for expertise communication and assessment, while acknowledging the limitations of these observations.

Chapter Summary

This introduction has established the context, purpose, and significance of examining how expertise is communicated, perceived, and validated across different digital environments. As more professional discourse continues to migrate to digital platforms, understanding how authority signals transform becomes relevant for both theoretical and practical reasons.

This dissertation addresses this need through three complementary studies that capture different dimensions of expertise dynamics in digital spaces. The Twitter/X and TikTok studies examine how human experts present themselves in platform-specific environments, building on existing literature about how audiences assess expertise. The AI study extends this investigation by exploring how users evaluate expertise signals when they encounter them from non-human sources that lack intentional self-presentation.

This approach allows the dissertation to make two distinct contributions: 1) expanding our understanding of expertise dynamics by examining how experts present themselves to audiences online, and 2) exploring new questions about expertise assessment when traditional validation mechanisms are disrupted by AI-generated content.

Collectively, these studies provide insight into the broader patterns of how expertise functions in contemporary digital spaces, revealing how different platform affordances, professional domains, and audience expectations shape the communication and evaluation of authority. The following chapters build on this foundation, beginning with theoretical perspectives that establishes the conceptual tools used throughout the analysis.

Chapter 2: Theoretical Perspectives on Digital Expertise

Introduction

When examining expertise in digital environments, this dissertation considers both: (1) the specialized capabilities that professionals may possess, and (2) the social processes through which these capabilities are communicated and recognized online. In online spaces, the presentation and recognition of expertise adapts to the constraints and opportunities of digital platforms (Majchrzak et al., 2013; Evans et al., 2017). Traditional markers of expertise, such as institutional affiliations, formal credentials, or years of experience, transform when moved to online environments (Metzger & Flanagin, 2015; Ford, 2015). A surgeon's online presence, distinct from their established clinical skill, must be communicated through social media posts (Grajales et al., 2014; Chretien & Kind, 2013). A therapist's clinical approach, established through client interactions, takes new form in short videos and platform engagement. Professional symbols also transform: a medical credential becomes a profile descriptor, peer recognition appears as follower metrics, and expertise communication adapts to character limits and platform features (Marwick, 2013; Baym, 2015). This approach provides analytical tools for examining how expertise signals function across different digital contexts.

For the purposes of this dissertation, I examine expertise as it functions in digital environments, focusing on how expertise is communicated, performed, and assessed across different online contexts. While expertise traditionally involves specialized knowledge, skills, or experience in a particular domain (Mieg, 2006), this research specifically investigates how such capabilities are signaled and evaluated within digital spaces where traditional validation mechanisms are often different (Collins & Evans, 2007). This approach examines three aspects of expertise: expertise possession (the specialized knowledge and skills individuals hold),

expertise performance (how this knowledge is demonstrated), and expertise assessment (how others evaluate expertise claims).

This chapter examines how expertise is communicated and validated across the dissertation's three research contexts: physicians on Twitter/X, mental health content creators on TikTok, and AI systems in educational settings. The chapter begins by clarifying concepts of expertise and related constructs, distinguishing between different forms of expertise in digital spaces. It then explores how social constructionist perspectives help inform the processes through which expert status is negotiated in online environments. Next, the chapter examines how signaling theory helps understand the mechanisms through which expertise is communicated in digital spaces. The chapter then considers how platform-specific features and social dynamics shape expertise communication across different digital contexts. Finally, it describes how these theoretical perspectives inform the methodological approaches used in each of the dissertation's three studies.

Conceptualizing Expertise

Following Ericsson (2006), expertise is defined as "the characteristics, skills and knowledge that distinguish experts from novices and less experienced people" (p. 3). In this dissertation, I approach expertise through multiple analytical lenses rather than offering a single comprehensive definition. I distinguished between expertise as specialized capability (what people know and can do) and the social processes through which such capability is recognized (how expertise functions in communities). While traditional perspectives on expertise often focus primarily on demonstrated competence (Ericsson & Smith, 1991; Chi et al., 1988), examining expertise in digital environments warrants consideration of both capability and its communication. This

separation allows for examining digital contexts where traditional expertise markers are transformed.

To fully understand how expertise functions in digital environments, this dissertation also addresses related constructs that shape expertise communication and reception. Figure 1 illustrates the relationships between these concepts and their relevance to the three studies in this dissertation.

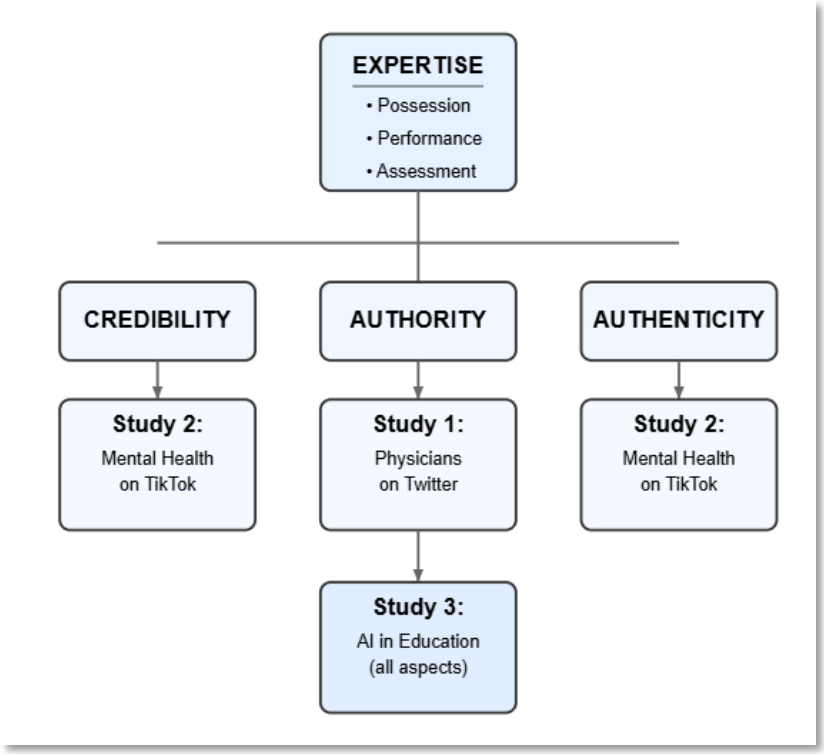


Figure 1. Conceptual Relationships and Relevance to Studies

Figure 1 illustrates the conceptual relationships between expertise and related constructs examined in this dissertation. The central concept of expertise encompasses three aspects: possession (specialized knowledge and skills), performance (how knowledge is demonstrated), and assessment (how others evaluate expertise claims). The figure shows how expertise connects to three related concepts: credibility (the perceived trustworthiness of information or its source)

(Metzger & Flanagin, 2013), authority (the socially recognized right to make claims within a domain) (Wilson, 1983), and authenticity (the perceived genuineness of self-presentation) (Audrezet et al., 2018; Marwick, 2013). These connections aren't just theoretical, but map directly to the dissertation's three studies. The physicians on Twitter/X study primarily examines authority in relation to expertise, while the mental health content on TikTok study focuses on both credibility and authenticity. The AI in education study encompasses all aspects of expertise and related concepts, as it investigates how students assess machine-generated content that mimics expertise signals without possessing expertise.

This dissertation draws on established theoretical perspectives to examine how expert status functions in digital environments. Social constructivists approaches (Collins & Evans, 2007; Eyal, 2013) examine how expertise emerges through interaction and depends on social recognition within specific communities. This perspective notes that expert status is negotiated and maintained through social processes; a perspective relevant to understanding how expertise functions when traditional validation mechanisms change in digital spaces. Signaling theory (Donath, 2007; Willer et al., 2009) provides analytical tools for examining how expertise is communicated through both assessment signals (demonstrations of capability) and conventional signals (socially agreed-upon markers of status).

Social recognition of expertise refers to the processes through which specialized capability is acknowledged by relevant communities. Collins and Evans (2007) highlight that expert status emerges through interaction with others who recognize and legitimize specialized capabilities. A surgeon possesses technical skill, but becomes socially recognized as an expert through institutional validation, peer acknowledgment, and patient trust. This social dimension is relevant for studying digital environments where traditional validation mechanisms may be

disrupted or transformed. While social recognition is not necessary for expertise possession to exist, it shapes how expertise functions in practice, especially in online contexts.

Based on this analytical approach, this dissertation examines three distinct aspects of expertise:

Expertise possession refers to the actual specialized knowledge, skills, and capabilities individuals hold. This aspect focuses on what experts know and can do, independent of how they communicate or are perceived (Ericsson et al., 2006; Chi, 1988). For the physicians examined in this dissertation, expertise possession encompasses their medical knowledge and clinical capabilities. For mental health content creators on TikTok, the degree of expertise possession varies considerably; some creators have formal clinical training while others primarily draw on personal experience or self-study. AI systems, as examined in the third study, fundamentally lack expertise possession as they have no understanding, consciousness, or lived experience; they merely process patterns from training data without comprehension (Mitchell, 2019; Bender & Koller, 2020). This variation across contexts is what makes these cases useful for examining how expertise functions in digital environments.

Expertise performance describes how knowledge is demonstrated and communicated to others through various signals, practices, and communications (Goffman, 1959; Leary & Kowalski, 1990). Expertise performance can occur independently of expertise possession; individuals or systems may deploy expertise signals effectively without necessarily possessing the underlying knowledge those signals traditionally represent. In digital environments, expertise performance is shaped by platform-specific features and affordances that influence how specialized knowledge can be conveyed (Bucher & Helmond, 2018; Evans et al., 2017).

Expertise assessment focuses on how others evaluate and validate expertise claims. This aspect addresses the processes through which audiences determine which expertise claims to

accept or reject (Metzger & Flanagin, 2013). In digital contexts, assessment often occurs without access to traditional verification mechanisms, requiring audiences to develop new heuristics for expertise evaluation (Sundar, 2008; Metzger et al., 2010). This aspect is relevant for understanding how users interpret expertise signals from novel sources like AI systems, where conventional markers of authority may be absent or misleading (Zerilli et al., 2022; Cave et al., 2019).

These three aspects provide analytical lenses for examining how expertise functions across different digital contexts: possession, performance, and assessment. While expertise possession represents what traditional approaches may consider "expertise" proper, this dissertation examines all three aspects while acknowledging that performance and assessment undergo transformations in digital environments. By examining contexts where these dimensions may diverge (such as with mental health content on TikTok or AI-generated educational content), this research provides insight into how expertise functions when traditional validation systems are disrupted or transformed. Several related constructs further inform this understanding of expertise:

Credibility refers to the perceived trustworthiness and reliability of information or its source (Metzger & Flanagin, 2013). While expertise concerns specialized knowledge or skill, credibility addresses the believability of claims. As Fogg (2003) explains, credibility encompasses both perceived expertise (whether the source appears knowledgeable) and perceived trustworthiness (whether the source appears honest and unbiased). This relationship is asymmetrical: expertise can contribute to credibility, but credible sources are not necessarily experts. For instance, a well-trusted community member might be perceived as credible despite

lacking specialized knowledge, while a highly knowledgeable expert might lack credibility if perceived as biased or untrustworthy.

Authority describes the socially recognized right to make claims or judgments within a domain. While expertise concerns specialized knowledge or capability, authority involves the legitimized power to have one's expertise claims accepted. Wilson (1983) distinguishes between cognitive authority (based on perceived knowledge) and administrative authority (based on organizational position). The relationship between expertise and authority demonstrates a tension in knowledge systems: institutional positions often confer authority regardless of individual expertise possession, creating situations where authoritative figures may lack specialized knowledge. Simultaneously, individuals with substantial expertise may struggle to gain authority without institutional backing. This dynamic manifests in professional contexts where credentials and affiliations serve as proxies for both expertise and authority, though the two concepts remain analytically distinct.

Authenticity refers to the perceived genuineness of self-presentation (Audrezet et al., 2018; Marwick, 2013). Unlike expertise, which concerns specialized capability, authenticity addresses how genuine or true-to-self a person appears to be. These concepts intersect when authenticity functions as a mechanism for evaluating expertise claims. As Tolson (2010) argues, perceived authenticity can enhance the reception of expertise by creating trust and connection with audiences, while inauthenticity can undermine even well-founded expertise claims.

Analytical Approach to Expertise in Digital Environments

This conceptualization of expertise, with its emphasis on both possession and performance, provides a foundation for examining how expertise functions across different digital contexts. This dissertation examines how expertise is performed and assessed in online spaces while

acknowledging that these performances are distinct from questions of expertise possession. This distinction is useful regardless of whether the individuals being studied possess expertise in traditional terms. For physicians on Twitter/X, expertise performance often builds upon established professional credentials. For mental health content creators on TikTok, expertise performance may occur across varying levels of formal qualification. For AI systems in educational settings, expertise performance occurs without any underlying expertise possession.

To be clear about the analytical approach across studies, this dissertation acknowledges different relationships to expertise possession in each context. For physicians on Twitter/X, the research verifies their credentials as medical experts while examining how they communicate this expertise. For AI systems, the research explicitly recognizes that they fundamentally lack expertise possession as they have no understanding, specialized knowledge, or lived experience that constitute human expertise (Dreyfus & Dreyfus, 2005; Bender et al., 2021; Mitchell, 2019), while analyzing how they generate outputs that mimic expertise signals. Similarly, for mental health content on TikTok, the research examines expertise performance across creators with varying levels of formal qualification without making definitive judgments about which creators "truly" possess expertise. This approach allows for examining how expertise functions in digital environments while maintaining clarity about the different relationships to expertise possession in each context.

Perspectives on Expertise: From Individual Competence to Social Recognition

Research on expertise spans multiple disciplines, each offering distinct perspectives on what constitutes expert knowledge and how it should be identified. These varying approaches can be broadly categorized along a continuum from cognitive-performance perspectives that focus on

objectively measurable skills to social-interactional perspectives that emphasize recognition within communities.

Cognitive and Performance-Based Perspectives

Cognitive psychology has traditionally conceptualized expertise as an individual achievement characterized by specific mental structures and superior performance capabilities (Ericsson & Smith, 1991; Chase & Simon, 1973). This perspective focuses on the observable, measurable aspects of expertise that manifest through task performance. Experts are distinguished by their ability to recognize meaningful patterns quickly, organize knowledge hierarchically, and apply domain-specific problem-solving strategies effectively (Chi et al., 1988).

The cognitive-performance view emphasizes objective criteria for expertise, often measured through controlled tasks that reveal superior capability. For instance, in studies of chess expertise, performance is measured through game outcomes and move selection quality (Charness, 1992), while medical expertise can be assessed through diagnostic accuracy or procedural success rates (Patel & Groen, 1991). This approach has yielded insights into the cognitive structures that support expert performance across various domains.

Building on this tradition, knowledge engineering approaches focus on expertise as the possession of specialized information and skills, emphasizing the role of domain-specific knowledge structures (Hoffman, 1998). This perspective underlies efforts to develop expert systems that capture and codify professional knowledge, treating expertise as a collection of specialized information and decision rules that can be systematically documented.

These perspectives share an emphasis on expertise as an objective, demonstrable capability that exists independently of social recognition. A surgeon's technical precision in the operating room, a researcher's methodological rigor, or a programmer's code efficiency can all be

assessed through performance-based metrics that reveal measurable capability regardless of social perception.

Bridging Individual Capability and Social Recognition

While cognitive-performance perspectives offer relevant insights into the structures and capabilities that characterize expertise possession, they often focus less on how expertise functions in social contexts where validation processes play a role. In practice, expertise rarely operates in complete isolation from communities that develop standards for evaluation and recognition (Collins & Evans, 2007; Eyal, 2019), particularly in digital environments where communication and assessment are central to how expertise operates.

Collins and Evans (2007) propose a useful bridge between performance-based and social perspectives through their distinction between "contributory expertise" (the ability to perform expert tasks within a domain) and "interactional expertise" (the ability to communicate meaningfully about expert knowledge). This distinction acknowledges both the performance capabilities emphasized by cognitive approaches and the communicative dimensions that enable expertise to function within communities.

Similarly, Lave and Wenger's (1991) concept of "legitimate peripheral participation" highlights how expertise development occurs through gradual integration into communities of practice, where technical skill development occurs alongside socialization into community norms and values. This perspective recognizes both objective skill acquisition and the social processes through which expertise is validated.

Social Construction Perspectives

At the other end of the continuum, social constructionist approaches emphasize how expert status emerges through interaction and depends on social recognition and validation (Collins & Evans,

2007; Eyal, 2013). This perspective focuses on how expertise is socially constructed and maintained through ongoing negotiation rather than existing solely as individual capability. Although this approach may not address all aspects of expertise possession, it offers valuable analytical tools for examining expertise performance and assessment in digital environments.

While cognitive perspectives highlight the internal structures that enable expert performance, social constructionist approaches help understand how expertise functions when moved into communicative contexts; particularly digital environments where traditional validation mechanisms transform. For examining expertise in social media contexts specifically, where communication and recognition processes are central to how authority operates, social constructionist perspectives offer relevant analytical tools.

Applying Multiple Perspectives to Digital Expertise

The separation between these perspectives does not need to be resolved through selecting one approach exclusively. These perspectives treat expertise as objectively measurable capability versus expertise as socially constructed status. Rather than defining expertise narrowly, this dissertation treats these as complementary analytical lenses that become more or less relevant depending on the specific research questions and contexts being investigated.

For the purposes of this dissertation, which examines how expertise is communicated and perceived in digital spaces, social constructionist and signaling perspectives are the most relevant. These approaches are suited to digital environments for three reasons: First, they address how expertise recognition operates when traditional institutional verification is less visible or absent. Second, they provide lenses for analyzing how platform-specific features shape the communication and reception of expertise signals. Third, they offer analytical tools for understanding how digital audiences evaluate expertise claims when direct verification of

expertise possession is difficult or impossible. Together, these perspectives help explain how expertise is communicated and validated in environments where traditional recognition mechanisms transform and platform-specific practices shape which expertise signals gain visibility and acceptance.

This analytical approach acknowledges the reality of specialized capability that often underlies expertise in practice. The physicians examined in this research possess medical knowledge that exists independently of social media recognition. Among mental health content creators, levels of expertise possession vary considerably. Meanwhile, AI systems fundamentally lack expertise possession as defined in cognitive terms. However, when investigating how expertise functions specifically in digital environments, the communicative and social dimensions become relevant analytical concerns, allowing examination of how expertise signals operate across these varied contexts.

Social Construction of Expertise

Collins and Evans' (2007) influential work "Rethinking Expertise" argues that expertise is not simply possessed but performed and validated through social processes. Their framework distinguishes several interconnected forms of expertise that emerge through different types of social engagement. Contributory expertise represents the ability to perform expert tasks within a domain, while interactional expertise encompasses the ability to communicate meaningfully about expert knowledge even without full practical mastery.

The distinction between contributory and interactional expertise emerges as a critical lens when considering digital environments. For instance, physicians on Twitter/X demonstrate contributory expertise through their clinical practice while simultaneously developing interactional expertise in communicating medical knowledge to diverse audiences. Mental health

influencers on TikTok must navigate between clinical expertise and the ability to translate technical concepts into engaging content, while AI systems present an entirely novel case—generating content that mimics aspects of interactional expertise through pattern recognition, while lacking the deeper understanding and lived experience that traditionally characterizes expertise.

This social validation of expertise occurs through interactions between expert communities, institutions, and audiences. Eyal (2013) demonstrates how expertise involves the deployment of various forms of capital that interweave to create and maintain expert status. Drawing on Bourdieu's (1986) framework, these include cultural capital (specialized knowledge and skills), social capital (professional networks and relationships), and symbolic capital (prestige and recognition). Professional communities serve as crucial sites where expert status is negotiated and validated through ongoing social processes. For instance, medical expertise has traditionally been validated through a combination of formal credentials, professional networks, and institutional recognition.

These social validation processes are not separate from the cognitive capabilities and performance skills that characterize expertise at an individual level (Ericsson & Smith, 1991). Rather, professional communities develop methods for recognizing and validating possessed expertise; from peer review processes that assess domain-specific knowledge structures to professional observations that evaluate technical competence. These established validation mechanisms, which bridge individual capability and social recognition, provide the foundation for understanding how expertise recognition transforms when moved into digital spaces. In these spaces, both the demonstration and validation of expertise must take new forms.

The manifestation of expertise in digital spaces presents interesting theoretical considerations. While professionals may possess demonstrable capabilities and measurable outcomes in their fields, the translation of these capabilities to digital platforms requires specific social processes and validation mechanisms. These capabilities include a surgeon's technical precision or a researcher's methodological rigor. When examining how expertise functions on social media platforms, Collins and Evans' (2007) framework helps us understand how expert status is constructed and maintained through platform-specific interactions and engagement. This perspective is useful for analyzing how traditional professional expertise is communicated and validated when moved into digital environments where conventional validation mechanisms are transformed or disrupted.

Signaling Theory in Digital Expertise Communication

The relationship between demonstrable capabilities and social recognition points to a critical question: how are expert capabilities effectively communicated and validated, particularly in digital environments? Signaling theory (Donath, 2007) provides a framework for understanding this process, distinguishing between assessment signals which directly demonstrate expertise through performance or capability, and conventional signals which rely on socially agreed-upon markers of status. In traditional professional contexts, assessment signals might include a surgeon's successful operations or a researcher's peer-reviewed publications, while conventional signals include credentials, titles, or institutional affiliations. This distinction can be illustrated through a simple example: wearing gym attire is a conventional signal of fitness that anyone can adopt, while demonstrating the ability to lift heavy weights is an assessment signal that directly proves physical capability.

The reliability and cost of different expertise signals plays a role in their effectiveness. Assessment signals are typically more reliable because they are costly or difficult to fake; what Zahavi (1975) terms "honest signals" in evolutionary biology. For instance, demonstrating competent medical knowledge through detailed case discussions requires actual expertise and cannot be easily mimicked. Conventional signals, while potentially easier to fabricate, gain reliability through institutional verification and professional gatekeeping. Medical licenses, board certifications, and institutional affiliations serve as conventional signals backed by established systems of verification.

The interaction between conventional and assessment signals aligns closely with how expertise is socially constructed and validated. Just as professional communities develop methods for recognizing legitimate expertise, they also establish which signals carry meaning and authority. Digital platforms have disrupted these established signaling systems, fundamentally transforming how expert status is constructed and maintained.

Digital Contexts and Expertise Performance

This transformation of expertise in digital environments extends beyond mere translation of traditional signals. Digital platforms create new conditions for expertise performance and validation through their specific features and affordances. Platform features shape not just how expertise can be performed, but introduce novel forms of validation that emerge through platform-specific practices and metrics. These changes affect how expertise is recognized and maintained across different online contexts.

Platform Affordances and Expertise Communication

Digital platforms shape how expertise is communicated through their specific technological features and socially emergent practices. These platform affordances create distinct conditions

for expertise performance and validation. Platform affordances are conceptualized as the relational structures between an actor and their technological environment that enable or constrain possible actions (Evans et al., 2017). Unlike physical environments where expertise signals might include embodied performances, institutional settings, or material artifacts, digital platforms offer different possibilities for action that transform how expertise can be demonstrated and recognized.

Bucher and Helmond (2018) distinguish between high-level and low-level affordances, where high-level affordances emerge from combinations of technical features, while low-level affordances refer to specific technical capabilities. They emphasize that affordances are not simply properties of platforms but emerge through ongoing interactions between technical features and user practices. This perspective helps explain how platform architectures both constrain and enable different forms of expertise communication. For instance, Twitter/X's character limits represent a low-level affordance that constrains how complex professional knowledge can be conveyed (Bucher & Helmond, 2018), while its asynchronous public discourse represents a higher-level affordance that enables new forms of peer engagement and validation (Murthy, 2013).

Building on this relational understanding of affordances, Nagy and Neff (2015) introduce the concept of "imagined affordances" to highlight how both users' perceptions and designers' intentions shape how platform features function in practice. This perspective is relevant for understanding how expertise signals emerge through interaction between platform capabilities and social practices. As Davis and Chouinard (2016) argue, affordances should be understood as relational and contextual rather than fixed properties of technologies. For expertise

communication, this means platform affordances both enable and constrain different forms of authority performance depending on the specific context, domain, and user expectations.

Treem and Leonardi (2012) identify four key affordances of social media that influence expertise communication: visibility, persistence, editability, and association. Visibility affordances determine which expertise signals can be observed by others, transforming how professional accomplishments are displayed online (Ellison & Vitak, 2015). Persistence affordances shape how expertise claims can be documented and later verified (Bregman & Haythornthwaite, 2003). These affordances determine how communications remain accessible over time. Editability allows for more strategic presentation of expertise signals through the crafting of content (Hogan, 2010). Finally, association affordances influence how professionals connect their identity to institutions, credentials, or other expertise markers (Ellison et al., 2014).

Platform affordances vary across digital environments, creating different conditions for expertise communication. Twitter/X's public, text-based environment privileges concise articulation and rapid engagement (Marwick & boyd, 2010), while TikTok's short-form video format emphasizes visual presentation and algorithmic distribution (Abidin & Kaye, 2021). These platform-specific features don't just constrain expertise signals; they create affordances that enable new possibilities for expertise performance that may not exist in traditional professional contexts. Understanding these affordances provides insight into how traditional signals of authority adapt to different digital environments.

Context Collapse and Audience Management

Digital platforms introduce what Marwick and boyd (2011) term "context collapse," which refers to the flattening of multiple audiences into a single homogenous group. In traditional professional settings, experts often communicate differently with peers, students, clients, or the

general public, adjusting their language, technical detail, and authority signals for each audience. Online, these contextual boundaries frequently blur, requiring strategies for communicating expertise to heterogeneous audiences simultaneously.

This context collapse creates challenges for expertise communication. Davis and Jurgenson (2014) distinguish between "context collisions" (unintentional audience merging) and "context collusions" (deliberate breaking of context boundaries), both of which influence how expertise is performed online. Medical professionals on Twitter/X, for instance, must navigate context collisions between professional peers, patients, and the general public (Chretien & Kind, 2013), often relying on selective self-presentation strategies to manage these diverse audience segments within a collapsed context (Vitak, 2012).

The management of collapsed contexts has been examined across various professional domains. In academic settings, scholars must balance professional credibility with public accessibility in their online communications (Marwick & boyd, 2010; Veletsianos, 2016). Medical professionals develop strategies for maintaining both clinical authority and patient-centered communication on social media (Ventola, 2014; Grajales et al., 2014). Mental health practitioners navigate tensions between clinical expertise and approachable self-presentation in public-facing content, particularly on visual platforms like Instagram where mental health communication often occurs through aesthetic and memetic practices rather than traditional clinical approaches (McCosker & Gerrard, 2021).

These context management strategies involve what Hogan (2010) describes as "lowest common denominator" communication, which involves crafting content acceptable to all potential audiences, or what Tufekci (2008) identifies as the use of platform features to create context-appropriate content. Litt (2012) further demonstrates that professionals often construct

"imagined audiences" to guide these strategies, attempting to anticipate and address multiple, sometimes conflicting, audience segments through calibrated content. These strategies are relevant for understanding how experts navigate the challenge of communicating specialized knowledge across audience segments with varying levels of domain expertise.

Platform-specific affordances influence how context collapse manifests and how it can be managed. Treem and Leonardi (2012) examine how affordances for audience segmentation allow for more targeted expertise communication, while van Dijck (2013) highlights how platform governance models shape which forms of expertise performance are privileged. Understanding these platform-specific dynamics is relevant for analyzing how experts navigate audience heterogeneity while maintaining professional credibility.

Context collapse creates both constraints and opportunities for expertise communication. While it complicates the targeted signaling of professional authority, it can also enable new forms of public expertise performance that reach beyond traditional institutional boundaries (Baym & boyd, 2012). This tension between professional standards and platform expectations shapes how expertise signals transform when moved into digital spaces.

Expertise Verification Challenges in Digital Spaces

While the perspectives discussed above provide analytical tools for examining expertise in digital spaces, it warrants acknowledging the challenges that digital platforms present for expertise verification. Research has shown that the ability to display expertise signals doesn't necessarily correspond to actual capability (Collins & Evans, 2002; Turner, 2001). This challenge becomes relevant in digital environments where traditional verification mechanisms are often absent or transformed.

The relationship between platform architectures and expertise communication requires a distinction to be made between technical features and their social affordances. As Evans et al. (2017) explain, affordances are not just technical capabilities but "possibilities for action that emerge from the relationship between an actor and their environment." This sociotechnical perspective helps explain why identical expertise signals may function differently across platforms with distinct user cultures and algorithmic systems (Bucher & Helmond, 2018; Nagy & Neff, 2015). For instance, credentials displayed on LinkedIn operate within different verification expectations than similar credentials on Twitter/X or TikTok.

The translation of traditional professional markers to digital spaces can create opportunities for what Turner (2001) describes as deployment of expert authority, where conventional signals like credentials may appear regardless of underlying expertise possession. As Shapin (1995) identified, this presents a big challenge in expertise verification: maintaining systems of trust when traditional markers of authority become easier to simulate. This dynamic is present across various platform contexts, from Twitter/X's verification systems to TikTok's creator credibility features.

Professional communities develop new methods for distinguishing between authentic expertise signals and performances that leverage platform mechanics, a process that Gieryn (1999) describes as "boundary work"; the ongoing effort to distinguish legitimate from illegitimate knowledge claims. Timmermans and Epstein (2010) note that this boundary work becomes challenging when traditional institutional verification systems don't cleanly translate to digital spaces, requiring new forms of what they term "credibility labor."

These verification challenges vary across platforms due to their sociotechnical configurations. As Gillespie (2010) discusses, platforms are not neutral intermediaries but rather

active mediators that shape what forms of expertise gain visibility through their algorithms, features, and governance structures. On Twitter/X, for example, professional networks and peer engagement often serve as informal validation systems (Marwick & boyd, 2010), while platforms like TikTok may emphasize demonstrated capability through educational content, creating what Burgess and Green (2018) term "platform vernaculars" for expertise communication.

Analyzing these platform-specific dynamics reveals some of the ways that traditional expertise validation mechanisms, such as peer recognition and credential verification, are reconfigured across different digital context. Each digital environment creates its own ecosystem of signals and verification mechanisms (Latour & Woolgar, 1979), influencing both how expertise is presented and how it is assessed. Rather than assuming intentionality in how expertise signals appear online, this approach examines how platform structures themselves shape what forms of expertise communication become visible, valued, and validated.

Application to Research Studies

The theoretical perspectives discussed in this chapter provide analytical lenses for examining expertise across different digital contexts studied in this dissertation. These perspectives include social construction and signaling theory. Each study benefits from these perspectives in different ways, highlighting how expertise is communicated, perceived, and validated online.

Medical Professionals on Twitter/X

The study of physicians on Twitter/X draws on both social constructionist perspectives and signaling theory to examine how established experts adapt traditional signals of authority to digital constraints. Collins and Evans' (2007) distinction between contributory and interactional expertise helps analyze how physicians navigate between their clinical practice and public

communication. Many physicians on Twitter/X demonstrate contributory expertise through their professional roles while simultaneously developing interactional expertise in communicating medical knowledge to diverse audiences.

Signaling theory (Donath, 2007) offers analytical tools for identifying the various ways medical professionals communicate expertise on Twitter/X. The study identifies both assessment signals (demonstrations of medical knowledge) and conventional signals (credentials, affiliations) that appear in physicians' digital communications. What emerges from this analysis is not necessarily evidence of intentional strategies, but rather patterns in how medical expertise is presented within Twitter/X's specific technical and social environment. As Chretien and Kind (2013) note, physicians' social media activity reflects the relationship between professional norms, platform affordances, and audience expectations.

This perspective avoids assumptions about deliberate expertise strategies, focusing instead on how observable patterns might be shaped by both professional conventions and platform structures. The analysis examines how Twitter/X's features, such as character limits and public accessibility, could influence the forms that medical expertise communication takes in this environment.

Mental Health Content on TikTok

The study on mental health content on TikTok similarly draws on these theoretical perspectives while acknowledging this platform's unique dynamics. Social constructionist approaches help to show how TikTok creates different conditions for expertise validation through its combination of algorithmic distribution, visual communication, and community engagement features. This platform context allows for examination of how mental health expertise is communicated by creators with varying levels of expertise possession, from clinically trained professionals to those

drawing primarily on lived experience. As McCosker and Gerrard (2021) demonstrate in their analysis of mental health communication on Instagram, visual social media platforms generate different vernaculars for expressing and validating expertise.

Signaling theory offers analytical tools for investigating how different types of content creators might utilize TikTok's affordances in their communications about mental health. This perspective allows for consideration of both conventional markers (like credentials or professional settings) and assessment signals (such as demonstrated knowledge) that could appear in short-form video content. The study considers how TikTok's format might privilege certain types of expertise communication while constraining others, drawing on Abidin and Kaye's (2021) concept of platform-specific "visibility labours" as a lens for analysis.

This theoretical approach helps frame questions about why certain forms of mental health content might gain visibility on TikTok without requiring normative judgments about their validity. The study focuses on the potential relationships between platform affordances and expertise communication rather than evaluating the legitimacy of different expertise claims.

Student Interpretations of AI-Generated Content

These theoretical perspectives inform specific methodological choices across the three studies. For the Twitter/X study, I developed content analysis methods to identify patterns in how physician expertise appears in this environment, examining both textual communication and platform-specific practices. In the TikTok study, I examined how expertise is communicated through the platform's combination of visual, audio, and textual elements. For the AI study, I used interview and observation methods to investigate how students evaluate expertise signals in machine-generated content.

These methodological approaches recognize the complex relationships between expertise communication and platform environments. By applying established theoretical perspectives to different digital contexts, this research examines both similarities and distinctive characteristics of expertise communication across the varied digital contexts explored in this dissertation.

Conclusion

This chapter has examined multiple theoretical perspectives on expertise, with focus on how social constructionist approaches and signaling theory help analyze expertise in digital environments. These analytical lenses allow for studying how expertise is communicated, validated, and assessed across different digital contexts without requiring a single comprehensive definition of what expertise "is".

Social constructionist perspectives (Collins & Evans, 2007; Eyal, 2013) help us understand how expert status is negotiated and maintained through community validation, offering insight into how these processes transform when moved to digital platforms. Signaling theory (Donath, 2007; Willer et al., 2009) provides analytical tools for examining the specific mechanisms through which expertise is communicated and recognized, distinguishing between assessment signals that demonstrate capability and conventional signals that rely on socially agreed-upon markers.

These perspectives apply directly to examining expertise in digital spaces, where traditional markers of authority adapt to platform-specific features and affordances. Digital platforms don't simply host expertise claims, but actively shape how expertise can be communicated, performed, and validated through their technical affordances and social dynamics. As Gillespie (2010) and Bucher and Helmond (2018) demonstrate, platforms influence what forms of communication gain visibility and how they are received by audiences.

These analytical perspectives guide examination of three studies in this dissertation, each presenting distinct challenges for expertise communication and validation. The three studies focus on medical professionals on Twitter/X, mental health content on TikTok, and student assessment of AI-generated responses. While these contexts vary in terms of expertise possession (with physicians possessing medical expertise, mental health creators having varying levels of formal expertise, and AI systems lacking expertise possession), all three provide insights into how expertise signals function in contemporary digital spaces. This approach allows examination of expertise dynamics without requiring normative judgments about which forms of expertise are "real" or "valid".

This chapter establishes the theoretical foundation for examining expertise across digital environments, positioning this research within broader scholarly discourse on professional communication in online spaces. Through analyzing expertise through its possession, performance, and assessment aspects, this dissertation addresses questions about how authority transforms as it moves online. The theoretical perspectives discussed here provide analytical tools that highlight the challenges presented by Twitter/X's text-based environment, TikTok's visual platform, and AI systems' novel positioning. These perspectives include social constructionist approaches and signaling theory. This approach acknowledges the transformative impact of digital technologies on expertise dynamics while remaining grounded in established theoretical traditions. As professional discourse increasingly occurs in mediated environments, understanding these transformations remains of interest for both communication research and professional practice across various domains.

Chapter 3: Physicians and Professional Authority on Twitter/X

Introduction

As established in Chapter 2, expertise in digital environments presents unique challenges for both communication and validation. This chapter examines how physicians, professionals with established expertise possession in the medical domain, adapt conventional authority signals and develop new strategies for expertise performance and assessment on Twitter/X. Through analyzing how physicians navigate Twitter/X's affordances, their adaptations reveal transformations in how expertise signals operate in digital spaces.

Social media has transformed the way professional expertise functions in digital environments. Traditional signals of authority and credibility are being translated and reinterpreted through platform-specific practices and affordances. These signals were once firmly grounded in institutional affiliations, formal credentials, and professional networks. This transformation reflects the distinction between expertise possession and expertise performance outlined in Chapter 2. While credentials and institutional affiliations function primarily as conventional signals (socially recognized markers of status), their reliability online depends on verification systems. Similarly, demonstrations of medical knowledge through content provide assessment signals, though these too are mediated by platform constraints rather than direct observation of capability.

Twitter/X presents a rich context for examining online expertise transformation. The platform's specific technical features, such as character limits, create affordances that both constrain and enable different forms of expertise performance. As defined in Chapter 2, these affordances represent the relational possibilities for action that emerge between users and technical features (Evans et al., 2017). Physicians must navigate these platform-specific

conditions while maintaining their professional credibility, developing strategies for demonstrating their expertise through both conventional signals (such as displayed credentials) and assessment signals (such as sharing medical knowledge) as described in signaling theory (Donath, 2007).

Through qualitative content analysis of physician posting behaviors and engagement patterns, this study reveals patterns in how medical professionals combine traditional markers of authority with platform-specific practices. The findings demonstrate that effective expertise performance requires the navigation of platform affordances, management of context collapse (Marwick & boyd, 2011), and consistent engagement practices. The emergence of what I term "layered accessibility" exemplifies how expertise signals evolve to address the challenges of digital environments while maintaining professional legitimacy. This refers to content that appears universally accessible while containing deeper meaning for professional audiences.

Platform Dynamics and Professional Authority

Social media platforms alter how professional authority is signaled and validated. On Twitter/X, specific technical features (like character limits) create affordances that enable and constrain different possibilities for expertise performance. These affordances represent the relational possibilities for action that emerge between users and technical features (Evans et al., 2017), creating conditions for how expertise is communicated. These sociotechnical relationships shape not just how information can be shared, but how professional identity itself must be constructed and maintained. As established in Chapter 2, the context collapse inherent to social media platforms creates additional challenges for medical professionals who must navigate multiple audiences simultaneously while maintaining professional credibility.

Digital Professional Identity

Recent studies have highlighted how professionals navigate the challenges of identity construction while balancing accessibility and professional standards online. Maggio et al. (2024) and Pronk et al. (2021) found that doctors engage in complicated negotiations when crafting their online personas, developing both assessment and conventional signals to establish credibility with diverse audiences. Marshal et al. (2021) suggests that current policies encouraging strict self-censorship among medical professionals may be overly restrictive, failing to account for how expertise signals must evolve in digital spaces.

The translation of medical expertise to social media platforms has revealed new patterns in professional communication. Nakagawa et al. (2022) tracked US physician activity on Twitter/X over five years, documenting the first reliable and repeatable methodology for identifying physicians on Twitter/X. Atef et al. (2023) examined how health professionals combine different types of expertise signals to appeal to both specialized and general audiences through YouTube and Facebook videos. These signals range from traditional credentials to platform-specific markers of authority.

Platform-Specific Expertise Practices

The unique affordances that emerge from Twitter/X's technical features shape how expertise signals are deployed and received on the platform. Meng et al. (2019) found that a message's emotional impact and the density of the user's network influence information spread more than traditional markers of expertise; demonstrating how platform-specific affordances can transform the way expertise signals function in digital spaces. This transformation reflects some of the challenges of expertise assessment, where audiences must develop new heuristics for evaluating expertise claims in environments where traditional verification mechanisms are often absent or

transformed. Mishori et al. (2014) emphasized the importance of network structure in amplifying expertise signals, suggesting that conventional signals (like credentials) interact with platform-specific metrics (like follower counts) to establish authority.

Research on health communication in digital spaces has revealed how platform features influence expertise signaling strategies. During critical events like the COVID-19 pandemic, Hsia and Kong (2022) found that highly followed accounts had disproportionate influence on information spread, regardless of traditional expertise signals. This demonstrates how platform dynamics can sometimes override conventional signals of authority, requiring professionals to develop new strategies for establishing credibility.

Professional Networks in Digital Spaces

Surveys of medical professionals reveal ongoing challenges in translating traditional expertise signals to digital environments. Studies show medical students and faculty struggle to reconcile traditional professional authority with the demands of platform-specific engagement (Campbell et al., 2016; Kedrowicz et al., 2016). The tension between traditional expertise signals and social media conventions creates identity management challenges and emphasizes the need for new frameworks to guide professional social media engagement.

Many physicians actively use Twitter/X's affordances to develop new forms of expertise signaling. Cahill and Carlson (2023) found that emergency physicians leverage the platform to engage in various forms of public engagement. However, Muecke et al. (2023) caution that platform constraints can lead to oversimplification, and point to a tension between maintaining credibility and adapting to digital communication norms.

These studies collectively demonstrate how social media platforms transform both conventional and assessment signals of expertise. While traditional markers of professional

authority remain relevant, they must be adapted to function effectively within platform features and affordances.

The Present Study

This study builds upon lenses from social constructionist perspectives and signaling theory to investigate how physicians translate traditional authority signals into platform-appropriate forms on social media. Drawing on Collins and Evans' (2007) distinction between contributory and interactional expertise, this research examines how physicians navigate between their clinical practice and public communication on Twitter/X. Social media platforms create unique challenges for expertise performance and assessment, requiring professionals to develop new strategies for establishing and maintaining credibility while working within platform-specific affordances.

Through analysis of physician posting behaviors and engagement patterns, I investigate how medical professionals construct and signal expertise through content that must function within Twitter/X's specific features and affordances. This approach reveals not just what expertise signals are deployed, but how they are adapted to function effectively in digital environments.

Methods

Data Collection and Sampling

My sampling strategy employed a systematic approach to identify physicians actively engaged in public discourse on Twitter/X. I first generated samples of 50 Twitter accounts at a time that included "MD" in either the handle or display name using Twitter/X’s search function. From these samples, I applied inclusion criteria to identify accounts that: (1) had verified medical credentials through institutional affiliations or reliable secondary sources, (2) maintained an

active posting history (defined as having at least one tweet per week during the sampling period of early 2024), and (3) had achieved a minimum threshold of 10,000 followers; a benchmark drawn from previous research indicating sustained engagement in public medical discourse (Sinnenberg et al., 2017). This process continued until I identified 30 accounts meeting all criteria, requiring review of approximately 150 accounts to yield the set of qualifying accounts.

The 10,000 follower threshold served to focus my analysis on physicians who had established themselves as consistent contributors to public discourse rather than those using Twitter/X primarily for personal connections. This sampling approach aligns with my theoretical focus on how established experts navigate expertise performance in digital spaces. By selecting physicians with verified medical credentials, I ensured participants possessed expertise in the medical domain, allowing me to examine how this expertise is translated into platform-specific signals. Each selected account required external verification of medical credentials through at least one of the following: direct organizational links in their Twitter/X biography, institutional affiliations, or verifiable public work such as academic publications or media appearances.

From these 30 accounts, I collected the 20 most recent original tweets from each physician as of February 1, 2024, yielding a corpus of 600 tweets. This sample size aligns with previous research on social media content analysis (Damiano & Catellier, 2020) while providing sufficient data to identify patterns in expertise signaling strategies. I excluded retweets unless they contained original commentary from the physician, and when a tweet contained no analyzable content (e.g., incomplete or context-free posts), I replaced it by moving subsequent tweets up in the sequence and adding the next available tweet from that account to maintain my sample of 20 tweets per user.

Content Analysis

To analyze how physicians perform expertise through their tweets, I developed a coding scheme through iterative review of the data. The coding framework captured both conventional signals of medical expertise (such as credentials and institutional affiliations) and assessment signals (such as medical knowledge demonstration). Peer engagement was analyzed as a potential hybrid signal that could function as either conventional (through association with recognized experts) or assessment (through substantive expert contributions to discussions), depending on the specific content of the interaction. Tweets could receive multiple codes, reflecting the layered nature of expertise signaling in digital spaces.

The tweets were analyzed using a conventional qualitative coding process for exploratory research, employing an open-ended, inductive approach that aligns with the principles of content analysis (Hsieh & Shannon, 2005). During the initial data familiarization phase, I identified prevalent tweet codes through open coding, which involved jotting down notes and impressions while reading through the tweets (Braun & Clarke, 2012). The initial set of codes was then refined and consolidated into eight main categories: "Sharing News/Articles", "Commentary on Current Events", "Advocacy", "Professional Topics", "Patient Care/Medical Advice", "Personal Updates", "Networking", and "Achievements". All tweets could receive more than one code, and the average number of codes reflected in each tweet was one to two. Our complete codebook, which provides detailed coding criteria and examples, appears in Appendix A.

For reliability testing, Dr. Jennifer Golbeck served as a second coder, independently analyzing a random subset of 90 tweets (15% of the dataset). The overall Cohen's kappa (Cohen, 1960) was 0.6350, indicating substantial agreement (Landis & Koch, 1977). This value aligns with expectations for a multi-code approach, where tweets often span several thematic

categories. When examining agreement on the primary theme of each tweet, the Cohen's kappa increased to 0.7120, demonstrating particularly strong agreement on the dominant category. Most coding discrepancies occurred not in identifying the main theme, but in decisions about additional applicable codes. This is a common challenge when analyzing content that can reflect multiple categories simultaneously. Dr. Golbeck's contribution was limited to reliability testing and refinement of the coding scheme; I conducted all data collection, analysis, and interpretation for this study. After establishing inter-rater reliability, I coded the full corpus of 600 tweets using the finalized codebook.

Additional Analyses

My analysis examined both the content of physicians' tweets and how they utilized Twitter/X's affordances to signal expertise. I first conducted a qualitative content analysis of tweet content, followed by two complementary analyses: an examination of co-occurring expertise signals and an analysis of how platform-specific affordances were leveraged for professional identity construction.

To understand patterns in expertise signaling, I used phi correlation coefficients to analyze how different signals appeared together in tweets. This co-occurrence analysis reveals how physicians combine conventional signals (such as professional credentials) with assessment signals (such as demonstrated medical knowledge) within Twitter/X's technical constraints. These patterns highlight specific approaches physicians use to maintain professional authority while engaging with diverse audiences.

I also analyzed how physicians leveraged Twitter/X's platform features to construct their professional identity. This included examination of profile pictures for visual signals of medical expertise, quantification of platform feature use (mentions, hashtags, and links), and analysis of

how these features supported expertise signaling. This approach reveals how traditional markers of medical authority, like white coats and formal attire, are translated into digital signals, and how platform features are used to extend professional reach and credibility.

Results

Patterns in Digital Expertise Signaling

The qualitative content analysis revealed eight distinct but overlapping approaches to expertise signaling: networking (36.1%, n = 217), sharing news/articles (35.8%, n = 215), professional topics (33.6%, n = 202), personal updates (25.0%, n = 150), commentary on current events (16.3%, n = 98), job/academic achievements (13.3%, n = 80), advocacy (11.2%, n = 67), and patient care/medical advice (5.0%, n = 30). These categories reflect different combinations of conventional and assessment signals that professionals employ when constructing authority in digital spaces.

The most prevalent approach, "Networking," demonstrated how professionals use Twitter/X's affordances to build and validate expertise through peer interaction. These tweets often combined conventional signals of professional status with active engagement in medical discussions. For example, one physician tweeted: "Hey @Physician1 how do we get you to come talk about the craziness/amazingness of four years ago to the [medical organization] audience? Would love to have you on!" Such interactions simultaneously signal professional connections while establishing the author's position within expert networks.

"Sharing News/Articles" and "Professional Topics" represented key strategies for deploying assessment signals through demonstrated knowledge. Physicians frequently shared research findings or clinical insights while adding their own analysis, translating traditional demonstrations of medical expertise into platform-appropriate formats. An illustrative tweet in

this category noted: "AI can speed up drug discovery but don't expect it to cure cancer yet [link to STAT News article] via @statnews"

Personal Updates' served a distinct role in expertise construction, allowing physicians to humanize their online presence while maintaining professional authority. These tweets often balanced cultural references with subtle reminders of medical practice. For instance: “Taylor Swift announced a new album last night as she won a Grammy for her 4th top album. And I can barely get through my Epic notes & inbox” demonstrates how professionals weave together popular culture and clinical work, maintaining credibility while creating relatable content. This interplay between personal and professional elements helps physicians construct approachable yet authoritative digital identities.

Platform Features and Signal Co-occurrence

The analysis of platform features revealed how physicians translate traditional markers of medical authority into digital signals. Profile pictures served as a key site for visual expertise signals, with 26 out of 30 physicians choosing to display professional markers: 17 wore formal business attire while 9 appeared in scrubs or lab coats. This use of professional visual cues demonstrates how conventional signals of medical authority are adapted for digital presentation.

Platform features were actively leveraged to extend professional reach and authority. Nearly half of all tweets (286/600) included mentions of other users, while a similar number (287/600) employed hashtags, indicating systematic efforts to expand professional networks and join broader medical discussions. The frequent inclusion of links (215/600) further shows how physicians build credibility by connecting their posts to established sources of medical knowledge.

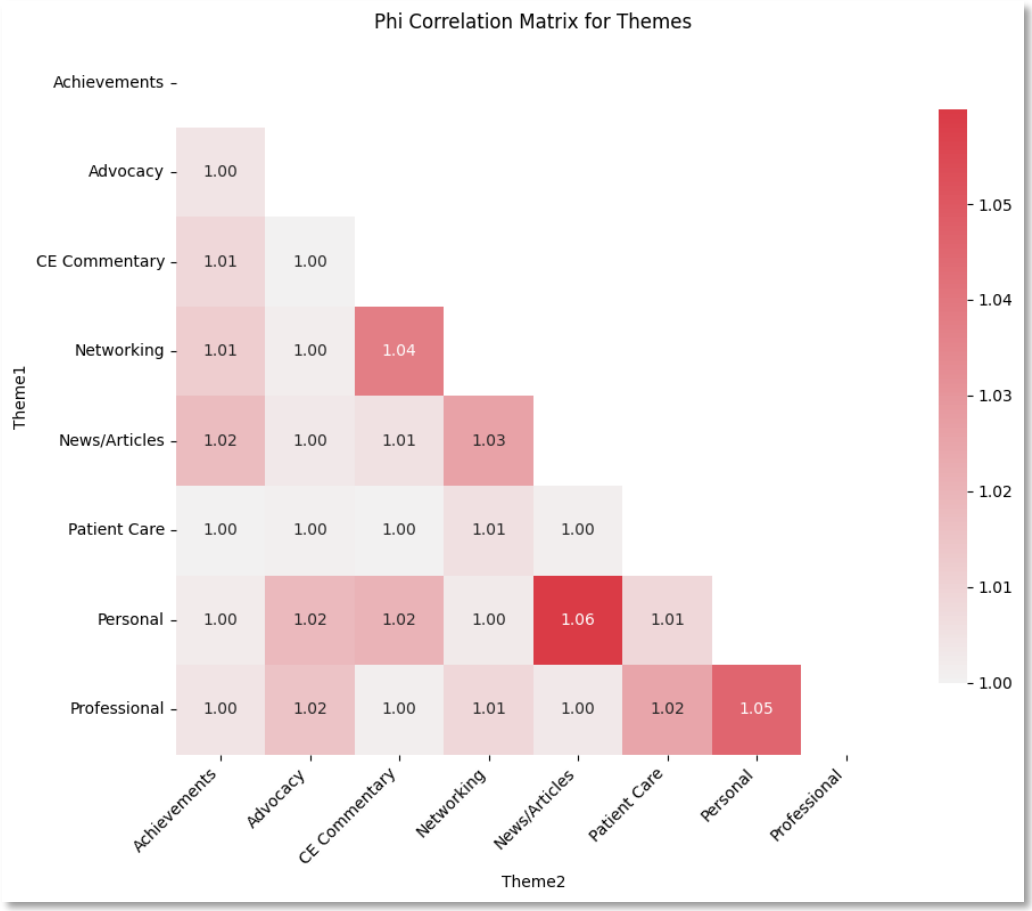


Figure 1. Strength of co-occurrence between the different thematic categories.

Co-occurrence analysis (Figure 1) revealed specific patterns in how different expertise signals were combined. The strongest co-occurrences were found between "Personal" and "News/Articles" (1.060), "Personal" and "Professional" (1.046), and "CE Commentary" and "Networking" (1.037). The "Patient Care" code consistently appeared alongside the "Professional" code, suggesting that patient care discussions were always placed within a professional context. These patterns demonstrate how physicians layer different types of expertise signals, often combining traditional professional markers with platform-specific engagement practices.

These findings collectively demonstrate how physicians adapt and combine different forms of expertise signals within Twitter/X's digital environment. Through use of platform

features, combinations of professional and personal content, and networking practices, physicians construct credible professional identities that function effectively in this social media space. The translation of traditional medical authority signals reveals broader patterns in how expertise is reconstructed on Twitter/X. These signals range from white coats in profile pictures to peer engagement through mentions. These patterns raise questions about how professional authority adapts to and is shaped by social media environments.

Discussion

Through this analysis of physicians on Twitter/X, I demonstrate how social media platforms reshape the way professional expertise is performed and assessed online. The patterns of expertise performance observed in this study reflect the adaptations physicians make when translating their expertise possession into platform-appropriate forms. These patterns demonstrate how physicians navigate between contributory expertise and interactional expertise (Collins & Evans, 2007). Traditional markers of medical authority must be translated into platform-appropriate forms that function within Twitter/X's specific technical features. These markers include white coats, institutional affiliations, and peer recognition. This transformation reveals broader patterns in how professional expertise adapts to digital environments.

Digital Transformation of Expertise Signals

The use of profile pictures offers a clear example of how conventional expertise signals evolve in digital spaces. As described in Chapter 2, conventional signals are socially agreed-upon markers of status that don't directly demonstrate capability (Donath, 2007). While white coats and professional attire have long served as visual markers of medical authority in physical settings, their translation to profile pictures represents a deliberate expertise performance strategy within platform constraints. The predominance of professional attire (26/30 physicians) in these chosen

profile pictures demonstrates how traditional signals of authority are adapted for digital presentation. Yet these visual signals must now compete with and complement other markers of credibility specific to social media, such as follower counts and engagement metrics, creating new conditions for expertise assessment.

Similarly, physicians' deployment of conventional expertise signals through content reveals some of their adaptation strategies. Rather than simply asserting credentials, physicians in this study wove their expertise into platform-native practices; sharing medical knowledge through threaded discussions, translating clinical insights into engaging content, and building authority through consistent peer engagement. This evolution extends beyond mere digital translation of existing practices; it represents the emergence of new forms of expertise signaling specifically adapted to social media environments.

Managing Multiple Audiences

A central finding of this study is the emergence of what I term "layered accessibility," which refers to content that appears universally accessible while containing deeper meaning for professional audiences. This strategy directly addresses the challenge of context collapse, where professionals must communicate simultaneously with multiple audience segments (Marwick & boyd, 2011). Like classical shibboleths, these linguistic choices serve both inclusive and exclusive functions: they validate insider status for those who understand the terminology while naturally filtering audience engagement based on professional knowledge.

Three examples from the data illustrate this phenomenon. One physician tweeted: 'Doing #ABIM #MOC oncology questions b/c that's how we spend Christmas week and I JUST MISSED A BREAST CANCER QUESTION and I feel strongly most breast experts in the country would vote w/me (because in fact they have) and now I'm rage tweeting.' While the

general frustration is accessible to any audience, the references to '#ABIM' (American Board of Internal Medicine) and '#MOC' (Maintenance of Certification) immediately signal to medical professionals a shared experience of required recertification testing. This experience is unfamiliar to non-physicians but instantly recognizable to medical colleagues.

In another example, a physician tweeted: 'Waited 30 mins today to get a hold of [hospital abbreviation] #cath imaging. If only all the #digitalhealth investors could invest in better EMR / imaging compatibility (and not the latest shiny penny).' Here, the medical abbreviations of the hospital name and 'EMR' (electronic medical record) alongside the technical reference to '#cath imaging' create deeper meaning for professional audiences, while the frustration with systems and waiting time remains accessible to general audiences.

A third example shows how physicians embed clinical terminology in personal narratives: 'Started my National #WearRedDay off right with some planks & thanks. Grateful for: □Access to health care □ A recent negative workup after some atypical chest pain...' The terms 'negative workup' and 'atypical chest pain' carry precise clinical meaning to medical professionals, who would recognize these as referring to specific diagnostic protocols and differential diagnoses, while general audiences can simply understand the gratitude after a medical scare.

This layered approach to content creation allows physicians to simultaneously maintain professional credibility with peers while creating content that remains accessible to non-medical audiences. By embedding professional terminology, references to healthcare systems, and specialized knowledge within accessible narratives, physicians navigate Twitter/X's context collapse, creating messages that effectively serve multiple audience segments simultaneously.

Platform Evolution and Research Implications

While this study examines physician practices on Twitter/X specifically, the findings have broader implications that extend beyond any single platform. The core patterns identified, from layered accessibility to audience management, reflect aspects of how professional expertise adapts to text-based digital environments. These insights might remain relevant across emerging platforms like Bluesky and established professional networks like LinkedIn, where similar features can shape how expertise is communicated and validated.

The patterns of expertise signaling revealed in this study demonstrate the relationship between expertise possession, expertise performance, and expertise assessment in physicians on Twitter/X. Physicians possess specialized medical knowledge (expertise possession) that must be translated into platform-appropriate forms of presentation (expertise performance), which are then evaluated by different audience segments through varying assessment criteria (expertise assessment). This translation process is not just technical but inherently social, supporting the social constructionist perspective outlined in Chapter 2 that expert status emerges through ongoing interaction and depends on social recognition within specific communities (Collins & Evans, 2007; Eyal, 2013). The strategies physicians develop represent adaptations to the transformed conditions for expertise communication in digital spaces. These strategies range from layered accessibility to visual presentation.

The features that enable these expertise signaling practices appear consistently across text-based social platforms. These features include character limits, threading capabilities, profile customization, and networked interaction. For instance, Bluesky replicates many of Twitter/X's core features while adding new tools for content moderation and audience management. LinkedIn, while more professionally focused, presents similar challenges in balancing credibility

with engagement. This consistency in basic platform architecture suggests that the strategies physicians develop for managing professional authority in digital spaces might remain applicable even as specific platforms rise or decline.

Additionally, understanding how professionals adapt to these common platform constraints provides insight into expertise performance across digital environments more broadly. Whether on Twitter/X, Bluesky, LinkedIn, or future platforms, professionals will have to navigate similar challenges in translating traditional authority signals into digital forms while maintaining credibility with diverse audiences. The patterns revealed in this study thus offer a framework for understanding expertise adaptation that extends beyond any particular platform's lifecycle.

Future Directions

This study raises questions about how different forms of expertise adapt to various digital environments. Future research could examine how these patterns manifest across other professional groups and platforms. Comparative studies could investigate how expertise signals differ between text-based and video-based social media environments, potentially revealing how modal affordances shape expertise performance strategies.

The concept of layered accessibility invites further investigation across different platforms and professional contexts. While this study documents how physicians employ this strategy on Twitter/X, there are still questions about how other professionals might adapt similar approaches under different platform constraints. Research could explore whether layered accessibility manifests differently in video content, or how various expert groups navigate the tension between professional credibility and platform engagement requirements. These questions connect to broader scholarly discussions about expertise performance in digital spaces and could

inform subsequent investigations of how professional communication adapts across emerging platforms.

Conclusion

This study demonstrates how social media transforms traditional signals of professional expertise through platform-specific features and the affordances they create. By examining how physicians adapt conventional authority signals and develop new strategies for expertise performance on Twitter/X, I identify patterns in how professional credibility evolves in this digital space. The emergence of practices like layered accessibility, audience management, and network-based validation indicates shifts in how expertise is communicated and assessed in this contemporary digital environment.

This analysis shows that expertise performance on social media involves more than simple translation of traditional professional markers. Physicians construct their digital presence through use of platform features, navigation of context collapse, and consistent engagement practices. The ways physicians combine conventional signals (credentials, institutional affiliations) with platform-specific practices (hashtag usage, network building) demonstrates how professional authority can be adapted for digital environments. Notably, this study examines how these performance strategies correlate with metrics of audience engagement and follower counts rather than assessing their effectiveness at conveying medical knowledge—an important distinction in scope.

These findings extend beyond medical professionals to contribute to our understanding of how expertise functions in digital professional landscapes. While this study focused on expertise performance in Twitter/X's text-based environment, the patterns identified connects to questions

about how expertise is performed and assessed through other modalities. These patterns include the use of platform features and audience management strategies.

These dynamics remain relevant as social media platforms evolve and fragment. While specific platforms may change, the challenges of translating professional authority to digital spaces persists. The patterns observed in this study contribute to understanding how different forms of expertise adapt to varying digital environments. These patterns include how platform features create affordances that shape expertise signals, how professionals navigate context collapse, and how digital networks facilitate new forms of expertise assessment. By examining how physicians navigate between their clinical practice and their public communication, this study provides empirical evidence of the distinction Collins and Evans (2007) established in their social constructionist approach to expertise.

Chapter 4: Mental Health Expertise Signaling on TikTok

Introduction

The rise of TikTok as a platform for mental health content creation and consumption has created new dynamics in how psychological knowledge is communicated and accessed in digital spaces. Unlike traditional clinical settings or even other social media platforms, TikTok's combination of short-form video, algorithmic content distribution, and emphasis on creative performance shapes both expertise performance and assessment in new ways. This study examines how different types of mental health content creators, ranging from licensed professionals to lived experience advocates, navigate the platform's affordances to establish credibility and connect with audiences seeking psychological insights.

The proliferation of mental health content on TikTok raises questions about how expertise is signaled and evaluated in environments where traditional validation mechanisms may be absent or transformed. While studies have examined mental health communication on social media broadly (Naslund et al., 2020; Robinson et al., 2018), less research has focused specifically on how TikTok's unique features and the affordances they create shape the performance and assessment of mental health expertise. These questions remain relevant as TikTok emerges as a major source of mental health information and support, particularly among younger users (Lau et al., 2025; Turuba et al., 2024).

This study employs a mixed-methods approach combining qualitative content analysis and computational methods to examine how mental health expertise is performed and assessed on TikTok. Through analysis of content creator profiles, video presentations, and audience engagement patterns, it offers insight into how creators signal expertise and how platform-specific affordances influence these signals. The findings contribute to our understanding of how

expertise functions in contemporary social media spaces by examining this specific digital context where traditional expertise markers are transformed.

Background and Context

The Evolution of Mental Health Communication Online

Mental health communication has evolved across different media formats over time, with each new technology reshaping how psychological knowledge is presented and consumed. Early approaches to public mental health education relied primarily on print media, professional lectures, and later radio and television programs that maintained clear boundaries between experts and audiences (Illouz, 2008). The internet initially extended this approach through informational websites and professionally moderated forums, but social media has altered this landscape by enabling peer-to-peer knowledge sharing and blurring distinctions between professional and lay voices (Naslund et al., 2020).

Research on mental health communication online has identified several developments across platforms. Early studies of mental health forums emphasized their role in creating supportive communities where users could share experiences and coping strategies (Eysenbach et al., 2004). Later research on social networking sites highlighted how these platforms facilitated both information sharing and social connection around mental health topics (Moorhead et al., 2013). Studies of visual platforms like Instagram documented the rise of hashtag communities and visual disclosure practices around mental health (McCosker & Gerrard, 2021). Throughout this evolution, each platform's technical and social affordances have shaped patterns of expertise performance and assessment.

Social media platforms have accelerated this evolution, creating new possibilities for how mental health expertise is communicated and validated. Studies have highlighted social media's

potential to reduce stigma, increase access to information, and foster supportive communities around mental health topics (Robinson et al., 2018; Naslund et al., 2020). However, concerns have also been raised about misinformation, oversimplification of complex issues, and the blurring of boundaries between professional and peer support (Naslund et al., 2020; Pretorius et al., 2022). Research has also examined how platform-specific engagement metrics like likes, shares, and comments shape what mental health content gains visibility, potentially privileging entertaining or emotionally resonant content over evidence-based information (Ging & Garvey, 2017). These tensions are relevant on TikTok, where mental health content must compete for attention in an algorithmically-driven environment.

TikTok's Platform Affordances and Mental Health Content

TikTok's distinct affordances shape how mental health information is created and consumed in specific ways. These affordances (Evans et al., 2017) include visibility (what content can be seen and by whom), persistence (how content remains accessible over time), editability (how content can be modified), and association (how users connect with others and content) (Treem & Leonardi, 2012).

On TikTok, visibility affordances are shaped by the algorithmic content distribution system centered on the "For You Page," which creates unique patterns of information exposure based on engagement metrics rather than social connections (Klug et al., 2021; Zulli & Zulli, 2022). The platform's short-form video format necessitates concise, visually engaging presentations of technical topics, constraining how complex mental health information can be communicated. Unlike text-based platforms where expertise can be demonstrated through detailed explanations, TikTok's 15-60 second video format requires creators to distill information into brief, visually compelling segments (Abidin & Kaye, 2021).

Studies examining TikTok's impact on health communication have found that the platform's emphasis on authenticity and personal narrative can facilitate meaningful discussions of health experiences (Basch et al., 2022). However, the pressure to maintain engagement through entertaining content may influence how mental health topics are presented. Milton et al. (2023), through interviews with 16 mental health content creators on TikTok, found that creators perceived a tension between producing engaging content and maintaining clinical accuracy, with some reporting that they felt pressure to simplify complex topics to increase viewership. The platform's predominantly young user base also raises particular considerations about the responsible presentation of mental health information, as adolescents and young adults may be both more vulnerable to misinformation and more likely to seek mental health information online (Pretorius et al., 2022).

Visual Performance of Mental Health Expertise

TikTok's emphasis on visual performance fundamentally shapes how mental health expertise is signaled, requiring creators to compress their knowledge of psychological concepts into brief, visually engaging segments rather than relying on the detailed written explanations possible on text-based platforms. Unlike Twitter/X or traditional blogs where expertise can be demonstrated through extensive written analysis, TikTok requires creators to visually embody and perform their authority through short video segments. This has led to the emergence of distinct presentation strategies, from the use of professional office settings and clinical attire to more intimate "bedroom counselor" aesthetics.

Research on nonverbal communication in healthcare contexts has demonstrated that visual cues influence perceptions of credibility and trust. For instance, studies of physician-patient interactions have shown that nonverbal behaviors such as eye contact, body positioning,

and facial expressions affect patient satisfaction and trust (Roter et al., 2006). On TikTok, these elements are adapted to the constraints of vertical video and brief duration, requiring different approaches to establishing credibility than those documented in traditional clinical settings or longer-form video content.

The platform's emphasis on perceived authenticity creates unique dynamics for mental health professionals. Barta and Andalibi (2021) found through interviews with TikTok users that authenticity on the platform involves both emotional openness and selective self-presentation, noting that "authentic content on TikTok is not necessarily synonymous with unfiltered content, though we find that there is room for both" (p. 13). This dual understanding of authenticity presents mental health professionals with challenges as they navigate how to present their expertise in a platform that values both emotional authenticity and informational credibility.

Mental Health Content Creators and Parasocial Relationships

A growing body of research examines the emergence of mental health influencers as voices in online psychological discourse. Studies have documented various types of mental health content creators, from licensed professionals expanding their practice to individuals sharing lived experiences (Pretorius et al., 2022). These influencers must navigate competing demands between establishing expertise and building audience engagement.

Of particular relevance to TikTok's environment are parasocial relationships - the sense of intimate connection viewers develop with content creators despite limited or no actual interaction (Horton & Wohl, 1956; Bernhold et al., 2020). These relationships function differently in mental health contexts, where traditional clinical practice has emphasized professional boundaries. Research has shown that parasocial relationships can influence how

health information is received and evaluated, with perceived similarity and authenticity sometimes outweighing traditional credentials in audience assessment (Sokolova & Kefi, 2020).

According to recent research, parasocial relationships may have both positive and negative impacts on mental health. On the positive side, they can promote healthy attitudes, reduce stigma around mental health issues, enhance feelings of connection, and facilitate coping (Hoffner & Bond, 2022). However, they can also adversely impact mental health through negative self-comparisons and potentially reinforce unhealthy behaviors (Hoffner & Bond, 2022). These dynamics become relevant when examining mental health content on TikTok, where creators often cultivate intimate connections with viewers.

Theoretical Perspectives

This study draws on theoretical perspectives that help analyze how expertise functions in the context of TikTok's platform environment.

Social construction perspectives on expertise (Collins & Evans, 2007) provide analytical tools for understanding how different forms of mental health authority are negotiated and validated through platform interactions. On TikTok, this social recognition process is shaped by platform-specific metrics like views, likes, and comments, which serve as visible markers of audience validation. Signaling theory (Donath, 2007) helps analyze the specific mechanisms through which creators establish credibility in environments where traditional verification methods may be limited. On TikTok, where direct verification of expertise possession may be difficult, understanding which signals function as reliable indicators of expertise becomes relevant.

The study also considers how platform affordances shape expertise communication. Drawing on Evans et al.'s (2017) conceptualization of affordances as relational possibilities for

action that emerge between users and technological environments, this research examines how TikTok's specific affordances influence the presentation and reception of mental health expertise.

Gaps in Current Research

While research on mental health content on social media is growing, several gaps remain. First, few studies have systematically examined how different types of mental health content creators establish and signal expertise specifically on TikTok. Second, the relationship between platform affordances and expertise performance in mental health communication needs further investigation. Finally, more research is needed on how users evaluate and engage with different forms of mental health expertise in this environment.

This study addresses these gaps through systematic analysis of how mental health expertise is constructed, performed, and received on TikTok. By examining both content creator strategies and platform dynamics, our study contributes to our understanding of how expertise functions in contemporary digital spaces while offering practical insights for mental health communication online.

Methodology

Data Collection

The data collection process for this study was designed to capture how mental health expertise is signaled and performed on TikTok. Following established approaches in social media research (Basch et al., 2022; Jerin et al., 2023), I employed the TikTok Research API to collect videos related to mental health expertise and education. Access to the API was obtained through TikTok's formal research program, enabling comprehensive and ethical data collection within the platform's guidelines.

This study intentionally included content from both credentialed mental health professionals and non-credentialed creators who positioned themselves as educational resources through hashtags like #edutok or #mentalhealtheducation. This approach was designed to capture the full spectrum of how expertise is signaled and received on the platform, allowing for analysis of how various authority claims function within TikTok's ecosystem. By examining creators who deliberately placed themselves in educational spaces regardless of their formal qualifications, this research provides insight into the diverse ways expertise is communicated and validated in digital environments where traditional credentials may be absent or transformed.

This categorization strategy aligned with previous research examining mental health content on TikTok (O'Donnell et al., 2023) while extending the focus specifically to expertise signaling. The final dataset included 391 unique videos, comparable to similar studies in the field (Jerin et al., 2023, n=400; Basch et al., 2022, n=100), and was determined by the limitations of the TikTok Research API's rate limits and time constraints. This sample size proved adequate for the study's purposes, falling well within the range of comparable content analysis studies in social media research.

I collected videos using a custom Python script interfacing with the TikTok Research API. The script was designed to gather comprehensive metadata about each video, including engagement metrics, creation time, and creator information. Beyond basic video data, the script also collected detailed creator profile information such as biographical text, verification status, and follower counts. This approach to data collection enabled analysis of both direct content and contextual signals of expertise. The collection process included built-in error handling and rate limiting compliance to ensure ethical data gathering. While the initial collection targeted all

videos using the selected hashtags, the final analysis focused specifically on English-language content.

Before proceeding to the coding phase, I put each video through a preliminary screening process to ensure suitability for analysis. Videos needed to meet several criteria: they had to be in English, remain accessible (not deleted or private), contain complete metadata, and demonstrate relevance to mental health expertise rather than representing spam or mis-tagged content. This screening process resulted in a final dataset of 333 videos suitable for detailed content analysis. The dataset's size and scope align with similar studies in the field while providing sufficient breadth to examine various manifestations of expertise signaling on the platform.

Codebook Development

The development of the coding approach emerged through an iterative process informed by both theoretical foundations and empirical observation. Initial code categories were grounded in existing literature on expertise signaling (Collins & Evans, 2007; Eyal, 2013) and digital credibility markers (Donath, 2007), focusing on traditional indicators of professional authority such as setting, credentials, and content type.

However, my preliminary viewing of the collected videos revealed that these conventional markers of expertise were being adapted and transformed through TikTok's affordances, necessitating additional analytical categories. For example, I observed forms of expertise performance that didn't fit neatly into traditional professional vs. casual dichotomies, such as creators using deliberately vulnerable presentations or subversive performance styles to establish credibility.

To address this gap, I conducted a preliminary coding round on a subset of 40 randomly selected videos. This initial coding was performed by myself and a second coder (Alex Leitch). We independently applied the preliminary codebook to the videos, then met to discuss disagreements and refine the coding categories. This process revealed the need for additional categories to capture platform-specific expertise signals.

Following the initial reliability testing phase with a Cohen's Kappa of 0.723, I refined the codebook with additional analytical categories to better capture platform-specific performance styles. This expansion led to the addition of three new coding categories: sexualized presentation, grotesque performance, and joke/parody content. These additions reflected practices observed in the data that weren't adequately captured by the initial coding scheme.

For example, "grotesque performance" emerged as a category to describe content where creators deliberately subverted traditional presentation norms around professional appearance and demeanor, often using exaggerated facial expressions or intentionally "ugly" visual choices to establish authenticity and relatability. Similarly, "joke/parody content" was added to capture videos that used humor to comment on mental health topics while still conveying expertise-related information.

After this refinement, a second round of reliability testing was conducted with another set of forty videos, comprising ten videos that had shown high disagreement in the first round and thirty new selections. This second testing phase, conducted by myself and the second coder, demonstrated substantial improvement in intercoder reliability, with Cohen's Kappa (Cohen, 1960) increasing from 0.723 to 0.877. Particularly strong agreement was found in categories related to professional setting ($\kappa = 1.000$) and traditional expertise claims ($\kappa = 0.844$), while

more nuanced categories such as performance style ($\kappa = 0.749$) and vulnerability displays ($\kappa = 0.798$) showed substantial but slightly lower agreement.

The coding framework for this study was designed to analyze how mental health expertise is signaled, performed, and received on TikTok. The codebook captures five main areas:

Setting and Context: The environment chosen by creators, including:

- Professional settings (offices, clinical spaces)
- Personal settings (bedrooms, casual home environments)
- Staged settings (curated backgrounds, green screens)

Presentation Style: How creators embody expertise through:

- Professional presentation (formal attire, clinical language)
- Casual presentation (conversational approach, relaxed demeanor)
- Vulnerability-focused presentation (personal disclosure, emotional openness)
- Performance-oriented presentation (theatrical delivery, character portrayal)
- Sexualized or grotesque performance (subversion of traditional presentation norms)

Content Type: The various approaches to expertise communication:

- Educational content (structured information delivery)
- Personal stories (narrative accounts of specific experiences)
- Support-focused content (offering encouragement and validation)
- Series content (part of ongoing content sequences)
- Parasocial relationship building (fostering intimate viewer connections)
- Joke/parody content (humorous or satirical approaches)

Experience Claims: The basis for expertise assertions:

- Traditional expertise (formal education, credentials)
- Performance-based expertise (achievements, testimonials)
- Lived experience (personal mental health journeys)
- Alternative expertise (non-traditional approaches, self-taught methods)

Platform Features: How TikTok's affordances are leveraged:

- Trend usage (incorporation of platform-specific formats)
- Engagement features (direct audience interaction techniques)
- Text overlays (on-screen captions and explanations)
- Editorial techniques (transitions, effects, professional editing)
- Use of audio (purpose-driven use of music and sound)

This approach allows for analysis of the multiple dimensions through which mental health expertise is constructed and communicated on TikTok.

The final codebook is provided in Appendix B. Each major category was designed to capture distinct aspects of expertise performance: setting and context examine the environmental cues creators use to signal authority; presentation style analyzes how creators embody expertise through performance choices; content type categorizes the various approaches to expertise communication; experience claims document the specific basis for expertise assertions; and platform features track how TikTok's unique affordances are leveraged to enhance credibility.

To illustrate how these categories manifested in the data, Figure 1 provides visual examples for some of the coding categories.

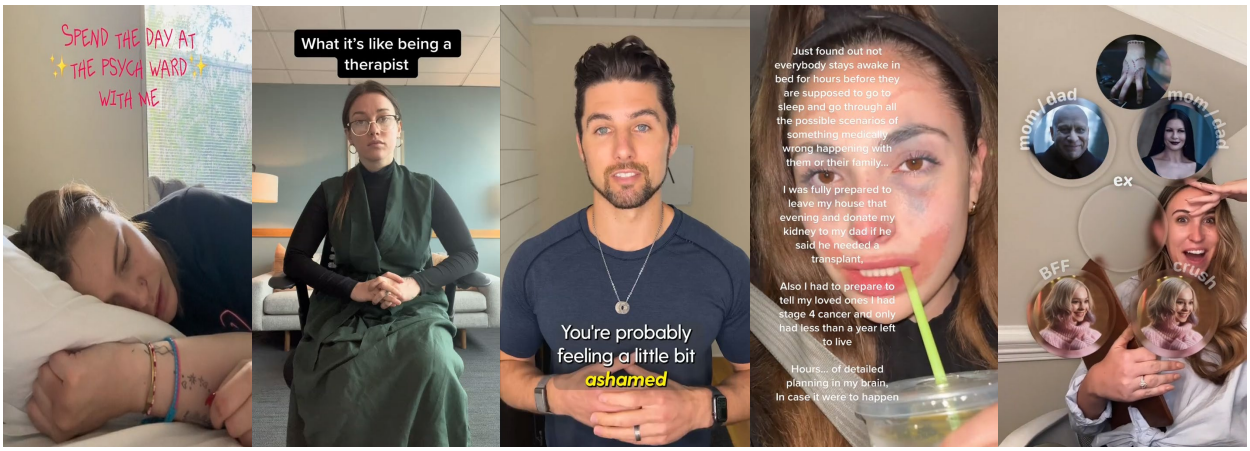


Figure 1a-1e. Examples of TikTok Mental Health Content Coding Categories

Figure 1a (Personal Setting/Lived Experience): A creator films from what appears to be a hospital bed with the text overlay "spend the day at the psych ward with me," representing both the personal setting category (SET_PERS) and lived experience expertise claims (EXP_LIVED).

Figure 1b (Professional Setting): A therapist films in what appears to be a clinical office with professional furnishings, demonstrating the professional setting category (SET_PROF). The creator's formal attire and composed posture also exemplify professional presentation style (PRES_PROF).

Figure 1c (Parasocial Relationship Building): A creator looks at the camera with the text "you're probably feeling a little bit ashamed," demonstrating parasocial relationship building (CONT_PARA) by directly addressing the viewer and assuming knowledge of their emotional state.

Figure 1d (Grotesque Performance): A creator wears exaggerated clown-like makeup while sharing a personal story about anxiety, representing grotesque performance (PRES_GROT) through the deliberate subversion of traditional presentation norms.

Figure 1e (Platform Trend Usage): A creator incorporates a viral TikTok template format with circular images labeled with family roles, but subverts expectations by using characters from The

Addams Family, demonstrating platform trend usage (PLAT_TREND) while delivering mental health content.

These examples illustrate the range of coding categories applied during the content analysis process. By capturing diverse presentation approaches from clinical to personal and conventional to subversive, the coding framework was designed to document how creators signal expertise within TikTok's platform environment.

Coding Process

Following the establishment of the final codebook, I analyzed the remaining videos in the dataset. Each video was viewed multiple times to ensure comprehensive coding—an initial viewing to understand the overall content and context, followed by analysis of specific elements across the five major coding dimensions. This approach allowed for attention to both obvious and subtle signals of expertise performance.

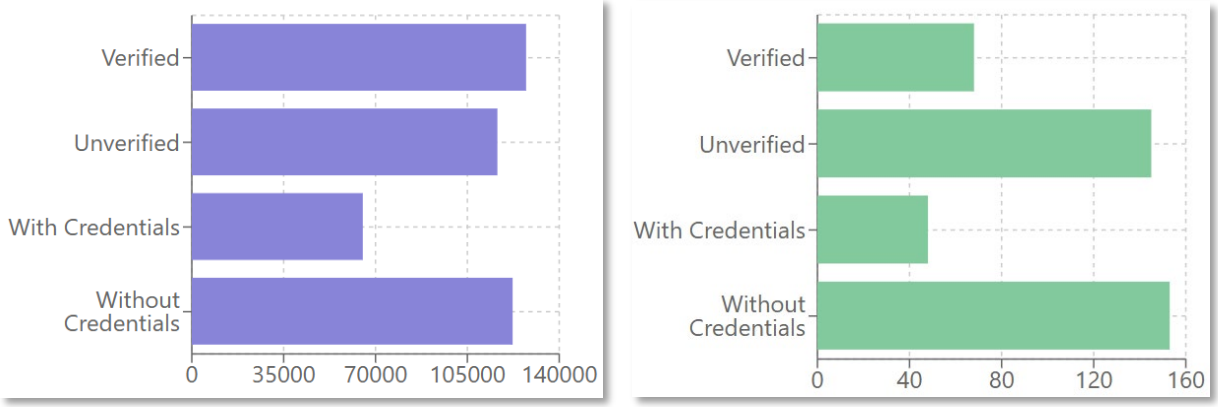
Throughout the coding process, I maintained detailed notes about emergent patterns and notable examples of combinations of expertise signals. I flagged videos that presented unique cases for deeper analysis, especially those that demonstrated novel approaches to expertise signaling or creative use of platform affordances. This documentation process supported both quantitative analysis of code frequencies and qualitative understanding of how different expertise signals interacted within individual videos.

Results

Platform Metrics and Creator Profiles

Analysis of the 333 videos in our dataset revealed patterns in how mental health expertise is distributed and engaged with on TikTok. The videos demonstrated substantial variation in engagement metrics, with view counts ranging from 272 to 11,094,156 (M = 116,692, SD =

780,441). This high variance aligns with research on TikTok's algorithmic content distribution mechanisms (Corso et al., 2024), which demonstrates that video visibility follows heavy-tailed distributions typical of social media platforms, where a small number of videos receive dramatically higher engagement than the average content.



Figures 2 and 3. Average view (left) and comment (right) counts across different creator categories.

Creator profiles revealed an interesting disconnect between traditional and platform-specific markers of expertise. Only 2.3% of creators held verification badges, while 9.7% included professional credentials in their biographical information. The minimal overlap between these categories suggests a potential bifurcation between institutional authority and platform recognition. Just 0.8% of creators demonstrated both verification and credentials. This pattern was further reflected in engagement metrics: while verified creators averaged slightly higher views (127,379) compared to unverified creators (116,440), creators with professional credentials actually averaged fewer comments (48) than those without explicit credentials (153). Verified accounts on TikTok are indicated by a blue checkmark badge next to the username, which TikTok provides to confirm the account belongs to the person or brand it represents. TikTok considers factors including whether accounts are “active, authentic, notable, and unique”

(TikTok, 2025) when granting verification badges. These findings suggest that traditional markers of expertise may not straightforwardly translate into enhanced engagement on TikTok, and in some cases may be associated with reduced audience interaction.

Content Analysis Findings

The analysis of expertise signaling strategies revealed several distinct patterns across our coding dimensions. In terms of setting and context, 17.1% of videos utilized professional settings, while 49.8% opted for more personal environments, with 43.2% featuring staged settings.

Presentation styles showed interesting combinations of traditional and platform-specific approaches. While 22.8% of videos employed professional presentation styles, these were often combined with platform-specific elements, with 16.8% of videos combining professional presentation with trending sounds, engagement tactics, or music. The presence of newer categories like grotesque performance (7.5%) and casual presentation (40.2%) demonstrates how creators adapt traditional expertise signals to platform norms. Notable was the presence of vulnerable (20.7%) and performative (37.8%) presentation styles.

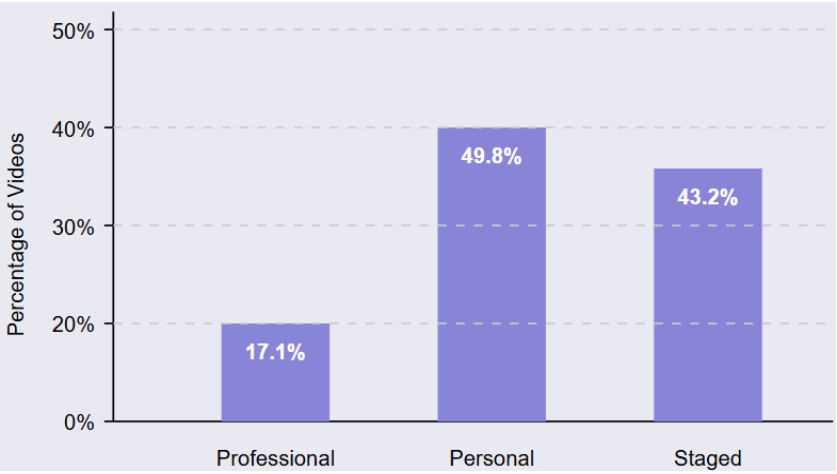


Figure 4. Settings used in mental health TikTok videos.

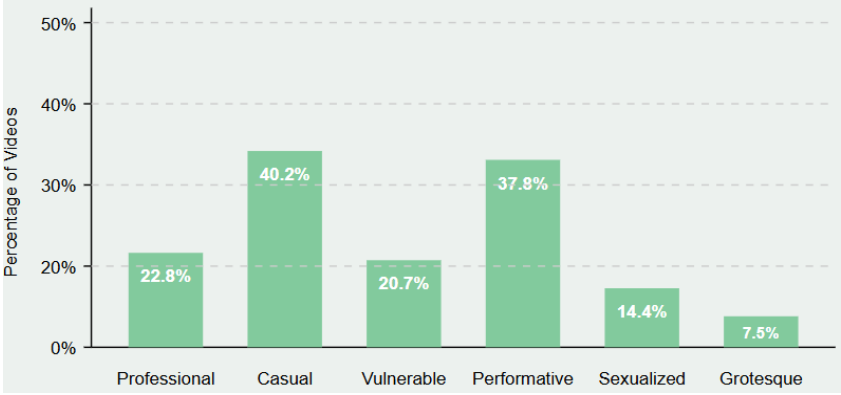


Figure 5. Presentation styles adopted by mental health content creators.

Content types revealed an interplay between educational and personal approaches. Personal content dominated at 50.2%, followed by storytelling (31.8%) and educational content (26.1%). Support-focused content appeared in 27.9% of videos, while more platform-native formats like parody (15.0%) and joke content (9.9%) were less common but notable. The relatively low presence of series content (6.6%) indicates standalone videos are more common than sustained narratives, which may reflect platform viewing patterns or creator preferences.

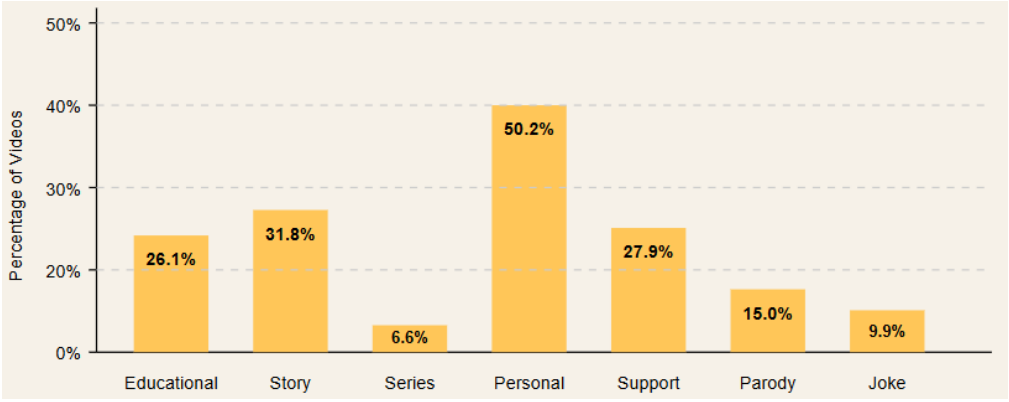


Figure 6. Distribution of content types across the dataset.

Expertise claims demonstrated a shift from traditional authority markers. While traditional expertise was claimed in 17.4% of videos, performance-based expertise (35.4%) and lived experience (30.9%) were more prevalent. Alternative expertise claims appeared in 16.8% of videos, indicating a range of different approaches to establishing authority in this space.

Platform practices showed widespread adoption of TikTok-specific features. Text overlays dominated (90.7%), followed by editing techniques (67.3%) and music use (52.6%). Direct engagement tactics appeared in 40.8% of videos, while 21.6% incorporated trending elements. This high adoption rate of platform affordances suggests creators actively adapt their expertise signals to platform conventions rather than simply transferring traditional professional presentation styles.

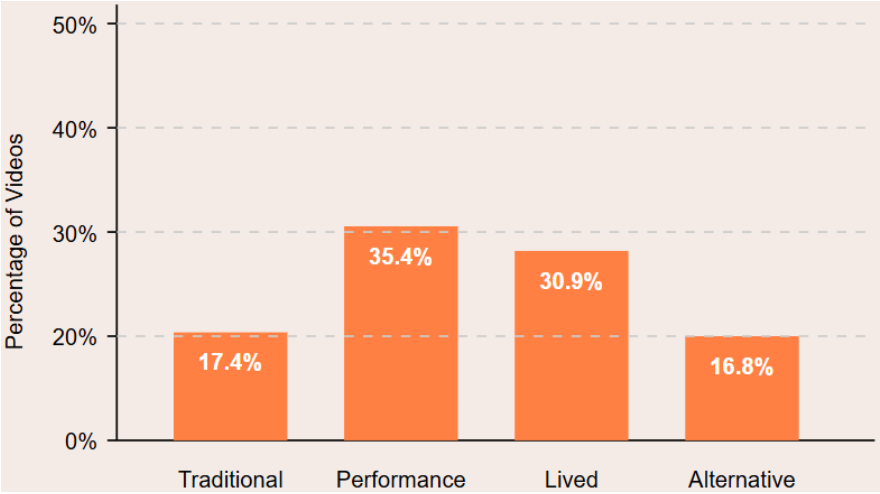


Figure 7. How creators establish authority in mental health discussions.

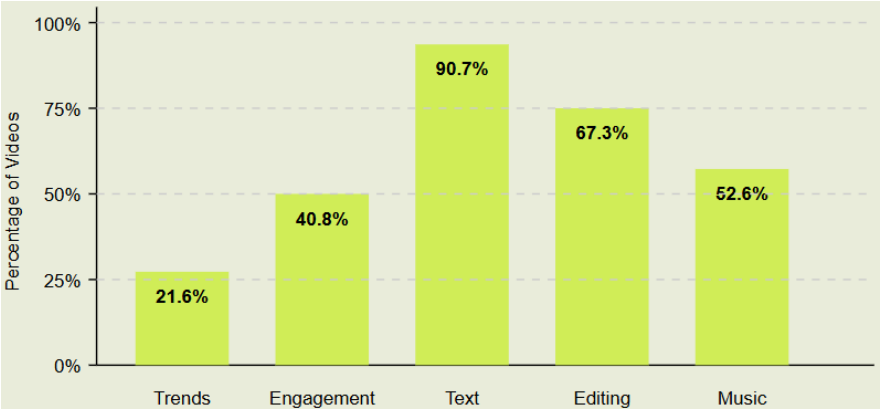


Figure 8. TikTok-specific features adopted by mental health content creators.

Discussion

The findings reveal patterns in how mental health expertise is signaled and received on TikTok. Several key themes emerge from the analysis: the transformation of traditional expertise signals for short-form video, the platform's influence on professional presentation, and the adoption of platform-specific features as new forms of expertise performance.

The Relationship Between Traditional Expertise Markers and Audience Engagement

A notable finding from this study is the apparent disconnect between traditional markers of expertise and audience engagement on TikTok. Creators with professional credentials in their biographies received significantly fewer comments (48) than those without such credentials (153), and verified creators saw only marginally higher views (127,379) compared to unverified creators (116,440). This pattern suggests that conventional expertise signals may function differently in TikTok's platform environment than in traditional professional contexts.

This observation aligns with what Donath (2007) describes as the evolution of conventional signals in digital environments. In traditional professional contexts, formal credentials serve as costly signals of expertise because they require significant investment to obtain. However, on TikTok, these conventional signals appear to generate less audience engagement than performance-based expertise (35.4%) and lived experience claims (30.9%). This finding does not necessarily indicate that credentials are irrelevant or devalued, but rather that the platform's affordances may privilege different forms of expertise communication.

The distribution of expertise claims across the sample illustrates this shift. While traditional expertise was claimed in only 17.4% of videos, performance-based expertise (35.4%) and lived experience (30.9%) were most prevalent. This pattern is consistent with research on other social media platforms that has documented the rise of experiential authority alongside

institutional authority (Kaye et al., 2021; Pretorius et al., 2022). The findings suggest that TikTok's platform environment may further accelerate this trend, with its emphasis on authentic, personal content and creative performance.

Platform-Specific Expertise Performance

The findings reveal distinct patterns in how mental health content creators adapt their expertise performance to TikTok's affordances. The presence of vulnerable (20.7%) and performative (37.8%) presentation styles represents a departure from traditional professional distance in expertise communication. Rather than relying solely on formal credentials or clinical detachment, many TikTok mental health content creators build credibility through emotional authenticity and engaging performance styles.

This adaptation to platform affordances is further evidenced by the widespread adoption of TikTok-specific features, with text overlays in almost every video (90.7%), followed by editing techniques (67.3%) and music use (52.6%). These findings suggest that creators actively incorporate platform-specific affordances into their expertise performance rather than simply transferring traditional professional presentation styles to TikTok.

The high prevalence of personal settings (49.8%) compared to professional settings (17.1%) further indicates how creators adapt their expertise communication to align with TikTok's emphasis on authenticity and personal connection. This pattern suggests that on TikTok, expertise performance is shaped not only by professional norms but also by platform-specific expectations around content presentation and creator-audience relationships.

Implications for Mental Health Communication

These findings have implications for understanding how mental health information is communicated and consumed in digital spaces. The dominance of personal content (50.2%) and

storytelling (31.8%) over purely educational approaches (26.1%) suggests that mental health communication on TikTok frequently integrates personal elements alongside professional information. This pattern reflects how expertise communication adapts to platform-specific contexts, though this study cannot determine whether such adaptations result in more accurate information transfer or better health outcomes.

The prevalence of parasocial relationship building (16.2%) raises considerations about boundaries in mental health communication. While these direct, intimate approaches to addressing viewers may increase engagement, they also represent a departure from traditional therapeutic boundaries. This finding does not suggest that such approaches are inherently problematic, but rather highlights how platform affordances can shape new forms of mental health communication that warrant further examination.

This study does not assess the clinical accuracy or quality of the mental health information being presented. The findings describe patterns in how expertise is signaled and received rather than evaluating whether these signals correspond to expertise possession in traditional terms. Future research might examine the relationship between expertise signals, audience engagement, and information quality to provide a more comprehensive understanding of mental health communication on TikTok.

Limitations and Future Directions

This study, while offering insights into mental health expertise signaling on TikTok, has several limitations. The platform-specific nature of the research means findings may not generalize to other short-form video platforms such as Instagram Reels or YouTube Shorts, which operate under different algorithmic systems, and user cultures.

The time-bound nature of data collection represents another limitation. This study captured mental health content on TikTok in a specific period, and content patterns, presentation styles, and expertise signals likely evolve over time as platform norms and features change. The rapid evolution of social media platforms means these findings represent a snapshot of an ever-changing landscape.

Technical constraints of the TikTok Research API imposed limitations on sampling. API rate limits restricted the total sample size, though this aligns with similar studies in the field. The focus on English-language content also excludes cultural variations in how mental health expertise might be signaled and received in different linguistic contexts.

This study cannot determine whether creators possess expertise in traditional terms or whether their strategies effectively convey accurate mental health information. Rather, it documents the specific ways creators attempt to signal expertise in a platform environment that transforms how authority is communicated and recognized. While there is overlap between expertise signaling and general content creation strategies, this study focused specifically on the former within the mental health domain.

Future research should examine how audiences evaluate different expertise signals on TikTok, particularly in mental health contexts where the stakes of misinformation may be high. Complementary methods such as interviews with content creators could illuminate how creators consciously adapt their expertise performance for TikTok, while audience reception studies might reveal how different viewer demographics interpret these signals. Additionally, longitudinal studies tracking how expertise presentation evolves as the platform matures would provide insights into the dynamic relationship between platform governance, creator strategies, and audience expectations.

Conclusion

This study has documented how individuals position themselves as mental health authorities on TikTok through analysis of 333 videos. The findings reveal patterns in how creators signal expertise within this specific platform environment, with presentation styles that blend professional information with personal narratives and platform-specific performance strategies.

The analysis identifies several approaches used by mental health content creators on TikTok to establish credibility, with many favoring personal environments (49.8%), vulnerable presentation styles (20.7%), and experiential claims (30.9%) over traditional professional settings (17.1%) and credentials (17.4%). The observed disconnect between conventional expertise markers and engagement metrics reveals how platform-specific validation mechanisms may diverge from traditional professional recognition systems when communicating about mental health topics.

These findings contribute to our understanding of how expertise is signaled in contemporary digital environments by documenting specific communication patterns used by creators who position themselves as mental health authorities on TikTok. This research does not evaluate whether these signals correspond to expertise possession in traditional terms or whether they result in effective health communication. Rather, it provides insight into how those seeking to establish authority on mental health topics adapt their communication to a platform with unique affordances and social dynamics.

Chapter 5: How Graduate Students Negotiate Machine-Generated Content

Introduction

The emergence of large language models (LLMs) creates a context to examine how people evaluate machine-generated content that resembles human expertise. This study focuses on graduate students who occupy a position between novice and expert as they interact with these systems. Their status as developing professionals provides an opportunity to examine how individuals assess machine-generated content across academic settings.

When encountering LLM outputs, users must evaluate content generated through statistical pattern matching rather than actual understanding. This situation introduces questions about expertise assessment in digital environments where traditional validation mechanisms function differently (Bender et al., 2021; Mitchell, 2019). As Zerilli et al. (2022) observe, AI systems present outputs containing expertise signals without possessing the underlying capabilities those signals traditionally represent.

Studies of technology integration in educational settings document recurring patterns where new tools arrive with promises of transformation but face implementation challenges (Ames, 2019; Selwyn, 2021). LLMs differ from previous educational technologies by generating domain-specific dialogue rather than simply modifying learning conditions (Kasneci et al., 2023). This creates specific questions about how users, particularly students developing their own expertise, evaluate content from these systems (Dwivedi et al., 2023).

Graduate students represent a specific population for studying these interactions. As Crider et al. (2024) document, graduate education involves navigating multiple forms of expertise simultaneously. Students develop their own expertise while making decisions about

when to use machine-generated content, creating specific tensions between developing professional identity and using new tools (Roll & Wylie, 2016).

This study examines how graduate students, positioned at various points along their professional development trajectories, make decisions about when to accept or reject machine-generated expertise signals. Their choices often reflect negotiations between maintaining their own domains of expertise while delegating others. These decisions appear influenced by factors including professional identity, prior industry experience, and familiarity with institutional systems; creating patterns that both reinforce and complicate traditional understanding of how expertise signals function in digital spaces.

Background and Context

Educational Technology and Institutional Change

The integration of new technologies into educational settings follows recurring patterns, where each wave of innovation arrives with both transformative promises and institutional challenges. As Ames (2019) argues, educational technologies often function as 'charismatic technologies'—tools that not only serve practical functions but embody specific visions of technological progress. This pattern has played out repeatedly, from interactive whiteboards to personal computing devices, where the symbolic value of innovation can overshadow questions of pedagogical effectiveness.

A key challenge in these technological transitions is what Warschauer and Ames (2010) identify as the assumption of 'technological precocity,' which refers to the expectation that users will naturally develop usage patterns through curiosity-driven exploration. This assumption often leads to deployment without sufficient structural support or training models. As Wood and Ashfield (2016) demonstrate in their analysis of interactive whiteboard integration, even

seemingly straightforward tools require consideration of how they align with existing pedagogical practices.

Large language models represent the latest iteration of this pattern, but with a big difference: unlike previous technologies that primarily modified the material conditions of learning, LLMs engage directly in domain-specific dialogue while lacking true understanding. This introduces novel questions about expertise evaluation and institutional integration. Following Hayles and Burdick (2002), these tools appear to realize a long-held dream of simulation—an always-available conversational partner that can provide consistent support and validation. However, as Norton et al. (2012) demonstrate through their work on the IKEA effect, user engagement and perceived value often depend on maintaining meaningful personal involvement rather than full automation.

The institutional response to LLMs has largely followed historical patterns, with universities primarily focusing on updating policies to address academic integrity concerns (Kelly 2023; Chen & Leitch 2024) rather than developing models for structured integration. However, this reactive stance may overlook the potential for these tools to address long-standing challenges in educational support, particularly in graduate education where students must navigate learning academic material while developing professional expertise.

LLMs in Educational Contexts

Recent research examining LLM integration in educational settings has highlighted a particular tension: although these tools can enhance student engagement with their course material, they also risk disrupting established learning processes. Bastani et al. (2023) found that while access to LLMs improved performance during assisted practice sessions, it could potentially inhibit learning when used without appropriate scaffolding. These findings align with historical patterns

in educational technology adoption, where the promise of innovation often overshadows the need for structured implementation (Warschauer & Ames, 2010).

In graduate education specifically, the role of LLMs raises unique considerations. Unlike undergraduate settings where concerns often center on academic integrity, the case of graduate settings requires careful attention to how these tools affect scholarly development. As Selwyn (2021) argues, the integration of AI tools in advanced education requires considering not just their utility as study aids, but their broader impact on how emerging scholars develop their academic voice.

The integration of LLMs as educational tools also introduces questions about emotional labor in academic support. As England (2005) notes, care work (including educational support) has traditionally been undervalued despite its role in enabling learning. LLMs' ability to provide patient, repetitive explanations during the learning process suggests new possibilities for supplementing traditional forms of academic support, though this raises questions about the authenticity and limitations of machine-generated interactions.

This landscape creates particular challenges for how students develop models for engaging with machine-generated content. Gillespie (2020) notes that issues of scale and automation in content generation create new challenges for user evaluation and trust. These concerns become especially relevant in graduate education, where students must develop strategies for engaging with challenging academic material while navigating novel tools that can generate seemingly authoritative responses.

Recent research examining LLM integration in educational settings has identified specific tensions between potential benefits and risks. Kasneci et al. (2023) found that while LLMs can provide explanations that support student understanding, they may also reduce engagement with

critical thinking processes if used without structure. Similarly, Dwivedi et al. (2023) document both opportunities for enhanced learning support and challenges to traditional assessment methods when these tools enter educational environments.

The emergence of these systems raises questions about how users verify information from AI sources. Huang et al. (2024) developed a model for assessing LLM trustworthiness across multiple dimensions, including truthfulness and verification capabilities. Mollick and Mollick (2023) identify seven distinct approaches for utilizing AI in classrooms, emphasizing the importance of maintaining students as "humans in the loop" rather than passive consumers of AI-generated content.

Graduate Student Development and Tool Adoption

Graduate education represents a transition period where students develop from novice to expert within their fields. As Crider et al. (2024) demonstrate through their study of international graduate students, this development process involves navigating multiple forms of expertise simultaneously. These forms include domain knowledge, institutional systems, and technological tools. Their findings reveal how students who successfully adapt to novel academic environments often develop effective strategies for evaluating and leveraging available resources.

Collins and Evans' (2007) perspective of expertise types proves particularly relevant when examining how graduate students approach new educational technologies. Their distinction between contributory expertise and interactional expertise helps explain the position of graduate students encountering LLMs. These students must simultaneously develop their own domain expertise while learning to effectively evaluate and utilize tools that can generate seemingly expert responses.

The process of tool adoption is found to be especially more challenging for international students and those from traditionally underserved populations. Crider et al. (2024) found that these students often experience heightened anxiety and isolation when not adequately supported in navigating institutional systems. However, this experience of navigating unfamiliar systems may also develop what Eyal (2013) describes as strategies for deploying various forms of capital. These strategies could transfer to evaluating and utilizing novel AI tools.

This relationship between institutional navigation and tool adoption suggests considerations for how graduate students might approach LLMs. Rather than treating these tools as simple aids, students must develop mental models for evaluating when and how to incorporate them into their academic practice while maintaining their development of core scholarly competencies.

Educational Support and Machine-Generated Assistance

Understanding how students evaluate LLM-generated educational support requires examining the broader context of academic assistance. Educational support encompasses activities like explaining concepts repeatedly, providing emotional validation during learning processes, and offering consistent support through challenging material. Traditionally performed by teaching assistants, tutors, and peer mentors, this support work often goes unrecognized despite its essential role in enabling learning (England, 2005).

The emergence of LLMs in educational settings introduces new dynamics to this support relationship. These tools appear capable of providing certain forms of educational assistance, including offering patient explanations, consistent availability, and validation during learning processes. However, this raises questions about how students evaluate and trust machine-

generated support, particularly in graduate education where the development of scholarly identity intertwines closely with mentorship relationships.

This intersection of educational support and technology becomes especially relevant when considering international students and others who may have limited access to traditional support systems. As Crider et al. (2024) note, these students often experience heightened needs for consistent support and validation, yet may face barriers in accessing traditional academic support structures. Understanding how students evaluate and engage with LLM-provided support thus requires examining not just the technical capabilities of these tools, but their role within broader ecosystems of educational assistance.

Research Questions

Drawing on the theoretical perspectives of expertise signaling and social construction, while considering current understanding of LLMs in educational contexts and the unique position of graduate students, this study addresses three primary research questions: (1) How do graduate students evaluate and make decisions about machine-generated content in academic contexts? (2) What mental models do students develop for determining when and how to utilize LLMs in their academic work? and (3) How do students' professional identities and prior experiences influence their strategies for engaging with LLM-generated content?

These research questions address how individuals evaluate content generated by systems that produce outputs resembling expertise signals without possessing domain knowledge or experience. This aligns with the theoretical perspective outlined in Chapter 2 which distinguishes between expertise possession, performance, and assessment. Unlike human experts, LLMs cannot be said to truly 'perform' expertise because performance implies intentionality and awareness. Instead, these systems generate outputs that contain expertise signals through pattern

matching and statistical prediction, without possessing the underlying specialized knowledge, experience, or understanding that traditionally constitutes expertise (Mitchell, 2019; Bender et al., 2021).

This phenomenon is especially relevant in graduate education contexts, where students must simultaneously develop their own expertise possession while learning to effectively evaluate expertise signals from various sources, including AI systems. By examining how emerging professionals navigate and assess machine-generated content, this study contributes to our understanding of expertise evaluation in increasingly AI-mediated environments.

Methods

Participants

This study included 14 graduate students enrolled in required Human-Computer Interaction Master's (HCIM) courses at the University of Maryland. The HCIM program is a professional Master's degree that prepares students for careers in user experience research and design. Participants were recruited from two core courses: Introduction to Programming for the Information Professional and Interaction Design Studio. As shown in Table 1 below, approximately two-thirds of participants were international students, primarily from India and China. The majority of participants were female (12), reflecting current trends in HCI education. Participants represented a range of professional backgrounds, from recent graduates to mid-career professionals returning to academia, with most having 3-5 years of prior professional experience.

Data Collection

I collected data through three complementary sources across two semesters (Spring and Fall 2024): longitudinal surveys, LLM interaction transcripts, and semi-structured interviews.

Characteristic	Category	Count
Gender	Female	12
	Male	2
Age Range (est.)	22-25	5
	26-30	7
	31+	2
Professional Exp.	0-2 years	4
	3-5 years	8
	6+ years	2
Origin	International	11
	Domestic	3
Primary Language	Native/Fluent	5
	Second Lang.	9
Prior Degree Field	CS/Engineering	7
	Design/Arts	5
	Other	2
Prior LLM Experience	Extensive	4
	Moderate	7
	Limited/None	3
Prof. Identity	Designer/UX	8
	Developer	3
	Product Mgr.	3

Table 1. Participant Characteristics (n=14). Note: Age and experience estimated from educational and career timelines. No participants reported prior formal AI research exposure.

The longitudinal survey component consisted of three instruments administered to each participant: a pre-study baseline assessment, a mid-semester evaluation, and an end-of-semester reflection. These surveys tracked changes in participants' attitudes toward and engagement with LLM systems, examining their evolving confidence in academic reading comprehension and their developing perspective for appropriate AI tool integration. Each survey combined quantitative measures with open-response fields. All fourteen participants completed the full survey sequence.

For LLM interaction data, participants captured their course-related interactions through full-page screenshots since no export functionality existed in the LLM systems. Ten participants

provided these interaction records, while four were unable to do so because they used LLMs without accounts (through incognito browsing or shared instances), resulting in no saved interaction history. This limitation itself provided insight into varying levels of system engagement among participants.

Hour-long semi-structured interviews were conducted with each participant near the semester's end. Interviews explored how students developed models for evaluating machine-generated content, focusing particularly on their decision-making processes around when and how to engage with LLM systems. All interviews were conducted by a research assistant (Alex Leitch) while I took detailed field notes, allowing for comprehensive documentation of participant responses and non-verbal cues.

Protocol Development

The study employed a sequential mixed-methods approach where initial survey findings informed subsequent interview protocols. Interviews began with background questions about participants' technology experiences (e.g., "What's your technology background?" "When did you start at UMD?") to establish rapport and document participants' prior experience with digital tools.

The core interview protocol included questions focusing on three main areas aligned with the research questions:

1. LLM evaluation and decision-making processes (RQ1): Questions such as "How do you think about large language models?" and "How do you verify outputs?" explored participants' mental models for assessing machine-generated content.
2. Usage patterns and tool integration (RQ2): Questions like "What kind of interactions do you find most engaging?" and "What sort of questions do you usually ask it?"

documented the types of tasks for which students used LLMs and how they incorporated them into their academic workflows.

3. Professional identity and prior experience influences (RQ3): Questions such as "Is there work you don't want to give to the LLM?" and "Do you use it for design support/brainstorming?" examined how students' backgrounds and professional identities shaped their engagement patterns.

Follow-up questions were used to explore specific usage contexts, including academic reading comprehension, technical assistance, and personal support needs. For example, when participants mentioned using LLMs for coding, interviewers asked about verification strategies and specific usage patterns in technical domains. The protocol concluded with an open-ended question inviting participants to identify topics they expected but weren't asked about, ensuring comprehensive data collection. This approach allowed for consistent coverage of core research questions while adapting to each participant's unique experiences.

Data Analysis

Analysis followed principles of thematic analysis (Braun & Clarke, 2006), focusing on identifying patterns in how students evaluated and engaged with machine-generated content. Atlas.ti's transcription feature was used to process interview recordings, and analytical work proceeded through iterative steps of coding and pattern identification.

Initial coding involved highlighting relevant segments of text and assigning descriptive codes that remained close to participants' language, such as 'protecting my work' and 'checking the outputs'. These codes were then organized into thematic categories through constant comparison methods (Glaser & Strauss, 1967) examining similarities and differences across participants' experiences.

The coding process was collaborative, with the primary researcher conducting initial coding while consulting with the research assistant who conducted the interviews. This collaborative approach provided a validity check, as the research assistant could confirm whether identified themes accurately represented participants' expressed perspectives. Their familiarity with the participants (as their course instructor) provided context for interpreting statements and ensuring interpretations remained faithful to participants' intended meanings. Survey responses were analyzed alongside interview data, with attention to how attitudes toward LLMs evolved throughout the semester. LLM interaction transcripts were examined for patterns in query types, question formulation strategies, and follow-up behaviors, which provided concrete examples of the patterns described in interviews.

Data saturation was assessed through two indicators: the stability of core themes across later interviews and the diminishing returns from additional data collection. By the tenth interview, core themes had stabilized around expertise protection, verification strategies, and contextual evaluation models, with subsequent interviews providing additional examples rather than new conceptual insights

Results

Professional Identity and Expertise Domain Protection

Analysis revealed that participants' decisions about which tasks to delegate to LLMs were deeply tied to their professional identities and how they understood expertise signals in their chosen domains. These patterns manifested as behavior protecting core areas of professional expertise while delegating others, suggesting careful attention to which expertise signals they considered most important to develop and maintain.

Students who identified primarily as managers readily delegated technical implementation while carefully protecting work that signaled managerial expertise such as brainstorming or ‘big-picture’ ideation. One participant explained:

"...In terms of actually building that webpage and very technical details I could not claim credit for it but because I was taking the class and understanding what was being done and the concepts of it, I felt like I had my own personal coder to do the work for me sort of like I had a development team of one to execute the ideas I had."

In contrast, students with artistic backgrounds demonstrated strong protection of design-related expertise signals while willingly delegating technical and brainstorming tasks. As one participant said:

"I don't think I would ever use it for the creative part...With code I would go 'oh why didn't I know this, why didn't I study better' for me to write the code on my own...I don't even think I want to get super good at [coding], so it was fine when the LLM was really good at it. But creative work where I want to be able to say this work is my own at the end of the day I don't- I wouldn't do it because I really like that work"

This response shows how students carefully protected domains where they felt expertise signals were central to their professional identity, while readily delegating work in areas they considered peripheral to their core expertise.

Students who identified as programmers displayed a third pattern, protecting opportunities to demonstrate coding expertise while more readily delegating other tasks. One participant described their approach:

"I make sure I have the time to approach something with an LLM, and I don't use it to push out a rush job... it's kind of an ego thing, I need to know I can approach the problem solo before producing LLM content."

These patterns of expertise protection suggest participant understanding of which signals matter most in different professional contexts. As Daniels (1987) notes, what counts as valued work often depends heavily on professional context and identity rather than any inherent characteristics of the tasks themselves. In the context of LLM use, this manifests as careful

choices about which expertise signals to develop independently versus which can be safely delegated to AI systems.

System Trust Development and Expertise Signal Evaluation

Participants demonstrated varying approaches to evaluating expertise signals from LLMs, with distinct patterns emerging around how they verified different types of claimed expertise. For technical tasks, particularly coding, students expressed confidence in their ability to validate the system's expertise claims through direct assessment. However, they showed more hesitation with academic content where expertise signals were harder to verify. One participant articulated this distinction clearly:

"For Claude, I feel like with coding you can see that it works, like if you just enter it iteratively it starts to work now but if the academic text is so difficult I don't think Claude can do it...When I was reading more hardcore academic texts, I put some terms in Claude and I just couldn't trust it. For me, I just don't think of LLMs as smart enough; I mean I still asked it, but I felt like it just couldn't do it, explaining the hard academic texts to me."

This difference in trust levels reflects an implicit understanding of different types of expertise signals. When students could directly verify the system's claimed expertise through what Donath (2007) would term "assessment signals"—like code that either works or doesn't—they expressed more confidence in the system's capabilities. However, for tasks requiring deep comprehension or analysis, where expertise signals were harder to verify, students often expressed deeper skepticism about the system's claimed expertise.

These patterns suggest that students developed internal models for evaluating machine-generated expertise signals, with their trust levels closely tied to their ability to independently verify the system's claimed competence in different domains. This approach to expertise validation extends beyond simple task completion to engage with fundamental questions about how expertise can be meaningfully demonstrated and verified in AI-mediated environments.

Cross-Cultural Navigation and Adaptive Strategies

Interview data revealed that international students often developed strategies for using LLMs that built on their existing experience navigating unfamiliar institutional systems. These patterns align with Crider et al.'s (2024) findings about how international graduate students navigate multiple forms of expertise simultaneously. Many international students developed structured verification strategies that leveraged LLMs across languages. As one international student described:

"The Chinese version does really good now...I prefer the English first so I know the original terminology, then I use the Chinese to make sure I 100% understand the words...Chinese is the double-check."

Students also demonstrated various approaches to managing academic demands, often drawing on their experience navigating institutional support systems. One participant explained their approach:

"I usually use these features in [one of] the reading response[s]...I was so tired, and I have something in my mind, but I don't know how to structure everything. So I just using the speech function and say, okay, I will tell you everything in my mind. Please structure that for me...in 300 words."

These patterns suggest that students who have developed strategies for navigating unfamiliar institutional systems often transfer these skills to LLM interaction. Their approaches reflect what Eyal (2013) describes as deployment of various forms of capital, with students leveraging their existing system navigation expertise to evaluate and use machine-generated content for various academic tasks.

Time Management and Educational Access

Participants reported increased LLM use during time-constrained periods, with patterns emerging in how their interaction strategies evolved over the semester. One participant described how their engagement with the system changed as academic pressures mounted:

"With the beginning of the study I used it more for understanding what the readings were about. But then at one point I remember in the middle of the semester I got really busy with some stuff and I didn't have time to dedicate to the whole readings and they were really long and I wanted to submit my answers."

This same participant went on to explain how time pressure led to more direct use of the system for assignment completion:

"I feel like because of my past experience I fell behind on one assignment and then another and let it pile up and I'm like okay I'll get to the readings eventually, but I need to make sure I respond or I'll forget or keep procrastinating on it and that'll leave me down a path I don't really want to go through again. So that's why I'd put full prompts in [to ChatGPT]."

The "always available" nature of LLMs proved useful for students balancing multiple responsibilities. One participant, a single parent balancing two internships alongside their studies, described using ChatGPT as an alternative to spending extra time on campus for support:

“If there is a case where ChatGPT can't help me, I will reach out to the professor...probably not office hours. Maybe something, like, really quick, um, at the end of class, at the beginning of class, or shooting an email.”

Similarly, another student explained how LLMs allowed them to provide educational support to family members while managing her own studies:

“I've been helping my brother study on the side...with ChatGPT. For those questions...it's more like stuff that I didn't really know how to explain, but [ChatGPT shows] how you would solve it and this is the answer.”

Some participants noted how LLM assistance allowed them to protect time for valued activities. As one student explained, they used ChatGPT first to solve coding problems quickly "to do this as quick as possible" because "I like drawing, so I like to spend a lot of time to draw the things or go out to see if there's a good [scene]...something like that."

Signal Interpretation Across Modalities

Interview data revealed correlations between participants' comfort with different forms of social signaling and their approaches to evaluating expertise signals from LLMs. Students who reported

comfort with text-based social signaling often demonstrated greater facility in interpreting and trusting machine-generated expertise signals. One participant who described extensive experience with text-based relationship building explained:

"If I'm having a nice solid conversation on text, that means I'm having a good relationship with you. For me [to socialize], I need to have that post text conversation or pre-text conversation to make up a good bond with them...text helps me remember, hey, you would even exist."

This comfort with establishing trust through text-based signals appeared to transfer to how these students evaluated machine expertise. Their facility with text-based communication seemed to transfer to how they evaluated LLM interactions, leading them to treat system outputs as meaningful demonstrations of capability rather than simple simulations.

In contrast, participants who preferred in-person or voice communication for establishing trust often expressed more hesitation about evaluating expertise signals through text alone. However, some found ways to transfer their preferred modes of signal interpretation to LLM interactions through voice features. As one international student explained:

"I seldom text people...when people text me, I would just text, like, 'can we have a call right now?'"

This preference carried over directly to her approach to evaluating LLM expertise:

"If there is a speech function, sometimes I will...be willing to talk more, like, to have a conversation."

This example suggests that some students may attempt to evaluate machine expertise through their preferred modes of signal interpretation, though further research would be needed to determine how widespread this pattern might be.

Mental Models for Evaluating Expertise

Participants who served as teaching assistants or graders all talked about their strategies for distinguishing between authentic expertise development and simulated expertise signals. Their

position as evaluators of student work gave them useful insight into how expertise signals manifest differently when generated by humans versus AI systems. One TA explained how they identified different patterns of expertise demonstration:

"I feel like I've seen people use it incorrectly...not even trying themselves to solve the problem or answer the essay question...it can be a tool, but I don't think that you should abuse it."

This concern wasn't simply about academic integrity, but about the development of possessed expertise versus the reproduction of expertise signals. Another TA noted the distinctive patterns in how expertise was demonstrated:

"You can literally make out the difference which one is [ChatGPT] and which one is normal...the words, the level of English...there's this flow to it."

Especially revealing were cases where TAs approved of LLM use, suggesting their evaluation focused not on the tool itself but on how it was deployed in expertise development. They described appreciating when students demonstrated the ability to effectively evaluate and build upon machine-generated content while developing their own understanding. As one TA explained:

"Sometimes we'll do it together...they'll show me their queries and the questions they ask the model...and they'll ask me to explain their responses if they don't understand them. And I'm like, yeah. This is great. This is what I want."

These patterns suggest that students in evaluative roles developed internal models for distinguishing between possessed expertise development and the reproduced performance of expertise signals. Their approaches reflect an implicit understanding that while LLMs can generate convincing signals of expertise, the development of professional competence requires more than just consuming or reproducing these signals.

Privacy and Information Sharing

Participants demonstrated having mental models for deciding what types of information to share with LLMs, often making different calculations for personal versus professional content. For personal information, some participants maintained careful boundaries while still engaging deeply with the system. One student explained:

"Sometimes when you're curious about exploring yourself, I'll give it [ChatGPT] my personal information like my gender, my age, my current study, my interest and stuff like that. I've asked it almost everything, I can't think of anything I wouldn't ask it. But when I share my personal information to ChatGPT I don't use my full formal name, no information that can directly identify myself. I think it's a privacy concern—I feel weird to share my address to a machine. If ChatGPT had a memory function, and one day I chat with ChatGPT and they directly say 'hey [participant] you live in [place] at this address' I would find this creepy."

When it came to professional or business information, participants often showed different calculations about risk versus utility. One participant described regularly using LLMs for business documentation:

"I've used it for small rental agreement contracts—obviously I went over it and added and took out certain things but I used it for the general template of the contract on my dad's account. I've used it for invoices, I've used it for grammar checks, I've used it for listing stuff in a more professional way so I don't have to do it."

These varying approaches to information sharing suggest that participants often developed contextual rather than absolute privacy boundaries, weighing practical benefits against perceived risks. Rather than making simple decisions about whether to trust the system, participants demonstrated mental models for what types of information they considered appropriate to share in different contexts.

Discussion

This study reveals patterns in how graduate students evaluate and engage with machine-generated content. While the findings cannot be broadly generalized due to the sample size and specific program context, they offer insights into how emerging professionals navigate the

tensions between developing their own expertise and utilizing AI tools that can mimic expertise signals.

Value-Based Expertise Protection and Professional Identity

The consistent patterns of value-based task delegation observed in this study reveal specific mental models for evaluating different types of machine-generated content. Drawing on Collins and Evans' (2007) distinction between contributory and interactional expertise, students' selective engagement with LLMs reflects calculations about which domains of expertise they must develop through direct practice versus which can be supported through machine-generated content.

These patterns help inform how emerging professionals navigate what Searle's (1980) Chinese Room thought experiments presents as a major tension: systems that can produce apparently expert outputs without domain knowledge. In this famous philosophical argument, Searle imagines a person inside a room following instructions to manipulate Chinese characters without comprehending their meaning, yet producing responses indistinguishable from those of a native speaker. This metaphor illustrates the distinction between simulating understanding (as LLMs do through pattern matching) and possessing the specialized knowledge, experience, or understanding that traditionally constitutes expertise possession.

Students' evaluation strategies suggest they implicitly understand this distinction, developing mental models for when pattern-matched outputs suffice versus when deeper understanding is necessary. The strong reactions displayed toward LLM use in core professional domains - from artists protecting creative work to programmers insisting on independent problem-solving - reflects what Abbott (1988) terms "jurisdictional claims" over knowledge domains. Abbott's work on the system of professions demonstrates how experts actively work to

maintain control over their domains of knowledge and practice. This protective stance toward core expertise domains represents a form of boundary work (Gieryn, 1999), where the emergence of AI systems creates new pressures for professionals to distinguish and protect their legitimate domains of practice.

Trust Development and System Navigation

The finding that students with experience navigating institutional systems demonstrated methodical strategies for evaluating machine-generated content extends our understanding of how expertise signals are assessed in digital environments. These students' structured approaches to verification suggest that prior experience with institutional navigation transfers to new contexts, supporting Eyal's (2013) perspective of expertise as involving deployment of various forms of capital.

This pattern proved relevant when considering how expertise signals are evaluated across cultural and linguistic boundaries. International students' strategies for using LLMs to bridge language gaps while maintaining critical evaluation of outputs reveals new dimensions of how expertise signals are interpreted in increasingly globalized digital learning environments. Kailkhura et al. (2024) observe that verification accessibility strongly influences users' trust development with LLMs, noting that 'the ability to handle anomalies or unexpected data' is critical for establishing trust.

The distinction students drew between verifiable technical outputs and more complex academic content reflects Donath's (2007) perspective of assessment versus conventional signals. When students could directly verify the system's outputs through assessment signals - like code that either works or doesn't - they expressed higher confidence in the system’s capabilities. For tasks requiring deeper comprehension, where verification was less straightforward, students

expressed more skepticism, aligning with findings from studies of verification strategies for complex content (Kasneci et al., 2023).

Context-Dependent Evaluation Models

Analysis revealed that students developed mental models for evaluating machine-generated content across personal and professional contexts, suggesting that signal interpretation varies based on perceived stakes and domains of application. These mental models reflect calculations about risk, utility, and the nature of expertise in different spheres of life.

In personal contexts, students often demonstrated more fluid boundaries around what they would delegate to LLMs while maintaining specific privacy limitations. As one participant explained: "I've asked it almost everything, I can't think of anything I wouldn't ask it. But when I share my personal information to ChatGPT I don't use my full formal name, no information that can directly identify myself." This approach suggests that students' evaluation model in personal contexts focused less on validating the system's outputs and more on managing information boundaries.

Professional contexts, however, led to markedly different evaluation strategies. Students demonstrated more structured approaches to assessing machine-generated content when it intersected with their professional domains, often developing specific criteria for what could be delegated versus what required human expertise. One participant's approach to business documentation highlights this distinction: "I've used it for small rental agreement contracts—obviously I went over it and added and took out certain things but I used it for the general template." This selective engagement suggests that professional contexts triggered more rigorous evaluation models, particularly when machine-generated content might affect professional outcomes.

Accessibility and Expertise Navigation

The availability of LLMs as educational resources represents a shift in how academic support can be accessed. These systems provide on-demand responses to questions traditionally addressed through institutional channels like office hours or teaching assistants, with their "always available" functionality offering support options beyond traditional time and location constraints. However, the findings suggest that students' ability to effectively evaluate machine-generated content appears connected to their existing mental models for navigating complex systems.

This pattern highlights a consideration: while these tools may be technically available to all students, meaningful use appears to involve more than just access. Students' preexisting system navigation skills seem to influence how they approach evaluating machine-generated content, suggesting that tool availability alone may not address educational resource disparities. As Dwivedi et al. (2023) note, the integration of AI systems in educational contexts creates both opportunities for enhanced support and challenges to ensuring equitable benefits across diverse student populations.

Limitations

Several limitations of the current study warrant consideration. While examining graduate students in HCI provided insights into how emerging professionals evaluate machine-generated content, this population's technical background and familiarity with system design principles likely influenced their signal evaluation strategies in ways that might differ from other user populations.

The rapid evolution of LLM capabilities presents both a limitation and an opportunity for studying expertise signal evaluation. The patterns observed during this study reflect how users

evaluate and interpret machine-generated content at a particular moment in technological development. As these systems evolve, the models users develop for evaluating their outputs may shift substantially.

Future Directions

The findings from this study suggest several promising directions for future research on how users evaluate machine-generated expertise. Four areas emerged as particularly deserving of further investigation:

Many participants reported extensive LLM use beyond academic contexts, including for cooking guidance, workout routines, emotional advice, and other personal tasks. While my study focused primarily on academic applications, future research could specifically examine how users evaluate expertise signals across different life domains. This could provide insights into whether evaluation models developed in academic or professional contexts transfer to personal applications, or if users employ different criteria when assessing machine-generated content in domestic settings.

An unexpected finding warranting deeper investigation was students' use of LLMs for traditionally feminized forms of labor such as cooking, cleaning, and emotional support. These applications often went unmentioned until specifically prompted during interviews, suggesting they might be perceived as less notable than academic uses. Future research examining how users evaluate machine-generated content related to care work and domestic expertise could provide insights into how these traditionally undervalued forms of labor are being transformed by AI technologies. This could extend existing theoretical work on the social construction of care work (England, 2005; di Leonardo, 1987) into novel technological contexts.

Preliminary observations suggested potential connections between students' communication preferences (text vs. voice) and their approaches to evaluating LLM interactions. Future research might specifically examine how users' existing models for interpreting social signals transfer to AI interaction contexts, potentially influencing how they evaluate and trust machine-generated content. This could provide insights into how different user groups might develop varying approaches to assessing AI-generated expertise signals based on their preferred modes of social interaction.

The interviews revealed differences in how students approached LLM use across personal and professional contexts, suggesting context-specific evaluation models. Future research could more systematically examine how users develop distinct criteria for evaluating machine-generated content based on context, perceived stakes, and domains of application. This could extend existing theoretical work on how expertise signals are evaluated in different professional domains (Abbott, 1988; Gieryn, 1999) to consider how these evaluations might vary based on application context rather than just professional identity.

These future directions connect to broader questions about how expertise signals are transformed and validated in increasingly AI-mediated environments, suggesting avenues for extending our understanding of expertise evaluation in digital spaces.

Conclusion

This study examined how graduate students evaluate machine-generated content in academic and personal contexts, revealing distinct patterns in how expertise signals are assessed when traditional markers of authority are neither clearly present nor absent. Beyond simply documenting how students use LLMs, the findings identify patterns in how students develop

mental models for evaluating different types of machine-generated content, from direct assessment of technical outputs to verification of academic content.

These findings contribute to our understanding of how expertise signals are evaluated in digital environments by revealing new insights as to how authority is assessed in AI-mediated spaces. As Mollick and Mollick (2023) note, AI systems present content containing traditional expertise markers without the underlying capabilities those signals typically represent. Rather than simply accepting or rejecting machine-generated content, students developed verification approaches that suggest expertise assessment in digital spaces involves specific mental models for signal interpretation.

As digital platforms continue to introduce new forms of machine-generated content, our understanding of how expertise is performed, validated, and assessed will likewise evolve.

Chapter 6: Expertise Transformed in Digital Spaces

Introduction

As professional discourse extends to digital platforms, established forms of professional authority from traditional settings navigate contexts where expertise signals are translated, adapted, and sometimes reimagined to accommodate platform features and affordances. This dissertation examined these adaptations through three case studies: physicians on Twitter/X, mental health content creators on TikTok, and graduate students assessing AI-generated content. Each study analyzes how traditional markers of authority function when moved into different digital spaces, revealing patterns in expertise communication and validation.

This research demonstrates that digital platforms do not simply host expertise claims, but reshape how expertise can be signaled, validated, and perceived. When traditional markers of professional authority move online, they adapt into hybrid forms of expertise performance that blend traditional authority signals with platform-specific conventions. These markers include credentials, institutional affiliations, and specialized vocabulary.

Across the three case studies, a consistent pattern emerges: expertise signaling in digital spaces requires adapting conventional signals to platform-specific environments while developing assessment signals suited to each platform's features. For physicians on Twitter/X, this means creating content that serves multiple audience segments simultaneously. For mental health creators on TikTok, it involves integrating professional presentation with platform-specific performance styles. For AI-generated content, it presents challenges for how users evaluate apparently authoritative content produced by systems without the domain expertise or lived experience that typically underlies human expert communication.

The relevance of these findings extends beyond individual platforms or professional domains. This research documents how expertise signals function across different digital environments, providing an empirical foundation for understanding these adaptations. While this dissertation does not evaluate the effectiveness of different expertise communication strategies, it identifies patterns in how traditional markers adapt to digital constraints. These patterns contribute to our understanding of how platform technical features shape expertise presentation and how different digital environments create unique conditions for expertise validation. This dissertation contributes analytical descriptions of expertise adaptations in digital spaces, adding to our understanding of professional communication across varied online contexts.

This concluding chapter synthesizes findings across the three studies to identify patterns in how expertise transforms in digital environments. It articulates the contributions this work makes to our understanding of authority in digital spaces, discusses implications for various stakeholders, and considers how AI systems might further reshape expertise signaling and validation. Rather than treating digital expertise as monolithic, this synthesis highlights how different platform affordances, professional domains, and audience expectations create distinct conditions for expertise communication and validation while revealing common patterns in how authority adapts to digital constraints.

Synthesis of Key Findings

Across the three studies presented in this dissertation, several patterns emerge in how expertise is communicated, performed, and assessed in digital environments. Although each platform creates different conditions for expertise signaling, these patterns collectively reveal how digital contexts transform the relationship between traditional and platform-specific markers of authority.

Platform-Specific Adaptations of Traditional Authority Signals

The first key pattern revealed across these studies is how traditional markers of authority are adapted to the specific technical features and affordances of each platform. On Twitter/X, physicians leverage platform features that allow direct connection to conventional expertise signals. As demonstrated in Chapter 3, medical professionals utilize profile pictures featuring white coats or professional attire, display credentials in usernames and bios, and link to external professional accomplishments. These adaptations represent a translation of traditional authority markers into digital form, enabled by Twitter/X's architecture which supports these conventional signals through profile customization, linking capabilities, and professional networking features.

In contrast, TikTok's platform architecture creates different conditions for expertise performance. As Chapter 4 shows, the platform's short-form visual content format, algorithmic distribution, and entertainment focus limits the effectiveness of traditional authority signals. Where Twitter/X physicians can list "MD" in their username, mental health content creators on TikTok visually perform their expertise through office backgrounds, professional attire, and condensed demonstrations of knowledge. The prominence of "bedroom counselors" over traditional office-based professionals suggests how TikTok's specific technical features may favor forms of expertise signals that differ from those valued in professional contexts or on text-based platforms like Twitter/X.

The AI study in Chapter 5 represents a third dimension of digital expertise: how audiences evaluate expertise signals when traditional validation mechanisms are disrupted. This investigation completes the expertise communication cycle by focusing on how graduate students interpret and assess expertise signals in AI-generated content. The findings reveal that AI systems can effectively mimic the expertise signals that both Twitter/X physicians and

TikTok creators deploy, creating outputs that approximate expert communication without the domain knowledge and experience we associate with human expertise. This presents a natural extension of the dissertation's core question: if expertise signals adapt to digital platforms (as shown in Chapters 3 and 4), how do audiences evaluate these signals when they encounter them from non-human sources that can replicate them with statistical accuracy? The graduate students' varying responses demonstrate that the transformation of expertise in digital spaces affects not only how professionals signal authority, but how audiences develop frameworks for assessing these signals when traditional verification mechanisms are unavailable.

Collectively, these findings demonstrate that while traditional expertise signals remain relevant in digital spaces, their effectiveness varies based on platform architecture. The more a platform's features support direct translation of conventional authority markers (as with Twitter/X's linking and profile customization), the more professionals can rely on traditional signals. Conversely, platforms that prioritize different values (like TikTok's emphasis on entertainment and algorithmic engagement) necessitate more adaptations in how expertise is performed and validated.

Distinguishing Expertise Presentation from Expertise Performance

An insight that emerged across these studies is the distinction between how established experts presented their expertise and how individuals performed expertise-like characteristics. In the Twitter/X study, I examined physicians with formal credentials adapting their presentation of legitimate medical expertise to platform constraints. In contrast, the TikTok study captured a different dynamic where both credentialed professionals and individuals without formal qualifications performed expertise through platform-specific signals. As Chapter 4 demonstrated, TikTok's architecture creates conditions where the performance of expertise characteristics is

often privileged over traditional professional credentials. The prevalence of "bedroom counselors" over traditional office-based professionals showed how TikTok's specific technical features elevated persuasive performances of expertise regardless of creators' formal qualifications. This distinction between presenting legitimate expertise and performing expertise-like characteristics is relevant when considering the AI study, where systems generated outputs that statistically approximated what experts would say without possessing domain knowledge or experience. Together, these cases show how digital platforms not only transformed how expertise was presented but reshaped what counted as credible expertise in these spaces.

Key Insights and Contributions

This dissertation contributes to our understanding of expertise in digital environments by documenting and analyzing how authority signals transform when moved into different online contexts. The central contribution is not advancing a specific theoretical model or integrated conceptual approach, but rather providing empirical evidence of how digital environments reshape the mechanisms through which expertise is communicated, assessed, and perceived.

Digital Transformation of Expertise Validation

The primary contribution of this work is the documentation of how digital environments transform traditional mechanisms of expertise validation. Each of the three studies reveals different aspects of this transformation, showing how platform-specific features create new conditions for how expertise operates. The Twitter/X study demonstrates how the platform's networked structure and character limits reshape how medical authority is communicated and validated through public interactions. The TikTok study reveals how mental health content creators establish credibility in a platform environment characterized by algorithmic content distribution and visual emphasis. This suggests these platform-specific features likely shape the

conditions for how expertise is performed and assessed in this space. The AI study shows how expertise assessment is further complicated when traditional signals are separated from human knowledge and experience.

Collectively, these findings advance our understanding of how digital environments don't simply host expertise but actively mediate it. This perspective extends beyond viewing platforms as neutral venues to understanding them as environments that create specific conditions for expertise performance and assessment. The insights from these studies contribute to research examining how digital spaces impact trust in information sources, showing that expertise validation in online contexts involves more than simply transferring established authority mechanisms to new settings. These findings also connect to information integrity challenges, as the platform features that reshape legitimate expertise presentation can enable the deployment of expertise-like signals by actors without domain expertise or professional accountability.

Platform Architectures and Expertise Visibility

Another contribution is documenting how platform architectures influence which forms of expertise gain visibility and assessment. The research demonstrates that different digital environments create distinct conditions for expertise signals based on their specific technical and social features. Twitter/X's text-based format and professional networking capabilities support certain forms of expertise demonstration, while TikTok's visual emphasis and algorithmic distribution privilege others. These platform-specific conditions don't just affect how expertise is communicated but shape what counts as credible authority in these spaces.

The comparative analysis across different platforms reveals how various technical features create different possibilities for expertise performance. These features include character limits, algorithmic curation, and visual formats. These findings contribute to work on how

platform design influences social interaction by showing the specific ways digital architectures reshape authority validation. This empirical documentation helps clarify the relationship between platform features and expertise presentation, a relationship that has implications for understanding professional communication in digital environments.

Expertise Reception and Evaluation in Digital Spaces

The third study extends these contributions by examining how people evaluate expertise signals in AI-mediated environments. The findings reveal that as digital technologies evolve, so too do the mental models people use to assess credibility and authority. Graduate students' varying approaches to evaluating AI-generated content demonstrate how expertise reception is transformed when traditional validation mechanisms are disrupted. This insight advances our understanding of the complete expertise cycle in digital environments.

This dimension of the work contributes to scholarship on information evaluation and trust in digital spaces by highlighting how people develop new strategies for assessing authority when traditional expertise markers are simulated. These findings have particular relevance as AI-generated content becomes more prevalent, offering insights into how people navigate information landscapes where expertise signals are increasingly mediated through digital technologies.

Implications for Future Research

Rather than proposing a unified theoretical model, this research demonstrates the value of examining expertise transformation across diverse digital contexts. The findings suggest that understanding how digital environments reshape expertise validation requires attention to the specific features and affordances of different platforms, the various strategies professionals employ to establish credibility, and how users evaluate competing expertise claims.

This perspective offers a foundation for future research examining how expertise functions in emerging digital contexts. As new platforms develop and existing ones evolve, understanding how authority signals adapt to different digital environments becomes increasingly relevant to both research and practice. The insights from this dissertation provide analytical tools for examining these adaptations, while remaining flexible enough to incorporate various theoretical perspectives as appropriate for specific contexts and questions.

The contribution lies not in advancing a single approach, but in advancing our understanding of how digital environments transform traditional mechanisms of expertise validation across different professional domains and platform contexts. This understanding contributes to research examining how digital spaces impact trust and authority, offering new insights into how expertise operates in increasingly digitized professional and social landscapes.

Broader Implications and Future Directions

The transformation of expertise in digital environments has implications across multiple domains, from professional practice to platform design to education. Understanding how expertise transforms when moved into digital spaces provides insights for professionals navigating evolving digital landscapes, platforms working to support information sharing, and users developing approaches to evaluate competing knowledge claims. This section examines these implications while considering future directions for both research and practice in digitized professional landscapes.

Cross-Platform Expertise Management and Professional Practice

As digital platforms operate in cycles of emergence, stabilization, and decline, this research identifies underlying dynamics of expertise communication that persist across platform-specific techniques which quickly become obsolete.

Medical professionals on Twitter/X, mental health content creators on TikTok, and even AI systems generating outputs that mimic expert communication all demonstrate how expertise signals adapt to digital constraints. This presents challenges for professional organizations developing guidelines for digital engagement. Current professional standards often focus primarily on risk mitigation rather than on the mechanics of expertise communication, potentially limiting understanding of how authority functions in these spaces.

The patterns identified in this research suggest that digital expertise communication involves dynamics beyond traditional professional skills. The findings reveal how authority functions across evolving platforms, including the challenges of distinguishing human expertise communication from AI-generated content that statistically approximates professional outputs. These patterns may have implications for how professional communication is conceptualized in educational contexts.

Critical Information Assessment in an Age of AI-Generated Content

The findings from the AI study have implications for approaches to information assessment in educational contexts. As AI systems generate content that approximates expertise signals, educational practices may need to adapt to help learners develop better frameworks for evaluating different types of knowledge claims.

This is not about advocating for AI integration into education, as current applications of AI in educational contexts raise numerous concerns including plagiarism issues, overreliance on generated content, critical thinking challenges, and questions about developing domain expertise through sustained practice. Rather, the implication is about recognizing that students already encounter content that mimics expertise signals, and they need analytical tools to evaluate these outputs.

Just as previous generations needed to learn how to assess information from search engines and distinguish between primary and secondary sources, today's students encounter content generated by systems that statistically approximate expert language without domain knowledge or experience. This represents a dimension of information literacy that educational approaches might address.

The graduate students in the third study demonstrated varying levels of critical assessment when confronted with AI-generated content. Many developed verification strategies for technical outputs but showed less scrutiny of content in domains where they had less expertise. This pattern suggests the potential value of domain-specific approaches to expertise evaluation rather than general critical thinking skills alone. Educational practices that help students understand how AI systems generate content could provide analytical approaches for distinguishing between statistically approximated content and content reflecting human expertise.

Furthermore, the patterns observed in how students protected certain domains of expertise while delegating others suggest potential considerations for maintaining human capability development alongside technological assistance. The patterns observed in this research suggest differences between core professional competencies that require domain understanding and peripheral tasks where technological tools might provide support.

Platform Design and the Ethical Mediation of Expertise

This research also has implications for how digital platforms shape information quality and expertise validation. The findings document how platform features influence which forms of expertise gain visibility and validation, raising questions about how platform design affects expertise communication.

Twitter/X's architecture allows for direct translation of traditional expertise signals through profile customization and linking capabilities, while TikTok's emphasis on entertainment and algorithmic engagement privileges different forms of expertise performance. These platform-specific dynamics affect not just how expertise is communicated but what kinds of knowledge gain prominence. The emergence of AI systems that can generate approximations of expertise signals adds another layer to this ecosystem.

This research reveals how technical features enable or constrain different types of expertise signals. The findings highlight the limitations of verification mechanisms that rely solely on institutional credentials, as different digital environments create conditions for varied forms of expertise presentation. This relationship between platform features and expertise validation has implications for domains where misinformation presents public risks, as documented in this dissertation's analysis of how different environments shape expertise assessment.

As AI-generated content becomes more prevalent, platforms might also consider developing features that help users understand information provenance - distinguishing between content generated by humans with domain expertise, content reflecting lived experience, and content algorithmically produced through pattern matching. This would support users in developing more informed trust decisions while still allowing diverse forms of knowledge to circulate.

Expertise Transformation and Information Integrity

The transformation of expertise signals in digital environments has implications for information integrity and misinformation resilience. This dissertation's findings on how platform

architectures reshape expertise validation suggest ways to understand vulnerabilities in our information ecosystem.

This research connects to current concerns about misinformation in digital spaces. Recent reporting by NewsGuard (Sadeghi, 2025) documented how AI systems often repeated disinformation narratives when the content sources effectively mimicked credibility markers. This phenomenon, which they termed "LLM grooming," represents a change in how expertise signals can be deployed to enhance the perceived credibility of misleading content.

What this dissertation contributes to misinformation research is a focus on how platform architectures themselves shape the conditions for expertise performance. Instead of examining misinformation primarily as a content problem, my findings suggest that digital architectures influence which expertise signals are privileged, what forms of validation are possible, and how users develop frameworks for evaluating competing knowledge claims. The AI study revealed how graduate students assessed content that mimicked expertise signals without domain knowledge or experience, highlighting the challenges users face when traditional validation mechanisms are disrupted.

This platform-centered perspective offers a complementary approach to content-focused misinformation research. My findings suggest that addressing information quality challenges requires attention not just to what content circulates but to how different digital environments shape the conditions for expertise validation. When the same platform features that enable professionals to communicate their domain knowledge also make expertise signals easier to mimic, traditional frameworks for assessing information quality become less effective.

The intersection of expertise performance and misinformation presents several open questions for further investigation. How might platform designers develop features that better

support expertise verification without reinforcing existing power structures? What new evaluation approaches might users develop for evaluating expertise claims as AI systems become more deeply integrated into information ecosystems? These questions highlight the need for continued research examining how expertise signals transform across evolving digital environments.

Future Research Directions

The findings from this dissertation suggest several directions for future research examining how expertise functions in evolving digital landscapes.

Cross-platform expertise adaptation studies could track how the same professionals adapt their expertise signals across multiple platforms simultaneously. This would provide deeper insight into how individuals develop and maintain coherent professional identities while navigating different digital environments. Such research could examine questions like: How do professionals develop consistent expertise communication strategies across diverse platforms? What challenges arise when attempting to maintain professional credibility across environments with conflicting technical features and norms?

Longitudinal research tracking expertise evolution throughout platform lifecycles would provide insights into how expertise signals develop as digital environments mature. This could reveal how early platform adoption shapes expectations for expertise communication and how these norms evolve as platforms develop established conventions and eventually decline. Such research might examine how professionals maintain credibility through platform transitions and how expertise signals transfer between emerging digital environments.

The increasing practice of AI-integration into professional tools presents research opportunities as these systems continue to develop. Future studies could examine how

professionals distinguish their domain expertise from AI-generated content in their fields, what new signals of human expertise emerge in response to AI simulation capabilities, and how different professional domains develop guidelines or protocols for appropriate AI integration. This research would help clarify distinctions between human expertise and computational approximations of expertise signals.

Comparative studies across diverse professional domains would reveal both common patterns and field-specific variations in how expertise transforms in digital spaces. Fields with different authority structures, from medicine to law to creative industries, will likely develop distinct approaches to digital expertise communication based on their knowledge structures and stakeholder relationships. Understanding these variations would provide insights into the influence of professional culture on digital expertise adaptation.

Beyond examining how expertise signals transform across platforms, future research might also investigate which expertise communication strategies prove most effective for professionals navigating different digital environments. Building on the patterns identified in this dissertation, such studies could evaluate the practical utility of different approaches to digital expertise communication, addressing questions of effectiveness that were beyond the scope of this descriptive research.

Finally, cross-cultural research examining how expertise signals vary across different cultural and linguistic contexts would provide a more comprehensive understanding of digital expertise transformation. Expertise likely functions differently across global contexts where different cultural values, communication norms, and institutional structures shape how authority is established and maintained. This perspective would help identify both universal patterns and cultural specificities in how expertise operates in globalized digital environments.

The Dynamic Future of Digital Expertise

As digital technologies continue to evolve, so too will the ways expertise is communicated, performed, and assessed across different environments. The patterns identified in this dissertation provide a foundation for understanding these transformations, highlighting how traditional authority mechanisms adapt to the features and affordances of digital spaces.

The future likely holds both new challenges and potential for digital expertise communication. Emerging technologies like AI systems, virtual reality environments, and decentralized platforms will create novel conditions for how professional authority functions, requiring ongoing adaptation of expertise signals and validation mechanisms. The capacity of AI systems to generate convincing approximations of expertise signals presents challenges for how human expertise is distinguished and valued.

What remains clear from this research is that expertise in digital spaces is neither simply an extension of traditional authority nor an entirely new phenomenon, but rather a hybrid that emerges through the interaction of established professional signals with the specific features and affordances of digital environments. Understanding this hybrid nature will continue to affect how professionals communicate as more aspects of professional practice, education, and public discourse migrate to digital spaces. This understanding involves recognizing how traditional expertise transforms when moved online.

Conclusion

This dissertation has examined how expertise is communicated, performed, and assessed across different digital environments through three complementary case studies. The analysis has documented how traditional markers of professional authority adapt to the constraints and technical features of digital platforms, creating hybrid forms of expertise that combine

conventional signals with platform-specific practices. These transformations are not merely superficial adaptations but represent shifts in how expertise functions in contemporary digital spaces.

The findings demonstrate that expertise signaling in digital environments requires adaptation to platform-specific features while maintaining core elements of professional credibility. Physicians on Twitter/X develop content that serves multiple audience segments simultaneously. Mental health creators on TikTok integrate presentations of expertise with platform-native performance styles. Graduate students develop mental models for evaluating AI-generated content that approximates expertise signals. Across these different contexts, expertise emerges as neither simply traditional authority moved online nor an entirely new phenomenon, but rather as a hybrid that evolves through the interaction of established professional signals with the specific features and affordances of digital environments.

The contribution of this work lies in documenting how digital platforms actively shape expertise rather than simply hosting it. This perspective provides an analytical approach for understanding how different types of digital environments create distinct conditions for expertise communication and assessment. The practical relevance extends to professionals navigating evolving digital landscapes, platforms working to support responsible information sharing, and users developing methods to evaluate competing knowledge claims in increasingly AI-mediated spaces.

As digital technologies continue to evolve, the patterns identified in this dissertation provide a foundation for understanding future transformations in how expertise operates online. Emerging technologies like AI systems, virtual reality environments, and decentralized platforms will create new conditions for how professional authority functions, requiring ongoing adaptation

of expertise signals and validation mechanisms. The emergence of AI systems that can convincingly mimic expertise signals without possessing domain knowledge or experience represents a development that will likely reshape how expertise is evaluated in digital spaces.

This research opens several directions for future work examining expertise in digital environments. Cross-platform studies could track how professionals adapt their expertise signals across multiple platforms simultaneously. Longitudinal research might examine how expertise signaling evolves throughout platform lifecycles. Investigations of diverse professional domains would reveal both common patterns and field-specific variations in how expertise transforms in digital spaces. As AI systems continue to develop, research examining how they affect expertise evaluation will need to address emerging challenges in information assessment.

The future research I envision builds directly on this dissertation's findings regarding expertise transformation in digital environments. I hope to extend these insights to examine how expertise signals function in security-sensitive digital contexts, where establishing credibility while maintaining appropriate boundaries presents unique challenges. By applying the analytical approaches developed in this dissertation to new professional contexts, this work will continue to advance our understanding of how expertise operates in digitized landscapes.

As more aspects of professional practice, education, and public discourse migrate online, the transformation of expertise in digital spaces remains central to effective communication. This dissertation contributes to that understanding by documenting patterns in how traditional authority mechanisms adapt to digital technical features and affordances across different professional domains. As expertise continues to evolve in response to technological change, the insights from this research provide practical guidance for navigating these transformations.

Appendices

Appendix A: Codebook for Chapter 3 Content Analysis

Tweet ID: Unique alphanumeric ID assigned by Twitter/X to each tweet

User Handle: Unique Twitter/X handle/username which identifies the account posting tweet

Follower Count: The number of followers the user account has on Twitter/X platform obtained via account details

Tweet Text: Full verbatim textual content of the tweet extracted and compiled for analysis

Date Posted: Official date and timestamp when tweet was posted on Twitter/X in YYYY/MM/DD format

Themes: Tweets were coded into one or more of the following themes based on the content:

1. Sharing news/articles: Tweets that contain links or explicit references to news stories, journal articles, reports, etc.
2. Commentary on current events: Tweets that offer opinions, thoughts, or reactions to current news events. Does not include links to news or data.
3. Advocacy: Tweets promoting a particular cause or viewpoint, calling others to action around a social/political issue.
4. Professional topics: Tweets discussing medical research, education, technologies, procedures relating to the medical profession.
5. Patient care: Tweets offering specific health guidance or medical opinions to patients/public.
6. Personal updates: Tweets sharing personal information about one's self, family, interests, activities unrelated to profession.
7. Networking: Tweets engaging with professional contacts by naming, thanking, congratulating etc. References to conferences/events.
8. Achievements: Tweets highlighting career milestones like awards, titles, publications, media appearances. Also includes tweets where the user explicitly mentions their own involvement in a shared publication, research project, media appearance or other professional endeavor.
9. Other: Apply this code to any tweets whose content does not directly and clearly fall under any of the eight main themes

Updated Guidelines

1. For news articles not related to the medical field, categorize as "Sharing news/articles" and "Personal updates"

    - News articles unrelated to medical topics shared solely for personal context also receive the 'Personal updates' code. The 'Sharing news/articles' code is still applied regardless of article topic.
2. Where tweets clearly constitute responses but the original prompt/context is unavailable, coders will apply contextual signals to facilitate appropriate categorization. Two options:
    - Include summary of referenced content in brackets
        - Example: "Ha! Very good! 🤣🤣@Doctor1 @Doctor2 @Doctor3 [Responding positively to video depicting tennis players edited on The Office TV clips]"
        - Example: "WE HAVE BEEN TRYING TO REACH YOU ABOUT YOUR CAR'S EXTENDED WARRANTY" [Article headline: Scientists use AI to decode ancient burned scroll]
3. The 'Professional topics' theme requires the primary focus to involve the medical field and profession. Relevant sub-topics can include medical research, education, technologies, procedures, health care policy/management, and other issues concerning medical professionals.
    - However, if medical relevance is secondary (e.g. cyberattacks on hospitals) rather than the primary focus, 'Professional topics' may not apply depending on context.
    - For instance, Tweet referencing World Health Organization (WHO) reports on cyberattacks/disinformation could reasonably qualify for either just 'Sharing news/articles' alone or jointly as 'Sharing news' + 'Professional topics' given health care relevance as a case residing on the boundary.
4. Job/academic achievements includes both:
    - Content highlighting personal career milestones; awards, titles, publications, media appearances
    - Professional position updates; taking on new hospital role/job
5. A minimum threshold of 10,000 Twitter/X followers was implemented for user inclusion to focus the analysis on physicians with an established, sizable audience base rather than personal accounts. This larger follower count likely indicates users generating content purposefully for public medical discourse/outreach rather than just personal connections (Sinnenberg et al., 2017).
6. Tweets talking about professional anecdotes/interactions and told in a personal narrative voice warrant both the 'Professional topics' and 'Personal updates' codes

Appendix B: Codebook for Chapter 4 Content Analysis

Overview

This codebook is designed to analyze how mental health expertise is signaled, performed, and received on TikTok. The coding scheme focuses on five key dimensions of expertise signaling: setting/context, presentation style, content type, experience claims, and platform-specific features.

Coding Instructions

1. Watch each video at least twice before coding
2. Code for presence (1) or absence (0) of each element
3. Multiple codes within each category can be present in a single video
4. Consider both visual and audio elements when coding
5. When in doubt, use the decision trees provided for each category

Coding Categories

1. Setting and Context (SET_*)

Focus: The environment and framing chosen by the creator

SET_PROF: Professional Setting
- **Definition**: Environment explicitly designed to signal professional status
- **Indicators**:
  - Office/clinic setting
  - Visible professional certifications
  - Professional bookshelf background
  - Desk setup with professional equipment

SET_PERS: Personal Setting
- **Definition**: Intimate or personal environment
- **Indicators**:
  - Bedroom
  - Living room
  - Personal spaces
  - Casual home environment

SET_STAGE: Staged Setting
- **Definition**: Deliberately created or modified environment for content
- **Indicators**:
  - Green screen backgrounds
  - Elaborate set designs
  - Clearly curated backgrounds

    - Purposefully blank/neutral spaces
    - Slideshows of still images

2. Presentation Style (PRES_*)

Focus: How the creator presents themselves and their content

PRES_PROF: Professional Presentation
- **Definition**: Formal, professionally-oriented demeanor
- **Indicators**:
    - Professional attire
    - Clinical/technical language
    - Formal speaking style
    - Clear expert-to-audience positioning

PRES_CAS: Casual Presentation
- **Definition**: Informal, conversational approach
- **Indicators**:
    - Casual attire
    - Conversational language
    - Relaxed demeanor
    - Peer-to-peer positioning

PRES_VULN: Vulnerability-Focused
- **Definition**: Emphasis on personal disclosure and emotional openness
- **Indicators**:
    - Sharing personal struggles
    - Emotional expression
    - Discussion of challenges
    - Raw/unfiltered moments

PRES_PERF: Performance-Oriented
- **Definition**: Theatrical or entertainment-focused presentation
- **Indicators**:
    - Dramatic delivery
    - Character portrayal
    - Scripted scenarios
    - Entertainment-first approach

PRES_SEX: Sexualized Presentation
- **Definition**: Content that deliberately employs sexual appeal or suggestive elements
- **Indicators**:
    - Suggestive clothing choices
    - Deliberately sexualized poses/movements
    - Sexual innuendo in content
    - Using sexuality as attention-getting device
- **Exclusions**:
    - Clinical discussions of sexuality
    - Body-positive content
    - General fashion/style choices

PRES_GROT: Grotesque Performance

- **Definition**: Intentional subversion of traditional presentation norms, especially around femininity and professional appearance
- **Indicators**:
  - Exaggerated facial expressions
  - Intentionally "ugly" or anti-aesthetic choices
  - Subversive use of body/voice
  - Deliberate breaking of feminine presentation norms
  - Use of absurdist humor or intentionally uncomfortable content
- **Exclusions**:
  - Unintentionally awkward moments
  - General casual presentation
  - Standard comedy without subversive elements
  - Basic "silly" content without deeper subversive intent

3. Content Type (CONT_*)

Focus: The primary purpose and format of the content

CONT_EDU: Educational Content

- **Definition**: Primary purpose is to teach or inform
- **Indicators**:
  - Clear learning objectives
  - Structured information delivery
  - Educational graphics/text
  - Citation of sources

CONT_STORY: Personal Story

- **Definition**: Narrative account of specific events or experiences
- **Indicators**:
  - Clear narrative structure
  - Specific events/timeline
  - Personal anecdotes
  - Client stories (anonymized)

CONT_SERIES: Series Content

- **Definition**: Part of an ongoing content series
- **Indicators**:
  - Explicit series numbering
  - References to previous/future parts
  - Consistent series branding
  - Ongoing narrative/theme

CONT_PERS: Personal Reflection

- **Definition**: Sharing of thoughts, opinions, or general experiences
- **Indicators**:
  - Personal opinions
  - General reflections
  - Thought processes

    - Informal insights

CONT_SUPP: Support-Focused

- **Definition**: Primary purpose is to offer support or encouragement
- **Indicators**:
    - Direct encouragement
    - Validation statements
    - Coping suggestions
    - Community building
- **Exclusions**:
    - Clinical advice without supportive elements

CONT_PARA: Parasocial Relationship Building

- **Definition**: Content primarily aimed at building intimate parasocial connections
- **Indicators**:
    - Direct parasocial appeals ("I'll be your therapist")
    - Intimate/bedroom setting used strategically
    - Excessive personal disclosure
    - "Therapeutic" role-play
- **Exclusions**:
    - Normal community building
    - Professional therapeutic boundaries
    - General supportive content

CONT_JOKE (Joke/Parody Content)

- **Definition**: Videos that deliberately use humor, parody, or satire to comment on or critique mental health topics, therapy practices, or mental health social media trends. These videos intentionally subvert or playfully mock established formats, while still engaging with mental health themes.

4. Experience Claims (EXP_*)

Focus: How creators establish their expertise

EXP_TRAD: Traditional Expertise

- **Definition**: Claims based on formal education and credentials
- **Indicators**:
    - Reference to degrees
    - Professional certifications
    - Clinical experience
    - Research involvement

EXP_PERF: Performance-Based Expertise

- **Definition**: Expertise claimed through achievements or results
- **Indicators**:
    - Success stories
    - Client testimonials
    - Achievement metrics
    - Demonstrated results

EXP_LIVED: Lived Experience

- **Definition**: Expertise based on personal experience
- **Indicators**:
    - Personal mental health journey
    - Direct experience claims
    - Recovery narratives
    - Peer perspective

EXP_ALT: Alternative Expertise

- **Definition**: Non-traditional forms of expertise
- **Indicators**:
    - Alternative healing methods
    - Non-clinical certifications
    - Spiritual/holistic approaches
    - Self-taught expertise

5. Platform Features (PLAT_*)

Focus: Use of TikTok-specific elements

PLAT_TREND: Trend Usage

- **Definition**: Incorporation of platform trends
- **Indicators**:
    - Current TikTok trends
        - Known limitation: we may not know all of the current Tiktok trends
    - Viral sounds/formats
        - If a format/structure of video appears multiple times in the dataset, code it as a trend
    - Popular challenges
    - Platform-specific memes

PLAT_ENG: Engagement Features

- **Definition**: Direct audience engagement techniques
- **Indicators**:
    - Call to action for likes/follows
    - Comment requests
    - Response to comments
    - Community polling

PLAT_TEXT: Text Usage

- **Definition**: Use of on-screen text
- **Indicators**:
    - Key point text
    - Subtitles/captions
    - Text overlays
    - Written explanations

PLAT_EDIT: Editorial Techniques

- **Definition**: Advanced editing and production
- **Indicators**:
    - Multiple cuts/transitions

    - Special effects
    - Complex animations
    - Professional editing

PLAT_MUSIC: Featured Music/Audio

- **Definition**: Purposeful use of music/sound
- **Indicators**:
    - Mood-setting music
    - Sound effects
    - Original audio creation
    - Trending sounds

Decision Trees

Settings Decision Tree

Is the environment clearly professional (office/clinic)?
→ Yes: Code SET_PROF
→ No: Continue

Is the environment a personal space?
→ Yes: Code SET_PERS
→ No: Continue

Has the environment been deliberately modified/created for content?
→ Yes: Code SET_STAGE
→ No: No setting code

Content Type Decision Tree

Is the primary purpose to teach/inform?
→ Yes: Code CONT_EDU
→ No: Continue
Is this a specific story/event?
→ Yes: Code CONT_STORY
→ No: Continue
Is this part of a series?
→ Yes: Code CONT_SERIES
→ No: Continue
Is this general thoughts/reflection?
→ Yes: Code CONT_PERS
→ No: Continue
Is this primarily offering support?
→ Yes: Code CONT_SUPP
→ No: Continue
Does the content focus on building intimate viewer relationships?

→ Yes: Code CONT_PARA
→ No: No content type code
Note: CONT_PARA can co-occur with other content types, particularly CONT_PERS and CONT_SUPP

Experience Claims Decision Tree

Are formal credentials/training cited?
→ Yes: Code EXP_TRAD
→ No: Continue
Are specific achievements/results shown?
→ Yes: Code EXP_PERF
→ No: Continue
Is personal experience the basis?
→ Yes: Code EXP_LIVED
→ No: Continue
Is non-traditional expertise claimed?
→ Yes: Code EXP_ALT
→ No: No experience code

Parasocial vs Personal Content Decision Tree

Does the creator position themselves as a substitute for professional relationships?
→ Yes: Code CONT_PARA
→ No: Continue
Does the creator blur professional/personal boundaries?
→ Yes: Code CONT_PARA
→ No: Continue
Is intimate disclosure used strategically for engagement?
→ Yes: Code CONT_PARA
→ No: Continue
Is the creator fostering dependency?
→ Yes: Code CONT_PARA
→ No: Consider CONT_PERS or CONT_SUPP instead

Note: Consider intent and pattern—single instances of personal disclosure or support don't

necessarily indicate parasocial relationship building

Coding Process

Initial Viewing

1. Watch video without coding
2. Note initial impressions

3. Consider all possible applicable codes

Second Viewing

1. Watch again, pausing as needed
2. Apply decision trees
3. Review each category systematically
4. Mark presence (1) or absence (0) of each element

After Initial Coding

1. Review all applied codes
2. Ensure consistency with definitions
3. Document any uncertain cases and write a note about it in the notes column

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