

***E-learning Meets Educational Key Opinion Leaders (Edu-KOLs): A Close-Up Look on Exuberant Platforms and Their Success Ingredients***

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**Abstract**

The teaching medium, which had witnessed stillness without significant changes for almost 40 years, has been undergoing a digital transformation in the last decade and is now being remarkably amplified by Educational Key Opinion Leaders (Edu-KOLs). Constructivism inspired collaborative and interactive learning has been further embedded into e-learning platforms amid the recent pandemic. This paper prominently presents insights from our online survey, which was participated by 186 parents in China and has children who are studying or have recently studied online. The project aims to investigate the relationship between learners' perceived outcomes, motivation and the choice of Edu-KOLs. By applying the Partial Least Squares Structural Equation Modeling (PLS-SEM) method, six proposed hypotheses with the distinctive characteristic of Edu-KOL defined therein were validated and investigated. This research has verified that e-learning platforms, student engagement scores and perceived outcomes strongly correlate with the perception of Edu-KOLs. In contrast, parents' educational level or occupational choices have a more negligible effect on Edu-KOLs. This work has also identified positive correlations between Edu-KOLs and customer advocacy and future purchase motivation, which supports our initial hypothesis. Future research will be carried out on Edu-KOLs' influence on adult learners.

Keywords: Education, Perceived Learning Outcome, MOOC, Influencer, E-learning, Edu-KOL

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## Introduction

Observing the ever-growing popularity of online education platforms, this paper draws attention to the truly influential power of the Edu-KOLs (Zhang et al., 2021) and their ability in empowering the impacts to not only engage and provide knowledge to children but also provide new forms of literacy parity penetrating through online classes regardless of parents' background and working experiences.

The one-way, in-class learning with only educators passing on content carrying knowledge points across different subjects is widely adopted by most of the world population before the COVID-19 pandemic. However, in both learning offline and online, two-way interaction is essential in all types of education (Moore & G. Kearsley, 2012).

The rest of the paper is organised as follows. Section II explains the research background. Then Section III layouts the research methodology and proposed hypotheses. After that, Section IV reveals the data analysis, followed by the discussion of findings and future research in Section V and Section VI, respectively. Final, Section VII concludes this paper.

## Background

An 'Edu-KOL' refers to a brand ambassador or an instructor of an online learning platform or mobile app who is a domain expert in his/her respective knowledge fields and has public recognition, followers, and even a celebrity-like status (Zhang et al., 2021).

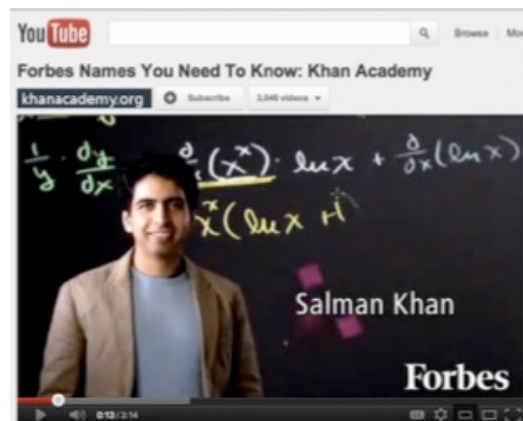


Figure 1: Salman Khan, founder of the MOOC platform Khan Academy

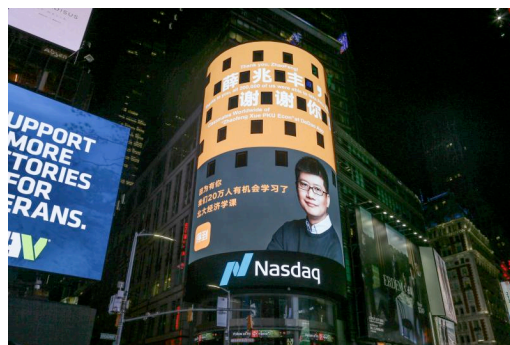


Figure 2: Zhaofeng Xue appeared on this billboard-size screen at Times Square in New York (Source: China Daily, 2017)

Examples of Edu-KOLs include Salman Khan (Figure 1), Andrew Ng, the co-founder of Coursera and Zhaofeng Xue, a Chinese economist and former professor at Peking University, China. His fee-charging course on DeDao<sup>1</sup> App (a Chinese learning app) is the largest economics course in the world, with over 200,000 paid subscribers with the celebration in Figure 2.

Among the growing number of Edu-KOLs rising on different online learning platforms, their creativity in curating the most engaging and effective online interaction also shined through. A Canadian researcher Stephen Pallen used the gaming live-streaming platform – Twitch, to teach programming in a real-time setting (Figure 3). The viewership since six years ago is more than 17, 000 and still counting, demonstrating agility in both programming and teaching format consideration.

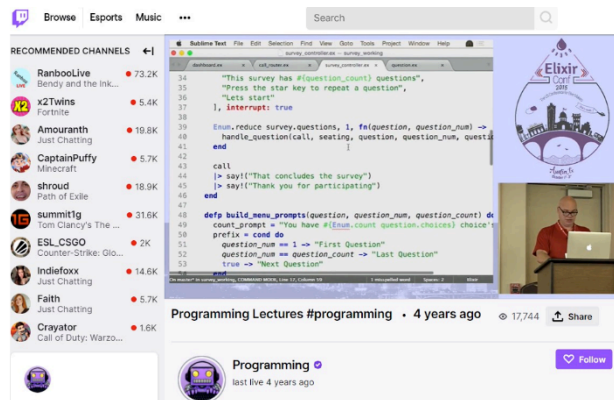


Figure 3: Programming on Twitch (Source: Twitch, 2015)

One of the key attributes shared by all of them is the ability to create new content, either as original creation or remix from past or existing materials resulting in new or even surprising education material for first-time viewers. Content types are further divided by the corresponding creators. In the social selling context, professionally generated content (PGC) (Song et al., 2019) could be videos that are professionally shot and edited by agencies, for which the brand ambassadors or KOLs are starting to explore. The creator community includes all types of creators, and they have laid the foundation for the evolved User-generated Content (UGC) and more specialized Occupationally-generated Content (OGC) (Zhao et al., 2017), where Edu-KOLs exist (Figure 4). The Edu-KOLs are one type of the major OGC contributors, who might be highly influential educators in the top universities such as academic professors or industry experts in different domains.

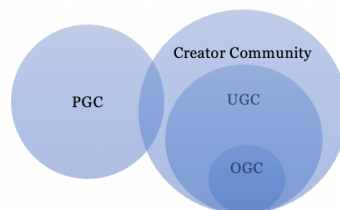


Figure 4: Relationships among different content-generating type

In recent research (Zhang et al., 2021), empirical evidence has been found on the education digitalisation and paid knowledge model with the emergence of Edu-KOLs. We summarised

<sup>1</sup> <https://www.dedao.cn/>

the initial findings from the literature review for three different online learning environments and they were examined from the perspectives of audience type, subjects offered, the format of content, teaching method and learning mood of students. It has been observed that users tend to choose courses delivered by lecturers with many followers and high recognition among open online communities (Zhao et al., 2018).

	<i>Institutional Platform</i>	<i>MOOC Platform</i>	<i>Paid knowledge Platform</i>
Examples	edX, MIT	Coursera, Udemy, Udacity	Zhihu Live, DeDao App, Xueersi App
Audience	Students	Paid students	Registered users
Subject	Syllabus subjects	K-12, higher education, micro credentials	Formal educational subjects, life hacks, random knowledge
Format	PGC	PGC, UGC	OGC
Teaching method	One-way	One-way Express	Both-ways Interactive
Learning mood	School sessions	Self-paced, mostly individual	Live interaction, peer learning, collective

Table 1: Characteristics of virtual learning environment

To serve the purpose of analysing different virtual learning platforms across different cultures in a broad context, it is critical to consider (1) the popularity of a virtual learning platform in that particular cultural context, (2) the history of how those platforms evolved from the single point of traditional in-class pedagogy to the online format, and (3) the distinctive characteristics of the chosen platforms that ride the waves of pedagogy digitalisation with Edu-KOLs. With all these factors considered, we chose China to start this study.

Thinking of e-commerce, China overtook America by market size in 2013 (Zhang et al., 2020), with current market size of \$2 trillion, more than the combination of America's and Europe's. A new digital China is fuelled by a slack of the most valuable technology titans, like Alibaba and ByteDance, just to name a few. They empowered not only online retail but also online education among many digitalised categories. Silicon Valley has known for its venture capital activities, start-ups, and technology companies, whereas China now had inevitably changed over its perception from just 'made in China' to 'created in China'. Creator-centric trends not only dominated Chinese Tech Giant's central stage on e-commerce sites such as Taobao and Pinduoduo, but also made their debut on paid knowledge and education platforms, including Zhihu Live, Apps like DeDao, Xueersi, Yuanfudao, and dozens more.

Numerous researches (Lou & Yuan, 2019; Long & Tefertiller, 2020; Zhang et al., 2019) have been carried out surrounding KOLs' definition, characteristics, and business value blooming on the social selling networks on the frontier of the e-commerce platforms such as above mentioned Taobao or Pinduoduo. A group of scholars built a feature-based Expertise, Novelty, Influence, and Activity (ENIA) framework with a mixed research method to effectively identify the opinion leaders (Li et al., 2013) in the online learning communities. However, that work didn't take into consideration of the posting forwarding data, which may, along with

‘likes’ and rating reviews, serve as the basis of recommendation mechanisms for KOLs to be promoted to similar audiences by the current users of the network.

Key drivers for the consumption of paid knowledge products are review scores and interactions between KOLs and live participants, which have been identified by researchers as the most significant effects on monetization among other features including price, duration, material attachments, and so on (Abraham et al., 2019; Liu et al., 2011). Those on-field findings put on practical lens towards how effective the Edu-KOL is in driving satisfaction and outcome of live courses. The following section will propose a set of hypotheses to address the research gaps identified through the literature review, where we thoroughly investigated the influence power and characteristics of Edu-KOLs and their perceived effectiveness from parents.

## Research methodology and design

### Research Hypotheses

Based on the theoretical interpretation of the past literature, this study proposes the following key hypotheses (Figure 5) to be tested and analysed:

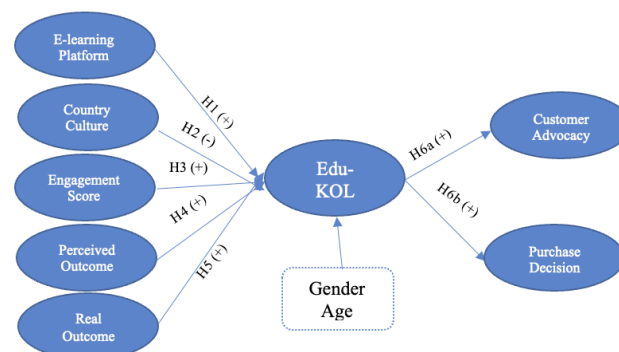


Figure 5: Illustration of the proposed research model

- H1. E-learning platform has a positive influence on Edu-KOL.
- H2. Country-specific culture has a negative effect on the perception of Edu-KOL.
- H3. Learners’ engagement can positively reflect on Edu-KOL.
- H4. The perceived outcome can positively influence the satisfaction towards Edu-KOL.
- H5. The real learning outcome can positively influence the satisfaction towards Edu-KOL.
- H6a. Edu-KOL has a positive effect on customer advocacy.
- H6b. Edu-KOL has a positive influence on the future customer purchase decision.

### Study Design

As the nature of the study is to examine the effectiveness of Edu-KOLs in the online learning environment, it is vital to ensure that the selection of survey participants better covers the major audience for online learning.

Research by HoloniQ<sup>2</sup> indicates that the spending on online degrees was \$36 billion in 2019, with the forecast to triple the figure by 2025. Many online courses are taken by two types of

<sup>2</sup> Holoniq.com. 2021. [online] Available at: <<https://www.holoniq.com/markets/higher-education/global-online-degree-and-micro-credential-market-to-reach-117b-by-2025/>> [Accessed 23 December 2021].

students, namely children who are in the K-12 education progression and adult learners who study for career progression or interests off-work. In this study, we concentrate on Chinese parents whose children have taken online learning in the past or recently. Given the heated trend and hyper-growth of e-learning platforms boomed in China, it is the ideal testing site for the research purpose.

## **Data collection**

Based on our research scope and research model, an online questionnaire was implemented which was approved by the Human Research Ethics Committee of the University of Wollongong (approval number HREC 2021/299) before it was made public to Chinese audiences via advertising through WeChat, the most popular and frequently used social media app in China during the ‘golden week’ period<sup>3</sup>. In total, 186 parents participated, out of which 156 were valid submissions. Respondents who are outside the selection criteria or submitted incomplete survey results were excluded<sup>4</sup>.

## **Data analysis**

### **General Observation from Participants**

The proposed data analysis method is PLS-SEM given that (1) there are more than 100 valid responses to estimate SEM, (2) the structural model is complex and includes many constructs, indicators and model relationships as shown in the research model (Figure 5), and (3) this research requires latent variable scores for follow-up analysis.

Based on the summarised demographic profile of the respondents and their weekly usage of e-learning platforms, the results indicate the number of mothers who participated in the survey nearly doubled the number of fathers. A total of 61.54% of respondents are within 26 to 35 years old, followed by 30.13% within 36 to 45 years old. Over half of the participants have a bachelor’s degree or above, which indicates a high educational level among parents. Participants’ occupations spread across various career types and categories. Among the most used and popular 17 Chinese and 10 overseas MOOC platforms, 40.38% of parents used or heard of 1 to 2 Chinese platforms whereas 88.47% used or heard of 1 to 2 overseas platforms. 44.87% of them are familiar with 3 to 5 Chinese platforms whereas less than 11% know about more than 3 overseas platforms.

### **Measurement Model Validation Assessment**

In this section, we present the theoretical consideration and statistical analysis to reveal the validity and reliability of the chosen measurement model. As shown in Figure 5, the research model consists of seven latent variables, which are multifaceted and difficult to capture through a single observed variable. Thus, as shown in Table 2, by identifying and using multiple observed items we achieve the goal for better validity and analysis of the proposed research model.

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<sup>3</sup> The 1st to 7th October 2021 in China, is a 7-day national holidays during which most people are finally off work to rest or travel.

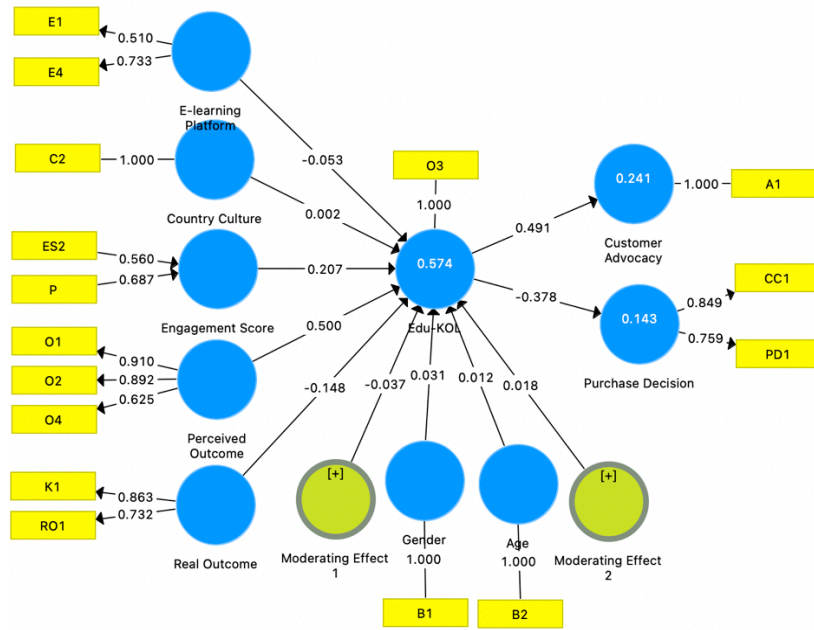
<sup>4</sup> Survey link: [https://uow.au1.qualtrics.com/jfe/form/SV\\_7NYM9bs2PvTRK2G](https://uow.au1.qualtrics.com/jfe/form/SV_7NYM9bs2PvTRK2G)

<i><b>Construct</b></i>	<i><b>Description</b></i>	<i><b>Factor loading</b></i>
A1	Parents' willingness to recommend to others	1
B1	Participants' gender	1
B2	Participants' age	1
C1**	Participants' education level	dropped
C2	Participants' occupation	1
ES1**	Average hours weekly spent learning online	dropped
CC1	Edu-KOL's influence on online course choices	0.849
E1*	Type of platforms – internal learning system	0.51
E2, E3, E6**	MOOC, Micro credential/certificate	dropped
E4	subject-specific course	0.733
ES2	Comfortable interacting with Edu-KOL	0.751
K1	Edu-KOL's knowledge level	0.863
O1	Satisfaction on the learning outcome	0.91
O2	Satisfaction on Edu-KOL's teaching method	0.892
O3	Satisfaction on Edu-KOL	1
O4*	Satisfaction on perceived outcome	0.625
P	Satisfaction on pricing	0.843
PD1	Willing to purchase courses because of Edu-KOL	0.759
Age	Moderating effect of age	1.034
Gender	Moderating effect of gender	0.962
RO1	Children's final score – real outcome	0.732

\*\*factor loading<0.708 hence dropped, \*factor loading close to 0.708 hence kept for further analysis

Table 2: Measurement constructs and reliability via factor loading analysis

We first performed the examination on the indicator loadings of the reflective measurement model. According to Hair et al. (2019), loadings above 0.708 are recommended, which means the construct represented more than 50 per cent of the indicator's variance. Factor loading lower than 0.708 is dropped from the model, as shown in the table above. However, E1's factor loading is 0.51 and O4 is 0.625, considering they are closer to 0.708 thus retained for further analysis. This formed the baseline analysis of acceptable items. We then further evaluated the data divergence validity and reliability and confirmed the model is valid for this research purpose.



\*p < 0.05, \*\*p < 0.01

Figure 6: The PLS-SEM model

**Discussion**

In the questionnaire, a 10-point Likert scale was deployed, where the point ‘10’ represents strong agreement or positive sentiment with the statement, and consequently ‘1’ represents strong disagreement or not even been considered. As detailed in the previous section, we first tested the PLS-SEM model to be valid, robust and statistically significant to provide insights into Edu-KOLs. Table 3 shows that five out of six hypotheses were supported in this study. This sets a crucial step forward to understanding the role that the Edu-KOLs play in the online learning environment.

<i>Hypothesis</i>	<i>Std coefficient</i>	<i>Outcome</i>
Hi1: E-learning Platform -> Edu-KOL	0.90	Supported
H2: Culture ->Edu-KOL	0.03*	Not supported
H3: Engagement scores ->Edu-KOL	2.42	Supported
H4: Perceived outcome->Edu-KOL	6.10	Supported
H5: Real outcome ->Edu-KOL	2.35	Supported
H6a: Edu-KOL->Customer advocacy	8.26	Supported
H6b: Edu-KOL -> Customer decision	5.66	Supported

Standard error in hypothesis, \*p < 0.05

Table 3: Hypothesis testing summary

**Influencing factors when choosing Edu-KOL**

As shown in Figure 6, the e-learning platform played a positive role in selecting Edu-KOL. Students’ engagement scores from classes also positively correlate with the choice of Edu-



KOL, which means the higher the engagement level, the better they consider learning from the Edu-KOL of the class. Both perceived outcomes and actual outcomes are in positive correlation with the choice of Edu-KOL. A better-perceived outcome of a specific course, or a higher score of students, is positively fitting in line with the consideration of the Edu-KOL.

### Parents’ education level and occupation have limited effect on choosing Edu-KOL

The country culture variable is listed as ‘not supported’ in the hypothesis. In the survey design, we used parents’ education level and occupation as the country culture indication for the testing environment of China. The initial assumption is that the higher level of education parents have achieved and/or the better job they are having will impact how they decide on choosing online courses for their children. However, in the PLS analysis, the data interpreted didn’t support this argument. Regardless of parents’ education level, or current occupation level, it won’t influence how they select what courses and which Edu-KOL for their children. This is particularly interesting and counterintuitive but also showed all parents, regardless of their background or experience, are willing to spend the most they could afford in order to achieve the best possible educational outcome for their children, and they are able to identify what represents a good Edu-KOL.

### Reputable Edu-KOL is the crucial decision point for customer advocacy

When surveyed on the motivation and reason for recommending a course to others, 70% of the respondents attribute it to ‘the Edu-KOL is knowledgeable’, whereas 25% consider ‘because the course itself is important’, and only 5% ‘friends also like the Edu-KOL’. Parents also asked their top three priorities when considering online courses, and responses indicate Edu-KOL’s reputation has ranked top three among the first three priorities (Figure 7).

Rank	Priorities	Votes	Priorities	Votes	Priorities	Votes
1	Content	42	Format	34	Friends/parents recommended	35
2	Edu-KOL reputation	29	Review	27	Content	21
3	Review	22	Edu-KOL reputation	22	Edu-KOL reputation	18
4	School recommended	20	School recommended	21	Format	16
5	Format	10	Content	20	Chanel	15
6	Friends/parents recommended	10	Friends/parents recommended	16	Review	13

Figure 7: Top Reasons for Parents to Choose a Course for Their children

### Conclusion

This paper has examined how Edu-KOLs have been perceived to influence parents on their consideration and motivation for children’s online learning journey. By conducting in-depth data analysis from the valid survey responses via the PLS-SEM model, we have verified the six predefined hypotheses, as to whether Edu-KOLs have a positive correlation with a perceived learning outcome, new customer retention and purchase decision. Subsequently, the second phase of interviews will be conducted via Zoom to collect relevant qualitative and quantitative data to further investigate the hypotheses of this research and set out to explore the adult learners’ direct attitude and perception towards Edu-KOLs.

It is a foreseeable future learning technology and platforms should seriously consider Edu-KOLs’ role in motivating and facilitating learners’ journey with the influence on perceived learning outcomes.

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