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Book Authors as Self-Promoters on X (Twitter) and Their Information Dissemination Networks

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Abstract

This is a research-in-progress paper concerning how authors promote their books on X (Twitter), and what follows in terms of an information dissemination network. Our study is based on a sample of books (*n*=2,960) published in 2023 and extracted from Open Alex. While self-promotion is a common and intuitive way to attract the public's attention to one's scholarly accomplishments, little is known about how this leads to further mentions on X (Twitter). From our pilot dataset, we found that 22% of books indexed at OpenAlex exhibit author self-promotion. We then investigated how '*authoritative*' (first tweets) propagate compared to '*connector*' (retweets) and found that this resulted in different types of networks, some we call 'broadcast' networks; others that are 'chain-like'. We also discovered mixed 'broadcast and chain' networks, and it is these that may provide evidence of interdisciplinary research sharing. Further qualitative research is needed to understand the content of this network type.

Introduction

As a scholarly communication channel, Twitter is used by multiple stakeholders, ranging from individual researchers (Holmberg et al., 2014; Ke et al., 2017), libraries (Chu & Du, 2013; Linvill et al., 2012; Veletsianos, 2016; Veletsianos et al., 2017), as well as universities (Kimmons et al., 2017; Linvill et al., 2012). In academia alone, attention has been given to journals (Kortelainen & Katvala, 2012; Ortega, 2017), conference proceedings (McKendrick et al., 2012; Sugimoto et al., 2017), and articles relevant to specific subject areas (Botting et al., 2017; Mahrt et al., 2014). The promotion of articles on social media has been investigated widely (Dixon et al., 2015; Erdt et al., 2017; Fox et al., 2015; Hawkins et al., 2017; Kudlow et al., 2020). Yet, few studies have been carried out pertaining to the dissemination of scholarly books on X (Twitter).

An early study by Thoring (2011) found that the size of a book publisher affects whether or not it will use Twitter for promotional purposes. Snijder (2016) also

discovered that if a monograph is an open access publication, this increases the degree to which it is both tweeted and cited. Further research by Wang and Zuccala (2021) and Wang et al. (2023) have shown that when publishers use Twitter for promotional purposes, their books are more visible, compared to books mentioned by non-publishers.

In this study we investigate book authors who self-promote on X (Twitter) and the information dissemination network resulting from this act. We hypothesize the presence of three types of information dissemination networks (i.e., an isolated network, chain network, or broadcast network) based on the involvement of three types of 'actor' or network nodes: 1) *authoritative*, 2) *connector*, or 3) *propagator* (see **Figure 1**).

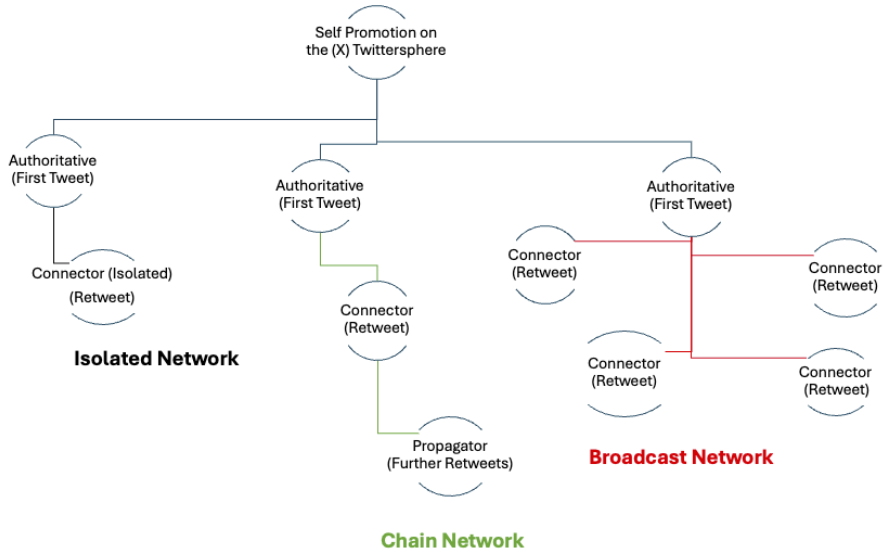

Figure 1. Three types of nodal 'sharing' roles on X (Twitter) and resulting information dissemination networks.

Our motivation for conducting this research relates to the earlier work of Wu et al. (2011), Havakhor et al. (2018), Liang (2018), Wu and Wu (2021), as well as Liu et al. (2023). According to Liu et al. (2023), data used to model how information spreads via social networks, or amongst users on social media, can be both explanatory and predictive.

For example, Havakhor et al., (2018) examined how reputations grow on social media, and found two distinct mechanisms on Twitter: 1) adaptive and 2) objective, each of which corresponded with three knowledge roles: 1) seekers, 2) contributors, and 2) brokers. Although the reputation mechanisms and roles consistently interacted, findings revealed that it was the 'broker' role that 'outperformed' the others. In a

similar vein, Liang (2018) examined patterns of diffusion related to political messages on Twitter, and discovered that a viral diffusion model, in contrast to a broadcast model, increased the likelihood of cross-ideological sharing. Here, the objective is to identify how prevalent it is for authors to 'authoritatively' self-promote their books on Twitter and to examine which type of subsequent dissemination network tends to occur the most.

One reason for mentioning academic work (i.e., in this case books) on a social media platform like (X) Twitter is to ensure that it spreads or reaches as many individuals as possible - i.e., not just 'friends' but also 'friends of friends'. This requires constructing ego networks and examining the nodes to whom the "ego" is directly connected (i.e., 1st-degree ties) plus further ties (i.e., 2nd-degree ties), if any. Ego-networks not only reveal how visible books are in general on (X) Twitter but provide insights into where the presence of *connectors* (1st-degree ties) and *propagator* (2nd-degree ties) might be an indication of interdisciplinary sharing.

Methodology

A dataset of books (n=46,781) published in 2023 (PY=2023) was extracted from OpenAlex on December 3rd, 2024. To determine the X (Twitter) activity associated with these books, we used Altmetrics Explorer at Altmetric.com and relied on each book's DOI or ISBN for retrieval purposes.

Starting with n=46,781 books, we found that a total of n=12,191 books had received mentions on Twitter. However, most of these tweets lacked author information – i.e., we could not determine if it was the author of the book that made the tweet, and the reason for this remains unclear. Our final dataset therefore consisted of n=2,960 books, with authors clearly identified, and where each book had been mentioned at least once on Twitter.

Matching author names to Twitter user-accounts

To identify the authors-as-tweeters, we examined every book for potential matches utilizing a binary approach, like Costas & Mongeon (2020). This procedure involved extracting all the book authors' full names from the OpenAlex records and employing either a "containment-matching" or 'token-matching approach' (Peng et al., 2022). If the names on X (Twitter) consisted of a single-token string – i.e., the author's first name (or last name) had at least 4 characters, it was a 'containment' match; otherwise, the "token-matching" approach meant that the first name or the last name should be matched to the tokens of tweet names (i.e., split by space or underscore).

Classifying the 'ego' network nodes

All the authors-as-tweeters retrieved were classified according to one of four types of network nodes, based on tweet/re-tweet behaviors: 1) the *authoritative* 2) the

connector 4) the *propagator,* and 4) the *isolate*. The *authoritative* is one who possesses an in-degree =0 and out-degree >0. This type is always retweeted by others, but they themselves never retweet. *Connectors* are users with an in-degree > 0 and out-degree > 0. Whilst they only retweet once, they may be further retweeted by others. The *propagators* have an in-degree >1, and an out-degree=0, since they retweet many other user's tweets, but are not retweeted (i.e., unless we include 3rd degree propagators). And finally, *isolates* possess an in-degree =1 and an out-degree =0.

Preliminary Results

Author self-promotion (ASP) on (X) Twitter

A total of *N*=664 of the N=2,960 books from our working dataset (22.4%) could be traced back to an author's Twitter account and identified as being a self-promoter (ASP).

Table 1. Frequency and percentage of tweets and retweets of OpenAlex books.

	Total #books	#Original tweets per book	#Retweets per book	%Original tweets per book	%Retweets per book
Books: ASP	664 (22.4%)	4,360	13,244	24.8%	75.2%
Books: Not ASP	2,296 (77.6%)	7,188	16,619	30.2%	69.8%

Amongst the *n*=664 author self-promoted books, the majority were single authors (87%). The self-promoted books co-authored by two or more authors represented less than 13% of the data in our dataset. Single authors are therefore more inclined to post original tweets about their books on X (Twitter) compared to co-authors (see **Figure 2**).

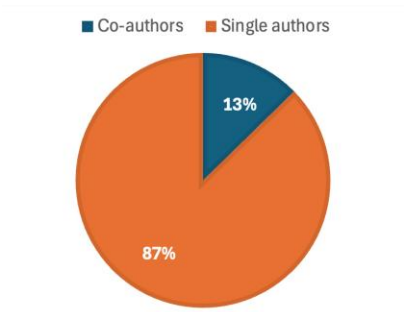

Figure 2. Proportion of single book authors versus co-authors.

Author self-promotion (ASP) roles

We then further categorized the network nodal roles of all the book authors based on their self-promotion efforts (see **Figure 3** and **Figure 4**). We found that single authors primarily took an *authoritative* role (48.4%), followed by a *connector* role (30.9%) in the overall information diffusion process. Co-authors, on the other hand, tended to function primarily as *connectors* (35.4%) or *isolates* (14.1%). This suggests that single authors often undertake self-promotion via original tweets, whereas co-authors are more likely to retweet, or 'connect' the initial tweet of someone else.

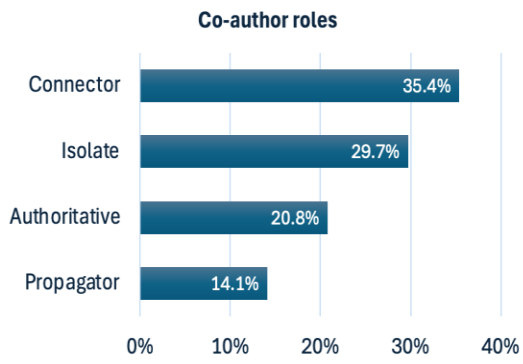

Figure 3. Percentages of the different types of co-author roles in the X (Twitter) dissemination network.

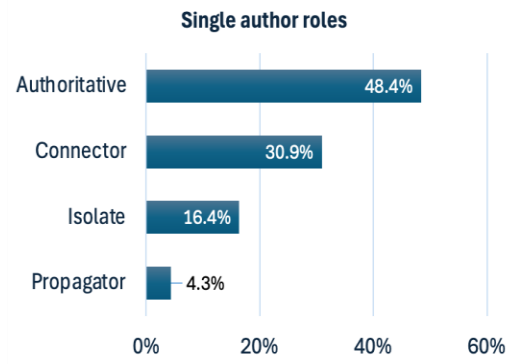

Figure 4. Percentages of the different types of single author roles in the X (Twitter) dissemination network.

Authoritative self-promotion and network types

Here we examine the information dissemination networks for authors who play an 'authoritative' network role (n=97/664; 14.6%) as well as those who play a 'connector' role. **Figures 5** and **Figure 6**, below, present two 'birds' eye views of the networks, constructed using Gephi. Each demonstrates that the prospects for information diffusion are quite different depending on the role that an author plays on X (Twitter). The first Twittersphere (**Figure 5**) is less interconnected than the second (**Figure 6**), therefore authors who self-promote '*authoritatively*' tend to achieve less visibility compared to those who self-promote by 'retweeting', or 'connecting' to another X(Twitter) users' endorsement' (first tweet).

Figure 5 specifically illustrates the presence of 'isolated' networks, as well as small 'chain networks' based on one *authoritative* node, a *connector* tweet (1st degree tie) and a *propagator* tweet (2nd-degree tie) tweet. Here we also see the prevalence of various broadcast networks, where one *authoritative* author node is linked to multiple different *connector* nodes (1st-degree ties). The presence of mixed broadcast and chain networks, shown up close in **Figure 7**, indicates where a content analysis of individual tweets might provide evidence of interdisciplinary information sharing on X (Twitter).

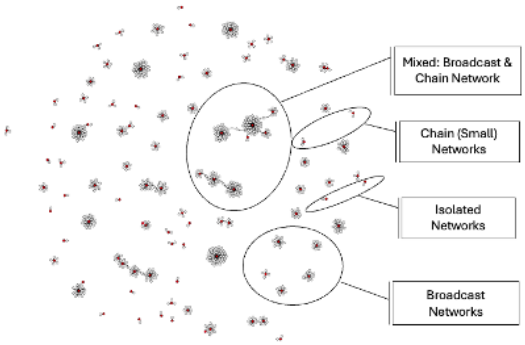

Figure 5. Authors who self-promote their books on X (Twitter) via an *authoritative* role (i.e., first tweets).

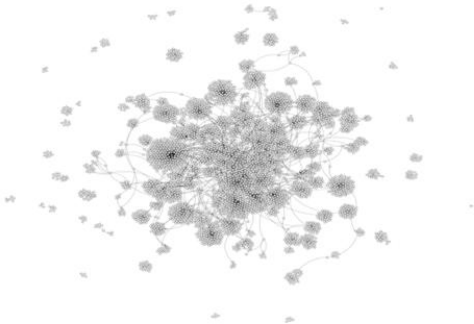

Figure 6. Authors who self-promote their books on X (Twitter) via a *connector* role (retweets).

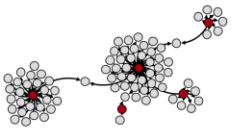

Figure 7. Mixed broadcast and chain networks. Ego-node (red) is self-promoting author.

Conclusions

Our analysis reveals that single-authored books dominate author self-promotion (ASP) efforts on Twitter, with nearly half of the authors acting as authoritative nodes. The hybrid broadcast-chain structures observed in 14.6% of authoritative ego networks suggest latent opportunities for cross-disciplinary engagement. Future research will combine ego networks to identify role shifts from authoritative to connector or propagator over time and whether these shifts affect book visibility. We also plan to expand cross-platform analysis and compare X (Twitter) dissemination patterns with Mastodon/BlueSky to assess the degree of platform dependency in scholarly book promotion.

Acknowledgments

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