

Does COVID-19 pandemic make webinars more open? A cross-country analysis

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Past studies have documented a dramatic increase of webinar adoptions by educational institutions during the COVID-19 pandemic. However, it is unclear whether this also means that, out of all the webinars offered by those educational institutions, there have been more free webinars, which arguably can attract a wider audience and provide them with more opportunities to develop knowledge and skills, in comparison to the not-free ones. This study, thus, aimed to fill this literature gap. In doing so, it utilizes digital footprints from Facebook postings made by verified university pages in three developed and three developing countries over the past decade, obtained using CrowdTangle. Our analysis indicates that the proportions of free webinars increased significantly only in the United States and Indonesia during the pandemic. The proportions remained relatively stable in Australia and Malaysia, but significantly decreased in the United Kingdom and India. We discussed conditions that might lead to these discrepancies.

CCS CONCEPTS • Applied computing → Computers in other domains → Publishing • Information systems → World Wide Web → Web applications → Internet communications tools → Web conferencing

Additional Keywords and Phrases: Free, webinar, COVID-19, cross-country

1 INTRODUCTION

Webinars or web-seminars are virtual seminars that are mediated through dedicated applications (e.g., Zoom, WebEx, Demio), in which speakers broadcast their lectures to distant audiences through the internet [8,11]. Most webinars are live or synchronous such that they have similar opportunities with in-person seminars in engaging audiences [12]. In this respect, both speakers and participants in webinars can interact and have real time discussions as is the case in in-person settings [15]. It is worth highlighting, however, that it is who gives the lectures, which differentiate webinars from conferences. In a conference, both participants and speakers are expected to give materials. Whereas in webinars, participants are more as a receiver, while speakers are more as a giver of the materials.

Compared to in-person seminars, webinars have indeed more advantages. For instance, webinars reduce travel time and expenses, making it relatively more cost-efficient and environmentally friendly compared to in-person seminars in which speakers and participants need to be in the same room [5,14]. Furthermore, webinars can accommodate a higher number of participants located in distant places, while still maintaining relatively similar learning results with in-person seminars

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[2,3,6,12]. From an economics perspective, this advantage makes webinars have a higher economy of scale such that its cost can be minimized, even be made free for some individuals. For example, a webinar in a university can be made open to the public, since its costs have been covered by student tuition or other sponsors [9].

Despite the benefits, webinars, just like other forms of e-learning practices, were still not common practice in some countries, particularly those lacking the internet infrastructures [15,17]. However, during COVID-19 pandemic, webinar adoptions have increased significantly in many places [13,16,20,21]. This phenomenon, partly, is due to the non-pharmaceutical pandemic mitigation policies adopted by many countries requiring their citizens to limit travels and stay home, forcing educational institutions to replace in-person seminars with webinars [13].

While the number of free webinars has increased during the COVID-19 pandemic, it is unclear whether the proportion of free webinars in comparison to all webinars has increased during the same time period. Examining this phenomenon is arguably important for global development since the more open webinars the higher the opportunities for the public to develop their knowledge and skills [18,19]. This research, therefore, aimed to investigate it by comparing the prevalence of all webinars prior to and during COVID-19 pandemic, before focusing on the free ones in comparison to their not-free counterpart. In doing so, this research focused on Australia, the United Kingdom, the United States, India, Indonesia, and Malaysia. The first three represent English-speaking developed countries, whereas the last three represent developing countries whose languages use the same word “webinar” to refer to the same practice.

2 RELATED WORK

As mentioned earlier, webinar adoptions have increased significantly in many places during COVID-19 pandemic. For example, the Association of Anesthetists in the United Kingdom tripled the number of sponsored webinars during the pandemic compared to in 2017 [9]. The same was true for free plastic surgery webinars in this country, which have increased to up to 100 per week on average since WHO declared the pandemic in 2020 [13]. In Indonesia, Facebook and Instagram posts advertising webinars appeared more often in 2020, accounting for up to 19 and 63 posts per day, respectively [16]. This phenomenon is also reflected in the global growth of webinar app downloads, which increased by more than 45% in just two weeks in March 2020 [4]. However, these studies were limited to a single field of knowledge or discipline within a country. None of them dealt with a broader subject, let alone cross-country analysis of the prevalence of free webinars prior to and during the COVID-19 pandemic. Thus, our study would fill this void in the literature by providing a bird's-eye view of the phenomenon via a big-data approach.

3 METHODOLOGY

3.1 Dataset

We retrieved our dataset from CrowdTangle, a public insight tool from Meta that provides archives of open contents on Facebook, Instagram, Reddit, and Twitter [1]. CrowdTangle allows researchers to query and download the archives using any keywords and various filters such as date of post as well as country, language, verification status, and category of the accounts. It should be noted that the language feature filters the contents based on the accounts' selected language in their setting, not the language used in the posts. Hence, filtering posts using English language will exclude accounts whose default language is set as other languages even though they use English in their posts. Furthermore, verification status indicates if the accounts posting the contents officially represent their associated figures/organizations or not, which in turn filters out fake accounts. Account category tells the classification with which the accounts are registered under on social media.

In this study, we retrieved public content of verified Facebook pages classified under the “University”, “Community College”, “Art School”, “Medical School”, and “Nursing School” categories in the countries of interest (i.e., Australia, United Kingdom, United States, India, Indonesia, and Malaysia), from January 1st, 2012, to December 31st, 2021, using a keyword: “webinar”. Facebook pages are places on Facebook for public figures, companies, organizations, and universities to communicate with their followers, fans, or consumers [7]. Different from Facebook profiles, Facebook pages are by default and meant to be publicly visible. Indeed, a university can have more than one verified page representing different departments, schools, or colleges. However, for this study, we treat one verified unique page as a sole page. This process resulted in 31,262 posts about webinars on various topics posted by 1,250 unique verified university Facebook pages. The dataset is available for download on the author’s GitHub page.

3.2 Procedures

3.2.1 Classifying

We performed text analysis with the help of Pandas package in Python to classify whether a webinar in a post is free or not. Webinar posts that have the word ‘free’ in either the message, the link description, or the picture, thus were classified as free webinar, and not otherwise. As for webinars in Indonesia and Malaysia, we also used additional words “gratis” and “percuma”, which is the native word of “free” in their respective national language to classify if webinars are free or not. We prefer to use the label “not free” rather than “paid” as a precaution since it could be the case that in some webinars, participants did not pay the cost but rather they indirectly paid it through tuition fee.

3.2.2 Measuring

After having all webinars classified as either free or not free, we measure its prevalence for each year in addition to the number of verified pages holding said webinars for each year in each country. We also calculated the yearly average number of webinar posts per verified university page for each country to get a standardized measure that arguably made the cross-country comparison fairer since some countries (e.g., the United States) did have more verified universities’ Facebook pages compared to some others (e.g., Indonesia, Malaysia). For example, in 2021, in Indonesia there were 303 free webinar posts posted by 53 unique university pages. While in the same year in the United States, there were 324 free webinar posts posted by 872 unique universities’ pages. Thus, the yearly average number of free webinar posts for Indonesia and the United States in 2021 are 0.37 and 5.72, respectively.

3.2.3 Analyzing

Once we have all the data classified and measured, we visualized the prevalence of both free and not-free webinars for all countries. Following this, we performed a series of chi-square tests between the free/not-free status of webinars and pre/post-COVID-19 prevalence to examine whether there exist significant association between the COVID-19 pandemic with the increase or decrease of free webinars. Such significant findings ($p < .05$) suggest that the prevalence of free and not-free webinars is significantly different, highlighting the role of the pandemic in either increasing or decreasing the number of free webinars in that country. Considering the developing countries barely adopted webinars in the early 2010s, we only incorporate webinar prevalence from 2018 through 2021 to make it a more equal comparison. The first two years subsumed under the pre-pandemic category while the last two years subsumed under the pandemic category.

4 FINDINGS

Figure 1 depicts the total number of webinar posts on Facebook and verified university pages with webinar posts on Facebook in each country from 2012 to 2021. As can be seen, the three developed countries on the left (i.e., Australia, United Kingdom, and United States) began adopting webinars significantly sooner than the three developing countries on the right (i.e., India, Indonesia, and Malaysia). All six countries have seen significant increases in both the number of webinars and the number of universities hosting said webinars following COVID-19, with India and the United States far ahead in terms of raw webinar adoption amid the pandemic. Nonetheless, another interesting pattern emerges, with three countries (i.e., Australia, the United States, and India) experiencing a significant decline in webinars in 2021 compared to 2020, while the remaining three countries (i.e., the United Kingdom, Indonesia, and Malaysia) continue to see an increase, albeit not as sharply as in the previous year.

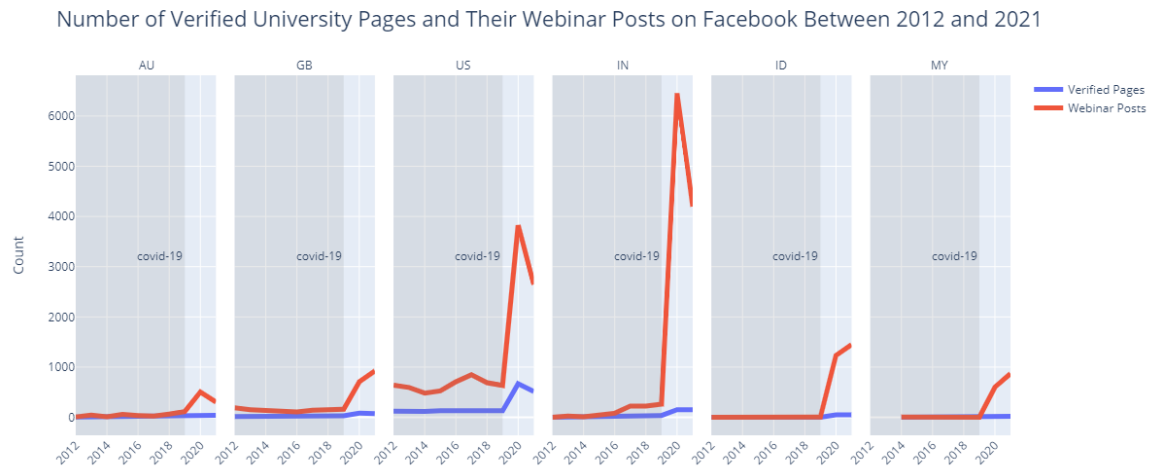


Figure 1: Total webinar posts (top) made by a number of verified pages (bottom) on Facebook between 2012 and 2021 in each country.

As mentioned previously, the raw numbers may not tell the entire story, as some countries have significantly more universities with an official Facebook page than others. Having said that, Figure 2 illustrates the annual average number of webinar posts per verified university page from 2012 to 2021 where the developing countries turned the tide in terms of webinar adoptions compared to the developed countries for both the free and not-free webinars.

As shown in Figure 2, even though the number of free webinars increased in almost all countries, its prevalence remains lower than not-free webinars, which has a dramatic increase. In this respect, the greatest increase occurred in India followed by Malaysia, Indonesia, Australia, the United Kingdom, and the United States. As for the United Kingdom and the United States, even though the average number of webinars increased during the COVID-19 pandemic, they were still lower than the average number of webinars that occurred a decade before the pandemic.

Average Number of Free vs Not Free Webinar Posts by Verified University Pages Between 2012 and 2021

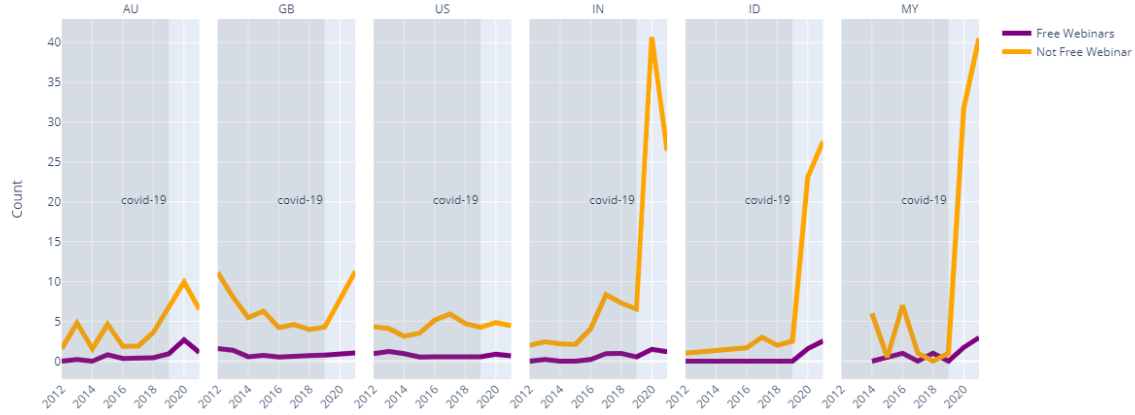


Figure 2: Comparison between free (bottom) and not-free (top) webinars between 2012 and 2021 in each country.

To test if the increase in free webinars is significant and thus associated with pandemic, we performed a chi-square test for each country as previously mentioned. In doing so, we only incorporated the last four years to have more equal comparison as explained earlier. Table 1 presents the results.

Table 1: Chi-Square Tests Summary

Country	2018-2019		2020-2021		Chi-square	p-value	Prevalence of Free Webinars out of All Webinars Amid COVID-19 Pandemic
	All Webinars	Free Webinars	All Webinars	Free Webinars			
Australia	360	11.67%	808	18.69%	3.358	.066	No significant changes
United Kingdom	1,159	14.95%	1,632	9.25%	4.180	.041	Significant drop
United States	5,118	10.81%	6,472	14.26%	4.251	.039	Significant rise
India	864	9.48%	10,651	3.85%	7.155	.007	Significant drop
Indonesia	27	0%	2,679	7.5%	11.848	<.001	Significant rise
Malaysia	20	33.33%	1,472	6.11%	1.673	.196	No significant changes

Interestingly, the chi-square test results showed that only two countries had a significant increase in the prevalence of free webinars proportion amid COVID-19 pandemic (i.e., United States and Indonesia) while two others had a significant drop, instead (i.e., United Kingdom and India). No significant changes found in the prevalence of free webinars proportion in the other two countries (i.e., Australia and Malaysia).

5 DISCUSSION

Our findings shed additional light on the global phenomenon of webinars during the COVID-19 pandemic. While the number of webinars, including free ones, increased in all countries of interest, confirming previous studies [4,9,13,16], it is a different story when we look at the proportion of free webinars compared to not-free webinars.. In this respect, only in the United States and Indonesia, did the proportions of free webinars increase significantly during the pandemic. While this study did not specifically look for evidence to support the reason for the increase, it is worth noting that the United States and Indonesia were both among the top ten most generous countries in the world [10]. In contrast, in the United Kingdom and India, the proportions of free webinars dropped significantly. Given that the United Kingdom and India were

early adopters prior to and during the pandemic, it is possible that many institutions in these countries used free webinars to increase board membership. Once people became familiar with the promotional programs, they began to abandon them. If this explanation is correct, it is reasonable to assume that many institutions in Australia and Malaysia did not employ the same strategy when they implemented webinars to increase audience reach. As a result, the proportion of free webinars remained relatively constant prior to and during the COVID-19 pandemic.

Considering that webinars disseminate knowledge to wider audiences in more economical way [9,13], it is unfortunate that most institutions in our study did not make them more open. Thus, we suggest future studies to examine factors behind such choices. Additionally, it is worthwhile to dig deeper into the webinar content and determine whether there is a discrepancy in the topics covered by free and not-free webinars, as well as how they vary by country.

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