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Knowledge Marketplaces: An Analysis of the Influence of Business Models on Instructors' Motivations and Strategies

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Abstract

Unlike MOOC platforms such as Coursera or edX, which typically partner with institutions of higher education, online knowledge marketplaces allow anyone to broadcast courses and charge for them. In this article, we investigate, through a mixed-method approach, the motivations and strategies of the instructors of Udemy and Skillshare. Semi-structured interviews and a quantitative analysis of the characteristics of Skillshare's courses, obtained using a Web scraper, suggest that while a significant proportion of the marketplace's instructors are outreach driven, the majority are income driven. They develop strategies to maximize their revenues, notably by adapting the characteristics of their courses, such as the number of videos, to the business model of the platform. Courses are shorter on Skillshare than on Udemy, where instructors' incomes are proportional to the number of registrations. We hypothesize that the latter platform's business model incentivizes instructors to create longer courses in order to attract wider audiences.

Keywords: marketplace, MOOC, instructor, content analysis

Introduction

Marketplaces, Business Models, and Instructors' Motivations

While massive open online courses (MOOCs; Daniel, 2012) have attracted considerable attention from media over the past decade (Pappano, 2012), less publicized platforms for teaching and learning, known as *knowledge marketplaces* (KMs), have been gaining momentum (Author, 2019). Represented by companies such as Udemy and Skillshare, KMs allow anyone to publish and monetize courses on various topics, ranging from data science to photography. One can find books on course design specifically written for these independent instructors (Mardan, 2018). However, despite the growing popularity of these platforms, there is, to our knowledge, hardly any research on the topic.

KMs are occasionally mentioned in MOOC literature (Tovar et al., 2013) and these marketplaces themselves sometimes use the term MOOC to describe their courses (Choy & Tay, 2016). MOOCs and KMs share similarities, in the sense that they rely primarily on videos and quizzes, even if more complex activities are common on both types of platforms (Udemy, 2019). However, in marketplaces, courses are produced by independent instructors, not necessarily affiliated with an educational institution, while experienced faculty members account for most of the instructors of MOOC platforms such as Coursera and edX (Evans & Myrick, 2015). Additionally, courses in KMs are usually not freely available, and these classes do not lead to a certificate or statement of accomplishment. In contrast, Coursera and edX usually offer free access to courses, at least for a short time, but charge for certificates (Coursera, 2015, 2016). Alternatively, they make available yearly subscriptions, using a model that dates back at least to the early 2000s, when the iconic online learning platform, Lynda.com, was launched. The statistics provided by the marketplaces themselves also highlight the differences with what is usually labeled as a MOOC platform.

For example, marketplaces offer more courses. While there were 2,700 courses on Coursera at the time of the analysis in early 2019, there were more than 100,000 courses on Udemy, 42,000 instructors, and 30 million users (Udemy, 2018). Business models (BM) also differ considerably (Table 1); while MOOCs rely mostly on certificates to generate revenue, marketplaces sell access to content. Udemy offers instructors the possibility to create free or paid courses, with prices ranging from $10 to $200, while the marketplace takes a commission. Learners usually pay for each class they want to access; it is a registration-based or pay-per-course BM. Conversely, Skillshare, another of the largest marketplaces, relies on subscriptions.

Table 1

Comparison of the Business Models of Udemy and Skillshare at the Time of Analysis

Characteristic	Udemy	Skillshare
How learners are charged	Pay-per-course	Monthly subscription
Price range	From $10 to $200 per course	$14 a month for the whole platform
Revenue model for instructors	Proportional to the number of registrations	Streaming-based (revenue is proportional to the number of videos viewed)

For $14 per month, as of 2019, learners on Skillshare were granted unlimited access to all courses, while instructors were paid according to the number of minutes of videos that users viewed; we will call this BM the *streaming model* (Skillshare, 2016). Both platforms authorized the creation of tuition-free classes, possibly as a means to drive more users to register. Finally, while course categories ranged from poetry to physics on MOOC platforms, KMs asked their instructors to label their courses based on a list of categories and subcategories. For instance, the typology of categories proposed by Skillshare includes business, technology, creativity, and lifestyle. KMs appear more openly mercantile than MOOC platforms, in the sense that they only promote topics likely to generate income for both the company and the instructors, whose motivations are the focus of the present article.

Conceptual Framework and Research Questions

Over the past four decades, a growing body of scientific literature on motivation has emerged. The Self-Determination Theory (SDT) (Deci & Ryan, 2000; Ryan & Deci, 2000, 2020) represents one of the most common theoretical frameworks in the field of education. While initially focused on learners' motivation, various authors have also applied the framework to teachers and instructors (Stupnisky et al., 2018).

The SDT has been used extensively to conceptualize the difference between intrinsic and extrinsic motivation and to distinguish different types of extrinsic motivations (Ryan & Deci, 2000). External motivation and intrinsic motivation represent both ends of the spectrum. In the former, external regulation or external rewards, such as money, regulate motivation, while in the latter, enjoyment and inherent satisfaction play this role. Identified and introjected regulation represent two types of extrinsic motivation where personal importance and ego involvement or internal rewards control behavior, respectively. For instance, for an instructor, being motivated by the idea of democratizing education and spreading one's knowledge arguably corresponds to an identified regulation, while public recognition would classify as an introjected motivation.

In research articles focused on MOOCs (Zhu et al., 2019), most instructors do not seem to be driven by external rewards, such as income, given the importance that motives such as the democratization of education appear to take in survey answers. It is unlikely to be the same for KMs, whose objectives are more openly mercantile. This thinking led us to formulate several questions. First, to what extent does the mercantile philosophy of knowledge marketplaces deter instructors who are not externally motivated from broadcasting classes on these platforms? It is likely that the importance that marketplaces give to monetization attracts individuals who are more income driven, or, in other words, externally motivated, than MOOC instructors. However, the existence of free courses on both KMs led us to propose a first hypothesis (H1): a significant nucleus of instructors teach on these platforms for the outreach they offer, rather than for the incomes they potentially create. Through the lens of the SDT, introjected or identified regulation plays a stronger role than external regulation for such instructors.

The difficulties associated with the use of large-scale surveys to poll course designers make it challenging to assess how well represented this category of individual is, but some other approaches can be followed. More specifically, we can scrape course characteristics such as tuition fees at the scale of the platform, and we can assume that the higher the proportion of instructors who provide free courses, or mostly free courses, the more corroborated H1 is. Nevertheless, if interviews provide clues that instructors tend to propose free classes mostly to promote chargeable classes, H1 could be partly invalidated.

Another question raised by KMs' strategies with regards to their BM is to what extent financial incentives shape the structure of their catalog. In other words, how does the BM influence the choices that instructors make in terms of course characteristics? The apparently longer duration of courses on Udemy led us to propose the following hypothesis (H2): income-driven instructors, where external regulation plays a strong role in their motivation, adapt the characteristics of their course (duration, media) to the BM of the platform in order to maximize their revenues. In a pay-per-course BM, increasing the amount of content available in a class could represent an attempt to give learners a stronger sense of return-on-investment. In a streaming-based BM, the instructors' economic interest is to decrease dropout, which is synonymous with revenue loss, by providing shorter classes. Therefore, if courses indeed last longer on Udemy than on Skillshare, and if some instructors admit that their content design strategy depends upon the BM, it would corroborate H2.

To test these hypotheses, we used a mixed methods research (Tashakkori & Teddlie, 1998; Creswell & Plano Clark, 2007). With the help of a Web scraper, we performed a quantitative analysis of the characteristics of twelve thousand courses from Skillshare, which we complemented with descriptive statistics originating from Udemy. We then conducted fourteen semi-structured interviews with instructors from both Skillshare and Udemy; we compared our results with the literature on the motivations of MOOC designers. After a short discussion on the definition of MOOCs, we provide, in the next paragraph, a brief overview of the research published on the topic.

Motivations of MOOC Designers: A Literature Review

At least two elements can explain the lack of consensus regarding the definition of a MOOC. First, as a buzzword that has attracted considerable attention, it was used to designate a variety of online courses and pedagogical resources and as a synonym for e-learning (Author, 2016). Second, on what most people refer to as MOOC platforms, e.g., Coursera or edX, characteristics and business models evolved quickly (Coursera, 2016), and differences between platforms became blurrier over time. In the literature, however, authors generally use the term MOOC to refer to courses broadcast on platforms such as Coursera, edX, or Futurelearn (Daniel, 2012). From 2016 onwards, certificates were usually charged for, but course content remained freely available (Coursera, 2015). In this article, we define a MOOC as an online course following a business model in which there is free content but a charge for certificates, regardless of the academic affiliation of course designers. According to this definition, a MOOC is typically designed by an institution of higher education, but even platforms like Coursera or edX have partnered with companies such as Microsoft or institutions such as the World Bank for course delivery.

MOOCs' instructors initially attracted little attention from the scientific community (Deng et al., 2017). In a review encompassing 183 studies, Veletsianos and Shepherdson (2016) found that less than 10% of studies focused on instructors and course characteristics. However, there are a few notable results found in both the grey and scientific literature. Interest in course instructors increased after the publication of a 2013 study in *The Chronicle of Higher Education* (Kolowich, 2013). This first work surveyed instructors, and results highlighted the existence of a mix of motivations: increasing their own visibility on the one hand, and altruistic motives such as providing free access to higher education on the other hand.

Haavind and Sistek-Chandler (2015) as well as Zheng et al. (2016) conducted interviews with, respectively, eight and 14 MOOC instructors and confirmed their interest in both global impact and name recognition. Evans and Myrick (2015) expanded on this work by surveying almost 200 respondents and following that up with semi-structured interviews. Their research showed that MOOC

instructors were experienced faculty members with little prior online experience. Lowenthal et al. (2018) confirmed that beyond the global impact, instructors were not ignoring benefits for their careers, in terms of visibility or research opportunities. Through a mixed-method study featuring a survey sent to 143 MOOC designers, Zhu et al. (2019) also showed that building institutional reputation was a recurrent motivation for most instructors in their sample, even though it seemed less important than the possibility of reaching new students and increasing access to higher education. Finally, Doo et al. (2020) highlighted the importance that launching these online classes had, for teachers, in terms of professional development.

Most respondents enrolled in these investigations belonged to academia, which partly explains why MOOC instructors did not appear to be money-driven. Direct economic benefits were not often mentioned by instructors, although some respondents mentioned indirect financial benefits (marketing a book, etc.). Platforms such as Coursera or edX typically collect a significant part of the revenue stream, and what is left for the partnering institutions is not necessarily redistributed to instructors. Symbolic rewards, such as public recognition, seemed to be one of the most efficient incentives for these teachers, which, as we will see in the results, can also be the case for instructors broadcasting their courses on marketplaces.

Method

The characteristics of more than 12,000 of Skillshare's platform courses were extracted using a Web scraper. The results of the quantitative data analysis were compared to the outcomes of 14 semi-structured interviews conducted with instructors from both Udemy and Skillshare. We, therefore, followed a mixed-methods approach (Creswell & Plano Clark, 2007), with the intent to triangulate results from both the qualitative and the quantitative studies. This approach seems to have gained momentum in MOOC research over the 2010s (Zhu et al., 2020).

Semi-Structured Interviews

Construction of the Interview Canvas

From April to May 2019, 14 semi-structured interviews were conducted. The interviews lasted between 30 and 50 minutes, with a median duration of approximately 40 minutes. We based the interviews on a canvas, with necessary adaptations in both the order and the exact formulation of the question. The canvas was divided into three parts: background of the instructor (degree, etc.), motivations to design the course, and strategies. Questions in the strategy section touched upon the actions that instructors would take to widen their audience. More specifically, we asked them how they chose the topics they would teach, and how they would try to promote their courses. The goal of this qualitative analysis was neither to achieve representativity nor to explore the full range of instructors' motivations and strategies, but rather to provide insights into the results of the quantitative analysis of the catalogs of the marketplaces.

Selection of the Interviewees

Instructor contact information was obtained from the courses' landing pages. As the e-mail address was usually unavailable on the platform, addresses had to be searched and were found on instructors' personal Websites, blogs, or YouTube channels. For each topic, ten instructors were contacted, with a

frequency of twenty e-mails per week over four weeks. A total of 80 interview requests were sent, with a response rate of 25%. The instructors were chosen to obtain the most diverse and complete sample possible in terms of gender, nationality, number of courses, topics of courses, and seniority on the platform. Only 14 instructors agreed to be interviewed. When quoting them in this article, we use the letter I for interviewee (I1 = Interviewee 1).

The survey population was predominantly male (12 men, 2 women) and originated mostly from France (6), followed by the United States (3), Canada (1), India (1), the Netherlands (1), Uruguay (1), and Brazil (1). The instructors were teaching on Udemy only (8), Skillshare only (2), or both (4). The instructors published courses in the following categories: technology (5), design (4), business (2), science (2), and lifestyle (1). The number of courses created by each instructor ranged from 1 to 210, with a median value of 6. Interviews were conducted using Skype or Zoom, recorded with the built-in recorder provided by these video conferencing tools, and fully transcribed afterwards.

Quantitative Analysis of Marketplaces' Catalogs

Scraping has been used successfully in the past to explore the characteristics of courses at the scale of the whole MOOC platform, such as FUN (Author, 2018). Our initial plan was to analyze course catalogs from both Udemy and Skillshare, but Udemy prevents Web scraping and explicitly prohibits it. While some data were manually collected on Udemy, we focused on Skillshare, using the Web scraper plugin Data Miner in the Google Chrome browser.

Manual Explanation of Descriptive Statistics from Udemy

Though Udemy does not allow Web scraping, it provides aggregated statistics on course length that allowed us to make a comparison with Skillshare. The number of hours of video available in each course was the only data we collected from the website. For a given topic (computer science, for example), classes were divided into four categories (less than 3 hours, between 3 and 7 hours, between 7 and 17 hours, and more than 17 hours). We compiled these data for all topics, which allowed us to compare the distribution of course duration between the two platforms. It is important to note that while data collection and aggregation were manual for this variable on Udemy, and automated on Skillshare, we collected the exact same data and used the same technique to plot the distribution of the variable, which enabled us to compare both KMs.

Using a Data Scraper on Skillshare's Catalog

The Data Miner plug-in allows extracting data from specific Web pages. We focused on the following variables: course name, course category and subcategory, instructor name (which was replaced, right after extraction, by an anonymous ID), number of students enrolled in the course, and course duration (in hours). We provide, in the following paragraph, a more detailed account of our approach, along with some basic descriptive statistics.

Data scraping could be performed on only a single page at a time, and it was not possible to display all Skillshare's courses on a single page. We, therefore, extracted the data from all the courses of a given sub-category, and then repeated the process on all the subcategories on the platform to have a complete overview of its offerings. There were 40 subcategories at the time of this study. For a given sub-category, it was possible to display a maximum of three hundred of the most popular courses (based on the number of enrollees) on a single page. Several sub-categories had fewer than three hundred courses. For the sub-categories that included more than 300 courses, it was observed that beyond the limit of three

hundred (i.e., the 300th course listed), the remaining courses had only a few to zero participants. They were considered negligible in terms of platform activity since they were hardly visible to prospective learners. In the end, data for a total of 12,314 courses were obtained from a total of 28,000 courses listed on the platform. This database was cleaned and analyzed using the statistical software R version 3.2.

There were imbalances among categories in terms of registrations (Table 2). For instance, while courses from the technology category represented 18% of the courses analyzed, they accounted for less than 5% of enrollments. Courses in the creativity category were the most popular, with 62% of registrations on the platform. The number of courses in this category was slightly lower than in the business category: 29% vs. 31% of total offerings. Most instructors (58%) who produced more than one course specialized in a single category. However, more than a third (42%) produced courses in different categories. The diversity of topics is more striking when we look at subcategories: 72% of instructors designed courses that belonged to different subcategories.

Table 2

Characteristics of the Different Categories of Courses in Skillshare

Course category	% courses on the platform	*M* registrations	% registrations on the platform	*M* course length (min)
Business	31.00	488 (±2,208)	22.70	66 (±88)
Creativity	28.70	1,452 (±3,644)	62.50	64 (±78)
Lifestyle	22.40	296 (±1,022)	9.90	53 (±77)
Technology	17.80	181 (±755)	4.80	113 (±141)

Note. N = 12,314. The number in parentheses corresponds to standard deviations and not variances.

The differences between KMs and MOOC platforms appeared more clearly when we analyzed the number of registrations per course. On platforms such as edX or Coursera (Ho et al., 2014), MOOCs usually attract thousands or tens of thousands of enrollees; courses on marketplaces display much lower numbers. More than half of Skillshare's offerings could not be analyzed because there was not a single registration in those courses. Among the 12,314 courses that we studied, only a small proportion exhibited an audience size comparable to those found in the MOOC platforms. About 18% of courses had less than ten participants, while a third had between ten and a hundred participants, and another third had between a hundred and a thousand participants. The maximum number of enrollees was 60,007. In contrast, many MOOCs gather more than one hundred thousand registrants (Ho et al., 2014).

One benefit of Web scraping with regards to our research questions is the fact that it surveys the whole catalog of the platform, in contrast with online surveys that usually suffer from self-selection bias. We believe that this approach, applied successfully to analyze institutional strategies in terms of MOOC production (Author, 2019), also has the potential to provide insights into instructors' motivations and course design strategies.

Results

We first provide data supporting our hypothesis (H1) which states that, for a significant proportion of instructors, external regulation through external rewards such as incomes plays only a minor role. We notably use results from the analysis of Skillshare's catalog on free courses. In the second section, we focus on income-driven instructors and their strategies to maximize revenues. We show that, on average, courses are shorter on Skillshare than on Udemy. We suggest that it is a consequence of the differences in BM in which a pay-per-course model incentivizes instructors to create more content to attract additional learners.

Instructor Motivations

More than a third of the instructors declared that they were primarily motivated by outreach. However, most interviewees stated that their motivation was the revenue stream. We present excerpts from the interviews that show the importance of online teaching as a source of income in some cases. Finally, a significant portion of the courses were offered for free, which is, according to interviews, not necessarily a means to attract more learners.

Similarities Between Outreach-Driven Instructors and MOOC Designers

The revenue stream was perceived as a secondary motivation for five out of fourteen interviewees. Instructors who claimed they were not money-driven described the goals behind course design in a way similar to how MOOC designers have in the literature: outreach. The motives they listed typically corresponded to identified regulation, a subcategory of extrinsic motivation, i.e., widening access to knowledge and its potentially beneficial consequences in order to improve their learners' lives, etc. This position was exemplified by this faculty member, an assistant lecturer in an American university (I1):

> Some lecturers want to put a lot of courses on Udemy to make a living from them. But I have a living already, I have a job as a lecturer so this for me is something extra, nice, a way of spreading my expertise for people who are interested, not only students [in my university], but also a broader audience.

Unlike some instructors who taught themselves certain topics in order to be able to teach them, these instructors all focused on topics they already knew. A course designer who was also a scholar provided more details on this matter (I2):

> I started with my own expertise […]. It was not the commercial idea of what do people need and I give it to them. No, it was the other way around, what can I do and how can I spread it.

Income-Driven Instructors

In contrast to the previous interviewees, most instructors openly admitted that they broadcast classes on the marketplaces to generate revenue. Some of them even made a living out of the income they get from the marketplace.

This was the case for this 19-year-old French developer, who had become a full-time instructor even though he struggled financially because he earned less than when he was freelancing (I3):

> Today it's my main revenue source, I spend between 6 and 10 hours per day to producing and handling my community. I set big goals, so I need to work hard to reach them. […] I was expecting to live from it sooner or later, but it takes a lot of time and effort.

Some of the people that we interviewed had renounced an academic career to become a full-time instructor, such as this ex-assistant lecturer, who has a Ph.D. in psychology from a Canadian university (I4):

> Right after my Ph.D., I had children and wanted to work from home to be able to spend time with them. I did not want to spend three hours commuting to give a 1h30 class [...]. I wanted flexibility and independence. So I started to create content online.

One of the main challenges that we faced was to determine the relative proportion of outreach-driven vs. income-driven instructors. Given the impossibility of using surveys to address the challenge due to the low response rates, we tried to derive metrics from the scraped data that could provide insights. In the next section, we will discuss how these data showed that chargeable courses account for the majority of Skillshare's catalog, and what this might say about instructors' motivation.

Free Courses vs. Premium Courses in Skillshare's Catalog

We observed a dichotomy between individuals who proposed only free courses and represented 21% of Skillshare's instructors, and those who produced only premium courses – 71% of the 4,541 instructors were included in our study (Table 3). Launching more than one course represented a common behavior: 43.5% of instructors do so. Only 21% of Skillshare's offering is made up of courses designed by an instructor who created only one course, whether free or premium. A nucleus of instructors often designed several courses on the platform, with a mix of free and premium offerings. To sum up, we can observe, based on Table 3, that individuals that propose only paid courses represent the vast majority of instructors, and account for most of Skillshare offerings.

Table 3

Distribution of Instructors by Number of Paid and Free Courses They Produce

Instructor category (by type and number of courses offered)	% of instructors	% of Skillshare offerings*
Paid		
1	42.5	17.5
2+	28.7	46.7
Total	71.2	64.2
Free		
1	14.0	5.0
2+	7.3	14.0
Total	21.3	19.0
Combination of paid & free		
1 paid, 1 free	1.3	1.0
1 paid, 2+ free	1.2	0.7
2+ paid, 1 free	2.2	4.7
2+ paid, 2+ free	2.7	10.2
Total	7.4	16.6

Note. N = 4,541. *Proportion of the platform's total offerings designed by each category of instructor.

It is likely that instructors who propose only free courses are not money driven, with the possible exception of those who have not started posting their premium courses on Skillshare and have just

posted free courses to establish a reputation, in order to subsequently market premium courses more effectively.

While the 21.3% of instructors who produce only free courses are most likely to be outreach driven, we believe that a significant proportion of instructors who create premium courses also belong to this category. They only charge for some courses in order to cover the costs of creating pedagogical resources. This hypothesis was corroborated by some of the interviews. Two instructors explained that charging a fee was to give a sense of quality to their content, or to cover basic costs for course creation, as detailed by this teacher (I1):

> I don't earn a lot […], because most of my courses are free courses. So now I make them available for a little amount [of money], just to give some standards to them.

These findings suggest that it is not possible to categorize instructors as either money-driven or outreach-driven since many produce both free and chargeable courses. Skillshare's catalog analysis shows that they potentially represent a significant portion of instructors, even if money-driven instructors are likely to be dominant.

Adapting Design Strategies to the Platform Rules: The Example of Course Duration

Course duration represents a strategic characteristic with respect to two elements: resource development and income. The cost associated with course development is roughly proportional to the amount of content in an instructor's design. Regarding income, the explanation is more complex, and an instructor must dig into the relationship between dropout and course duration to assess the optimal course length. A common recommendation for online course designers is to decrease the duration of their courses in order to increase retention (Jordan, 2015). While dropouts do not threaten incomes for Udemy instructors, since revenues depend only upon the number of registrations, they do have an effect on instructors for Skillshare since they shifted to a streaming-based BM (Skillshare, 2016). We, therefore, hypothesized that strategies differed between marketplaces in terms of course duration. On Udemy, one way to increase the perceived value is to create long courses, as explained by an international student majoring in computer sciences (I3), who is both a student in a brick-and-mortar university, and an instructor on the marketplace:

> A course that will work is one that will last more than three, four hours or so. The ones that are really well promoted, at least by Udemy, and the ones people buy, are courses that last more than six, seven hours.

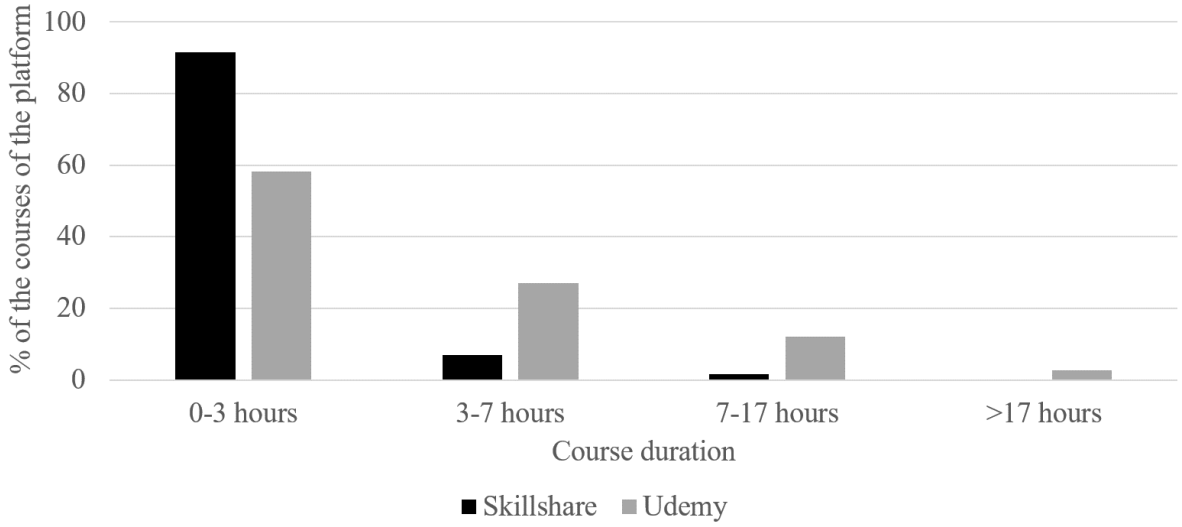
Since Udemy follows a registration-based BM, instructors are often advised by the marketplace's employees to provide more content to give the impression the course is worth paying for. In the same spirit, teachers are advised to set up high prices for registration, even if it means offering large discounts (often -90%) from time to time to fill up their class. On the contrary, since Skillshare's BM remunerates instructors according to the number of minutes of premium video watched by students, it may be considered a better strategy for designers to tackle dropout by creating shorter courses, even if it means launching more classes. They may believe that the longer the course, the more likely a learner is to dropout, which would be detrimental to their incomes. This hypothesis was supported by this American full-time instructor, active on both platforms (I5). He claimed that he published shorter courses on Skillshare than on Udemy.

> I had over 100 of them [courses on Skillshare] believe it or not, but many of those were very, very short; there were a lot of 20-30 minutes kind of basic ideas. […] In reality, it was a thing I could've made into a 30 minutes YouTube video and I just broke it down into pieces and just made it more step-by-step than you would in a normal course. So that was kind of my angle with Skillshare because it was more about volume and just creating courses that at the time it seemed to be producing more revenue on that platform. Udemy had a much stricter process in terms of what you submit.

We tried to assess whether these differences in strategy actually affected course duration. Udemy's descriptive statistics enabled a comparison with Skillshare (Figure 1) and corroborated our hypothesis (H2). Udemy's classes were longer; the 0-3 hours category accounted for 93% of Skillshare's and 58% of Udemy's offerings, respectively. Courses that exceeded seven hours represented respectively 1.5% and 15% of the marketplaces' catalogs.

Figure 1

Course Duration in Skillshare and Udemy



Note. Skillshare N = 12,314. Udemy N = 106,192.

These descriptive statistics seem to indicate that BMs impact designers' strategies and affect course characteristics, with longer classes in registration-based BMs. In the following discussion, we dwell further on the evolution of BMs of distance education and compare their differential influences.

We begin with a brief synthesis of our results.

Discussion

Income- vs. Outreach-Driven Instructors

Interviews and analyses of catalogs seem to support both our working hypotheses. On the one hand, marketplaces' instructors appear to be more money-driven, and therefore, their motivation seems to be

more externally regulated than is the case for MOOC designers. However, we identified a nucleus of outreach-driven instructors (H1), such as I1, who claimed that he was mostly motivated by the potential of expanding his audience. Moreover, the fact that he charged for some classes not only to generate revenues, but also to "give some standards" to them suggests that charging for courses does not necessarily mean that an individual is income-driven. The economic incentives that KMs such as Skillshare put in place do not seem to discourage all instructors from taking a non-lucrative approach to online teaching. Some still provide most, if not all their courses for free, to share their expertise on a given topic in the spirit of what has been done during the MOOC movement (Lowenthal et al., 2018). However, the choice of BM seems to influence income-driven instructors, who tailor their courses according to the BMs of the marketplaces (H2).

They likely prefer to design more material on a platform such as Udemy, with a registration-based BM, presumably in order to give the feeling that the content is worth paying for, as I3 pointed out when he claimed that a course "that will work" will last more than three or four hours on Udemy. The fact that courses are shorter on Skillshare could be a hint that the KM tried to create a situation in which retention was economically incentivized for the instructor.

Marketplaces' Business Models and Their Influence on Instructors' Strategies

Monthly subscription, which is Skillshare's model, represents a singular shift from the pay-per-course model that dominated the distance education market for decades. Instructors compete against one another for learners' attention, and the model drives them to develop strategies to retain their learners; we can hypothesize that it drives those whose motivation is not driven by introjected or identified regulation but by external rewards to increase the quality of their content, in addition to strategies such as decreasing the length of both the course and the pedagogical videos. Excerpts from interviews with I3 and I4 have shown that some instructors strongly rely on the revenues they generate from the KMs. Regardless of the proportion of their incomes that come from the platforms, it means they are incentivized to optimize the amount of content that they design and broadcast, and, more specifically, to increase the revenues they generate per hour of video they create. Authors have shown that retention, especially in MOOCs (Jordan, 2015), is negatively correlated with course length. Author (2019) observed, based on Class Central aggregator's data, that MOOCs had shortened over the year, possibly due to increasing awareness of this issue. This is consistent with what I5 said about his course broadcasting strategy on Skillshare. Producing more classes, but shorter ones, seemed "to be producing more revenue on that platform" because "it was more about volume."

While competition among instructors also exists in the case of Udemy's pay-per-course model, they compete for paying registrations, not for time-on-video. With this BM, dropout does not disadvantage course designers, since users do not get refunded when they abandon the course. Arguably, a drop in students even plays in their favour, since it decreases the time they must spend interacting with learners. Instructors who adopt the pay-per-course model face one of the everlasting contradictions of the online education economy: while both distance education practitioners and scholars have claimed for decades to be trying to tackle the issue (Woodley & Simpson, 2014), dropout decreases operating costs.

Limitations of This Study

In this article, we dwelled significantly upon instructors' motivations, but only through interviews or indirect measurements. A large-scale survey sent to instructors would be required to support further our hypotheses, similar to what was done by Zhu et al. (2019) or Lowenthal et al. (2018) to capture MOOC

designers' motivations. It could have enabled us to get a more precise view of the relative importance of instructors' motivations. Ideally, the survey would be sent by the platform itself to get enough answers to limit biases associated with low response rates. The lack of data on video consumption is also one of the shortcomings of our study. This could notably help to support our claims on the trade-off between dropout and course duration, by enabling us to determine the relationship it has with dropout in the context of marketplaces.

Conclusion

A growing body of literature is emerging on how the COVID-19 situation pushed institutions to embrace remote teaching (Mishra et al., 2020). Such a move was required most often to comply with the restrictions imposed by public authorities. However, articles seem to have focused on higher education, and notably on how universities adopted online platforms and blended learning at a large scale (Peimani & Kamalipour, 2021). Yet, the challenges posed by the pandemic have possibly benefited knowledge marketplaces more than they have academia. It is likely that many learners who could not attend adult training sessions turned to such platforms to compensate. In further research, we suggest exploring how the lockdowns have impacted the number and profiles of both learners and instructors teaching on KMs. It would be especially interesting to investigate whether there was a surge of instructors who tried to compensate for a loss of revenues in face-to-face teaching by converting to online education and, more specifically, by broadcasting classes on knowledge marketplaces.

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