The Role of TikTok Algorithm in Shaping FOMO Phenomenon among Generation Z

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Abstract
This study applies the Project Management Body of Knowledge (PMBOK Guide) to the planning phase of a Moodle-based Learning Management System (LMS) project at STIKES Pemkab Jombang, Indonesia. The research aims to demonstrate how PMBOK's Scope and Schedule Management processes can improve predictability and accountability in academic software projects. Using a case study approach, the study follows PMBOK's Planning Process Group to define project scope, decompose deliverables into activity list, identify and sequence activities, and estimate durations through the Three-Point Estimation method. The Critical Path Method (CPM) was then used to calculate total project duration, identify float, and determine time-sensitive activities. Data were obtained from interviews with project stakeholders and institutional documents, while expert validation ensured the logical consistency of activity sequencing and duration estimates. The results indicate that PMBOK-based planning produced a clear and realistic 49-day schedule, aligning all deliverables and dependencies within measurable boundaries. The study contributes an operational planning framework that can guide similar LMS initiatives and suggests future research to integrate PMBOK with Agile methodologies and simulation-based schedule analysis for continuous improvement.

1. Introduction

The rapid development of digital technology has transformed the patterns of communication, interaction, and information consumption among society, especially Generation Z who were born and raised in the digital era. This generation is characterized by high levels of connectivity, multitasking in media usage, and dependency on social media platforms for entertainment, socialization, and self-expression (Singh & Dangmei, 2021). One of the platforms most frequently used by Generation Z is TikTok, a short-video-sharing platform that has gained global popularity due to its ease of use and highly adaptive algorithmic recommendation system.

TikTok utilizes a personalized recommendation algorithm through the For You Page (FYP) feature, which curates content based on user behavior such as viewing duration, likes, comments, follows, and shares (Kaye, Chen, & Zeng, 2022). This algorithmic personalization creates an individualized media environment where

users are continuously exposed to content aligned with their interests and social preferences. However, this personalization mechanism also contributes to emotional and psychological implications, particularly the phenomenon known as Fear of Missing Out (FoMO).

FoMO is defined as a pervasive apprehension that others might be having rewarding experiences from which one is absent (Przybylski et al., 2013). In the context of TikTok, FoMO is increasingly intensified due to the rapid circulation of viral trends—ranging from challenges, lifestyle aesthetics, consumption patterns, to cultural expressions—that spread quickly among users. Generation Z, who places significant value on social belonging and trend participation, becomes particularly vulnerable to FoMO when they perceive themselves as being left behind from popular or widely discussed content (Hwang & Zhang, 2022).

The TikTok algorithm not only recommends content but also shapes user behavior by encouraging continuous engagement. The platform's design revolves around maximizing watch time, which often leads to prolonged usage, habitual checking, and emotional dependency (Montag, Yang, & Elhai, 2021). This mechanism influences user psychology, creating pressure to stay updated, avoid missing trends, and maintain social relevance. Consequently, FoMO triggered by TikTok is associated with increased anxiety, stress, low self-esteem, and feelings of inadequacy among young users (Wolniewicz et al., 2020).

Based on these conditions, this study aims to analyze the role of TikTok's algorithm in shaping the FoMO phenomenon among Generation Z. The focus of the research examines how algorithmic personalization, viral content circulation, and user engagement patterns collectively strengthen psychological pressure to remain socially connected and relevant within online environments. This research adopts media effects theory as a conceptual framework to explain how algorithmic structures influence user cognition and emotion.

Thus, the significance of this study lies in understanding the relationship between algorithm-driven media consumption and its psychological consequences among younger digital natives. The findings are expected to contribute to broader discussions on digital well-being, media literacy, and the development of healthy social media consumption practices for Generation Z.

1.1 Literature Review

TikTok, as a short-form video social media platform, has rapidly gained prominence due to its recommendation algorithm that curates personalized content based on each user's behavior. The algorithm evaluates various user signals, such as viewing duration, scrolling patterns, likes, comments, shares, and followed accounts, to determine which videos appear on the For You Page (FYP) (Kaye, Chen, & Zeng, 2022). This personalization mechanism creates an individualized media environment in which no two users encounter the same sequence of content, even though they occupy the same digital space. Such a system reflects the concept of algorithmic curation, where digital platforms select and prioritize information using predictive data models with the objective of maximizing user engagement, rather than providing balanced or diverse content exposure (Zarouali et al., 2023). Consequently, TikTok is not merely a passive space for media consumption, but an active technological agent shaping patterns of cultural participation and social communication.

This algorithmic environment is closely tied to the psychological phenomenon known as Fear of Missing Out (FoMO). FoMO refers to a persistent concern that others may be experiencing more rewarding or meaningful events while one is absent, leading to a desire to remain continually connected (Przybylski et al., 2013). The rapid spread of trends on TikTok intensifies this experience, particularly among Generation Z, who place high value on social belonging, identity expression, and peer approval in digital contexts (Singh & Dangmei, 2021). TikTok's repetitive exposure to trending content can create the perception that participation in these trends is widespread and socially expected. As a result, users may feel pressured to imitate or join viral challenges, adopt particular aesthetics, or express certain attitudes to maintain relevance within their peer networks. This illustrates a direct relationship between algorithm-driven exposure to viral trends and the heightened experience of FoMO.

The connection between TikTok's algorithm and FoMO can be further understood through Media Effects Theory, which posits that media influences users' cognitive, emotional, and behavioral responses. However, unlike traditional media environments where message selection is controlled by human communicators, algorithmic environments automate content delivery through recommendation systems designed to predict and shape user engagement (Zarouali et al., 2023). In this context, the algorithm functions as an intermediary that regulates how users perceive social norms and participation. When users experience FoMO and respond through increased interaction, such as consuming more trend-related videos, searching for similar content, or producing their own trend-based posts, the algorithm interprets these actions as engagement signals and continues to amplify similar content. This process creates a feedback loop, wherein FoMO leads to greater engagement, and greater engagement reinforces FoMO through repeated exposure.

In addition to Media Effects Theory, the Uses and Gratifications Theory (UGT) offers another relevant lens for understanding TikTok use and FoMO. UGT suggests that individuals actively use media to fulfill specific needs such as entertainment, social interaction, and identity formation (Katz, Blumler, & Gurevitch, 1974). TikTok's design allows users to seek gratification by engaging with trends, gaining visibility, and receiving feedback through likes or comments. However, when these gratifications depend on social validation, users may develop dependency on continuous engagement to sustain satisfaction, thereby reinforcing FoMO when disconnected or less visible (Whiting & Williams, 2013). This demonstrates how user motivations, combined with algorithmic reinforcement, sustain both emotional dependence and the need for constant participation.

Another theoretical framework that complements this discussion is Social Comparison Theory (Festinger, 1954). This theory posits that individuals evaluate their own abilities, achievements, and social standing by comparing themselves to others. On TikTok, algorithmic exposure often emphasizes idealized portrayals of lifestyles, appearance, or success, which can distort users' perceptions of social norms. As users repeatedly encounter curated images of peers or influencers appearing more fulfilled or popular, upward social comparisons become intensified, leading to greater FoMO and decreased self-esteem (Vogel et al., 2014). The algorithm thus acts as both a mirror and a magnifier of social comparison, amplifying feelings of inadequacy and reinforcing engagement behaviors to seek reassurance through participation.

Lastly, the Self-Determination Theory (SDT) helps explain the motivational dynamics underlying TikTok engagement. SDT asserts that human motivation is driven by the need for autonomy, competence, and relatedness (Deci & Ryan, 2000). TikTok's algorithm supports these psychological needs in a conditional manner—users feel competent when their content gains views or likes, and connected when they participate in trends or interact with others. However, when gratification becomes contingent on algorithmic visibility rather than intrinsic satisfaction, users experience controlled motivation rather than autonomous engagement. This can undermine psychological well-being and reinforce FoMO as users seek external validation instead of internal fulfillment (Reinecke et al., 2018).

Empirical studies show that TikTok use driven by trend participation is associated with increased stress, social anxiety, and decreased self-esteem (Hwang & Zhang, 2022; Wolniewicz et al., 2020). This occurs because TikTok not only facilitates trend engagement but also fosters ongoing social comparison. Users evaluate themselves against others who appear more successful, confident, attractive, or socially integrated, which can heighten feelings of inadequacy or exclusion. Since Generation Z engages with social media as a central arena for identity construction and social validation, they are particularly vulnerable to these pressures. In this way, the literature reveals an interconnected relationship among TikTok's algorithmic curation, FoMO, social comparison mechanisms, and media effects processes, collectively shaping the emotional and behavioral experiences of Generation Z within contemporary digital ecosystems.

2. Research Methods
This study adopts a descriptive qualitative research method aimed at understanding how TikTok's recommendation algorithm contributes to the formation of the Fear of Missing Out (FoMO) phenomenon among Generation Z. The qualitative approach is used to examine meanings, user experiences, and patterns of

behavior that emerge in the interaction between users and digital media systems, rather than to produce numerical generalizations.

The main data source in this research consists of viral TikTok video content distributed throughout 2025 that was identified as widely engaging Generation Z audiences and encouraging participatory involvement in trends such as challenges, consumption practices, lifestyle displays, and aesthetic-based identity performances. Data collection was carried out through content observation, in which the researcher analyzed video patterns, interaction levels, audiovisual elements, and user comments that indicated psychological engagement or expressions of FoMO. In addition, relevant academic literature from journal articles, books, and empirical studies published between 2020 and 2025 was reviewed to strengthen the analytical framework and support the interpretation of findings. The data were analyzed using content analysis, a method that allows researchers to interpret symbolic meaning and social dynamics embedded within media messages.

The analysis proceeded through three stages: first, identifying recurring themes within viral content that appeared to trigger social comparison and urgency to participate; second, examining how TikTok's algorithm circulated and reinforced these themes through personalized recommendations; and third, connecting the observed patterns with theoretical constructs such as algorithmic curation, FoMO psychology, and media effects.

Throughout the analysis process, the researcher maintained reflexive awareness of interpretive positioning and ensured that interpretations remained grounded in observable platform behavior and credible theoretical reasoning. This methodological approach enabled the study to provide an in-depth understanding of how algorithm-driven viral content operates emotionally and socially among Generation Z users in contemporary digital culture.

3. Result and Discussion

The findings of this study indicate that TikTok's algorithmic structure plays a central role in reinforcing FoMO among Generation Z by shaping patterns of exposure, attention, and emotional response to viral content. The algorithm continuously observes user interaction signals, such as how long a video is watched, whether the user replays it, or if they engage through likes, shares, and comments. These signals are interpreted by the system as indicators of interest, which leads to the amplification of similar content on the user's For You Page. This algorithmic feedback mechanism results in a cycle in which users are repeatedly exposed to trend-based content, giving the impression that certain behaviors, aesthetics, challenges, or experiences are normative and widely participated in. Users are therefore not merely spectators but are subtly encouraged to model and reproduce the behavior they observe in order to align themselves with what appears to be socially valued within the platform.

The repeated exposure to viral content contributes to a perceived social expectation among Generation Z to remain informed and involved in current trends. Many viral trends on TikTok are time-sensitive and rapidly replaced by newer phenomena, which creates a sense of urgency. Users who do not participate or who do not update their content consumption may feel a loss of connection to their peer group or cultural conversation happening online. This aligns with the psychological construct of FoMO, where individuals fear that they are missing meaningful experiences shared by others. The comments section on viral videos often reflects this sentiment, with users expressing concern about being "late" to trends or indicating relief upon discovering they are "not the only one" trying to catch up. Such expressions highlight the social pressure embedded in algorithm-driven content circulation.

The FoMO experience is further intensified by the platform's environment of social comparison. TikTok's design foregrounds aesthetic presentation, performance creativity, and selective self-representation. Users frequently encounter others who appear confident, socially connected, talented, or possessing desirable lifestyles. These curated forms of identity can create emotional tension when users measure their own lives against the seemingly effortless enjoyment or achievement displayed by others. For Generation Z, whose self-concept is still actively developing and who often seek affirmation through digital visibility, the comparison

dynamic can be particularly impactful. The desire to avoid feeling inferior or excluded leads many users to imitate trends rapidly, not solely for enjoyment, but as a strategy to maintain a sense of belonging.

The algorithmic recommendation system also plays a mediating role in shaping group-based identity dynamics. When users begin engaging in specific trend categories—such as beauty aesthetics, academic or productivity trends, or lifestyle "day-in-my-life" videos, the algorithm clusters them into subcommunities by continuing to provide content aligned with these thematic identities. Over time, this contributes to perceived cultural norms within micro-groups. Users begin to associate their self-worth and social position with how effectively they are able to participate in the visual and behavioral codes of these communities. Failure to conform may result in increased anxiety, self-doubt, or withdrawal. Thus, the algorithm does not merely reflect user preference but constructs social environments that define what is culturally valued, desirable, or relevant.

The relationship between algorithmic curation and FoMO illustrates a significant shift in media effects, where emotional influence is no longer solely tied to the message content but also to the automated distribution system that dictates when and how content is encountered. Instead of users consciously choosing what to watch, their experience is shaped by an invisible computational logic that prioritizes engagement maximization. This results in what can be considered a structural form of persuasion, where the platform encourages continued use by reinforcing emotional responses tied to belongingness and relevance. In this sense, FoMO becomes both a psychological effect and a behavioral driver that sustains platform engagement.

The overall analysis suggests that the FoMO phenomenon among Generation Z on TikTok is not merely a byproduct of individual vulnerability but is substantially influenced by the platform's algorithmic design. The algorithm amplifies viral content that signals what is socially valued, creates ongoing cycles of participation pressure, and embeds social comparison into everyday digital interaction. These dynamics collectively heighten emotional dependency on the platform, leading to anxiety, stress, and fluctuations in self-esteem. Recognizing this relationship is essential for developing media literacy strategies that encourage Generation Z users to critically evaluate their emotional responses to algorithmically curated environments and to cultivate healthier digital engagement habits.

4. Conclusions

This study demonstrates that the TikTok recommendation algorithm plays a significant role in reinforcing the Fear of Missing Out (FoMO) among Generation Z through an engagement-based content distribution system. The For You Page (FYP) feature continuously curates and amplifies viral content based on user interaction patterns, creating a digital environment in which trends appear widespread, socially important, and time-sensitive. This algorithmic structure encourages users to remain constantly connected to avoid the feeling of being excluded from popular cultural moments.

The findings indicate that the FoMO experienced by Generation Z is not solely rooted in personal psychological tendencies, but is strongly shaped by the platform's algorithmic mechanisms that promote habitual consumption, social comparison, and trend-driven participation. The perception that others are continuously enjoying meaningful or socially appreciated experiences leads users to feel pressured to follow trends, produce comparable content, and maintain visibility within digital social circles. As a result, prolonged exposure to this environment may contribute to emotional consequences such as anxiety, stress, and decreased self-esteem.

Furthermore, the study highlights the need to view TikTok not just as a platform for entertainment but as a socio-technical system that influences identity formation, social belonging, and emotional well-being. Understanding how algorithmic curation affects user psychology is essential for developing media literacy and digital well-being strategies tailored to younger users. Encouraging critical awareness of algorithmic influence, fostering balanced media habits, and promoting reflective content engagement may help minimize the negative effects of FoMO while preserving the creative and social benefits of the platform.

In conclusion, TikTok's algorithm plays a central role in shaping the FoMO phenomenon among Generation Z by creating a self-reinforcing cycle of viral trend exposure, social expectation, and emotional dependency.

Addressing this issue requires collaborative effort from educators, policymakers, platform designers, and users themselves to support healthier and more mindful digital media practices in the contemporary social media landscape.

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