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How learning evolved from offline classroom to online platforms with its amplifier, Edu-KOLs: A systematic literature review

Full research paper

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Abstract

Key Opinion Leaders (KOLs) gradually emerged on e-commerce platforms with their influencing power on global audience. E-learning platforms followed suit on drawing the influence of educational KOLs (Edu-KOLs) for perceived learning outcome, customer retention and branding. This paper presents a systematic literature review on the thematic of traditional learning and its transformation into e-learning platforms. We seek to achieve a preliminary analysis into current development and trend on educational digitalization and its effectiveness, particularly with its amplifier, Edu-KOLs who lead new waves of learning for Gen Alpha¹ and beyond. This literature review summarizes terminologies on Edu-KOLs, and prudently reviews the locus of past research on e-commerce platforms with extracted KOLs' analysis. The findings indicate a wide research gap given few research directly yielded into Edu-KOLs' impact, whereas mounting empirical evidence for e-commerce platforms with perceived outcome through KOLs.

Keywords Education, E-commerce, E-learning, KOL, Paid knowledge platform

¹ Birth range within 2013 – 2025. <https://www.careerplanner.com/Career-Articles/Generations.cfm>

1 Introduction

Social media has long been a highly debated and researched field through different lenses with one particular growing interest, KOL.

The Creator culture (Törhönen et al. 2020) came into the spotlight after Google’s acquisition of YouTube in 2006. In China, Youku, Weibo and many other social platforms were forming their voices and started to track loyal followers to date. Research indicated that creators across nine online platforms in the US earned \$5.9 billion (Shapiro and Aneja, 2018). In China, the growth of the KOL economy saw blooming creators evolving from UGC (user-generated content) across social selling platforms to OGC (occupationally generated content) (Liu 2017).

Teaching medium, which has not undergone significant changes in the last 40 years, has also been evolving towards digital or online, and is now being amplified by Edu-KOLs. Constructivism inspired collaborative and interactive learning has been embedded into e-learning platforms (Zhang et al. 2020) amid the pandemic. The goal to support at-home learning at a time where virtual learning has become the new normal.

Edu-KOLs could be brand ambassadors or instructors who have gained public recognition, followers, and reputation by capturing wider audience with live engagement, global coverage and content monetization. Andrew Ng, the co-founder of Coursera as well as instructor of one of the most popular AI courses across various learning platforms, and Zhaofeng Xue, the Chinese economist and professor at Peking University who achieved largest economic course via mobile app DeDao with 200K paid subscription members (China Daily 2017), are both Edu-KOLs.

Past research has mounting empirical evidence for e-commerce platforms with extracted analysis on KOL. Little research, however, has investigated e-learning space through the lens of Edu-KOLs and their influential power for knowledge sharing, perceived learning outcome and branding.

This paper aims to analyse the role Edu-KOLs play in the sphere of online education and their effectiveness towards perceived learning outcome, customer retention and branding. By considering how traditional pedagogy has been transformed from learning offline to online and examining the suitable but yet scarce literature at the intersection of e-commerce platforms, KOLs and online learning environment, this paper will attempt to define the role of Edu-KOLs through addressing the following research questions:

- What empirical evidence exists on the education digitalization and paid knowledge model with the emergence of Edu-KOLs?
- What lessons can be drawn from e-commerce platforms with KOLs that might be applicable to e-learning platforms with Edu-KOLs?
- What are the differences and similarities that KOLs on e-commerce platforms share with Edu-KOLs?

2 Literature Review Methodology

2.1 Review Process

Search terms exploration	Databases	Search filters
E-commerce, live streaming	Web of science	Papers not in English; No full text access; Methodology incomplete; Traditional education topics 1985–2021; Online platforms within 2010–2021
E-learning, MOOC, paid knowledge platform, education	Elsevier	
Social media, online learning	Scopus	
KOL, internet celebrity, influencer	Science Direct	
	IEEE	

Table 1. Keywords matrix for literature review databases searching and filtering

Given the research topic is at the intersection of e-commerce platforms, KOLs and online learning environment, the initial screening of relevant publications returned a large set of research papers in each of the three disciplines but few discussing the relationship of the three disciplines. The term Edu-KOL returned zero result in all major databases at the time when the research was carried out because the

term has not yet been coined (which is the objective of this paper). However, during the initial research discovery phase, by forming the research questions above through literature review, we gradually discovered transferable attributes that could be analyzed using the research process shown below. By pairing and cross matching on linked research domains, terms (Table 1.) were grouped by keywords associated with above research topics to reveal the most relevant research papers.

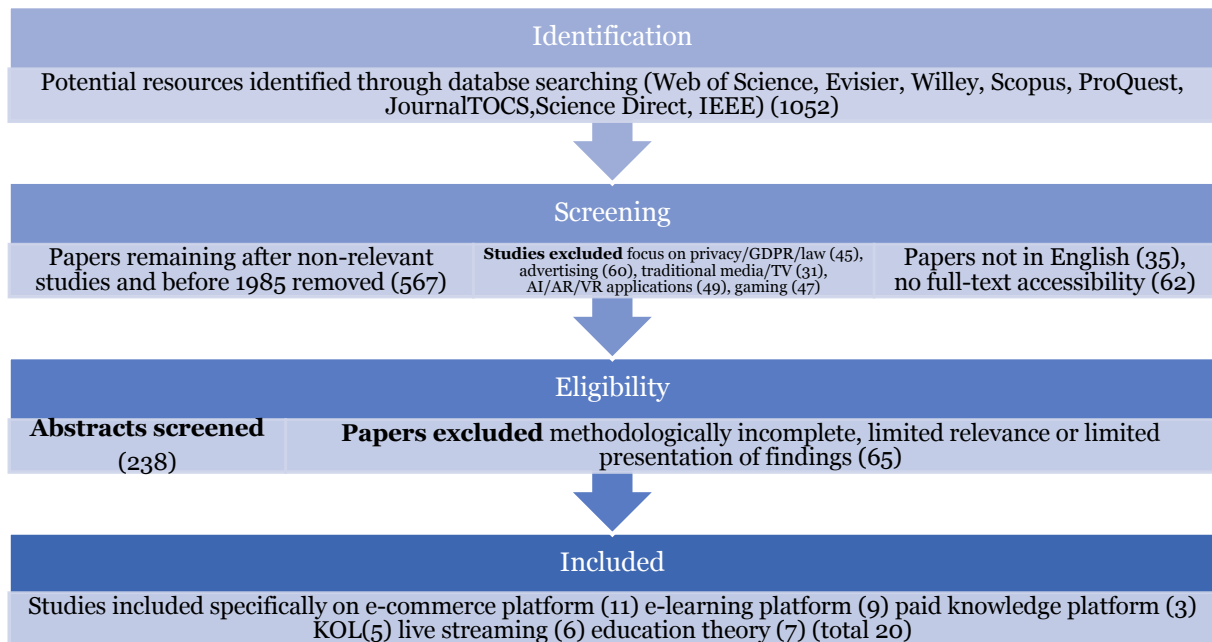


Figure 1: Flowchart of the selection process on literature review articles

3 Insights and Findings

3.1 Terminology and definitions

Given Edu-KOL is an emerging area, summarised the terms that have been collectively used in the cross-domain research (Table 2.).

Wang Hong ²	Online celebrities	YouTuber	Digital nomad
KOL	Internet celebrities	Influencer	Digital Influencer
Creator	Micro-celebrities	Live streamer	Vlogger ³

Table 2. Terminology of KOL in the online community

The variation of the terminology identifies the different characters based on their associated platforms. For example, ‘Wang Hong’, the Chinese term for ‘influencers’, is widely used in China to cover all other alternative names that might have been popular on western platforms (YouTuber, vlogger on Vimeo, etc.). ‘Live streamer’ seems to capture the overall cultural context for the activity by its content type, whereas terms such as Vlogger and YouTuber are more specifically attached to certain platforms or sub-cultures (Törhönen et al. 2020).

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 something new or even surprising for first-time viewers. Content types are further divided by the corresponding creators in the following table (Table 3.). In the social selling context, professionally generated content (PGC) could be advertising videos professionally shot and edited by agencies, which brand ambassadors or KOLs are starting to do. The creator community includes all types of creators, and laid foundation for the evolved UGC and more

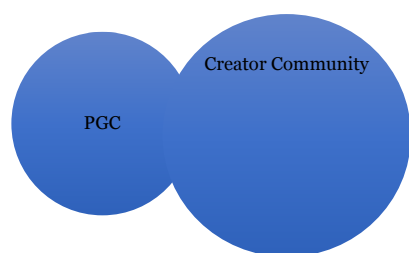
² The Romanization of the Mandarin pronunciation for KOL or internet celebrity, similar to ‘Influencer’ for YouTube and Instagram.

³ Vlogger is a blogger who makes videos, as the content type instead of text entries.

specialized OGC, where Edu-KOLs exist (Figure 2). Edu-KOLs are one of the major OGC contributors, who could be highly influential educators in the top universities such as professors or experts in different domains.

Terms	Definition	Examples
PGC	Professionally generated content	Videos are professionally shot and edited, frequently used for TV advertising, branding message and for media and PR purpose.
UGC	User-generated content	Content generated by users on different platforms, including video, livestreaming, artistic remix, and so on.
OGC	Occupationally generated content	Vocation specific content, i.e., Edu-KOL, makeup artists, dancers, eSport players, singers, and so on

Table 3. Terminology for different types of content defined by who the creators are



For education content, transition from the offline classroom setting to the virtual learning environment typically starts from PGC too. For example, Harvard University and MIT developed edX, a form of MOOC program, is a typical example of PGC. Comparatively, UGC can be created by anyone, among which OGC is created by professionals who are working in different fields sharing their career-specific knowledge, experiences as well as industry insights.

Figure 2: Relationships among different content generating type

3.2 Research findings and results

This section addresses the three research questions by examining the relevant literature in Table 4.

3.3.1 The big picture

How has traditional pedagogy been transformed from teaching offline to online?

From K-12 to higher education, one-lecturer-to-many-students teaching in a physically constrained classroom offline has long been an unchangeable tradition for generations (Kovacova and Vackova 2015). The ‘5th limb’ analogy is no longer new to the post-80s generation, let alone Gen Alpha, where out of body mobile phone seems to always glue to physical beings. City jungles become “hybrid spaces of physical settings and communication networks” (Castells, 2008:449-50 citing William Mitchell). No matter how resistant on changes to the traditional pedagogy, with the advancement of technology, diversified and personalised demand on knowledge intake not only by classic textbook, but also by evolving professions, e-learning has emerged as the diamond of the first water shine through with its radical innovation and agility to scale globally, especially during the COVID-19 pandemic.

In 2007, Mayadas and Picciano have used the term ‘localness’ to refer to situations where students can access educational opportunities no matter whether they are on, near, or far away from campus. ‘The new normal’ in the hindsight was coined by Hinssen (2010) which came to the realization in the light of learning technologies not as teaching aid but as the mainstream educational process. Arguably, we are indeed living in the new normal since the COVID-19.

Education at its heart is to communicate and convey knowledge from lecturers to students. Classroom learning with educators broadcasting knowledge one-way across major pedagogy subjects is a convention (along with many others) we take for granted before the COVID-19 pandemic. Regardless of learning offline or online, interaction is important in all types of education (Moore and Kearsley 1996). Online learning exhibits three major aspects with respect to the framework of interaction, namely learner-instructor interaction, learner-learner interaction, and learner-content interaction (Moore 1989). Online learning offers more freedom for learners to participate in all interactions throughout the process. Research indicated that learner-instructor interaction and learner-content interaction are the significant predictors of student satisfaction (Kuo 2014). In the drastic shift to online learning, educators are utilizing a variety of online education systems to cast knowledge, exert their influence from the physical classrooms to the far-off global audience who are thirsty for learning in real-time.

Paper	Keywords	Research Method	Key Finding
(Ma 2021)	Live streaming shopping, e-commerce U&G, perceptions of digital celebrities	339 Survey, quantitative analysis	Individuals were motivated by gratifications with 1) perceived enjoyment, 2) self-presentation, 3) social presence and interaction
(Törhönen et al. 2020)	Live streaming, entrepreneurship, digital economy, professionalization, YouTube	75 research articles literature review	Importance of social interaction in the creation of commercial gain; video content creation as an occupation is increasingly perceived as creative entrepreneurial work.
(Zhang et al. 2020)	Forum, blog, Wiki, blended learning, reflective learning, collaborative learning	A mixed-method: qualitative text analysis	Constructivism – reflective and collaborative learning provides a main support in education.
(Lee et al. 2016)	Para-social interaction, luxury, Vlog, Vloggers	Para-social interaction (PSI), social comparison theory	Luxury brand perceptions were significantly increased after watching vlog and increases were moderated with the vlogger. Use of YouTube has positive perceptions for luxury brands
(Xue et al. 2020)	Live interaction, live broadcasting, Customer engagement, perceived risk, live streaming	Stimulus-organism-response paradigm	Live interaction positively affects perceived usefulness and negatively impacts perceived risk and psychological distance, promoting social commerce engagement.
(Szymkowiak et al. 2021)	Technology, Gen Z, Internet, knowledge	498 young people survey, ANOVA analysis	Students prefer learnings via mobile apps and video content than the traditional form.
(Akhmedova et al. 2020)	Sharing economy, loyalty, P2p platforms, quality service, collaborative consumption	Quantitative mixed methods of 208 users. Sensitivity analysis	Loyalty is achieved at the intersection of website/app organization, platform responsiveness and reliability, and customer interaction with the peer service provider.
(Hu et al. 2020)	Digital influencer, stickiness, parasocial relationships, wishful identification	Survey of 319 followers	Wishful identification and parasocial relationships have significant but different impacts on followers' stickiness in different genres of influencers' revenue models.
(Ang et al. 2018)	Purchase intention, social viewing, livestreaming, pre-recorded	A scenario-based experiment with 462 participants, SQM	Engaging viewers is important in live-streaming commerce. Consumer's live stream shopping intentions are predicted by the social interaction and social presence.
(Fang et al. 2021)	Post-purchase warranty, free return policy, paid-knowledge economy	Quantitative analysis	Free return policy on paid-knowledge platform negatively influences sales. This relationship is weakened by information richness of extant reviews.
(Cai et al. 2020)	Knowledge sharing, signalling theory, social learning theory, Zhihu Live	Two-phase approach, social learning theory, signalling theory	Price negatively affects sales and cumulative prior sales positively affect next-day sales in both phases. Review score and speaker-audience interactions have significant effects on sales.
(Zhao et al. 2018)	Paid Q&A, user payment decision, knowledge contributor, trust beliefs, reputation	Empirical analysis Trust theory	Knowledge contributors' reputation and trustworthiness attributes (ability and integrity) positively influence user payment decision. Price positively moderates the relationship between user trust and payment decision.
(Zhang et al. 2020)	Paid knowledge content, user-generated content, signalling theory, sales	Signalling theory on 6380 online live courses dataset	The dynamic interactivity between signals and sales of knowledge product transactions, positively affects ratings and followers on sales, negatively affects upvotes on sales.
(Zhang et al. 2019)	Knowledge payment, customer expertise, customer satisfaction, price	Text-mining, hierarchical OLS regression	Expert customers are less sensitive to price. Historical price positively influences the satisfaction of novice customers, but negatively influences on expert customers.
(Van Bommel et al. 2020)	Social media, knowledge, pedagogical, content knowledge	Six Facebook groups data analysis of the threads inside	Social media represents an increasingly important vehicle for informal professional development amongst teachers and provides means of tracing collective knowledge building.
(Törhönen et al. 2020)	Motivation, YouTube, playbour	377 online survey to creators, SQM	The extrinsic motivations (income, prestige) are less significant drivers for content creation than intrinsic motivations (enjoyment, socialization)
(Lu et al. 2021)	Observational learning, Social commerce, social influence	Social influence theory	Online customer choices were significantly affected by historical cumulative sales. Positive cumulative sales and shop service quality have a significant positive impact on product sales.
(Sharma and Klein 2020)	Online group buying, consumer behaviour, involvement, trust, perceived value	Structural equation modelling on a sample of 553 respondents	Consumer perceived value, perceived trust and susceptibility to interpersonal influences all show a significant relationship with consumer involvement.

Table4. Theoretical frameworks and summaries of the key findings from literature review

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Based on the foundation works in pedagogy, learning is the process whereby knowledge is created through the transformation of experience (Kolb 1984, p.38). The four-stage cycle emphasizes one's learning journey from initial concrete experience, through reflection and observation, learning from the experience, and finally to active experimentation.

The 2010 Sloan Survey on online learning has indicated that an estimated 30% of higher education students took at least one course online (Allen and Seaman 2010). Amid the global pandemic, the world witnessed growing tides of student learning journey being forced to move online, which enforced the learning experience to 'live/learn through' others' experience, as opposed to first-hand offline experience face-to-face. Connectivism is amplified for Gen C(OVID) from social engagement to online learning for semesters at home or any location with the Internet access. This further accelerates the digitalization on education platforms, content implementation and the full system integration.

It is not to say that virtual learning is all positive and we should all move away from teaching at the beautiful campus and lovely friends in the same classroom. One consequence of the COVID-19 lockdown is that many students miss the face-to-face interaction with both lecturers and classmates. With this in mind, the negative feelings toward losing in-person connection due to the shift to the digital environment needs to be accounted for when considering student satisfaction. However, many other independent variables can be considered to reveal a clear picture of the almost in-person Edu-KOL model in MOOC. On the other side, learning online is not a 'remote' idea for those remote learners, predominately Gen Z⁴ (Cilliers 2017), who are digital natives living, breathing, and working online 24/7.

Furthermore, research has also indicated that in addition to students using e-learning platforms to continue their K-12 journey or extend their current knowledge graph, teachers are also using social media platforms (Bommel et al 2019) such as Facebook to collectively share and swap notes on difficult problems and pedagogical content knowledge. The highly interactive, informal, and easy-to-collaborate characteristics of social media platforms encouraged teachers to integrate discussion, visual images, videos creations and group calls easily through a tap on mobile phones.

Zooming out for the big picture, it was an evolutionary change not only for students, but also for teachers to mobilize online and spin the flywheel for the e-learning ecosystem to take off.

3.3.2 Findings for research question one

What empirical evidence exists on the education digitalization and paid knowledge model with the emergence of Edu-KOLs?

Today, teaching is facilitated and mediated by social networks, where past research have indicated the pivotal role leadership plays in online learning and signified the positive influences by KOLs in study environment discussions (Li et al. 2013). For example, Coursera which was founded in 2012 by Andrew Ng and Daphne Koller acquired 36 million registered users and earned \$140 Million in 2018 (Forbes 2019). Its earnings further jumped by 59% to \$293 million with a 65% growth in user base in 2020(CNBC 2021). Mr.Ng himself not only is the founder but also taught the classic and widely watched educational video lecture series on Machine Learning and AI, which to date is one of the most highly rated courses on Coursera. He is truly an Edu-KOL in this sense.

Courses offered on those platforms (Table 5.) include universities' bachelor's or master's degrees with the price ranging from \$9,000 to \$ 45,000 (Forbes 2021). The estimated livestreaming value increased from \$5 billion in 2016 (Moshinsky 2016) to \$10 billion in 2018 (Lavin, 2018), with the outlook for \$19 billion by 2022.

It has been observed that users have stronger tendency to choose courses given by lecturers with many followers and recognition among open online communities (Zhao et al. 2018). Course rating and creator popularity have positive impacts on courses sales (Zhang et al. 2020). UGC signals are more persuasive to course purchasers than platform or PGC (Song et al. 2019). Shoppers for knowledge are arguably less sensitive towards price (Zhang et al. 2019). In summary, well-educated customers are less concerned with the price if they see the true value of taking the course. Research conducted by Noel-Levitz (2011) concluded that post-secondary students who were satisfied towards online courses tended to be successful, which indicated that students' satisfaction was a positive indicator for students' learning experiences (Liao and Hssieh 2011).

⁴ Born from the mid-1990s to early-2000s

	Institutional Platform	MOOC	Paid knowledge Platform
Examples	edX, MIT	Coursera, Udemy, Udacity	Zhihu Live, Dedap App
Audience	Students	Paid students	Registered users
Subject	Syllabus subjects	K-12, higher education, occupational certifications	Formal educational subjects, life hacks, random knowledge
Format	PGC	PGC, UGC	OGC (Educational Creators)
Teaching method	One-way	One-way Express	Both-ways Interactive
Learning mood	Self-paced, individual	Self-paced, individual, group projects	Join live interaction, peer learning, collective

Table 5. Characteristics of virtual learning environment

3.3.3 Findings for research question two

What lessons can be drawn from social selling platforms with KOLs that might be applicable to e-learning platforms with Edu-KOLs?

To answer this question, we started to explore by looking at motivations behind KOLs for social selling platform. Shopping online is no longer simply browsing brand's static website, it flourished on livestreaming apps as 'live commerce' or 'social commerce', in which fashion or beauty KOLs often give detailed demonstration of product usage while viewers can purchase directly on the spot. Why did KOLs motivate the creation of videos at those platforms? What are the purposes and relation between the outcomes and the motivation? Empirical research shows (Törhönen et al. 2019) that intrinsic value such as enjoyment of sharing and connecting with their fans and fulfilment feelings are more significant drivers than extrinsic ones such as income, prestige, and so on. This has inspired us to consider if Edu-KOLs share the similar traits.

Compared with selling trading physical goods on e-commerce platforms, Edu-KOLs are 'selling' knowledge content as intangible goods on paid knowledge platforms, such as Zhihu Live (Cai et al. 2020; Zhao et al. 2018; Zhang et al. 2019). Research found that live interaction on e-commerce platforms between KOLs and customers (Akhmedova et al. 2020) and discussions between students and Edu-KOLs via mobile apps (Szymkowiak et al. 2021) positively influence the perceived effectiveness and outcomes in a similar way.

Past research has indicated that the perception of luxury brand can be significantly increased after watching vlog by YouTube influencers (Lee and Watkins 2016). The purchase intention is also positively correlated with vlogs by KOLs. L'Oréal once launched a makeup line inspired by YouTube Beauty vlogger Michelle Phan who had more than 4.5 million subscribers (Lacy 2013) and has increased to 8.86 million in 2021.

Past research also found that brand loyalty, as known as 'stickiness', is one of the most important winning strategies for customer retention (Hu et al. 2020). When comparing findings for the two types of platforms, reputation and trustworthiness of both social selling KOLs and Edu-KOLs have positive influence on driving user purchasing decisions (Sharma and Klein 2020).

A large proportion of live streamers are non-skill based everyone-can-be creators, where 70% are female KOLs appealing to audiences of whom 75% are men (Yang 2018). No past research has investigated the audience demographic for Edu-KOLs, which requires future research for investigation.

The theoretical frameworks utilized by the past researcher for social selling KOLs have captured wealthy insights of attributions and characters associated with the KOLs' effectiveness and perceived outcome (Table 4.). It is recommended to consider adopting those frameworks for future research into Edu-KOLs.

3.3.4 Findings for research question three

What are the differences and similarities that KOLs on e-commerce platforms share with Edu-KOLs?

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Research has demonstrated that in the online purchase environment, customers' choice is significantly influenced by 1) product historical cumulative sales and 2) store star reviews (Lu et al. 2021). Those two features (along with others) have been adopted by e-learning platforms and have vast information cumulated there for further research. Customers look at attributes offered by online learning platforms, such as an Edu-KOL's course sales history, their customer feedback and reviews.

Online group buying platforms, which are some of the most popular e-commerce platforms, have demonstrated that the consumers' perceived value has strong positive relation with the perceived trust. This is evidenced by stronger purchase tendency when customers participate in online group buying activities (Sharma and Klein 2019).

KOL as a career choice did not exist until recent years. The 'go viral' effect has seen a number of influencers becoming almost as well-known as celebrities, including Jiaqi Li on Taobao e-commerce platform, Kardashian family on Instagram and Papi as vlogger on YouTube. Michelle Phan, a self-taught makeup artist posting beauty tutorials on a regular basis, attracted millions of views and became the most-subscribed-to woman on YouTube. Since then it became her full-time job to date (Phan 2014).

	E-commerce KOLs	Edu-KOLs
Platforms	E-commerce website/apps Group buying platforms	e-learning platforms paid knowledge platforms
Influences on choices	Historical products sales Store star reviews	Historical courses sales
Perceived value for customers	Perceived trust Purchase tendency	(Need future research)
Branding	Products branding Personal IP	(Need future research)
Selling	Merchandise Physical products Tangible goods	Knowledge Content Intangible goods
Engagement	Between shoppers and KOLs	Between learners and Edu-KOLs
Accessibility	Global Virtually online	Global Virtually online
Customer retention	'Stickiness' Loyal customers	New student recruitment
Perceived effectiveness	Online sales Conversion rate	(Need future research)

Table 6. Comparison between E-commerce KOLs and Edu-KOLs

Some of the Edu-KOLs across different online learning platforms share a similar experience. When discussing their journey so far, common key words such as 'introvert', "lucky", "surprise", "quit job", "own company", "never imagined" were used (Phan 2014). They also share savvy computers skills (video recording, editing, copywriting, etc.) and performance skills (humor, presentation, etc.). Some even hired their own production and agency teams as the business demand arises.

Being KOLs on the platforms also enabled them to get in contact with anyone around the globe, be their customers, video watchers or students learning remotely. Table 6 illustrates the differences and similarities between e-commerce KOLs and Edu-KOLs, and where further research is required.

4 Discussions on Research Gap

By exploring the three research questions in the previous section, we have summarised the following insights and suggested potential areas to further research on Edu-KOLs.

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Learning offline to online. Chmurova (2013) has distinguished the four steps of e-learning evolution (Figure 3) beginning with static content almost like a ‘step by step read-only’ guide (V1.0). V2.0 explored social media on the encouragement of interaction and certain degree of collaboration. Then V3.0 fast progressed to semantic web of classification of information as an experimental concept. Finally, V4.0 doubled down on AI, MOOC platforms and micro-credential courses online which not only offer thousands of choices on self-paced learning, but also collect invaluable learners’ data for future improvement of the course.

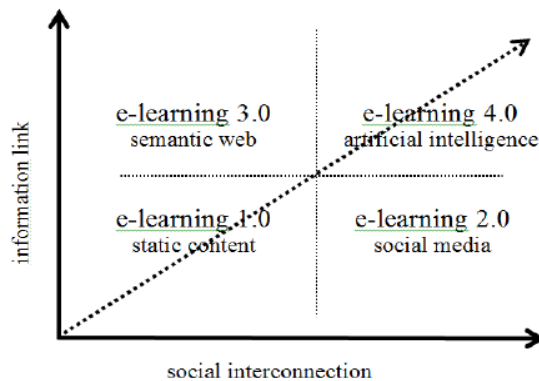


Figure 3: Evolution of e-learning, Source: (Chmurova et al. 2013)

Learning from e-commerce KOLs. Past research captured the perceived outcome of social selling by investigating the soft skill equipped e-commerce KOLs. A group of researchers developed various models to not only identify KOLs and their communities, but also improve the prediction and accuracy on such identification. However, relatively little investigation has been done towards the hard skill equipped KOLs for ‘knowledge selling’ and its effectiveness among adult learners and children.

Edu-KOLs on paid knowledge platforms. Research indicates that the spending on online degree was \$36 billion in 2019, with the forecast to triple that figure by 2025 (Holon IQ, 2021). Edu-KOLs on those platforms attract both attention with monetization value given their superior status, education background and social prestige (Aghdam and Jafari Navimipour 2016).

E-commerce KOLs vs Edu-KOLs. Scholars have examined KOLs’ influential power across different social media platforms including Facebook (Hollenbeck and Andrew 2012) and Twitter (Jin and Phua 2014). Research has been primarily focusing on social attributes of KOLs who generate revenue and social capital from their followers (Lou and Yuan 2019). Some researchers have also discussed followers’ “stickiness” in order to retain brand loyalty and profitability (Lin 2010). However, little research has been devoted to validating those attributes on Edu-KOLs.

5 Conclusion

This paper has set out the overall context to explore the transformation from traditional learning offline to the digital learning online. By examining how KOLs amplified the perceived effectiveness on social selling platforms, and the comparison analysis between e-commerce platforms and e-learning platforms, we discovered multiple dimensions of insights as foundation on Edu-KOLs’ direct influence on e-learning platforms.

We have followed the historical steps on the development of online learning evolvement and reviewed empirical evidence on the education digitalization and paid knowledge platforms with the emergence of Edu-KOLs. This paper also reveals that e-commerce platforms have different business models, which have weighted towards loyal customer (user ‘stickiness’) whereas Edu-KOLs focus on new student recruitment with pervasive growth through learning cycles. By drawing learnings from e-commerce platforms with KOLs, we conducted this initial investigation in the similarities and differences that Edu-KOLs might share with KOLs.

This paper adds specific knowledge, understanding and the foundations for future exploration, in relation to online education, Edu-KOLs, digital transformation for traditional pedagogy and impact on both learners and the society. The paper additionally broadens and deepens the wider contextual knowledge on current development and trend on educational digitalization and its effectiveness, specifically on Edu-KOLs, who lead new waves of learning for younger generations.

Given little research having been directly yielded into Edu-KOLs’ impact, this paper provides initial systematic literature review at the intersection of social selling platforms with KOLs, evolution of learning from offline to online with its amplifier Edu-KOLs. It is still at every early stage to build the direct linkage between e-learning platforms and Edu-KOL.

5.1 Future research

Future research will be conducted to verify whether Edu-KOLs have positive correlation with perceived learning outcome, new customer retention and online courses pricing points. We will conduct online surveys and face-to-face interviews to collect relevant qualitative and quantitative data to further investigate hypothesis based on this research.

6 References

- Aghdam, S. M., and Jafari Navimipour, N. 2016. "Opinion leaders selection in the social networks based on trust relationships propagation," *Karbala International Journal of Modern Science*, 2(2), pp. 88–97. (doi: 10.1016/j.kijoms.2016.02.002).
- Allen, I. E., and Seaman, J. 2010. "Class differences: Online education in the United States," (sloanconsortium.org/sites/default/files/class_differences.pdf, accessed April 11, 2021).
- Castells, M., 2008. "Afterword. In: Katz, J.E. (Ed.), 2008". *The MIT Press, Cambridge, Massachusetts*.
- Chmurova J., Orolinova M., Pribilova K., and Kotuřáková K. 2013. "Implementacia 4 stupnov Kirkpatrickovho modelu v procese merania kvality vysokoskolsksho vzdelavania, Hodnotiaca sprava k projektu". *ITMS 26110230053, 2013*.
- Cilliers, E. J. 2017. "The challenge of teaching generation Z," *PEOPLE: Int. J. Soc. Sci.* 3, pp. 188-198. (doi: 10.20319/pjiss.2017.31.188198)
- CNBC 2021. (cnbc.com/2021/03/31/coursera-ipo-cour-begins-trading-on-the-nyse.html, accessed March 18, 2021).
- Forbes 2019. "Online Education Provider Coursera Is Now Worth More Than \$1 Billion," (forbes.com/sites/susanadams/2019/04/25/onlineeducation-provider-coursera-is-now-worth-more-than-1-billion, accessed March 10, 2021).
- Hinssen, 2010 P. "The new normal," *MachMedia*, Edison, NJ
- Hollenbeck, R. C., and Andrew, M. K. 2012. "Consumers' use of brands to reflect their actual and ideal selves on Facebook," *International Journal of Research in Marketing*, 29 (4), pp. 395–405.
- Jin, S.-A. A., and Phua, J. 2014. "Following celebrities' tweets about brands: The impact of twitter-based electronic word-of-mouth on consumers' source credibility perception, buying intention, and social identification with celebrities," *Journal of Advertising*, 43 (2), pp. 181–195.
- Kovacova, L., and Vackova, M. 2015. "Implementation of e-learning into the Process Security Education in Universities," *Procedia - Social and Behavioral Sciences*, 182, pp. 414-419. (doi:10.1016/j.sbspro.2015.04.810)
- Kuo, Y.-C., Walker, A. E., Schroder, K. E. E., and Belland, B. R. 2014. "Interaction, Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses," *The Internet and Higher Education*, 20, pp. 35-50. (doi:10.1016/j.iheduc.2013.10.001)
- Lacy, L. 2013. ClickZ. (Retrieved May 08, 2021, from) <http://www.clickz.com/>:<http://www.clickz.com/clickz/news/2289589/loreal-debuts-new-make-up-line-by-youtube-guru-michelle-phan>
- Lavin, F. 2018. "China's live-streaming industry is booming – here's how it works," *Forbes*, 19 June. (forbes.com/sites/franklavin/2018/06/19/why-does-china-lead-in-live-streaming/#a1543fc5dcad, accessed 2 April 2021).
- Lee, J. E., and Watkins, B. 2016. "Youtube Vloggers' Influence on Consumer Luxury Brand Perceptions and Intentions," *Journal of Business Research* (69:12), pp. 5753-5760.
- Li, J., Tang, J., Jiang, L., Yen, D. C., and Liu, X. 2019. "Economic success of physicians in the online consultation market: A signaling theory perspective," *International Journal*
- Li, Y., Ma, S., Zhang, Y., Huang, R., and Kinshuk. 2013. "An Improved Mix Framework for Opinion Leader Identification in Online Learning Communities," *Knowledge-Based Systems* (43), pp. 43-51.
- Liao, P.W., and Hsieh, J.Y. 2011. "What influences Internet-based learning?" *Social Behavior and Personality*, 39(7), pp. 887-896.

2021, Sydney

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Lin, J. C.-C. 2007. "Online stickiness: Its antecedents and effect on purchasing intention," *Behaviour & Information Technology*, 26(6), pp. 507–516. (doi: 10.1080/01449290600740843).

Liu, Z. 2017. "Qianxi UGC, PGC, he OGC (An introduction to UGC, PGC, and OGC)," *People's Daily*, 20 January. (yjy.people.com.cn/n/2014/0120/c245079-24169402.html, accessed April 5, 2021).

Lou, C., and Yuan, S. 2019. "Influencer marketing: How message value and credibility affect consumer trust of branded content on social media," *Journal of Interactive Advertising*, 19(1), pp. 58–73. (doi: 10.1080/15252019.2018.1533501).

Lu, J., Su, X., Diao, Y., Wang, N., and Zhou, B. 2021. "Does Online Observational Learning Matter? Empirical Evidence from Panel Data," *Journal of Retailing and Consumer Services* (60), pp. 102480.

Moore, M. G. 1989. "Three types of interactions," *The American Journal of Distance Education*, 3(2), pp. 1-6.

Moore, M. G., and Kearsley, G. 1996. "Distance education: A systems view," *New York, NY: Wadsworth*.

Moshinsky, B. 2016. "Chinese millennials have created a \$5 billion industry in their search for 15 minutes of fame," *Business Insider*, 15 September. (businessinsider.com/credit-suisse-note-on-chinese-livestreaming-industry-2016-9, accessed March 30, 2021).

Noel-Levitz. 2011. "National online learners priorities report," Retrieved from: https://www.noellevitz.com/upload/Papers_and_Research/2011/PSOL_report%202011.pdf

Phan, M. 2014. "Make Up: Your Life Guide to Beauty, Style, and Success – Online and Off," pp. 195-200.

Shapiro, R, Aneja, S. 2018. "Unlocking the gates: America's new creative economy," (recreatecoalition.org/wp-content/uploads/2018/02/ReCreate-New-Creative-Economy-Study-Report-508.pdf, accessed May 10, 2021).

Sharma, V. M., and Klein, A. 2020. "Consumer Perceived Value, Involvement, Trust, Susceptibility to Interpersonal Influence, and Intention to Participate in Online Group Buying," *Journal of Retailing and Consumer Services* (52), pp. 101946.

S. Zha, C.L. Ottendorfer. 2011. "Effects of peer-led online asynchronous discussion on undergraduate students' cognitive achievement," *The American Journal of Distance Education* (25), pp. 238–253.

Song, T., Huang, J., Tan, Y., and Yu, Y. 2019. "Using user-and marketer-generated content for box office revenue prediction: Differences between microblogging and third-party platforms," *Information Systems Research*, 30(1), pp. 191–203.

Törhönen, M., Sjöblom, M., Hassan, L., and Hamari, J. 2020. "Fame and Fortune, or Just Fun? A Study on Why People Create Content on Video Platforms," *Internet Research* (30:1), pp. 165-190.

Van Bommel, J., Randahl, A.-C., Liljekvist, Y., and Ruthven, K. 2020. "Tracing Teachers' Transformation of Knowledge in Social Media," *Teaching and Teacher Education* (87), pp. 102958.

Yang, P. 2018. "A primer on China's live streaming market," 9 September. (hackernoon.com/a-primer-on-chinas-live-streaming-market-352409ad2cob, accessed March 20, 2021).

Zhao, Y., Zhao, Y., Yuan, X., and Zhou, R. 2018. "How knowledge contributor characteristics and reputation affect user payment decision in paid Q&A? An empirical analysis from the perspective of trust theory," *Electronic Commerce Research and Applications*, 31, pp. 1–11.

Zhang, J., Zhang, J., and Zhang, M. 2019. "From Free to Paid: Customer Expertise and Customer Satisfaction on Knowledge Payment Platforms," *Decision Support Systems* (127), pp. 113140.

Zhang, M., Zhang, Y., Zhao, L., and Li, X. 2020. "What Drives Online Course Sales? Signaling Effects of User-Generated Information in the Paid Knowledge Market," *Journal of Business Research* (118), pp. 389-397.

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