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The Journal of Social Media for Learning 2022

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The Journal of Social Media for Learning 2022

## Editorial

*Dawne Irving-Bell, David Wooff, Sarah Honeychurch, Sue Beckingham and Matt McLain.*

Welcome to the 2022 Winter Edition of The Journal of Social Media for Learning.

We still regard ourselves a relatively new journal, so we are proud that as we move into our fourth year of publication our ethos, which is centred around the creation of a supportive space where all colleagues, but particularly those new to publishing, can contribute to the scholarly discourse about their academic practice, and secure opportunities to gain experience of peer-review and journal editing, holds firm. This became apparent during a recent conversation, where offering feedback on their experience of submitting to the journal it was clear that the open and genuinely constructive feedback is pivotal in building confidence. In the absence of the ubiquitous ‘Reviewer 2’ we are delighted to report that our approach is proving invaluable in supporting emergent scholars to build their academic career.

So, moving to explore this, our 2022 ‘Winter Edition’, which is distinct from those we have published before in that. While it captures for dissemination current thought-provoking thinking from the field, unlike previous editions where authors have shared their research informed interventions and approaches via presentations, posters, reflections and think pieces, this edition comprises entirely of research papers.

First up we welcome a paper from Md Sajjad Hosain, Nazmus Shoeb Jamil and Mahbubun Nabi Rasel. Published first via early view, Hosain et al. invite use to discover more about the Utilization of social media for different business purposes: A social media age? Specifically, the utilization of social networking sites, and social networking information as parts of a broader social media for business purposes and practices. Setting the scene, Hosain et al. explain how each has gained substantive importance in recent years, and within their paper they highlight examples of its utilization via an analysis of 132 research papers. Findings suggest that the utilization of social networking sites and social networking information will continue to gain attention, and they conclude momentum from multiple users in the coming years.

Next, we present a paper that explores the Computer Science Educators’ Use of Twitter for Conference Engagement. Adopting Grounded Theory Analysis in this insightful paper, Lenandlar Singh, based in the Department of Computer Science, at the University of Guyana, explores how the computer science education community used Twitter as a conference backchannel. Using Constructivist Grounded Theory methodology, Singh’s work illuminates’ findings generated from participants use of Twitter during five computer science education conferences. Presenting the themes: Promote Scholarship; Connect, Promote and Extend the Research Community; Engage in Professional Learning; Humanise the Conference Space, Singh examines how participants use of the conference backchannel contributed to scholarly discourse extending beyond conference boundaries, and shares the benefits of discourse for the computer science education research community. These include networking, enhanced professional learning, and different ways researchers may engage in public scholarship to promote computer science education research.

Our third paper is from Dr Alice Macharia Njuguna, Zetech University, Kenya and Joyce GIKANDI, Mount Kenya University, who explore ‘Using Learning Management Systems to Scaffold Collaborative and Interactive Teaching and Learning’. Cognisant of the United Nations Sustainable Development Goal 4, which advocates for inclusive and equitable quality education for all, the aim of this study was to establish how Learning Management Systems are used to improve collaboration and interaction in online teaching. Establishing which tools are used to aid in interactivity and collaboration, and how these tools are used to scaffold the teaching and learning process, this paper examines the effectiveness of technology in the classroom to ensure interactivity and collaboration. Adopting a qualitative methodology, data is drawn from the outcomes of two virtual focus groups consisting of faculty staff and students. Analysis indicates that synchronous and asynchronous Learning Management Systems scaffold collaboration and interaction, improve learning outcomes and help build a sense of community. The need for flexibility was identified as crucial, and the study established clear benefits to both learners and faculty staff.

Our fourth paper ‘Social Media as a Pedagogical Tool in Class: Tiktok Case Study’, is a research study undertaken by Sarah Seif, who explores the potential of social media platform ‘Tiktok’ as a pedagogical tool for learning in the university classroom. In an ‘Online Behaviour Class’ undertaken at a University in Egypt, findings suggest that Gen-Z students favour integrating social media to their educational experience. Sharing one example, Sarah Seif illuminates how the creation of short video content, introduced as an alternative approach to assessment, enabled students (participants within this study) to express themselves more creatively, and how via this medium, reflections on learning were more effective.

All too quickly we come to our fifth and final paper which brings this edition to a close, ‘The Cross-Platform Social Engagement of Students’. Penned by Dr Miriam J Johnson, this fascinating paper explores how media, journalism, and publishing students use social media not only within, but beyond the classroom. Focusing on how student cohorts use social media during class, it goes onto examine how it is used by students to communicate about course related content outside of formal teaching. Dr Johnson’s research brings to the fore the obligation that some students feel to answer questions that come into the group social channels, while linking that obligation to a sense of reciprocity. In summary her findings show how these issues are embedded in the value exchange of emotional labour and its relationship to gender. Not all students feel obligated to take part and many indicate levels of frustration at the stream of questions, which can, in turn, exacerbate negative mental health issues in students.

So, as this, our first Winter Edition editorial draws to a close we would like to thank everyone for their support in the production of the journal. Acknowledging the time, effort, understanding and patience of everyone involved. We look forward to publishing our third Conference Edition in the New Year and having supported the journals work for two years in her capacity as Conference Edition Guest Editor we warmly welcome Dr Sarah Honeychurch to the Editorial Team. In addition, we give huge thanks to our reviewers, authors, and in particular Catherine Dishman who oversees the OJS at Liverpool John Moore’s University.

Once again this has truly been a team effort with everyone pulling together on this journey to bring this issue to fruition! If you would wish to get involved, please do not hesitate to get in touch, and as we sign off for 2022, we wish everyone a wonderful festive season and best wishes for a happy and successful 2023.

*Dawne, David, Sarah, Sue and Matt*

The Journal of Social Media for Learning

## **Utilization of social media for different business purposes: A social media age?**

*Md Sajjad Hosain<sup>1</sup>, Nazmus Shoeb Jamil<sup>2</sup>, Mahbubun Nabi Rasel<sup>3</sup>*

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### **Abstract**

The utilization of social networking sites (SNSs) and social networking information (SNI) as parts of broader social media (SM) for various business purposes and practices have gained substantive importance from the academicians and practitioners in recent years. This paper theoretically aims to highlight some of such utilization based on published papers. We carefully selected 132 such papers from “Google Scholar” searching for most frequently used keywords such as SM, SNS, SNI, business, human resource management (HRM), marketing, branding, talent search & acquisition, recruitment & selection etc. After reviewing those papers, we identified that, in general, SM is an increasingly used platform for different business purposes. We anticipate that, despite of several flaws, SNSs will continue to gain momentous attention of all types of users in upcoming years creating a social media based business world. We are hopeful that the paper will be useful for the academicians, practitioners and policymakers from a number of viewpoints.

### **Keywords**

Social media, Social networking sites, Social networking information, Business, Organization, Users.

# **Utilization of social media for different business purposes: A social media age?**

## **1. Introduction**

The term “Social Media (SM)” is the digital WEB 2.0 applications that assist in interacting information, user-generated contents and association (Elefant, 2011). The existence of SM is completely based on the Internet that can be accessed through portals/devices such as computers, tablets and/or cell phones. Such applications are diverse technical mechanisms to interconnect human and information. As defined by Kaplan & Haenlein (2010), “SM is a collection of Internet based applications that is founded on the ideological and technical baselines of Web 2.0 allowing the formation and substitution of user-created contents”.

The word Web 2.0 was first used in 1999 to explain websites that utilize technology afar the stationary pages of previous websites. A Web 2.0 site permits the users to interrelate and work together in a SM conversation as creators of user-created contents in an online society. This is somewhat dissimilar to the traditional websites where the users are confined to only the reflexive screening of content information. However, a substantial part of the discussion regarding social media is practically confined to a particular nature of sites popularly known as “social networking sites (SNSs)”. At present, a number of SNSs are being observed to allow cross-posting. Such networking assists each user to become intimate with maximum number of other users without physically contacting them. Although we cannot easily foretell the future of SNSs, it can be easily guesses that such media or sites will exist some more years to come but may be in different forms and rules.

As already explained before, a SNS is special type of SM where the users can interact with each other through posting pictures, videos and comments, liking & disliking; and sharing the contents. Although SM and SNS are used interchangeably, each of them has a particular meaning. SM is power-driven by Web 2.0 that allows individual connections with the help of technological devices such as desktop, laptop, mobile phone etc. indicating that SNSs, social shopping, social marketing, social playing and social positioning are the entire the components of SM (Haag & Cummings, 2013). On the other hand, SNSs are the online platforms through which people can create accounts, search and add new friends and share information contents (Haag & Cummings, 2013). The first SNS was introduced in 1997 through the formation of Sixdegrees.com allowing the users having a personal online profile and a record of contacts (Boyd & Ellison, 2008). Although different SNSs maintain dissimilar regulations for making links and making friends, one thing is common among all of them. They frequently let users to see the profile of an established link and yet recommend additional links on the basis of a user’s recognized network. There are SNSs such as LinkedIn that are solely created for professional networking, SNSs such as Facebook are functioning between the scope of individual and social networking. Some social networks are created for particular user needs such as Wechat.

The SNSs were initially introduced as the social communication tools primarily intended to exchange of information, viewing contents and chatting. But with the increasing popularity of SNSs, the number of users began to rise soon after they came into operation. Particularly from 2010, the SNSs got the attention of business organizations to boost their product/service promotion, sales & advertising, asking customer feedbacks, branding, attracting; and acquiring talents and communication.

At present, the influence of SNSs on businesses is growing at a tremendous speed. In fact, all organizations, big or small, profit oriented or voluntary, local or global are taking the advantages of huge user base in order to increase the reachability. By means of such astonishing increase, each business presently is trying to control appropriate SM platform in the finest promising manner. One of the fair reasons of this is that the intended audience pool is hanging around the well-liked SNSs and they're tempting with their preferred brands and involving with them on diverse levels. Connecting the organizational brand the SNSs, a firm can not merely produce more business but also can have a better attachment with customers and serve them on a superior level. In fact, it helps the digital marketing to be more convenient and simple. In accordance with Infographic (2019), 71% customers are expected to advocate a brand publicly if having a positive familiarity with it on SM.

## **2. SM in businesses**

Professional and business organizations are able to utilize their social networking subsistence to attach with their existing and prospective customers. The majority of SNS platforms let companies to advertise their products/services, either openly on the SNSs or through a linkage to the company's sales page. This procedure makes it convenient to enlarge the reach of a business using these one-to-one connections that are promising. There are plentiful small businesses and entrepreneurs having flourishing business ideas nowadays that stay alive roughly completely on what they can generate through a social network. Such promotion and branding are almost free to carry out on SNSs. While the businesses can promote their products/services and/or inform their customers (existing and potential) about their products or services, Governments and social organizations also can create public awareness through SM. In fact, a number of Government agencies, social organizations and public pressure groups exist in SNSs and taking this opportunity in many countries.

### **2.1 Advertising, marketing and branding**

The use of SNSs was perhaps started with promotion, advertising and marketing of products/services and company brands. This part of the paper has been devoted to converse the SSNs' role on modern advertising and marketing.

**2.1.1. Leveraging communal marketing:** Social media marketing (SMM) might be fresh on the wedge, but it is rising sooner than we expected. Although the first social network launched advertisement in 2005, it managed to achieve 9.16 billion in advertising income in the earliest quarter in 2017 (lyfemarketing.com). Since a growing number of businesses effectively experimenting with digital advertising, they have got the realization that taking the SMM strategy makes overall logic. The reasons are manifold.

First of all, there almost no or very little cost of advertising through SMM than the traditional methods such as print media, TV and radio advertising, social ads are not merely trustworthy, but also much inexpensive. Furthermore, the firms are permitted to employ a range of SM channels for free (such as, YouTube videos) before going for paid advertisement. Secondly, conventional marketing media does not provide the comfort to arrive at the intended customer group similar to SM social ads can do.



It simply does not work that way. While the firms are advertising offline, they are taking the blind, shotgun approach where returns are miserable even after making huge investments. Using SM ads can help a company achieve targeted projection, augment conversions and eventually get a superior return on investment.

Third, companies can conduct a kind of real-time performance breakdown through SNSs. Being informed about whether the advertisement is functioning or not is very essential to change it. In case of conventional, offline advertising, companies are not capable to study the performance of their advertising campaigns which extremely restricts their hard work. SM advertisements, on the contrary, permit the firms to continually keep track of how well (or how bad) the ads are functioning (through likes or dislikes and the comments on those ads). The firms are capable to change their ads rapidly and immediately observing the outcome. Finally, it is significant for the companies of all kinds to recognize that ads on SNSs are being better and smarter.

**2.1.2. Boosting brand awareness:** SNSs proves to be the powerful tools when it comes to growing brand awareness. There are businesses that release it as a way to build a brand, but by doing that, they're leaving an open ground for competitors. On the other hand, many reputed chief marketing officers (CMOs) consent that SM has some exact impact on creating brand awareness. A company can begin focusing on a particular social platform, find out whether the target audiences are there on it or not. It can perform this by looking for pertinent conversations about the product or industry. As an example, a B2B company may find their audience on LinkedIn rather than Facebook. Once the company knows where the target audience is, it can capture their concentration by using eye-catching visuals with its contents. Images and videos play a big role in serving to grow brand awareness on social media channels as they not only increase engagement but also boost social shares. Secondly, an organization can measure its efforts by the tracking tools provided in the platforms (Facebook page insights) along with other outer tools such as URL shorteners, Google Analytics, etc. to measure social media activity.

The company can use the insights we expand to understand what is working so that it can optimize efforts and build a stronger brand with SNSs. Third, SNSs can help a company to *build influence on the potential customers*. If the companies want a higher engagement rate along with better brand awareness, they should work on building authority by sharing real value. Along with borrowed content, they should post something original they possess, as it adds to the credibility. It should be noted that strong brand awareness is not only helpful for getting potential customers; it can also help an organization to attract and retain potential competitive employees (Rampl & Kenning, 2014; Rampl, 2014; Barrow & Mosley, 2005; Backhaus & Tikoo, 2004; Cable & Turban, 2001). Every single step that an organization takes to increase brand awareness with social media will impact the overall growth of business in the long run.

**2.1.3. Increasing inbound traffic (subscribers):** Inbound marketing is one of the most efficient ways to create targeted traffic to any website. However, if any company ignores the importance of social media in business, the company reputation will be limited to the inner circle of customers or the people that are already well-known with market or brand. By putting more endeavors in SM based promotion, a company can build a complete new channel to draw in targeted inbound traffic and get more inbound links.

For example, having an active blog makes it easy for a company to connect with its audience with the help of fresh content (product pictures, videos and other tools). But by sharing those contents (on the right time) on Twitter or Facebook increases the mass reachability. Companies can suddenly reaching out to a bigger audience that may like plus share the content, follow the brand and ultimately become a potential customer.

Similarly, people who are already keenly searching for keywords related to the product or service are a smaller percentage than those who are not. SNSs help companies attach to this larger, unexploited segment of the market. By using SM, companies can diversify their marketing efforts in more than one way, reaching out not to just one type of crowd, but connect to a versatile customer base. This is very crucial to for any brand to make a mark in its niche market. For example, while the professionals may find the company website via LinkedIn; the younger crowd or the millennials may find the same on Instagram. Each piece of SM content that a company creates is a new entrance for new customers to enter. It is a different opportunity for them to connect. Ultimately, it boils down to creating enough high quality content that can be posted on SNSs and in the process can catch the attention of high-converting inbound traffic.

**2.1.4. Improving search engine optimization:** Every experienced social media marketer is aware of the fact that there are *some* connections between social media and search engine optimization. Google as world's largest search engine has clearly affirmed that it does take "social signals" into consideration when ranking a page. This makes sense of understanding the importance of social media in business and working on it can help improve your search engine optimization (SEO).

According to Matt Cutts, the former spam head of Google, although social shares have no impact on website's ranking, it is a fact that social media properties govern the front of the search engine result pages for brand names (searchengineland.com). In other words, social media profiles certainly have the power to rank in the top searched results. SM profiles are an enormous way to attach to prospects and customers. They work as a doorway for the business website as they demonstrate the human side. They not only notify the searcher about the business, but also assist them become a part of conversations. By optimizing the social profiles and by keeping them bright with the correct content, a company can create a stronger presence on the web, get more coverage and have numerous channels to draw the attention of the people towards your business.

**2.1.5. Ability to reach more people via social media search:** People are no longer reliant on Google search when they want to connect to something or someone. Today, search is not limited only to the mighty web search engines. It has moved beyond to further extent that is why SM platforms such as Facebook and Twitter are the latest search engines. There are huge amounts of content being formed and shared on the social web. These contents can simply be discovered by users with the help of keyword search or hash tags. When people search for the type of content they are publishing on the SM page, they may recover new fans that want to follow, connect and conduct business with. It is just not about the content, but also about the content producer, which is the company itself.

When people observe great content being created and shared, they become inquisitive about who is behind it. This may lead them to look up on LinkedIn and learn more about the business. Being a business it is vital to take the essential steps to stand out from other competing social media profiles and avoid having duplicate accounts. The SM world is evolving with the SEO arena and there are high chances that social signals may start having affected on company rankings. Therefore, the companies should be prepared by building their SM presence with valuable contents.

**2.1.6. Increasing conversion rates:** A further importance of SNSs in business is the reality that it can be used for capturing targeted leads for businesses, but it does not stop there. Receiving quality leads is merely one part of the equation while the other part is converting those leads into sales. Can SM help to amplify the conversion rates? Does it have the ‘x’ factor when it comes to the question to achieve more sales? The answer is a resounding “yes”, but only, if it can be done on the right way. According to Marketing Promotion Web (2017), a social blog related to social media marketing, social proof which is also recognized as informational social influence, is a psychological phenomenon where people presume the actions of others reveal acceptable behavior for a given situation.

In simple terms, people just follow what others do. They like to believe what the majority likes to believe. The motive why social proof works is because it provides a sense of guarantee to the business prospects and lets others know about the benefits of the product, without any selling. SM is overflowing with activity that can be used for social proof. If someone commented on Facebook post admiring the company, it can use it as a reference. When someone tweets about how the product/service changed their life, the company can use it as a reference also. When someone posts a happy Instagram picture of them enjoying the service, it also can be used as positive feedback.

Creating excellent content for SM is vital. But the better way is to let the fans create these contents rather than by the company itself. People who follow the company on SM may mention it in a positive note, which can be used to feature them on company social profile. In fact, the company can engineer it by asking people to share specific content for a chance to get featured to a wide audience. Even if a company possesses a decent audience size, most SM users would be delighted to have such an opportunity to post it. There are many ways that SM can influence conversions and help a business to increase sales. But for that, the company needs primarily to comprehend the significance of social media in business and take the necessary steps.

**2.1.7. Satisfying the customers:** For any business, getting a new customer is a difficult task but retaining an existing customer is 10 times easier than that. This is why customer satisfaction should be the highest priority for any company. By using SM platform to connect with customers, a company has the chance to monitor what they want, the problems they are facing and how the company could serve them. In order to truly satisfy customers and make their life easier, the company needs to offer them a proper, effective customer service that is more personalized and efficient. SNSs can help a lot to do that. Customers now-a-days know that social media is a lot more approachable and friendly than a call center executive that might be thousands of miles away, who has a hard time resolving the problem. In other words, customers want superior service without the hassle.

Escalating customer satisfaction with social media may include the following:

- Monitoring conversations on a regular basis to see if the customers are talking about the brand and in what context.
- Broadcasting important messages, announcements and offers to customers via a SM platform such as Facebook or Twitter.
- Offering prompt customer service to customers who are facing genuine problems or need some help with the product or service.
- Holding regular question & answer sessions with customers to understand their concerns, get real feedback and see how things can be improved.
- Connect and build a relationship with power users or customer advocates so that they can help serve other customers.

Apart from of what SM platform an organization is using to help its customers, it is imperative to speak in their language, give them personalized service and respond to them without as early as possible.

**2.1.8. Enhance brand loyalty:** A lot of businesses are trapped on their follower count, which is nothing but just a vanity number. It does not serve a real purpose if the followers are not loyal to the brand. There is a distinction between a random follower and loyal one, because the latter adds real value. If a company want to get the most out of its social media marketing efforts, it is essential that it focuses on growing brand loyalty. Having loyal followers means better engagement and better conversations and they will speak positive about the brand without the need to push about their trusted brand which leads to natural word of mouth marketing. SM platforms are always evolving and each has its own personality. Facebook is not Twitter, and Twitter is definitely not LinkedIn.

A company cannot take the same old, obsolete marketing and advertising methods and apply them to SM. It needs to formulate a social media strategy that clearly aligns the goals with other areas such as content marketing, search engine optimization etc. This should provide a fair idea of what type of value a company can create for its loyal SM followers. It will allow not only retaining them but also helping them spread the word. Second, a company must create **sharing value oriented contents**. There is a reason why the followers are loyal to a certain product, service or a brand. They are looking for value, which needs to be delivered at all times by sharing quality content. As an example, sharing a detailed case study is much superior to a 500 word article. The more useful and relevant the content a company posts, the better result it gets. It should have a plan how and what type of content it would like to share. By spending time on strategizing content creation, the content will bring you a higher return when the company shares it. For example, visual content gets more shares than regular SM content which means it is free to use photos, videos, etc. as long as they add some value.

The brand has a personality and some specific aspects that are exclusive to it. By identifying these personality traits and by bringing them out, it gets easier to connect to target audience. The aim should be to be consistent in approach and maintain the same voice throughout the interactions. The content that has been created and shared along with the way of conversation with others should reflect brand's personality. The SM followers naturally look up for answers. So when they approach with a relevant query, the company should get back to them with the right answers. It will prove that the company is in real deal and actually cares

about its followers/customers. Search can be done using targeted keywords and look for questions that need a response.

By answering such questions, the business can establish itself as an expert or an authority. Finally, personally interacting with other people and humanizing the brand will go a long way. It will keep the followers/fans keeping coming back for more. People like to see the human side of others more than just robotic answers. A business need to connect to them on a more personal level and engage in real conversations even if it is just for the sake of interacting or conversation.

It can be concluded that if done in a proper way, SMM can prove to be really cost effective in the long run. Because as of today, even the paid SM based campaigns, such as Facebook ads are much cheaper than other advertising options such as search engine or print media advertising indicating there is chance of a higher return on investment. Jumping on the social media bandwagon is no longer a matter of choice but a good option for marketing. The significance of social media in business is now more prominent than ever before.

## 2.2 HRM functions

A high level of activities by the individuals and organizations in SNSs is creating countless amount of information everyday. Organizations are now using that information for serving their own purposes as resources. High availability, larger visibility, free of cost accessibility have made such information as the center of attraction not for only individuals but also a number of profit and non-profit organizations to discover. As an example, LinkedIn, a job oriented SNS records all the professional information about a user which can be viewed and used by the hiring professionals in order to attract competent future employees. An interesting fact is that, initially, such SNS information were never imagined to be utilized in businesses (Kluemper & Rosen, 2009).

At present, the social networking information (SNI) is being used by the HR departments for a number of functions such as attracting & acquiring (recruitment) talents, selection & pre-employment background checks, internal communication, training, on-boarding and team-building (Hosain, 2021; Hosain et al., 2021; Hosain et al., 2020). This section of the literature has been utilized to critically analyze the role of SNI on different HRM functions.

**2.2.1 Talent search and acquisition:** As mentioned before, human resources is the source of competitive advantage that needs to be acquired like any other assets only with the distinction that such resource is lively, movable and needs to be attracted and motivated. It cannot be just bought and placed to initiate production process. More recently, the complete process of attracting and acquiring the talented human resources is being popularly termed as “talent management”. According to Cappelli & Keller (2014), talent management is a latest practitioner-generated term covering a range of long standing practices that aim to place “the right person in the right job at the right time”. CIPD (2014; 2103), a UK based renowned organization practicing HRM practices, coincide with this statement and they articulated the same outlook in outlining their definition of recruitment. Talent management includes mutually internal and external labor markets, whereas external recruitment is generally considered to be about attracting competent individuals to the organizations’ first and foremost priority in talent management process. Although not the same, both talent management and recruitment share some similar characteristics. For example, there is a surprising resemblance

in the challenge for academics to define talent management, just same as in the case with attempting to vigorously define recruitment and within that, recruitment activities (Munro, 2018).

The concept of talent management was initially created in industries and the organizations successfully coordinated the term in their recruitment and selection process. The issue gave rise of another popular term “war for talents” first introduced by McKinsey & Co. in 1997 (Chambers et al., 1998). Later, the term was appropriated by Michaels et al. (2001) in their groundbreaking book “The War for Talent” published in 2001, discussing the issues with the internal and external jobs market relative to the last few decades. The term has been conventionally used as a means to demonstrate the accessibility of talented individuals in the jobs market and the competition by employers to secure them as employees. Cappelli & Keller (2014) argued that talent management is the procedure through which organizations predict and mitigate their requirements for competent employees in strategic jobs. They also evaluated the differences between inclusive and exclusive talent management practices and stated that the bulk of strategic HRM literature points to organizations involving in exclusive behaviors. This statement indicates an inconsistent emphasis and investment regarding the individual or the job, although they contended this was due to the employer’s maximum prospective for return on investment (Munro, 2018).

However, irrespective of the question focusing on retaining existing talents or attracting talents from outside the organization, a critical consideration is how attract competent applicants. In addition, organizations must consider the supply from the external labor market as they may be attracting talent from other industries or sectors. In their comprehensive evaluation of this issue, Cappelli & Keller (2014) argued social media can be most prolifically utilized in attracting applicants to apply for fewer strategic entry level roles inside the organization and this is might happen as a result of the employer having a lot greater contact in terms of its potential audience (Munro, 2018). In this regard, it should be noted that although in many literature, two words “job applicant” and “job candidate” have been used interchangeably; there is a subtle difference between the two. While the former one indicates those individuals who applied for a job position but not contacted yet, the latter one indicate those who have been already been through some form of screening process and are subsequently selected for interview (Lauby, 2011).

According to Brown & Swain (2009), the greatest way for organizations and those responsible for attracting applicants is to move toward their candidate attraction plan. They argued that the job of “candidate attraction” starts with “candidate attraction strategy” and ends up with “having the CVs”. More or less, this is the approach adopted by most of the organizations in terms of the “what to do” element of the process, as more often than not recruiters come across countless choices. Further, they opined that hiring professionals have different techniques by to attract applicants and recommended using a blend of sources that is most appropriate to be the successful for the organization. In addition, they viewed that the organizations should establish if the latent applicants are active or passive jobseekers and that this information will in turn help to decide the attraction medium to be utilized for.

Organizations can attract talents by SNSs in a number of ways such as developing social media profiles in different SNSs, observing the tentative job applicants through SNSs or directly contacting the tentative job seekers. For example, many organizations use SNSs such as LinkedIn recognize passive job seekers who use their profiles indicating that they are interested

in and available for certain organizations, positions and occupations. HR professionals now-a-days recognize that business oriented SNSs offer a fruitful supply of information relating to passive job seekers (Wolk, 2004).

Even as the use of technology for recruitment has been changed by the progression of technology, the basic philosophy have remained the same and the uncertainty faced by organizations with labor force shortages may be compensated or alleviated through the effective utilization of social media information in the recruitment process. Such platforms can also probably afford the employer with an economy of scale for large number of recruitment and at the same time could provide the advantage to generate a close and more one-to-one relationship with passive job seekers (Munro, 2018).

DeKay (2009) argued there is no convincing academic evidence to prove or disprove that SNSs which are paying attention on professional or business networking actions can declare to be the most effective doorway for employers in searching passive job seekers. Conversely, he tried to reply the question whether there was decisive evidence positive each way but later he concluded it was a questionable statement (Munro, 2018). In fact, his (DeKay, 2009) study revealed that almost all of the participants subscribed to LinkedIn and were interested in hearing about possible job opportunities, which proves that the respondents were not the beginners, rather passive job seekers. Literally, the use of SNSs can be considered an element of web-based or Internet or online recruitment. Baum & Kabst (2014) argued the use of web-based tools for searching candidates could potentially provide an employer with a more successful portal than any other sources. The main reason is the information contained on web-based sources is considered to be radically more information rich from the applicants'/candidates' point of view. However, they (Baum & Kabst, 2014) also claimed organization's brand-identity has a much greater influence on applicant choice in case of candidate attraction through SNSs. It is still a subject of debate whether employers can attract competent candidates via social media. Some authors (Hosain et al., 2021; Hosain et al., 2020; Hosain & Liu, 2020a; Hosain & Liu, 2020b; Hosain & Liu, 2020c; Hosain & Liu, 2020d; Jeske & Schultz, 2019; McFarland & Ployhart, 2015; Sameen & Cornelius, 2013) pointed that SNSs can ensure a far more range of potential for an employer to locate passive candidates. In this case, passive job candidates refer to those individuals who are not actively seeking work, but may have online profiles on recruitment site such as LinkedIn. In searching these types of passive but experienced, mature employees, employer brand plays a significant role.

The use of SNSs for candidate attraction is still in its immature and therefore it would be too complicated for organizations to deal with measuring the return on investment from it (Wadee, 2013). There is also an issue regarding how employers would measure the return on investment, as conventionally social networking and social media tools have a comparatively low start-up cost and therefore the long term investment would be complicated to calculate. As the scale of applications received by some employers are mainly for relatively low level jobs, may compensate the low cost of early recruitment activities (Kaplan & Haenlien, 2010). There is also not any structural outline in practice as of yet addressing this issue though; most organizations use social media in-built analytical tools as an instrument to calculate their return on investment. In a similar manner to established networking linked with employment search opportunities, Nikolaou (2014) claimed that social media has been considered as an efficient way for individuals to search for jobs (Van-Hoye et al., 2009) and the use of social networking information provide an even greater scope and intensity for this activity. Bird (2011) recommended if companies do not have accounts or postings on LinkedIn, Facebook or Twitter, they risk of being hidden out of touch to younger job seekers grown up in the age of

information technology with virtually immediate global communication ability. In fact, the effect of the volume of information being sent and the realism in the information being supplied to applicants is accredited to the success being able to draw the attention of suitable individuals.

The second step of talent management can be defined as talent acquisition (recruitment). In this step or process, a number of CVs/resumes are selected according to the respective job description and job specification advertised or searched before. In this step too, social networking information has a vital role to play. For many years before the existence of social media, the employers were dependent on the jobsites sites such as Careerbuilder.com for their recruiting practice, leading to the appeal of job seekers from more than 100 career sources (Tong & Sivanand, 2005). According to Nessler (2014), Careerbuilder.com has enabled the reduction of cost per hire by 70% due to a decrease of travel costs and by 60% the time it takes for employers to hire an employee. Electronic recruiting is the blend of the web with the process of recruiting human capital (Melanthiou et al., 2015). At present, not surprisingly, many well known companies have their own social media pages for recruiting job applicants (Melanthiou et al., 2015). As an example, companies are now creating their own Facebook or LinkedIn profiles and using those as an advertisement tool to help attract talent (Andrews, 2012). An increase in Facebook usage by human resource professionals has been reported by many authors with the intention of finding "comprehensive information about job applicants," and to screen and select the best-suited applicants (Brown & Vaughn, 2011). Facebook introduced a new feature that would allow the organizations to post the upcoming job adverts directly (Take the Work out of Hiring, 2017). Furthermore, now job seekers can notice new jobs available through the "Jobs bookmarks" on Facebook or on the Marketplace. SNSs now provide as a lead to redirect followers to companies' individual websites where they can discover vacancies available (Spellmann, 2018).

However, research has proved that among all the SNSs, Facebook and LinkedIn are the most popular SM based recruiting sites (Melanthiou et al., 2015) due to the vast source of information they can provide a recruiter about the applicants. According to a survey conducted among HR managers to discover the type of technology they were using in their department and for what reason, concluded that in North America technology was becoming more widespread for recruiting and selecting job applicants especially at mid-level (Villeda & McCamey, 2019). It should be noted that the use of SNS for hiring differs in different countries depending on the accessibility of internet connection and the user rates of social media. As an example, 89% of the U.S. has access to the internet, 91% in Canada, 71% in China, 67% in Mexico, 39% in Kenya, and 25% in India (Pew Research Center, 2018). Moreover, according to Pew Research Center (2018), developed countries such as U.S., Netherlands, Germany, Sweden, Australia, and Canada have a higher use of Internet compared to developing countries such as India, Tanzania, Indonesia and Kenya. Depending on those two factors, an increased number of SNSs are being evident in developing countries from 42% in 2013 to 64% in 2018 (internet usage) and 34% from 2013 to 53% in 2018 (SNS usage) (Pew Research Center, 2018). Considering those numbers into consideration, the incorporation of SNS in the hiring process is more likely to occur in developed countries although the practice is growing in developing countries as well.

**2.2.2 Selection and background check:** Selection is the step that comes after initial recruitment, where the best suitable candidates are selected after shortlisting of candidates during the recruitment process. Landers & Schmidt (2016) defined the selection process as the system employers use to determine the best-suited candidate for a job position based on a



series of screening processes. Again, screening is the procedure of reviewing applicants' strengths and weaknesses, in order to make a satisfactory selection decision (Berryman-Fink & Fink, 1996).

The conventional screening process focuses on a person- job fit (person and organization fit) defined as the knowledge, skills, and abilities (popularly known as KSAs) of a job applicant that improve the possibilities of effectively performing a job (Adkins et al, 1994).

The practice of incorporating information acquired via SNSs into the selection process is now getting quite common at least in developed countries and the process has already been started even in developing countries (Landers & Schmidt, 2016). The reason for this practice can be attributed, at least to a certain extent, due to the ease and attractiveness of social media as sources of information, termed as social networking information (SNI) in this study. In fact, such social networking sites were established on the slogan of "connectivity and information-sharing" assuming those as the implicit goals. The users of SNSs provide a good number of information about themselves by means of their online behaviors within such platforms and these online behavioral tendencies can be observed, captured and acted upon by employers. However, it is still unclear for both researchers and practitioners to reveal what those SNI truly represents and how to make best use of it. The process of selection is quite different from recruitment as this a deductive process, not inductive. The recruiter is required to select only the best one two as final candidates. Therefore, using SNI for selection may raise a number of issues that needs to be considered before actually implementing it. For example, a fundamental question may be asked regarding the reliability and validity of information available via social media. A job applicant might not symbolize himself/herself honestly or genuinely, even going so far as to create false identity to represent. Further, a profile may be contaminated by another user's activities or postings. For example, other people may post information that appears within the social media content of a job applicant thus contaminating it. Alternatively, false identities and the postings of friends (even third party) possibly will still include as job-relevant information, useful in creating predictive (negative) models of job performance.

Even if the information is legitimate from the viewpoint of its psychometric properties, such scores may not be virtually useful (Landers & Schmidt, 2016). A number of attempts were made in order to build up foretelling models of later behavior based upon social media profile information, including algorithmic approaches (Youyou et al., 2015). Attempts that relied upon human decision have been less thriving in this case (Van-Iddekinge et al., 2013). This lack of interpretability (converting information into judgmental decision) may be due to the fact that information about job applicants obtained via social media is by definition as behavioral outcomes. As the SNS activities are largely influenced by the respective cultural background. For example, a person from USA or China may have alcohol as a normal drink while it might be culturally unwelcomed in Iran or Pakistan. Once social media postings are observed by those making hiring decisions, they are observing a person-situation interaction. In this point of view, Tett & Burnett (2003) argued that observers must consider the influence of the situation or social & cultural norms when making judgments about personality. Hiring professionals attempting to make judgments about candidates based on confusing information obtained from social media platforms they do not understand, may influence their ability to identify relevant information (Funder, 1995). As a result, biased decision could be taken. Even more concerning view is that newly invented social media technologies may change the nature of the situation on a day-to-day basis.

Even assuming the information is/are basically useful and valid, it may not be legal to utilize it. Although information posted or stored on the Internet is commonly considered “public,” numerous lawful systems restrict the consultation of specific types of information in making hiring decisions (Landers & Schmidt, 2016).

Therefore, the legal aspects of using SNI are not very clear all over the world. As an example, an employee may present an application for a job and decided not to share any social media information openly with the recruiter. The hiring manager decided to look for the candidate online and discovered that several SNI concerning that applicant’s sex, religion, race, skin color and national origin. Although such information is publically available (even those may be on the CV as well), it can now unjustifiably influence the hiring manager’s decision, intentionally or unintentionally. Unreliable entrance to social media by socioeconomic position and population differences in social media membership may also manipulate the legality of such use.

The information that can be viewed or accessed in such a way that it seems legal to use for selection, but may not be ethical. Considering the previous case where the applicant chose not to provide his/her SNS information on the materials submitted to the employer, but the employer mined (dig out) that information and browsed it anyway. It does not seem much illegal as those information was branded as “public” but obvious not ‘ethical’ to do so. However, SNS platform such as LinkedIn is very different in this case as that specific platform has been created in order to showcase the applicants’ profiles to the potential recruiters. A similar but more traditional case may be considered in this regard. A person applied for a high ranked job but currently employed, declaring that current job location on the CV. A hiring manager for the prospective organization travels to the job location of current employer and waits for the applicant to leave office, following him until he reaches home and taking pictures of everything what he does. Although all information collected in this manner may not be illegal, such act would be considered as a significant breach of privacy with severe reactions from the applicant.

The most important issue is that how to utilize those information on the selection process. Until now, such information is being used in selection systems usually at the discretion of the person making the hiring decision (Landers & Schmidt, 2016). In a few cases, so far, the perusal and collection of such information has been semi-formalized, although there are noteworthy exceptions (O’Brien, 2014). If such information to be a part of the selection process judgment, it is vague where in the process those would be best included. Most importantly, the question of training has been withheld empirically, although there is evidence that trained raters tend to produce higher quality judgments than those of untrained raters in such circumstances (Connelly & Ones, 2010). Further, changes in technology may make those implementations outdated or alter their significance in a comparatively short period of time. Fresh technological inventions even more basically alter the experience of SNSs and it is uncertain how useful these systems or any plan and recommendations developed based them will be even after five years.

Before, final selection, the employers conduct a type of background checks known as pre-employment background check (PBC). Here it should be noted and pointed clearly that this background check is normally conducted after final selection but before signing the job contract. Some authors, in their literature have used the adopted the terms “pre-employment screening” or PBC as interchangeable and those checks are conducted before selection or during selection. However, it should be clearly noted that the PBC is process that is carried out

at the final stage of hiring, which is even after final selection but before signing the formal job contract.

An SM based background check can indicate many things. It can be as simple as checking out a Facebook, LinkedIn or Twitter profiles or as complicated as hiring someone (third party or agent) to search for every bit of social media about an individual. The term “SM” in this guidance captures a broad range of information such as social networking sites, blogs, micro blogs, and file-sharing sites (including photographs and video). SM based background checks are becoming alluring because they are often faster and simpler than other kinds of background checks. Another distinction between social media background checks and traditional background checks is that individuals can perform them under the pretext of a social relationship (Hosain & Liu, 2019). These differences can make it difficult to recognize SM-based PBCs for what they are: a way to screen and monitor current and prospective employees, volunteers, and candidates. While those PBC in literature actually highlighted on the background check before or during selection process, the PBC in this study is done after selecting a candidate but before signing the final contract as an employee.

**2.2.3 Internal communication:** To express very easily, internal communication is the exchange of information and instructions within an organization. More precisely, internal communication is the transmission of ideas, information and instructions from sender to receiver at any direction and any time within an organization. A proper, clear and timely transformation of information from the actual sender to receiver is vital for organizational accomplishment. Without a proper communication, an organization suffers confusion, mislead and miscommunication that might fetch severe consequences. The success of any organization and its business largely depends upon the success of its internal communication system.

From the last 10 years or so, numerous organizations have started utilizing social media to improve communication both to and between employees (Bond, 2010; Brzozowski et al., 2009). Social media include a variety of platforms, including blogs, micro-blogs (such as Twitter), online video, wiki pages, virtual worlds, and profile-based online networking (such as Facebook) (Bond, 2010; Buechler, 2010). The embracing of these tools in the corporate world in North America has accelerated over the past few years but very recently, a growing number of employees around the world, particularly those of the millennial generation, have been completely anticipated to have these tools available in the workplace (Bond, 2010). As an old fashion, e-mail communication is gradually losing its attractiveness among many professionals (Blodget, 2011) the gap is being supplementing with corporate social networks. Such corporate social networks let colleagues (users) to publicly post questions, answers & ideas; share photos, videos, and documents; and send & receive classified messages to specific co-workers. Communication is no longer merely an email, PowerPoint, or meeting directed from the top bosses down to front-line employees opening a new avenue to share real time information.

Yammer (yammer.com) was one of the initial commercially presented corporate social networking platforms (Klie, 2011) currently used by over 100,000 companies as an internal communication tool (Vance, 2011), including 80% of Fortune 500 companies ([yammer.com](http://yammer.com)). Furthermore, related corporate social networking applications, such as SocialCast, Present.ly, and Chatter are also being used for internal communication in the corporate and government

environment. Corporate social networks can aid businesses to develop the practices of knowledge sharing and teamwork between employees, reinforce their brand, create new ideas and build a sense of harmony (Naslund, 2010). The significance of such mutually collaborative behaviors cannot be underestimated in any case. Geographically distributed teams that communicate and collaborate most often are more successful at achieving complex goals (Gloor et al., 2008).

Furthermore, members in a team are linked to in his or her online network has a straight correlation to his or her individual performance, even if the communication with each member is occasional (Gloor et al., 2008). Thus, having access to many colleagues through social networks has great possibility to transform into the performance they carry out their job duties.

The collaborative behaviors that SNSs promote can guide to better productivity among employees (Semple, 2011). Such increased productivity allows organizations to deliver more value with fewer people, presumably leading to increased profit margins. However, using SNSs for employees to communicate with each other within the workplace requires a cultural swing (Naslund, 2010; Semple 2011; Grossman & McCarthy, 2007). Corporations cannot impose these technologies on employees and demand that they codify their knowledge which moves against the very basic nature of social media and is not well appreciated at all (Nash, 2011; Levy, 2009). The initiative of compelling employees to interrelate in a sociable manner with the expectation of enhanced output becomes seldom effective (Nash, 2011). Rather, providing social networking tools as an option, even fun can motivate employees to enthusiastically share tips and information with co-workers can be a better altruistic choice (Levy, 2009). Opening up a workplace to interior social networks needs readiness from management to offer a segment of the control over what, when and how information is shared (Grossman & McCarthy, 2007). Even corporate executives, those who are responsible for communicating with employees as part of their everyday duties, need to abandon some control over the content and timing of internal communication (Mengel, 2009). Employees should be able to speak their minds and share their ideas liberally, without fear of vengeance if they happen to post a non-conforming point of view.

A practice of open communication adopted by SNSs may offer many benefits to the company, including the possible improvement for bottom line. D'Aprix (2011) argues that organizations with highly efficient internal communication enjoyed an average of 47% higher return to shareholders over a five-year period (2004-2009) than organizations with less effective communication programs. Effective internal organizational communication is further associated with higher levels of employee engagement, performance, satisfaction and retention (D'Aprix, 2011; Vance, 2011). However, there are a few concerns as well about using social networking in the workplaces. With the informal nature of social networking, employees may be less formal in communicating, opening the door to potentially unprofessional discussions or office gossip (Vance, 2011). In addition to that, executives are alarmed about the security of SM platforms (Levy, 2009), as well the potential absence of inter-operability between the various tools (Grossman & McCarthy, 2007). Some authors argue that the use of social networks in the workplace actually decreases productivity (Hoover, 2007).

Although, while it cannot be denied that although some of the employees use corporate SNSs to converse topics unconnected to their jobs, those who use SNSs are generally the least likely to leave the organization (Vance, 2011). This is apparently because high levels of interface with colleagues on a social network reflect an employee's engagement and satisfaction in his or her role (and the job as well). Organizations that choose to not implement a corporate social

network might have trouble attracting and retaining employees from the millennial generation as well. Bond (2010) explains that the next generation of employees has been brought up on a lifestyle of social networking and will obviously expect access to such facilities in the workplace. Accordingly, Levy (2009) notes that younger employees not only find social networks to be intuitive channels for communication, but fully expect them to be available as a business tool.

**2.2.4 Employee training and development:** No doubt, training has been established as an important mechanism for developing human resources (Collins & Smith, 2006; Lau & Ngo, 2004; Souitaris, 2002; Marchington & Grugulis, 2000; Valle et al., 2000). Considering that individuals' required and relevant skills and knowledge are noteworthy predictors of employees' creative process of generating innovative and skillful ideas (Marchington & Grugulis, 2000), organizational training may better equip employees to be inventive, leading to enhanced overall innovative performance. Corporate training scheme can be formulated and delivered in a diverse number of forms (lectures, workshops, seminars, practical visit, case analysis, management games) as well as through diverse media (collective, face to face, personalized online training) (Delaney & Huselid, 1996; Bartel, 1994). With the assistance of social associations among staffs and combining their knowledge and ideas, both internal and external corporate trainings promote employees' creative process of generating new and constructive thoughts, leading to creation of knowledge and superior overall innovative performance (Marchington & Grugulis, 2000; Nonaka & Takeuchi, 1995). Furthermore, considering that knowledge is a core element of generating innovation through new combinations and reconfigurations of already existing mechanism (Kang et al., 2007; Laursen & Foss, 2003; Laursen & Mahnke, 2001), escalating both the depth and the width of knowledge bases of employees through corporate training has noticeable strategic significance for organizational performance.

Since successful training needs planning, curriculum or program development and continuous investment, social media can remain those expenses downward to a reasonable level (Arjomandy, 2016). For example, a number of US organizations use social media such as Twitter or LinkedIn as employee training platforms for shared employee training experiences. With online social training, the training expenses related to traveling and using a large physical training room has been reduced to a greater extent. Importantly, social e-learning systems such as TELUS can be utilized to permit trainees interacting each other for sharing their experiences. Simulated environment such as IBM's Second Life allows the enhanced learning experiences. SM based training can be more interactive comparing to traditional e-learning where the emphasis is given more on delivering the training contents to the passive receivers (Arjomandy, 2016). In fact, pictures, videos and other related contents uploaded to training and development based social networking sites can offer synergetic opportunities for trainees to learn from each other.

Web 2.0 tools manipulate training procedures as information is more and more becoming user driven and companies often come across transitions toward sharing data, user generated contents and user experience. As a consequence, training activities today are not confined to a specific geographical location or time frame. Webinars take place all over the world and blogs, RSS filters, forums, wikis and podcasts may enhance the training experience (Smits & Mogos, 2013). Such applications with an inner focus allow for inexpensive and efficient learning and training for employees, whereas outwardly focused applications allow a company to incorporate into the on-line industry and minor costs with training customers and suppliers.

The impact of SM on training is measured as the ability to support conventional training, the ability to alter training content, the ability to support asynchronous training; and the ability to codify and distribute training contents (Smits & Mogos, 2013).

**2.2.5 Employee on-boarding or orientation:** Employee on-boarding (or orientation) is a strategic process of welcoming new employees to the organization and providing information, training, mentoring and coaching throughout the transition.

The process begins at the acceptance of an offer and throughout the first six to twelve months of employment, in general. Even a carefully selected employee does not guarantee that he/she will perform effectively. Even high potential employee cannot do their jobs if they do not know what to do or how to do. This is why orienting and training is important for new employees. Therefore, the on-boarding or orientation process provides new employees with basic background information about the firm, such as information about the company rules. Without basic information like rules and policies, new employees may make time consuming or even dangerous errors. Orientation is not just about rules; it is also about making the new person feel welcome at home and part of the team.

SM, as like all other functions can contribute to employee on-boarding process. However, SM can be a good platform to start, since not many companies yet started doing even the simple stuff when it comes to leveraging social media for on-boarding. Recruiters can take the help of SNSs' to welcome new employees by inviting them to join company online network and post pictures or videos, talk about hobbies, get tips and hints from recent hires already in the company; and form connections with dozens of people before even showing up for day one. Such step might help the new employees to get rid of their fear and anxiety. Once new staffs have system access, the ability to join online communities of practice, enabled by social tools, will provide them entrance to people working in the same kinds of jobs or tackling the same kinds of problems, no matter where they are physically located. The more cross-functional is the workflow, the more it can gain from SNSs. If there is one single place that everyone concerned in the process can straight away view the status of each new hire, it will be less likely that a step will be dropped because of miscommunication.

**2.2.6 Employee engagement:** Employee engagement is the process of involving the employee spirit into the organizational operational and strategic functions voluntarily. The term "employee engagement" has achieved substantial recognition over the last 20 years still inconsistently defined and conceptualized (Shuck & Wollard, 2010). Baumruk (2004) termed engagement as the energy or the passion that employees contribute to their jobs and their employer, resulting in emotional and intellectual commitment to the organization. Again, Richman (2006) defined employee engagement as a momentum for an employee to utilize his/her discretionary efforts, experience, and energy, which stimulate generating innovative solutions that, in turn, promote the employers without any explicit assurance of personal gain.

Richman (2006) and Shaw (2005) pointed out that engaged employees have high degrees of involvement and attachment to their employers and/or organizations. Robinson et al. (2004) argued that the definition of employee engagement overlaps with already well-established constructs such as organizational commitment and organizational citizenship behavior (OCB). However, Shaw (2005) acknowledged that there is a multitude of dimensions or constructs connected with employee engagement as the concept of employee engagement emanates from

relations of distinctive individuals under diversified working perspectives. This width requires the necessity of concentrating on only a few key dimensions or constructs. Gill (2012) proposed the dimensions for employee engagement should be: alignment with the organization, management effectiveness, salary and compensation, communication, and opportunity for development and recognition.

Utilization of internal SM may play a key role in enhancing employees' communication, innovation capabilities, collaboration and retention (Haddud et al., 2016). The main argument of those authors is that more engaged employees can communicate and manage their job tasks more effectively, align their work goals more with the overall organizational goals and strategies; and develop more recognition and get better compensation. Further, considering that the use of internal SM leads to more engagement, it seems more likely that there will be a consequent development in the functional areas such as: productivity, profitability, safety, customer satisfaction, turnover and absenteeism. Some of the previous studies have established a clear positive relationship between employee engagement and business performance (Pillay & Singh, 2018; Sarangi & Nayak, 2016; Kazimoto, 2016; HBR, 2013), internal social media can further boost such performance through proper integration and communication between the employee and the organizations.

**2.2.7 Job satisfaction:** Employee Job satisfaction is a frequently and most widely studied phenomenon in communication and behavioral research in the workplace (Staw, 1984). Locke (1976) defines job satisfaction as an enjoyable or positive emotional state resulting from the appraisal of one's job or job experiences. Employees who are more satisfied with their every day jobs are more likely to assist their organizations reach their goals efficiently (Scott & Stephens, 2009). In other words, job satisfaction can harvest positive benefits within workplace tasks, roles and relationships. Organizational research has commonly viewed job satisfaction as a variable that is created internally through workplace interactions, practices, routines and policies (Robertson & Kee, 2016).

Robertson & Kee (2016) reported in the findings of their study that an employee's job satisfaction is positively associated with the amount of time they spend on Facebook interacting with co-workers. Part time employees reported spending the most amount of time on Facebook with their co-workers and contract employees reported the highest degree of job satisfaction at work. In another recent study, Alahmad et al. (2018) revealed that employee social media (ESM) identity positively influences co-worker support and that co-worker support mediates the relationship between ESM identity and job performance and job satisfaction. On the other hand, Demircioglu (2018) reported an indirect effect of social media on job satisfaction. Similar results were reported by Hanna et al. (2017).

### **3. Utilization of SM for business: Recommendations and future trends**

SM is evolving and consumers are increasingly turning first and foremost to digital media, both at home and outside. Beyond just SM, customers are deeply engaged with products and services across the entire digital space by their own choice. They are using multiple outlets to ask questions, give feedback and share and connect with others and dictating when and where they interact with products and services. As a result they are developing an expectation of response

from businesses at all times and from everywhere. We have entered into a new era in how businesses interact with their customers. It is no longer enough that a strong marketing initiative will turn consumers into customers. If brands want to stay relevant in the digital era, they have no choice but to adapt with digital media. SM is more than media- it is a cultural shift. While conventional norms holds that people do not want businesses to intrude on their personal lives, presently such an idea far from the reality.

Many customers today are utilizing multiple outlets, not just Facebook, Twitter or YouTube to ask questions, give feedback, share and connect with others, they are, in fact, personalizing their experiences whenever possible. 40% of consumers have become a fan of a product or service on social networks, 26% of consumers have followed a brand on Twitter and 73% of consumers have posted a product or service review on websites like Amazon or Yelp (socialmediatoday.com). Due to such immense popularity of SM, at present 80% of businesses are using the platform to handle their marketing and sales.

But just being active on SM is not enough. For businesses to digitally connect with today's customer, they must not only stand for something but also do something. To have an impact, businesses have to find other ways to connect with customers to turn them from passive reactors to advocates. One of the significant drivers in SM for businesses is engagement- using digital media to connect with people, hear what they want, what they think, how a product or service worked or how it did not. Businesses now should identify about what resonates with their audiences and whether or not they are posting as “click-worthy” and compelling content that will raise awareness and get attention. The other significant driver in SM is customer service. Many consumers following brands are also customers, which is why smart businesses are using helpdesk software to solve customer's problems and answer questions instantly. Also, some businesses like Starbucks and American Airlines offer exclusive deals and tips to their digital audiences so they can drive awareness and sales. The future of SM will offer many exciting, new opportunities for businesses to connect with their customers. Smart contemporary businesses must rethink and shape their future business strategies and shift most of their marketing efforts towards engaging with customers. No business is going to strike out by opening the lines of communication with its customers and marketing to them in a personal, caring way that makes them feel valued. Positive brand experiences create customers and experience not only matters to customers- it drives results to the bottom line.

## **4. Theoretical and practical implications**

### **4.1 Theoretical implication**

Using SM platforms for different business purposes is comparatively a new trend for the organizations that basically began in the last decade. The practice has become extremely popular and growing among the policymakers of various organizations. However, with the increasing pace of SNS utilization, the academia has not so far paid adequate attention in guiding and advising the professionals on how to utilize SM-based information, the legal and ethical aspects, users' fairness and privacy concerns and so many more issues. We are hopeful that this theoretical paper can shed at least some lights on such issues. Further, the upcoming scholarly investigations can get some clues from this review paper.



## 4.2 Practical implication

Organizations are keen to utilize SM platforms due to cost-friendliness and access to mass number of users rapidly. Therefore, we can see a fast-growing utilization of different SNSs for business purposes particularly on different marketing and HRM functions.

However, the fairness, ethics and privacy concerns of the users' are needed to be discussed more elaborately for guiding the business professionals on how to use, when to use and which information to for different business purposes evading the negative legal and ethical consequences such as lawsuits by the employees, job candidates or customers for screenings or overseeing their personal contents on SNSs. We optimistically anticipate that this paper can provide some guidelines to the professionals on such perspectives.

## 5. Conclusion

The emergence of SM began as personal platforms for the users for basically entertainment and communication purposes. But with the passage of time, the media has turned into many opportunities for the businesses due to its large user base and free accessibility. As a result, SM has turned into a blessing for the businesses rather than just being a medium of entertainment and communication. Therefore, business authorities and policymakers should consider SM platforms as the technological opportunities and blessings of modern science and Information Technology (IT).

The key message of this review paper is to highlight the growing utilization of social media based information or contents for different business purposes. We have also put some action recommendations and point of caution for the users and policymakers as such online information can be used for further business purposes although there are several risks if used without proper caution. We argue that the future will experience more and more utilization of such SM-based information for marketing, HRM and branding purposes due to cheap and easy accessibility of gaining such information.

Considering such rising importance, we expect more and more empirical and review papers should be written discussing the different issues of utilizing social media information for different business purposes. Such papers will enrich the academia as well as professional guidelines from where the scholars and stakeholders can be benefitted for the upcoming longer period of time. In emergency periods such as present Covid-19 outbreak, SNSs can play a real role on serving many purposes such as communication, marketing or even training. However, we also need not to overlook the challenges and drawbacks of using SM-based online platforms that can breach the users' privacy concerns.

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## **Computer Science Educators' Use of Twitter for Conference Engagements: A Grounded Theory Analysis**

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### **Abstract**

This study explored how the computer science education community used Twitter as a conference backchannel. Using the Constructivist Grounded Theory methodology, four themes and ten categories were developed from participants use of Twitter during five computer science education conferences. These themes are: Promote Scholarship; Connect, Promote and Extend the Research Community; Engage in Professional Learning; Humanise the Conference Space. Participants using the conference backchannel contributed to the scholarly discourse and extended the reach of the conferences they attended. They benefitted from various discourses, gained publicity, engaged in networking opportunities, enhanced their own professional learning while extending care for other participants. The findings of this study have practical implications for the computer science education research community. It provides insights for conference organisers on how to extend and enhance the conference experience for both registered and non-registered participants. For researchers, attendees and users of research output, the study highlights some tangible benefits of connecting, networking and professional learning. For those responsible for assessing researchers' contribution to scholarship, this study highlights different ways researchers engage in public scholarship to promote computer science education research.

### **Keywords**

Twitter, Conference Backchannel, Scholarship, Computer Science Education

# **Computer Science Educators' Use of Twitter for Conference Engagements: A Grounded Theory Analysis**

## **Introduction**

Conferences are an important element of academic life as they serve as a forum for knowledge exchange, discussions, conversations and networking (Henderson & Burford, 2020). Yet many academics are increasingly unable to attend conferences due to time and work commitment, cost (Cassar, Whitfield & Chapman, 2020), safety (Cro & Martins, 2018), and health issues, among others (Mair, Lockstone-Binney, & Whitelaw, 2018). To extend the reach of academic conferences, organisers have been exploring the Internet both as a means to deliver conferences and to support their delivery (Anderson & Anderson, 2010). Social media in particular have become a popular forum for academics (Jordan, 2020) with Twitter in particular used as a backchannel for conference activities (Greenhow, Lai & Mai, 2019). This opening up of conferences in social media spaces like the Twitter backchannel has made it possible for those who cannot attend to participate in some ways (Fekete & Haffner, 2019).

In addition to the issues raised above, the covid19 pandemic has further disrupted the work of higher education in several ways (Watermeyer, Crick, Knight & Goodall, 2020) including the disruption and cancellation of many face-to-face conferences (Saliba, 2020; Viglione, 2020). To address this disruption, conferences are being moved to exclusively online delivery (Achakulvisut et al., 2020).

The computer science education research community (the object of this study) was forced to move several conferences online as a result of the COVID-19 pandemic. This study explores how Twitter was used by computer science education community for conference activities. It is exploratory in nature and seeks to provide insights from five originally scheduled face-to-face conferences – SIGCSE 2020, ITICSE 2020, ICER 2020, CCERS20 and WIPSCE2020 - which were moved online. Though Twitter was not the designated medium of delivery for these conferences, it was used by many conference participants for conference related activities. However, the extent of this engagement with Twitter is not fully understood.

Given the challenges of attendance, participation, engagement between researchers and practitioners, and the increasing use of online tools for facilitating conferences, especially in COVID-19 times, research that helps us understand how online tools support scholarly activities is imperative.

This study aims to offer insights into the ways Twitter as a conference backchannel can serve as an alternative scholarly space by the computer science education community. To address this aim, the following research question are addressed:

RQ1. What is the demographics of the participants and the extent of their engagement in the five conferences under study?

RQ2. How did computer science education researchers/educators use Twitter to engage in these conference conferences?

RQ3: What implications can be drawn from computer science educators use of Twitter as a conference space to support future development in this field?

The answers to these questions will extend our understanding of the ways the computer science education community use online spaces to engage, promote their work, and extend the computer science education research discourse.

## **Literature Review**

### **Computer Science Education**

Computer science education has been touted as an important area of interest globally (Yadav, Grettner, Hambrush & Sands, 2016) as it is often linked with economic development (Passey, 2017). Many educators, policy makers, and researchers are involved in the promotion and development of computer science education (Brown, Sentence, Crick & Humphreys, 2014). In particular, computer science education research community is working to improve our understanding of the domain and to advance the pedagogical foundations critical for teaching and learning (Joy, Sinclair, Sun, Sitthiworachart & López-González, 2009; Randolph, Julnes, Sutinen, & Lehman, 2008). However, challenges remain when it comes to the awareness and promotion of computing education research (Cooper et al., 2016).

The transfer of research from university environments to practitioners and teachers operating elsewhere presents a challenge for researchers interested in the utilisation of their work. Computer science education conferences with an online presence may provide opportunities for researchers, practitioners and teachers to engage. Online conferences may extend the reach of computer science education research to often excluded communities.

### **Twitter**

Twitter is a microblogging social network that facilitates engagement using short text messages of 280 characters (Emke, 2019). These short messages or original content created by a user are called Tweets. These Tweets can be directed to other users (Mentions) using the @ sign and a username (e.g. @lenandlar). Twitter also allows 'Retweet' (RT) which is a method of forwarding or broadcasting the Tweets of others (Carpenter, Tani, Morrison & Keane, 2020); Replies to Tweets; and private/direct messaging (Emke, 2019; Powers, 2013).

The hashtag (#) is an important feature of Twitter. It facilitates the aggregation of tweets, connections, interactions, and the formation of communities (Carpenter, Tani, Morrison & Keane, 2020). Specifically, the hashtag enables activities such Twitter chats (Eaton & Pasquini, 2020) and conference participation (Singh, 2020).

### **Twitter in the Academy**

Twitter provides a space where connections can be made to other users from across the globe, from different cultural and academic contexts if users are desirous of exploring connections and networking. (Lupton, 2014; Veletsianos, 2016; Veletsianos, 2017; Veletsianos & Shaw, 2018).

Twitter is increasingly adopted by higher education academics for professional development (Carpenter & Harvey, 2019; Carpenter, Tani, Morrison & Keane, 2020; Malik, Heyman-Schrum & Johri, 2019; Veletsianos & Shaw, 2018). Professional development activities take different forms. In a systematic literature review of higher education academics' use of Twitter for professional development, Singh (2020) identified five themes: 1) academic backchannel, 2) networking, 3) information and resource sharing, 4) keeping updated, and 5) public engagement and social commentary.

Twitter is also a useful channel for scholarly communication among scientists and researchers (Holmberg & Thelwall, 2014; Lee et al., 2017; Zhu & Procter, 2012). Researchers have additionally used Twitter as a data source by citing Tweets and other content shared on Twitter (Priem & Costello, 2010). Identity development and impression management have been identified as a reason why scholars used Twitter (Veletsianos, 2012).

## **Twitter as a Conference Backchannel**

Live Tweeting about conferences using a designated hashtag, referred to as the conference backchannel, is increasingly common among conference attendees and followers (Kimmons & Veletsianos, 2016; Ross, Terras, Warwick & Welsh, 2011). Several studies have pointed to the experiences, benefits and challenges of using Twitter as a conference backchannel. Greenhow, Lai and Mai (2019) reported that participants used the Twitter backchannel to promote scholarship, expand conference participation, create their own impressions and commentary of presentations, curate personal assessments, and share information. Retweeting was also a common practice, and information and resource sharing were common findings of several researchers (Albertson, 2019; Li & Greenhow, 2015; Reinhardt, Ebner, Beham & Costa, 2009; Ross, Terras, Warwick & Welsh, 2011; Wen, Lin, Trattner & Parra, 2014).

Networking is a common activity among participants as several researchers have observed (Fekete & Haffner, 2019; Li & Greenhow; Wen, Lin, Trattner & Parra, 2014). The Twitter backchannel has also served as a means for community integration and emotional support among participants (Risser & Waddell, 2018), for conversations, discussions and talking with each other (Li & Greenhow, 2015; Ross, Terras, Warwick & Welsh, 2011; Wen, Lin, Trattner & Parra, 2014). Note taking is also a common activity among users of the conference backchannel (Fekete & Haffner, 2019; Reinhardt, Ebner, Beham & Costa, 2009; Ross, Terras, Warwick & Welsh, 2011).

While the Twitter backchannel has been used in ways beneficial to participants, it has not always been perceived in positive terms. Kimmons and Veletsianos (2016) noted some participants have the tendency to express discontent with the platform. Greenhow, Lai and Mai (2019) reported that veteran academics complained about Twitter being a distraction to live presentations, while Li and Greenhow (2015) reported Twitter being described as 'meaningless'.

Twitter as an online conference medium is a promising means for bridging the gap between researchers and practitioners as it provides an avenue for the dissemination of new research to a wider audience by connecting researchers and practitioners in a common space (Greenhow, Lai & Mai, 2019).

However, though our understanding of Twitter's utility is improving, much is yet to be known about the extent and character of Twitter as a conference channel and so it is imperative that research continues to help us better understand these online spaces (Kimmons & Veletsianos, 2016). Further, much remains to be understood about Twitter as a medium for conference engagements related to specific disciplines (Greenhow, Lai & Mai, 2019). This present study adds to the current literature by providing a discipline specific (computer science education) account of the use of Twitter as a conference backchannel. To the best of the researcher's knowledge, no previous research has addressed this group's use of Twitter as a conference backchannel.

## **Ethics Approval**

Ethical approval for this study was granted by the Lancaster University Faculty of Arts and Social Sciences eResearch and Technology Enhanced Learning Programme ethics process. However, the use of publicly available social media data may raise specific ethical challenges that need contextual considerations (Ahmed, Bath & Demartini, 2017; Fiesler & Proferes, 2018). Therefore, care should be taken when using social media data for research.

In this study, several measures were undertaken to address potential ethical issues. To ensure that authors of the tweets I quoted were in approval of the use of their tweets, I wrote each author asking for their permission to use the tweets. This was done via direct messages on Twitter where it was possible to do so. In cases where authors could not be messaged directly, a message was sent in reply to the actual tweet asking authors to talk to them about using the tweet. Further, emails were used to contact some authors.

In cases where communication was not established with authors, two approaches were adopted: 1) tweets originally identified for inclusion in the study were omitted entirely, or. 2) a small fragment of a tweet was used. Care was taken that the small fragments extracted were useful enough for the study, but which cannot be used as a means to search for and locate the original authors on Twitter.

Where authors responded with permission to use their tweets, they were asked if they would like to review how their tweets are used in the study. Those who indicated in the affirmative were sent a copy of the final draft paper.

## **Research Approach/Methodology**

The purpose of this study is to explore how Twitter is used by computer science education community for conference engagements. This study follows a qualitative methodology and a grounded theory approach. Grounded theory allows for theory to be generated or evolved from empirical data rather than be developed a priori and then tested. Consequently, this approach aligns with the aim of the present exploratory study which seeks to derive a model from data. Specifically, the constructivist grounded theory approach by Charmaz (2008) is proposed as the method of analysis of the data used this study. The variant of grounded theory is used for data analysis since the researcher will engage in the subjective construction of codes, categories, and themes upon which the final theory is formed.

## Data Collection

The study data are the datasets of Tweets created by participants of five academic conferences held in 2020.

SIGCSE 2020 (<https://sigcse2020.sigcse.org/> ; March 11-14, 2020),  
ITICSE 2020 (<https://iticse.acm.org/ITiCSE2020/> ; June 26-28, 2020),  
ICER 2020 (<https://icer2020.acm.org/> ; August 8-13, 2020),  
CCERS20 (<https://www.raspberrypi.org/cambridge-computing-education-research-symposium/> ; April 1, 2020),  
and WIPSCE2020 (<https://www.wipsce.org/2020/> ; October 28, 2020).

These conferences were selected because of their prominence in the computer science education research community. The Tweets from these five conferences were collected using the respective conference hashtags: #SIGCSE2020, #ITICSE2020, #ICER2020, #CCERS20 and #WIPSCE2020. The NodeXL software was used to harvest Tweets from Twitter with each dataset downloaded one day after each conference ended. Twitter allows for tweets to be collected up to seven days prior. This allowed for all conference-related data to be collected, as none of the conferences extended beyond seven days. All datasets collected by NodeXL were in the form of Microsoft (MS) Excel Spreadsheets.

## Data Analysis

Two approaches were used to analyse the five datasets collected. Firstly, Social Network Analysis via NodeXL was used to generate summaries of the demographics and usage statistics. Secondly, a constructivist grounded theory approach proposed by Charmaz (2006) was used to analyse the tweets collected. This qualitative approach utilises three types of coding – initial coding, focused coding and theoretical coding. All of the tweets were analysed individually and manually using initial coding and by focusing on the verb elements of each tweet as proposed by Charmaz (2006). These codes were attached to each Tweet in separate columns parallel to the Tweets in the MS Excel software. Focused coding was then executed on the initial set of codes to arrive at categories. Since all five datasets were collected before the analysis commenced, constant comparison across the different conference datasets provided a means for comparisons to be made across datasets. Finally, theoretical/advanced coding was used to arrive at the final set of themes that forms the basis of the theoretical model. Memoing (accompanying notes to codes written in the MS Excel software) was used to document the researcher's thoughts about the codes created. Memos were used to guide the development of the final model. To increase the chance of achieving theoretical saturation (Charmaz, 2014) initial coding was done twice and comparisons were made across the five different datasets. This comparison of data from one dataset to another, collected at different points in time, aided with data saturation (Saunders et al., 2018). The researcher felt reasonably comfortable that cross comparisons of the five different datasets offered sufficient recurrences (repeated data points) across the datasets and that a new dataset may not have revealed new issues to consider.

## Findings

This section is a presentation of the findings of the study. A discussion of these findings is offered in the next section.

Three tables provide summary statistics of participants and the types and levels of engagement for the five conferences.

Table 1 shows the number of participants (vertices) and the connections among participants (edges) for the five conferences. Unique edges are number of connections between two vertices/participants where multiple connections are counted only once. Edges with duplicates represents the total count of multiple connections between vertices/participants. Total edges is a sum of unique and duplicate edges (Hansen, Shneiderman, Smith & Himelboim, 2020). The data shows similar numbers of participants are noted for all conferences except WIPSCE2020 which had approximately 50% less than others. In terms of connections and engagements, CCERS was the most active while WIPSCE2020 was the least active.

**Table 1: Participants and Connections**

Metrics/Conference	SIGCSE2020	ITICSE2020	ICER2020	CCERS20	WIPSCE2020
Vertices (participants)	145	142	159	138	64
Unique Edges (connections)	222	360	269	292	119
Edges with Duplicates	80	152	63	411	79
<b>Total Edges</b>	<b>302</b>	<b>512</b>	<b>332</b>	<b>703</b>	<b>198</b>

The method of engagement (Table 2) shows the highest level of engagement as Retweeting (broadcasting the Tweets of others) (28%) and Mentions in Retweets (broadcasting the Tweets of others directed to specific users via their @username) (25%). Tweeting (creating original messages) (23%) and Mentions (Tweets directed to others via their @username) (20%) accounted for the second and third highest levels of engagement. Repliesto (direct responses to original Tweets) (5%) was the least common form of engagement, indicating very low levels of direct dialog with others.

**Table 2: Method of Engagement**

Metrics	SIGCSE2020	ITICSE2020	ICER2020	CCERS20	WIPSCE2020	Total	%
Retweets	40	139	171	142	76	568	28%
Mentions	86	88	32	157	40	403	20%
Tweets	64	112	49	216	22	463	23%
Mentions in Retweet	73	151	65	169	58	516	25%
Repliesto	39	22	15	19	2	97	5%
<b>Total</b>						<b>2047</b>	<b>100%</b>

Table 3 shows the top 10 participants by location for each conference. Four participants (labelled P1,P2,P3,P4, P5, respectively) appeared more than once as a top 10 contributor over multiple conferences.

**Table 3: Top 10 Participants for each Conference**



<b>Top 10 Vertices /Conference</b>	<b>SIGCSE2020</b>	<b>ITICSE2020</b>	<b>ICER2020</b>	<b>CCERS20</b>	<b>WIPSCE2020</b>
1	USA	Australia	UK	UK	Switzerland
2	<b>(P1) USA</b>	<b>P5 (USA)</b>	USA	<b>P2 (UK)</b>	<b>P4 (UK)</b>
3	USA	USA	<b>P5 (USA)</b>	USA	UK
4	USA	<b>P3 (USA)</b>	<b>P1 (USA)</b>	UK	USA
5	USA	UK	<b>P3 (USA)</b>	<b>P4 (UK)</b>	USA
6	USA	Ireland	USA	UK	UK
7	USA	Belgium	USA	UK	<b>P2 (UK)</b>
8	<b>P2 (UK)</b>	France	USA	UK	Germany
9	USA	UK	UK	UK	Germany
10	USA	P2 (UK)	USA	UK	bot

Table 3 above shows that majority of participants (42/50, 84%) of top 10 participants are from the USA or the UK - 23 / 50 (46%) from the USA; 19/50 (38%) from the UK. The remaining 8 top 10 participants are from 6 different countries (Australia(1), Belgium(1), France(1), Germany (2), Ireland (1), Switzerland (1). There was one bot account.

## Themes/Categories of Descriptions

Ten categories of descriptions representing keys aspects of Twitter as a conference backchannel emerged from the analysis of the Twitter datasets of the five conferences examined in this study. These categories are:

1. Promote/Highlight Own Work
2. Promote/Highlight Work of Others
3. Share Information/Resources
4. Promote Online Conference as an Inclusive, Connected Space
5. Seek out Opportunities to Connect with Others
6. Identify Future Learning Opportunities
7. Share Personal Impression, Summaries and Commentaries
8. Highlight Researchers
9. Commend Others
10. Express Personal Feelings and Interest

Together, these ten categories, further organised as four overarching themes (Table 4), represent a model that offers reasons why computer science education researchers and educators engage Twitter for conferences.

**Table 4: Themes and Corresponding Categories**

<b>Themes (1-4)</b>	<b>Categories (1-10)</b>
Promote Scholarship	<ol style="list-style-type: none"> <li>1. Promote/Highlight Own Work</li> <li>2. Promote/Highlight Work of Others</li> <li>3. Share Information/Resources</li> </ol>
Connect, Promote and Extend the Research Community	<ol style="list-style-type: none"> <li>4. Promote Online Conference as an Inclusive, Connected Space</li> <li>5. Seek out Opportunities to Connect with Others</li> </ol>
Engage in Professional Learning	<ol style="list-style-type: none"> <li>6. Identify Future Learning Opportunities</li> <li>7. Share Personal Impression, Summaries and Commentaries</li> </ol>
Humanise the Conference Space	<ol style="list-style-type: none"> <li>8. Highlight Researchers</li> <li>9. Commend Others</li> <li>10. Express Personal Feelings and Interest</li> </ol>

This section presents the themes and categories using data points the Twitter datasets analysed.

## **Theme 1 – Promote Scholarship**

Promoting the scholarly work of the research community is the most common activity among computer science educators and scholars using the Twitter as a conference backchannel. This promotion relates to personal work but also that of other scholars. Promoting the work of others appear to be more common than promoting personal work but this requires a closer examination. Information sharing is also a major aspect of scholarship promotion.

### **Category 1: Promote/Highlight Own Work**

The use of Twitter to promote personal and collaborative scholarly work is an activity of computer science education researchers during conferences.

The Tweet below from the CCERS20 conference highlights one participant promoting their work by outlining the topic, a brief summary, and an accompanying link to more information:

Great being able to present my poster on [topic] at the ... #ccers20

From ICER2020, one participant commended a co-author about the quality of a presentation and the value of their research:

OMG, the talk that Yim created for our work on learning machine learning for self-advocacy was overwhelmingly cute, stunningly clear. Yim's discoveries are exciting too: personalize data for better learning! Video: <https://t.co/G0q5bgqlVc> Paper: <https://t.co/ASKHMTMIF9> #ICER2020

In ITICSE2020, one participant highlighted the commencement of a new piece of group work, indicated future directions, and encouraged others to share information of value to the project:

Our #iticse2020 working group on meaningful assessment at scale is starting serious work today! Wonderful to take some time to focus on such an interesting topic. We'll be gathering case studies - please send our way! #assessment #cseducation @nickfalkner @RebeccaVivian

Another participant from ITICSE2020 promoted their work by offering a brief summary with accompanying links to video and other resources:

Check out our #ITiCSE2020 paper on student code & their understanding: <https://t.co/VD5wMf6pzD>, slides: <https://t.co/wgJTUOIFYU>, & video presentation: <https://t.co/5yA6P5up5n> <https://t.co/4O3K0c8AVr>

Participants at conferences are generally open to sharing their own work and to convey their sense of excitement and satisfaction to the wider research community. They promoted their work with a brief summary and also expressed excitement and satisfaction about their presentation

## Category 2: Promote/Highlight Work of Others

Similar to the promotion of personal work, the promotion of the work of others was evident among conference participants.

Keynote speakers and their presentation was shared by a participant of ICER2020:

A wonderful keynote from Tim Bell. Build #csed teachers' self-efficacy. Tons of inspiring takeaways. <https://t.co/o89RvUE1eq> #ICER2020

In addition to sharing from keynotes, participants shared information about papers and presentations along with the names of presenters, as is noticeable from CCERS20:

survey presentation regarding female A Level student perceptions by [author] #CCERS20

Participants are keen to highlight their personal affiliation to others when sharing as highlight in the following Tweet:

If you want learn more about how students transition between PLs, check out my awesome friend @EthelTshukudu's #ITiCSE2020 paper. :) <https://t.co/Xrqifcua3Z>

In one instance, a participant of ICER2020 created and shared links to an extensive report of the entire conference using the conference hashtag:

My #ICER2020 virtual conference trip report! You know what? I think it worked: unlike all past virtual conferences I've attended, this time I felt a real sense community, serendipity, and connection. On to #ICER2021! <https://t.co/sGFv7LeQxc>

Participants shared a range of information related to the work of others. These included summaries, links and related resources about paper, and actual names of presenters.

### **Category 3: Share Information/Resources**

To compliment information shared when promoting personal work and that of others, participants also shared additional information related to the conferences.

These resources included links to websites:

#wipsce2020 #wispsce20 Some great resources being shared  
<https://t.co/XVTBztVspR> <https://t.co/UBwjnPkwmm> <https://t.co/AKf0QCJqnz>  
@StefanSeegerer @cs4fn @TeachingLDNComp <https://t.co/nbXBcNgeEL>

And link to free conference proceedings:

Proceedings of the 2020 ACM Conference ... #ITiCSE2020 [URL]

## **Theme 2 – Connect, Promote and Extend the Research Community**

### **Category 4: Promote Online Conference as an Inclusive, Connected Space**

The online conference space has provided a means to include others in the research community. Two participants highlighted how this space facilitated their participation for those who could not attend in person:

would not have made it to #icer2020... happy it is online, and I get to see/hear people I normally only read about.

#ICER2020 lots of people here that wouldn't have come in-person otherwise. A cool benefit of being online - inclusivity! Though the time zone issues...

Another participant expressed how connectivity is facilitated by the many different platforms available including Twitter:

Even though there's no face-to-face communication, I'm impressed by how people have used different platforms to maintain social connections during #ITiCSE2020: in the past few hours I've used Moodle, Slack, Twitter, Zoom, iMessage and Jitsi to discuss proceedings and make plans!

Overall, the Twitter online conference space extended the reach of conferences by allowing otherwise absent but interested participants a means to connect with the community and to engage with conferences.

## **Category 5: Seek out Opportunities to Connect with Others**

Several participants used the Twitter conference space to document their interest in connecting with others for personal and professional reasons. One participant indicated the possibility of connecting virtually with potential collaborators:

Same. Most of my reason for attending #SIGCSE2020 is to meet with prospective authors, which can be done virtually. Haven't cancelled flights yet but leaning that way. :/

Another participant used the space to extend an invitation to others to get in touch if they had questions about their presentation:

Has been a lovely morning listening to many great talks. Thanks for all the useful comments and positive feedback! Do get in touch if you have more questions about CTC. #ccers20

Yet other participants were interested in meeting up with others for social reasons:

@suesentance @NALooker @cs4fn Paul Curzon @TilmanMichaeli @StefanSeegerer see you at the #WiPSCE2020 bar in GatherTown- such fun! What time are you arriving on Wed the 28th??? Who else is coming? (@quintincutts - is there dancing ;) ? <https://t.co/N9dNSrAfd9>

Participants used the Twitter space to express their desire to connect with others for social reasons and to discuss the potential for collaboration.

## **Theme 3 – Engage in Professional Learning**

Deliberate engagement in professional learning opportunities was observed among participants in each of the five conferences. Three elements of engagement related to professional learning were identified. These relate to the identification of learning opportunities and through sharing personal impressions, summaries and commentaries.

## **Category 6: Identify Future Learning Opportunities**

Participants identified opportunities for future personal learning engagement and for their teaching.

In one instance, a participant in CCERS20 noted missing an important personal activity to attend the conference. They indicated that they would compensate for this by discussing all the presentations:

I've written off the home schooling today. Will make up for it by discussion all the interesting presentations from today's conference #ccers20  
<https://t.co/EGItw2vp5Y>

Another participant in the ITICSE2020 conference made a personal commitment to use a video of a keynote to teach:

if this closing keynote is posted to YouTube, use it in a CS Ed course ...  
#ITiCSE2020

In the same conference, a participant indicated interest in learning more about a particular topic after a panel discussion:

Panel discussion looking at how computing is integrated into disciplines across K-16 education at #iticse2020. Interested to hear perspectives from elementary right up to university education.

Another participant indicated downloading conference papers for future reading:

Happily downloading #ICER2020 papers for later reading  
<https://t.co/e7duJdIG3I> Hey CS teachers - some great stuff here.

Several opportunities for learning along with the possibilities for using conference resources as part of professional work activities were identified by participants.

## **Category 7: Share Personal Impressions, Summaries and Commentaries**

Participants created and shared personal impressions, summaries and commentaries from presentations they attended.

The following Tweet from CCERS20 highlights a summary of a presentation on the value of code clubs:

Extracurricular code clubs are an important route into the subject for many children. When code club leaders were asked "Who has more...", it highlights the need consider that different students will have different needs, for example shown by @feniaiv as a gender divide #ccers20 <https://t.co/vVXrNZVdcr>

One participant from ITICSE2020 shared a commentary about understanding a concept as the Tweets following highlights:

Paul Dickson helped me understand notional machine. It's an abstract way of representing the inputs and outputs of a machine with the right amount of detail for what matters to your Ss. paper: <https://t.co/SUvEJd9gnE> #ITiCSE2020

Commentaries may also be directed to participants and with suggestions for action:

#ccers20 @ProfTomCrick Tom Prickett - I wondered if research on locus of control might be interesting for your super research on CS undergrad 1st-year success and grit and persistence - crazy findings here ...  
<https://t.co/QhVAD6ED02>

## Theme 4 – Humanise the Conference Space

Participants used the Twitter backchannel to add a very personal and human touch to conferences. By highlighting researchers, adding commendations, and by expressing their own feelings and interests, participants extended the conference space beyond its academic nature.

### Category 8: Highlighting Researchers

In highlighting the creative work of a presenter, one participant shared the feeling of being in a cultural:

@user presented a great poster on how [topic] #ccers20 ... feel like I'm at a cultural event!

Another participant identified a team of multidisciplinary researcher and expressed how enriching cross disciplinary work can be:

A research conducted by a multidisciplinary team... Great job! @ManuelNinaus @k\_tsarava #ITiCSE2020 Crossing disciplines brings a real enrichment 😊  
#Educ0Num <https://t.co/QWiQthXF67>

Highlighting the work and affiliation of early career researchers can be viewed as a signal of recognition and care from the research community:

Ethel Tshukudu from the University of Glasgow is studying transfer from one programming language to the other as part of her PhD - interesting talk at #ccers20

The use of the words 'beautiful' and 'heart' in the following Tweet is an explication that is a representation of the conference space being used to recognise personal qualities not separate and independent of their academic work:

Tim Bell's #ICER2020 keynote was beautiful! Always so much heart in his talks!

At home version of #CSUnplugged activities -- <https://t.co/PHrnGoeJiw>

While highlighting researchers, conference participants described the whole selves of those academics while pointing to the value and unique contributions of their intellectual work.

## Category 9: Commending Others

The Twitter backchannel was used by participants to express thanks, gratitude and commendations for their work. A sample of Tweets show the personalised nature of this appreciation as named presenters are commended for their contributions:

#ccers20 ... Can I commend this excellent work by @user

Thanks [author] for a great explanation on the need for [topic] ... #ccers20

Participants also expressed in several instances how their gratitude was related to their own learning and the benefits gained.

## Category 10: Expressing Personal Feelings and Interests

Participants expressed their own feelings and interests towards the conferences they attended and the presentations they delivered themselves or attended. The following Tweet highlight a participants' eagerness and anticipation of an upcoming conferences:

So delighted to get to attend #icer2020 from the comfort of my own home (it's hosted in new Zealand this year). Really interesting talks, looking forward to a great week ! <https://t.co/JlKqq4Sm88>

In some instances, participants expressed appreciation to those who supported their presentations:

First #icer2020 ... Thank you to everyone who came by, chatted, asked questions, and followed up afterward.

However, not all experiences were entirely without effort and challenges as one participant indicated feeling tired after attending late night presentations:

Tired... after a late one last night at virtual #ITiCSE2020 ... every moment was worth it.

Self-expressions and reflections were commonly shared by conference participants as the above Tweets suggested, indicating the opportunity the backchannel affords for expressing personal feelings and views.

## Discussion

Using a grounded theory methodology, this study examined how computer science education researchers and educators used Twitter as a conference backchannel in five conferences. Four themes and ten categories emerged from the analysis and together they describe a model showing how computer science education researchers used Twitter as a conference backchannel. These themes are: Promote Scholarship; Connect, Promote and Extend the Research Community; Engage in Professional Learning; Humanise the Conference Space. A discussion of each theme is presented on the following pages.



## **Promote Scholarship**

Participants of the conference backchannel engaged extensively in the promotion of scholarly work presented at the various conferences. Participants presented their own work, those of others and also shared various resources. Previous studies of the Twitter conference backchannel but outside the computer science education research domain have reported similar findings (Greenhow, Lai & Mai, 2019; Kimmons & Veletsianos, 2016). Stewart (2015) found similar scholarly promotional activities of users of Twitter in general. This evidence shows that scholars are willing to engage in public scholarship and to build public identities (Stewart, 2016). In particular, for early career researchers, scholarly reputation is an important element in their development and digital spaces and online scholarly communities like the Twitter conference backchannel may provide opportunities for improved visibility and maximisation of research impact (Nicholas et al., 2018).

## **Connect, Promote and Extend the Research Community**

The Twitter conference backchannel facilitated a connectedness among participants. This is visible both in the patterns of Tweeting and by the content of communication among participants. The Mentions and MentionsinRetweet are both types of Tweets that include the reference (or mention) of other users and are indicative of the number of direct connections participants created to others. Participants themselves have indicated interest in meeting others they are already familiar with and new connections with whom they can explore collaborative opportunities. Connecting with other scholars is an important element to digital scholarly practices, as it can influence social capital and online networks according to Costa (2014). Networking engagements themselves are found to broaden scholarship by fostering extensive cross-disciplinary connections and collaborations among individuals (Stewart, 2015).

However, this study also noted the relatively low level of dialogic and conversational engagements indicated by the very low levels of direct replies to the Tweets of others. Engagements were more oriented towards dissemination or reporting (Williamson & Ruming, 2018) as reflected by the number of Tweets and Retweets. This low level of dialogic engagement is a kind of participatory gap as Jenkins (2007) suggested, with participants perhaps not possessing the literacies to engage in this element of open scholarship (Veletsianos & Kimmons, 2012).

## **Engage in Professional Learning**

The engagement in activities related to learning gains were visible among participants in this study. Participants provided summaries, offered commentaries and their personal impressions of the presentations they were following. This finding is consistent with those of previous studies addressing the Twitter conference backchannel specifically (Greenhow, Lai & Mai, 2019) and from using Twitter in general (Singh, 2020; Veletsianos, 2012). The study also showed that participants identified opportunities for future learning, signalling that their conference experience extends beyond the conference schedule.

One possible reason for scholars openly sharing their learning is to provide others with access to their ‘expertise and knowledge’ (Gilbert & Paulin, 2015; Li & Greenhow, 2015) and to formation and development of their digital and scholarly identity (Greenhow & Robelia, 2009; Kozinets, 2010; Li & Greenhow, 2015; Stewart, 2016). The development of identity by exposure to opportunities for learning is especially important as it has implications for academic career development (Zacher, Rudolph, Todorovic, & Ammann, 2019).

Professional development and learning networks are highlighted as key elements to the development of computer science education. Crick et al. (2021) highlighted some of the challenges early career academics encounter in computer science education and noted that access to communities of practice both at the national and international levels are important for their development. This study highlights the potential of the Twitter conference backchannel to connect members of the computer science education community. For early career academics in the computer science education, the Twitter backchannel may offer opportunities for networking with other early career and more senior academics and researchers, mentoring and support which may help address some of the challenges highlighted by Crick et al. (2021). For teachers alike, the Twitter conference backchannel is also potentially useful for engaging in professional learning related to the latest research in computer science education, and to connect with other practitioners and researchers (Cutts, Robertson, Donaldson & O’Donnell, 2017; Menekse, 2015).

## **Humanise the Conference Space**

It is evident that many participants saw the backchannel as a more exclusively academic space reserved for scholarly discourse. To humanise this space – to add the human and personal touch - participants highlighted researchers, offered commendations and appreciation for the work of others and also expressed their own feelings and interests. In a previous study, this ‘slippage between the personal and the professional’ (p.75) accounted for participants’ expressions of care as observed by Stewart (2016). Participants in this study reported receiving explicit attention of care as they engaged in their networks and that networks served as ‘valuable sites of belonging and meaning’ (p.75). Stewart (2016) also found that commendations or public recognition draws attention to the recognised individuals in very visible ways. This visibility may serve to highlight otherwise invisible or marginalised scholars and those from minority groups.

## **Conclusion, Limitation, Future Work, and Implications**

This study highlighted four ways in which computer science education researchers and educators benefitted from and contributed to the conference arena. These findings underscore the utility of Twitter as a space for extending the research of conferences in computer science education and a demonstration of the commitment of participants to expand their own reach, highlight other scholars, and to provide support for presenters. These themes are a demonstration of the “various strategies of visibility and identity expression” (p. 24) that participants engage with in order to establish relationships and status (Kozinets (2010).

Though several studies have investigated the use of Twitter as a conference backchannel across several domains, this study is the first to examine computer science education. The findings in this study suggest that the computer science education conference backchannel is potentially a useful space for professional development for researchers and teachers alike.

While previous studies have engaged with theory in exploring the Twitter backchannel, this study is the first to employ a grounded theory approach to understand this phenomenon. Though it falls short due to its scope, it offers a model as a starting point towards theory development in this context. In particular this has shown one new finding – that the Twitter backchannel is a humanising space – one that can be leveraged to further promote computer science education research.

Several limitations are to be noted in this study when its results are interpreted. These results of this study are for conferences held entirely online, which may be different for traditional offline conferences. The data from the conference hashtags may not reflect the entirety of participation on Twitter as others may have engaged without using the designated hashtags. Future work may explore other means of engagement on Twitter by participants. Notwithstanding these limitations, the findings of this study may yet inform the computer science education research community about approaches to extend the reach of conferences and to disseminate research findings to a larger audience of researchers, practitioners and policy makers.

Future studies can explore participants' use of Twitter when following exclusively online and offline conferences. This may help us understand differences of engagement between the two formats. This may shed further light on the universality of the model derived from this study.

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## **Using Learning Management Systems to Scaffold Collaborative and Interactive Teaching and Learning**

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### **Abstract**

The Sustainable Development Goal 4 of the United Nations advocates for inclusive and equitable quality education for all despite the unique circumstances faced by the learners and the teachers. Such circumstances could be economic, social or natural such as the COVID-19 Pandemic, which led to disruptions on the school calendar. Although several institutions of Higher Learning transited to online teaching using Learning Management Systems (LMS), the use of technology in ensuring interactivity and collaboration, which are crucial aspects of learning, needs to be examined more closely to establish its effectiveness. Given the fact that COVID -19 will be with us in the unforeseeable future, online teaching is here to stay. It is thus imperative to improve it so that the quality of education is not compromised. Previous research has shown the importance of Technology, Pedagogy and Content knowledge in effective delivery. LMS and related tools have been used to change the view of technology in the classroom, and the facilitator's role is being re-evaluated. Successful facilitators look for innovative ways to scaffold the learning process. Instructional scaffolding is the process of supporting students in order to enhance learning and aid in the mastery of tasks. The aim of this study was to establish how LMS tools are used to improve collaboration and interaction in online teaching. The objectives were to establish which LMS tools are used to aid in interactivity and collaboration, how these tools are used to scaffold the teaching and learning process and how different elements interact to complete the scaffolding process. This study used a qualitative methodology where two virtual focus groups consisting of faculty and students in online graduate courses were used to review the scaffolding process. The findings were analyzed qualitatively, and the results indicate that synchronous and asynchronous tools found in LMS and their plugins are used to scaffold collaboration and interaction. LMS tools were found to improve learning outcomes and to build a sense of community. The need for flexibility and the ability for LMS to be integrated with other tools and plugins was identified as crucial. The study established the need for both learners and faculty to be trained on the use of the tools was proposed as an additional requirement for the success of the scaffolding process.

### **Keywords**

Scaffolding; Collaboration; Interactivity. Learning Management System; Information Communications Technology.



# **Using Learning Management Systems to Scaffold Collaborative and Interactive Teaching and Learning**

## **1.0 Introduction**

Technology has revolutionized the way we teach and learn, and Learning Management Systems (LMS) have been used to enable the teacher to reach out to the learners remotely, providing a platform for content dissemination, discussions and collaborations, assessment and course evaluation. One important element of the teaching process is the ability for interaction between the learner and the content, the learners and their peers and the learners and the facilitators as identified in educational theories such as Constructivism (Vygotsky, 1978). Early onset of technology in education proponents visualized a situation where the technology would basically replace the teacher. Research has however shown that the anticipated disruption was basically a sustainable solution where teachers would use technology to enhance delivery and especially interactivity and collaboration. Online learning differs from face to face learning in that whereas the former is technology-mediated and perceived to be lacking quality interaction the latter allows learners to have contact during live sessions. On the flipside, online learning is flexible, since learning can take place anytime from anywhere and this allows for enhanced learning experiences by combining synchronous and asynchronous modes.

Many theories of learning, including constructivism (Vygotsky, 1978) and Problem Based Learning (PBL) emphasize on the need for collaboration and interaction for effective learning to take place. Barrows (2000) defines PBL as an instructional approach that expects learners to study collaboratively in groups to solve problems and reflect on their own learning. For effective PBL to take place, there should be some element of support or scaffold to aid the learners in the learning process. The theory of scaffolding (Wood et al., 1976) indicates that such scaffolds are usually expert facilitators in a traditional classroom, but today we have computer-based scaffolds to support online learning (Saleh et al; 2018). Most online learning is carried out via LMS, and such systems have tools to support collaboration in synchronous and asynchronous environments (Magnisalis, Demetriadis & Karakostas, 2011). Models such as TPACK seek to establish the relationship between Technology, Pedagogy and Content.

Modern day online learning has been precipitated by the COVID19 Pandemic, whereas containment measures, requirements for social distancing and travel restrictions saw some Universities being forced to hurriedly introduce online learning. One of the major outcomes of this hurried move was the disregard for collaboration and interactivity, which are important aspects of any learning situation (Rugube et al., 2020). A lot of this learning was done through LMS such as MOODLE, Blackboard and CANVAS, and their tools and plugins. Such tools include videoconferencing facilities such as Zoom, the BigBlueButton, Microsoft teams amongst others. Where such tools are used appropriately, the pedagogical distance is reduced, interaction and collaborations are enhanced and the content delivery and the learning outcomes are achieved, resulting in quality education that can enhance sustainable development.

Success and failure stories and experiences in the education sector, mapped to learning theories, provide practical and insightful guidance that can help Universities to establish best practice. While technology exists and is also growing and changing fast, there is need to focus on the application rather than just providing the resources.

There are myriad teaching and learning resources including kindles, tablets, LMS, digital books, articles, videos, and podcasts that are now widely and sometimes freely accessible, shareable and even transferable with advanced technology, including mobile computing. Learning and teaching processes such as examining, supervising, giving assessment feedback, and individualized learning are now possible through technology use. There are current and sometimes successful attempts to simulate the traditional teaching with such tools. The aim of such attempts is to provide highly interactive content, learners and learning outcomes mapped with autonomy or independency driven educational activities. Modern approaches such as synchronous and asynchronous teaching, automated feedback and enhanced learning, and imagery provoking educational activities are some of the expected benefits of Learning Management System (Tuma, 2021). The use of Open Educational Resources (OER) allows learners to access common content and thus the sharing of content across and within disciplines (Kumar, 2021) and these allow collaborative learning. These are normally accessed via ICT and many faculty will point their students to access such as supplementary material, hence enriching the Learning Management System and enhancing collaboration.

The need for technology that strengthens or mirrors the traditional teacher in the online mode remains to be met fully. It is therefore important to evaluate existing and emerging technologies and how they are used to in a bid to establish best practices and approaches that can improve the learning outcomes. This study looks at LMS and how they support collaborative and interactive education in online environments for higher education, and how this support can be strengthened.

### **1.1 Purpose/Objectives:**

The overall objective of this study was to establish how LMS tools are used to improve collaboration and interactivity in online learning.

The specific objectives were to:

1. Establish which LMS tools are used to aid in interactivity and collaboration,
2. Review how these tools are used to scaffold the teaching and learning process
3. Establish how different elements interact to complete the scaffolding process and improve learning outcomes.
4. Propose the critical success factors for online scaffolding of collaboration and interaction

This study thus reviewed the literature behind collaboration and interactive learning and established how technology can be used to scaffold this mode of learning, based on the experiences of graduate faculty and students in online courses and then identified the critical success factors necessary to improve learning outcomes.

## **2.0 Literature Review**

### **2.1 Constructivist Learning Theory**

Lev Vygotsky (1896–1934) proposed the Constructivist Learning Theory and defined the learning process in social interaction, language, and cultural aspects and then concluded that human beings learn best through interaction as a learning technique (Vygotsky & Cole, 2018). The theory explains that students working collaboratively in interactive group activities can actively construct their own knowledge, which increases engagement and improves the learning outcomes. This is the essence of teaching. Constructivism is construed to be a synthesis of multiple theories and an assimilation of behaviorialist and cognitive ideals (Mvududu & Thiel-Burgess, 2012). It is perceived as an approach to probe for children's level of understanding and to show that that understanding can increase and change to higher level thinking, and it describes the way that the students can make sense of the material and also how the materials can be taught effectively. Interactivity and collaborative learning are therefore recommended for effective learning (Caffarella & Meriam, 1999) and thus there is an explicit need to ensure that this takes place in both face- to- face and online learning situations. The coupling of the Cognitive Learning Theory and Constructivism guides educators to provide demonstrations, stimulations of mental processing of information, and detailing of real-world scenarios. According to Amineh and Asl (2015), facilitators may create appropriate instructional activities to achieve learning outcomes, and as such, collaborations and interactions may be scaffolded using information technology.

### **2.2 Collaboration and Interaction in Pedagogy**

The role of social learning and collaborative learning supported by technology cannot be underestimated, and is viewed by UNESCO as a strategy that can lead to sustainable education (Santovena & Fernandez, 2020). Collaborative learning can therefore be defined as learning that takes place through organized groups that work cooperatively towards specific shared objectives and interacting to obtain a learning outcome. It involves at least two or more individuals (can be learners and instructors) working together, is most often than not synchronous, who work together to construct shared meaning or acquire new knowledge towards a shared goal (Chen et al., 2018). Collaborative learning is aimed at transforming how people learn and therefore enable a degree of autonomy; improve information analysis, synthesis, and expression capabilities; The said transformation requires a particular methodology implemented, and digital collaborative learning favors effective learning processes (Sobko et al., 2020; Oxford, 1997).

Theories of learning suggest that collaboration and interaction play an important role in the learning situation. Three terms namely cooperative learning, collaborative learning and interaction are used to describe situations where learners work together. While Cooperative learning alludes to a classroom technique used to nurture cognitive and social development through learner interdependence (Oxford, 1997), Collaborative learning, which is social constructivist in nature, contextualizes learning as construction of knowledge in a social context and in order to bring together learners into a learning community. It refers to a group of learners working together in smaller groups towards achieving a common goal, with increased interest and eventually taking responsibility for their own learning (Oxford, 1997). Interaction is associated with personal communication facilitated by group dynamics, willingness to communicate, language skills, and style differences.

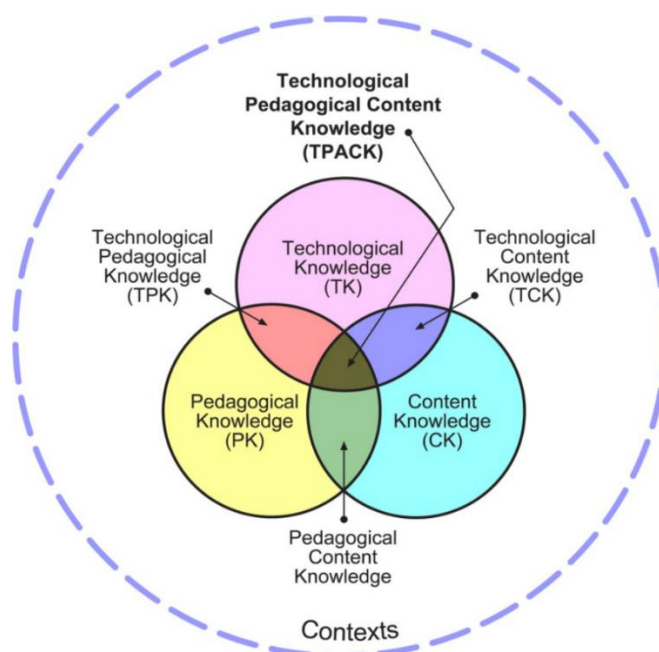
The term pedagogy refers to a combination of special abilities of content and pedagogical knowledge that is formed over time and increasing teaching experience and is viewed as a concept that connects several variables with the teacher's basic professional knowledge. To this effect, collaboration is viewed as beneficial even when learning is taking place online (Stahl et al., 2006).

The use of ICT improves the quality of the learning outcomes by assisting the users in collection, manipulation, presentation and dissemination of content using computers, laptops, smartphones, software applications and other connectivity software and applications such as Wi-Fi and videoconferencing (Susanto et al., 2020).

### 2.3 Technology, Pedagogy and Content

Koeher and Mishra (2009) developed the Technological Pedagogy and Content Knowledge Framework (TPACK) after considering the role played by technology in teaching. They argue that teaching with technology in itself is a difficult thing and therefore propose that technology, content and pedagogy in a given teaching/learning contexts play a role in the achievement of learning outcomes either individually or when acting together as shown in Figure 1 below.

They suggest that for successful teaching with technology to occur, educators must dynamically establish and reengineer an equilibrium of these factors. They identify the three key connections as knowledge of content, knowledge of teaching and knowledge of the technology. The framework is useful for highlighting the relationship between the different elements. While the role played by the teacher in pedagogy is highlighted, the needs of the student are not outlined in TPACK.



**Figure 1: The TPACK Framework**

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## **2.4 Instructional Scaffolding and Online Learning**

According to Wood, Bruner and Ross (1976), scaffolding refers to “a process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts” (p.90). Scaffolding refers to support provided so that the learner can engage in activities that would otherwise be beyond their abilities (Jackson et al., 1998), and it is also the support provided by experts enabling learners to accomplish outcomes that would naturally be beyond their current ability (Belland, 2017; Christie et al., 2004; Kim & Hannafin, 2011; Wood et al., 1976).

A good instructional scaffold should have three distinct features: a) Contingency, which refers to the ongoing assessment of students’ abilities in dealing with specific tasks so that the teacher can provide the scaffold (Pea, 2004; Belland 2017; Wood et al., 1976) and describes the teacher’s ability to adapt or calibrate support to the individual student in order to calibrate the support to the individual student (Van de Pol et al., (2010). b) Inter Subjectivity, which aims to create a shared or common understanding amongst the learners in solving a problem (Belland, 2017; Hannafin et al., 1999) and c) Transfer of Responsibility, otherwise known as fading, (Van de Pol et al.,2010) which allows learners to take charge of their own learning (Belland, 2014; Wood et al., 1976). The outcome of scaffolding is therefore measurable as the scaffold reduces with time. The theory of scaffolding is based on Social Constructivism as generated by Lev Vygotsky (1978) who allude that social interaction with peers, instructors, parents and others led to better learning outcomes under a concept known as the Zone of Proximal Development, which is a midway zone between what the student can do on their own and what they can’t do; This zone is characterized by what the learner can do with support. In traditional face to face teaching, scaffolding was done by expert teachers, but in online learning, this can be provided using modern tools such as those found in many modern Learning Management Systems. The process of scaffolding implies that the tutor introduces the concept, then give the learner feedback on performance; then monitor progress and give hints to the learner, instruct them on how to improve the process and ask questions on performance (van de Pol et al., 2010).

Over the last decade, there has been a massive increase in online learning as well as a growth in respective technologies. Although learners have more learning opportunities, recent surveys and research findings also decry concerns about online learners such as poor engagement and low-quality instruction (Liseno & Kelly, 2020) This can be mitigated using instructional scaffolds to encourage learners to construct their own meaning. Doo, Bonk and Heo (2020) carried out a meta-analysis of the effects of scaffolding on learning outcomes in an online learning environment in higher education in 8 countries from 2010-2019 using data published in 18 journal articles and concluded that Computers as a scaffolding source in an online learning environment were also more prevalent than were human instructors. This indicates that although original scaffold studies focused on human expertise, computer technology is emerging as a popular alternative. Liseno and Kelly (2020) allude that scaffolding in online learning produces significant change in learning outcomes. The main challenge in scaffolding online collaboration is access to the LMS, leading to establishment of informal groups which may be difficult to monitor (Lazareva, 2017), and as such, the need for flexibility must be carefully balanced with legitimate participation to allow decentralized participation in hyperlinked environments (Park, 2015; Zackariasson, 2019).

## **2.5. Learning Management System Tools**

LMS can be described as a form of sustainable innovation in education as they assist the learners and the instructors to achieve the learning outcomes despite the challenges of time and zonal differences. This innovation has come in handy in times of the COVID 19 pandemic as the issues of social distancing and travel restrictions have been addressed. LMS may be open source or commercial. Some of the most common ones include Moodle, Blackboard, ATutor, Edmodo, Sakai and Canvas LMS have several common features (Al-Hunaiyan et al., 2020) such as file sharing, interactive lessons, quizzes, wikis, chats portfolios, assignments, announcements, shared folders and other plugins that allow many activities to be carried out online and also facilitate interaction, collaborations and communications amongst students and faculty. They also allow links to various URLs and some even allow advanced features to carry out anti plagiarism tests before turning in assignments.

Others have plugins that allow them to be linked up with video conferencing facilities with breakaway rooms that allow group discussions which are effective for collaborative and cooperative learning (Moreillon, 2015). The rich multimedia facilities of such systems have made it possible to almost mirror the traditional face to face class (Karchmer-Klein et al., 2019; Park, 2015) and as such, there is need to ensure that faculty and students are able to use these tools to achieve the desired collaborative learning.

## **2.6. Synchronous and Asynchronous Teaching**

Over the last two decades, there has been an increase in online teaching (Almusharraf et al. 2020), but there is a marked shift to blended learning due to the need for interaction and to mirror the traditional classroom. Many educators have turned to blended modes where the use of synchronous and asynchronous methods is used concurrently.

Synchronous teaching mirrors the traditional class and is normally offered via live links such as live chats and videoconferencing tools that require real-time communication and collaboration as if the participants were in the same place at the same time, providing real time engagement. Asynchronous tools, on the other hand, are designed for communication and collaboration over a longer period of time where participants may be in different places and different time zones, through a "different time-different places, allowing them to connect together at their own convenience and schedule (Moorhouse & Wong, 2021). Such tools are meant to sustain interaction and collaboration over time using resources and information that are instantly accessible throughout the study period. They are also designed to keep an audit trail of the interactions of a group, allowing documentation of cumulative knowledge that can easily be shared and distributed.

Online learning, especially as driven by the COVID19 Pandemic has seen learners having to study without being in a specific place at a specific time, and hence both synchronous and asynchronous tools have become important. These must be supplemented by quality materials, instruction, interactions and activities that create effective learning. Both the learners and teachers must understand the tools for enhanced pedagogical and accessibility issues. Asynchronous tools can save time as you can record the lectures for reuse as they are built to provide better tools for recording and measuring participation by individuals. Students do not have to keep writing notes as they can complement the audio and the video. (Lowenthal et.al, 2020),

If well blended, synchronous and asynchronous tools may allow for easy posting of interactions in situations where text and notes would be slower or cumbersome. Asynchronous methods allow introverted students who don't like sharing in public to share their submissions and ease the pressure of interacting in a live session, especially when resources such as internet connectivity and clarity of communication is compromised. Some of these tools allow students to preview/edit their discussions before submitting them, similar to text-based discussions. The main challenge is for faculty to strike the right balance between asynchronous and synchronous modes for different contexts (Lowenthal et al, 2020). However, online teachers require awareness of technological tools and online instructional approaches if they are to teach online effectively (Cleveland-Innes & Garrison, 2012; Cong, 2020).

### **3.0 Methodology**

This study reviewed a group of faculty and students involved in an online graduate course to establish how LMS tools are used to scaffold collaboration and interaction in the teaching and learning process.

The study used a qualitative approach where the main method of data collection was the use of focus group discussion. A focus group is a qualitative research method where the interviewer or moderator presents a set of specific questions about a given concept (Wong, 2008). The advantages of a focus group include the fact that it is fast, efficient and economical (Krueger & Casey, 2002), provides for interactions and spontaneous responses. The method was selected because of its suitability in sharing and comparing experiences, developing and generating ideas and exploring issues of common importance (Colm et al. 2011; Tremblay et al., 2010).

The participants were recruited through random sampling after announcements made in two graduate faculty WhatsApp groups from two private Universities in Kenya and two graduate students WhatsApp Groups from the same Universities. The participants volunteered to participate in the study. All the faculty and students were taking a purely online course, but had also done face to face courses. A total of 24 participants took place in the study. The Participants participated in 4 virtual 1-hour long focus groups in groups of six faculty members and six students respectively. The moderators asked similar questions to the groups as indicated below:

1. When do you use LMS tools to assist collaboration and interaction?
2. What is the impact of using these tools on collaboration and interaction?
3. How do you ascertain that you and your peers/students are able to interact freely?
4. Which tools do you prescribe/use for interaction and collaboration?
5. Is there anything connected with online collaboration and interaction via LMS tools which has not been discussed that you feel strongly about and would like to bring up now?

#### **3.1 Data Collection and Analysis**

The participants were divided into 4 groups of six participants each and invited for virtual meetings via Zoom, a video conferencing application. Each group of six met for three sessions of one hour each, resulting in twelve meetings. The focus group meetings were recorded using the Zoom Recording facility.

The Video and Audio recordings from the focus group meetings were transcribed verbatim and analyzed thematically by two different coders working manually and separately. To minimize subjectivity, an inter-coder reliability of 95% was used.

## 4.0 Findings and Discussion

### 4.1 The Use of Tools to Scaffold Collaborative Learning and Interaction

The participants identified common tools used in the process to include Chat, email, common whiteboard, videoconferencing, wikis, blogs, discussion forums, breakaway rooms, URLs, Antiplagiarism tools, WhatsApp, Facebook, Instagram, wikis, blogs, discussion forums, audio conferencing. The use of these tools is summarized in Table 1 below.

Many of these tools are used to help learners interact with their peers and their lecturers to create communities of learning. Apart from Chats, forums, wikis and video and audio conferencing, other tools such as white boarding allow learners to work collaboratively on a document, while the analytic tools are used to measure actual engagement in terms of hours spent interacting and the number of posts. This helps to scaffold the interaction process until the learners are able to initiate, hold and complete discussions without additional prompts as they can now monitor themselves.

**Table 1: Common LMS Tools and Support for Collaborative and Interactive Learning**

Common Tools	Support for Collaborative Learning and Interaction
Discussion boards	Discussing topical issues usually out of live session
Wikis and Blogs	Deliberating and sharing ideas
Email	Sharing content for one to one and one to many communications
Streaming audio/Streaming video	Communicating and sharing recorded clips and simulations
Social Media tools such as WhatsApp, Instagram Facebook, Tik Tok, Twitter, Snapchat and Telegram	Chatting and instant messaging and keeping in touch, getting updates. Information sharing of low-complexity issues/Ad hoc quick communications
Surveys and polls	Voting, gaining consensus, capturing information and trends
URLs and Web site links	Joint and collaborative searches and analysis, Providing resources and references
Audio conferencing such as Skype	Discussions
Video conferencing such as Zoom and Microsoft Teams	Sharing presentations and information, discussions, interactions, breakaway rooms
White boarding	Collaborative design and Co-development of ideas
Virtual Learning Environment Analytic Tools e.g., Intelliboard/Blackboard	Tracking and improving learner and Instructor Engagement
Learn/Engagement Analytics/Moodle	Identifying disengaged learners
Google Analytics	Learner Self-Management and activity Participation
Antiplagiarism tools	Checking authenticity and originality of presentations



## 4.2. Interactions and Critical Success Factors

Using the analysis of the recorded focus group interviews of both faculty and students. The analysis derived 5 themes as outlined in Table 2 below:

**Table 2: Inductively Derived Themes**

Objectives	Focus Discussion Prompt	Summarized categories	Themes
1. Establish which LMS tools are used to aid in interactivity and collaboration,	When do you use LMS tools to assist collaboration	Blended learning	Synchronous and asynchronous uses
		Interactivity and collaboration	
		Different time zones and places	
2. Review how these tools are used to scaffold the teaching and learning process	What is the impact of using these tools on interaction	Better Learning Outcomes	Improved learning outcomes
		Improved interactions	Transfer of Responsibility
3. Establish how different elements interact to complete the scaffolding process and improve learning outcomes.	How do you ascertain that users are able to interact freely	Transfer of responsibility allows learners to choose their own tools	Flexibility
		Formal tools as found in LMS	Use of plugins to enrich learning experiences
		Informal tools found in social media	
4. Propose the critical success factors for online scaffolding of collaboration and interaction	Is there anything connected with online collaboration and interaction which has not been discussed that you feel strongly about and would like to bring up now?	The need to map the tools to content and pedagogy	The relationship between the students, faculty, content and technology
		Careful selection of tools	

### 4.2.1. Synchronous and Asynchronous Uses

When prompted to indicate when they use LMS tools, the faculty and the students agreed that they use them in live lectures and out of class. The faculty had this to say: ‘We use the tools in the classroom for active participation of the learners, and also give them assignments outside the class for group discussions’ while the students observed the following: “We use the tools when attending a live lecture but more so outside the classroom to consult our peers and write our projects and term papers” and “We use the tools to catch up with our faculty and peers when we need clarification or when we feel isolated from the class”.

All the four groups of participants agreed that LMS tools are important for assisting interaction and collaboration for both synchronous and asynchronous learning situations. This finding support Moorhouse & Wong (2021) and Lowenthal et al., (2020) who allude to the fact that there are tools to support the teaching and learning process both in and out of class. The lecturers found that synchronous tools were important for introducing concepts, while the student groups found the asynchronous tools important for follow-up and for helping with assignments and term papers. The student groups indicated that apart from classroom learning, the tools helped them feel part of the class and removed the feeling of remoteness and isolation.

#### **4.2.2. Improved Learning Outcomes and Transfer of Responsibility**

When asked about the impact of the LMS tools on interaction the Faculty stated that “We find that the students participate better in discussions” and “It is usually easier to reach a bigger group of students” as well as “Students turn in better assignments after online discussions”. The students’ response to the same question returned the following responses: “We get a chance to express ourselves through wikis and blogs” and “We do not need to compete for the lecturers’ attention” and “It is easier to submit your thoughts in an online forum” as well as “We find that we eventually do not need the lecturer to prompt us”

The lecturer groups felt that learners turned in better assignments although they were not able to pinpoint if all the students had participated. All the groups felt that the learning was much better and that eventually, the students required no prompt to interact and collaborate, and therefore if used appropriately, the LMS tools afforded for transfer of responsibility and thus the scaffold effect worked well. These finding resonate well with Moreillon (2015) who indicated that learners indicate improve indicate improved interactivity online, and Park (2015); Belland (2017) and Hanafin (2011) all who concluded that online tools can improve the learning outcome, create learning communities and produce independent learners.

#### **4.2.3. Flexibility**

When asked how they ascertain that there is free interaction, the Faculty stated that “When we find that users can use their own tools without consulting us, or when they hand in a group assignment that shows clearly that all users participated”, while the students responded by saying “We feel free to use the tools when the lecturer does not dictate the tools to use “and “We interact more freely when the lecturer is not in the group, so we create our own independent groups”

All the four groups agreed on the need to allow the students to eventually select the tools, although the two lecturer groups indicated that at the start, there is a need to dictate the tools and the type of interaction but gradually fade this support. LMS in their nature require substantive responsibilities and as such, instructors require technical skills to use them effectively. Universities must thus train students and faculty on how to use them and exploit their immense capabilities (Al-Hunaiyyan et al., 2020). Furthermore, Sobko et al., (2020) had also raised the issue of independence and flexibility in ensuring that learners can chose their tools, albeit with some guidance.

#### **4.2.4. Use of Plugins to Enrich Learning Experiences**

On responding to the tools they would prescribe for online interaction and collaboration, the Faculty responded that “We commonly use Chat, email, common whiteboard, videoconferencing, wikis, blogs, discussion forums, breakaway rooms, URLs, Antiplagiarism tools and analytics to ensure engagement “and they appeared to use just what is provided. The Students on the other hand observed that “We commonly use Chat, email, WhatsApp, Facebook, Instagram, wikis, blogs, discussion forums, videoconferencing and other tools not in the traditional LMS”

The two lecturer groups indicated that the LMS tools were more often than not suitable for collaborative learning and interaction but concurred that they sometimes allowed the learners to use whatever tools were available and sometimes also asked for friendlier plugins such as the BigBlueButton and Microsoft Teams. The students felt that that there were many tools in the market with emerging features that fitted their budgets and experiences and there is need to integrate these with the LMS. For effective use of LMS tools, instructors should ensure that students are comfortable with the tools in order to create learning communities that allow collaboration, interaction and engagement with the content, the instructors and the peers, thus agreeing with Dlamini and Ndzinia, (2020).

#### **4.2.5. Relationship Between Students, Faculty, Content and Technology**

When asked to raise other factors that are critical to online interaction and collaboration, the Faculty observed that “We need to understand how to use these tools as the students are ahead of us”, and that “Using the tools made us re-evaluate the way we teach”. The students responded that “They need to train us on how to use these tools as there are many of them” and that “Some of our lecturers don’t know how to use the tools” and also observed that “We found that some of the tools were not suitable for collaborative practical content such as networking”.

All the groups indicated that for effective interaction and collaborative learning to take place, the LMS tools must be matched to the content and the pedagogy. They also agreed that both faculty and students needed effective training on how to use the LMS tools in collaboration and interaction for better learning outcomes. The study confirms the continuous need of linking pedagogy, technology and context (Ustun et al., 2021) as stipulated in the TPACK model, as well as Karchmer-Klein et al., (2019) who observed the need for careful instructional design that include the needs of both learners and teachers, but also considers the pedagogy and the content.

## **5.0 Conclusions and Recommendations**

Based on the findings from this study, LMS tools are important scaffolds for collaborative and interactive learning and, if used correctly, they can improve the learning outcomes to produce independent learners. The learners find them useful for building both learning and social communities that remove the sense of isolation common with online courses. They can be used effectively in both synchronous and asynchronous situations to improve the learning outcomes.

There are several tools and plugins in the market that can be utilized in both synchronous and asynchronous environments to enable the learners to interact with their peers and their instructors, and the list keeps growing as ordinary business tools are also converted for educational purposes.

There is need to provide some guidance on appropriate tools, but eventually the responsibility of selecting the tools and the mode of interaction should be left to the learners. The relationship between content, pedagogy and the LMS tools cannot be overlooked, and instructional designers should assist faculty in selecting the right tools and ensuring that the right training will be provided. Although most learners are flexible enough to explore new realms, the faculty should not assume that the learners automatically understand how to use the tools, but should provide some initial training.

This study had some limitations that need to be addressed. The findings from the small sample size of 24 participants from 2 private universities cannot be generalized. There is need to carry out future studies with alternative research methods, including those that are empirical in nature, with a larger sample size and a population that covers both private and public universities. The study also included a graduate theoretical course and future studies could include a practical course and may be undergraduate students who may present a different entry behavior or self-efficacy.

The outcomes of this study lead to a clearer understanding of how to select and use LMS tools to design a learning environment that scaffolds collaborative and interactive learning. It also underlines the need for flexibility in use and selection, as well as the need to train both faculty and students on the use of the tools for better collaborative learning and interaction.

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## **Social Media as a Pedagogical Tool in Class: Tiktok Case Study.**

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### **Abstract**

Social media has been an ever-growing medium with the expansion of multiple platforms and user adoption around the globe. According to Hootsuite's Annual Digital Data Report for the year 2022, there are 4.62 billion users of social media across the globe, with a 10.1% increase from the subsequent year. This paper aims to explore Tiktok platform as a pedagogical tool for learning in the classroom for University Students in an "Online Behavior Class" at a University in Egypt. Results show that Gen-Z University students indeed prefer integrating social media to their educational experience, and even prefer expressing through short video content over other assessment alternatives. Beyond that, short video content creation allowed them to express more creatively, and also reflecting on the class curriculum through using short video content production, was a more effective method of material reflection than other reflective methods.

### **Keywords**

Social Media, Tiktok, Reflection, Case Study



# **Social Media as a Pedagogical Tool in Class: Tiktok Case Study.**

## **Introduction**

Social media has been an ever-growing medium with the expansion of multiple platforms and user adoption around the globe. According to Hootsuite's Annual Digital Data Report for the year 2022, there are 4.62 billion users of social media across the globe, with a 10.1% increase from the subsequent year. The report also sheds light on social media time usage per day in Egypt, which has an average of 3 hours and 13 minutes of daily social media consumption for people aging from 16 to 64 years.

The report states that the top reasons why people globally use social media are:

- Keeping in touch with friends and family
- Filling Spare time
- Reading News & Finding Content about diverse topics

Not only that, but the report has an exclusive analysis on Egypt's social media usage, stating that 51% of the population is on social media, with TikTok coming 5th place as the most social media used platform, right after Instagram and WhatsApp with a total usage of more than 50% adoption out of all social media users in Egypt.

Having stated the above, it is vital to explore the impact of such social media high adoption rates and usage, particularly amongst youth since social media has become an integral part of their everyday life, source of information and influence on their culture and behavior.

Since social media is a main source of time and knowledge consumption by youth, the researcher aimed at developing a case study on how integrating TikTok as a pedagogical tool for Integrated Marketing Communication Students impacted their learning experience as well as enhance their creative expression of the knowledge gained in class or any other discipline the students were interested in creating Edutainment content for their audiences and followers about.

The case study was implemented on two classes, with 42 students taking the "Online Behavior and Web Analytics" course at the American University in Cairo in the Journalism & Mass Communication Department, over the course of 8-weeks , with weekly videos to be created and produced by the students.

For the first three weeks and the three videos created, content was created around reflecting on the curriculum and material discussed in class, where the students reflected on class material using short-video content as a means of expression and reflection. For the following five weeks, the students were required to create original educational content around any topic they were interested in, providing content that educates audiences around certain topics and is entertaining as well; producing Edu-tainment content using the skillset gained in class on how to create social media content and for students to become content creators. Lastly, the student's final presentation was to create a 3-minute TikTok video to showcase their final projects using short-video content.

## **Background**

Social media networks are currently shifting towards the direction of critical short video creation, as they allow users to express and share memorable moments of their day and share it with their audiences using their mobile phones (Zhang et al., 2019). There are various social media applications that allow users to use short video as a means of showcasing new ideas, moments, content, entertainment or educational to be shared for a short period of time ranging from 16 seconds to three-minutes. Where this as a concept is coherent with the principles of micro-learning in academia.

One of the most used platforms for short-video content creation, is TikTok. Since its launch in 2017, it has been the fastest growing social media application. TikTok was the most downloaded application in 2020 with the rise of the pandemic, and on average users spend almost 41 minutes using the application daily. Most users that use TikTok are aged between the 14 and 30, making the application an educational tool (Yang, et al., 2019). Studies conclude that there are three categories of TikTok users, the content creators, the content browsers, and learner- creators (Qivang & Jung, 2019).

TikTok generally attracts young users born after 1996, referred to as Gen- Z, where more than 60% of the users of TikTok are Generation-Z (WallRoom Media 2022). The application not only encourages users to consume content or create entertaining content such as dance and since but also, allows youth to produce creative educational content as well.

As TikTok is a short-video only platform, its interface makes it easy for users to continuously create and share as well (Syah et al., 2020). TikTok content is used nowadays for Edu-tainment, meaning to share creative content as well as teach audiences about various topics or interests such as cooking, travel, lifestyle, fashion, sports, drawing, and more. There are multiple research studies and case studies on how such short video creation on TikTok has been used by educators in schools as well as higher education institutions to teach a variety of topics (Yang, 2020). Not only that, but some of the high traction hashtags on TikTok such as the #ProfessorsOfTikTok hashtag, gaining more than 170M views until this very day, where professors share educational content to audiences in their subjects. On the contrary, another hashtag that has been rising, is the #FinalProject hashtag, used by students to use TikTok as part of their final project submissions. This hashtag has attracted more than 10M views.

## **Methodology**

The method used for this study was a case study approach entailing all 42 students enrolled in two of the researchers' classes at the Journalism and Mass Communication Department at the American University in Cairo, with 43 participants for the application of TikTok for the class, yet the questionnaire only received 42 responses (N=42). Participants were in their third or fourth year of study (juniors or seniors) with age ranging between 18-25, based in Cairo, Egypt.

Participants were asked to create new accounts for the course, as not to interfere with their personal accounts.

- Total content created by every participant was 9 short videos.
- Three content videos reflective on the class material.
- Five content videos on creating educational content in any discipline the participants preferred.
- One final project presentation video done as a group for presenting their final project outcome.

Following the application of creating content by the students and participants a digital qualitative survey questionnaire was distributed amongst the participants for exploring the following research areas:

- Age & Gender
- Determining Prior Engagement with TikTok Application Before using it in class
- Effectiveness of Using Short-video content as a reflection tool
- Interest of Using Short Video as an assessment tool
- Interest of Using Short Video as an assessment tool in comparison to other assessment methods
- Assessing interest of trying new creative expression tools
- Evaluation of Interest and ways of using TikTok further beyond class assignments
- General Feedback on their experience

## **Ethical Considerations**

Ethical approval has been received for this research.

## **Main Findings**

Findings were assessed through a questionnaire (Appendix 1), and the results mostly were in the favor of using TikTok as a pedagogical tool and for creative expression for students.

## **Main Results**

- 45.2% of participants had prior experience in using the TikTok app before class.
- 81% of participants stated that reflecting on class material via creating short videos helped them understand the material more.
- 67.1% rated a 4 & 5 on a Likert scale (5 being the highest) for preference of being assessed via short-video content over other assessment methods.
- 83% of respondents preferred being assessed via short-video content creation over other assessment methods.
- 78.6 % of the participants highlighted that such an assignment increased their creative communication and expression.
- 81% of participants enjoyed creating educational content around topics they were personally interested in.
- 76.2% now use TikTok even more after using it for class.
- 88.1% of respondents agreed that having a video-content final presentation as a complimentary activity to public speaking presentations inspired more creativity to the content being presented

The last question in the survey asked the respondents to describe their TikTok experience in 1-3 words (Appendix 2), the recurrent words were: “Interesting, Exciting, Fun, New, Useful, beneficial & Creative.”

## **Conclusion**

As the findings have shown, that Gen-Z University students indeed prefer integrating social media to their educational experience, and even prefer expressing through short video content over other assessment alternatives.

As well as that, short video content creation allowed them to express more creatively, and also reflecting on the class curriculum through using short video content production, was a more effective method of material reflection than other reflective methods.

To conclude, Short social media videos on TikTok are changing the way people are taught and how they learn. With the ever-rising popularity and future educational potential of TikTok, educators should consider methods for integrating the creation of TikTok videos into pedagogical approaches for their class.

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No potential conflict of interest was reported by the author.

## **Appendices**

### **Appendix 1 – Survey Questionnaire**

- 1) Age**
  - 18-21
  - 21-25
- 2) Gender**
  - Female
  - Male
- 3) Was it the first time you used Tiktok for this class?**
  - Yes
  - No
- 4) Did Using Tiktok in the first 3 weeks (reflecting on class material) help you understand the material more?**
  - Yes
  - No
- 5) Was using Tiktok to reflect on class material more interesting than written assignments or examinations?**
  - Yes
  - No
- 6) Did using Tiktok for all weeks help you express and communicate in more expressive ways and help you never tried before?**
  - Yes
  - No
- 7) Did you enjoy creating content about things you love (your passions) and sharing it , with video?**
  - Yes
  - No
- 8) Do you find video content sharing on the things you love inspiring to others?**
  - Yes
  - No
- 9) Would you like to have more Tiktok video assignments as an alternative to writing assignments or examinations for reflection?**
  - Yes
  - No

**10) Did having a video-content final presentation as a complimentary activity to public speaking presentations inspire more creativity to the content youre presenting?**

- Yes
- No

**11) Do you use Tiktok more often now after the class?**

- Yes
- No

**12) What do you use it for?**

- Content Consumption
- Content Creation

**13) If you use it more for content creation, what kind of content do you create?**

- Entertainment: Lip Sync / Dancing & Singing
- Edutainment Content (Entertaining yet educational content)

**14) Describe your class Tiktok experience in 1-3 words or a sentence (Open Ended Short Question)**

## Appendix 2: Responses to Question 14 On Describing the TikTok Experience

Describe your class Tiktok experience in 1-3 words or a sentence

42 responses

Good

Different and creative

It was challenging at the first but then i was actually enjoying it.

Challenging but beneficial, never though I'd be creating tik tok videos alone beyond the class.

Honestly, I think its an embarrassing assignment since I do not know how to create useful content on TikTok but i will still do my best before the semester ends to create some TikTok videos

Amusing, interesting, and educational

Hard but fun

Entertaining-creative-new

Funny

It was challenging, thought-provoking, and taught me how to be more brief in delivering content

Challenging but nice

Hard , beneficial

Useful  
Fun  
Interesting

different, interesting, creative

Loved it it is truly enjoying and it is a creative idea to use it in class.

Fun, new, entertaining

Creative experience from which i learned a new platform.

Hard at the beginning and then very enjoyable

Fun, thoughtful, and helpful

Super fun and enlightening

fun, different, worth it!

A fun upgraded interesting concept to step out from the ordinary learning environment.

It was really

I lose time on it, just keep watching the videos and can't stop, however I don't really fancy the content on it

Engaging, flexible, integrating creativity, betsha3'al dema3' in a way

Embrace my creativity



Fun, new, creative
Interesting, fun, challenging
It was perfect experience
Best experience
It started off being very interesting but then trying to remember to post Tiktoks was difficult
Very exciting and effective
Creating something out of my comfort zone
Fun De stressing Beneficial
Interesting, creativity booster, motivation
experiential, eye opening & experimental.
It needs creativity, persistence and passion which is somehow harder than i expected.
fun- up to date - beneficial
Challenging, not all of us are content creators or enjoy creating content so that was the iffy part of it however it did expand my creative boundaries and made me step out of comfort zone a bit
Pretty good
It helped me get encouraged to share content online, since I'm not on social media a lot I always hesitated to start posting freely, so I found it nice to put out content that I was passionate about.

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## **The Cross-Platform Social Engagement of Students**

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### **Abstract**

With social media being a ubiquitous part of the way students engage with each other, this study explores how media, journalism, and publishing students use social media both in and outwith the classroom. It focuses on how cohorts use social media during class times – how they are speaking to each other and scrolling social feeds – and how they communicate about course related content after class. This research highlights the obligation that some students feel to answer questions that come into the group social channels, while linking that obligation to a sense of reciprocity. It shows how these issues are embedded in the value exchange of emotional labour and its relationship to gender. Not all students feel obligated to take part and many indicate levels of frustration at the stream of questions, which can, in turn, exacerbate negative mental health issues in students.

### **Keywords**

Social media, higher education, emotional labour, social obligation.

# **The Cross-Platform Social Engagement of Students**

## **Introduction**

Social media is a ubiquitous part of our lives, it helps to underpin the way we connect to each other, and how we build online identities and communities. 62.5% of people worldwide use the internet (We Are Social<sup>1</sup>, 2022) for an average of six hours and fifty-eight minutes a day. While this includes all access to the internet, including for work purposes; 58.4% of these people use social media (53 Million in the UK [Statista, 2022]) daily for two hours and twenty-seven minutes (We Are Social, 2022). The majority of users are accessing the internet from their smart phone. And, in Northern Europe 53% of social media users are female identifying, which is almost a direct flip from the world-wide average of 46.1% female- to 53.9% male-identifying.

The different social platforms have different gender dynamics, which affect how users engage with the platform and within the communities that make certain platforms their home. This is not to indicate that users of social media choose one, singular platform; instead there are high levels of crossover on social platform use. In fact, only .7% of Facebook users are unique to the platform. 72-78% also use YouTube, WhatsApp, and Instagram in varying degrees (We Are Social, 2022, 102). While this uptake is what we can expect from a legacy social platform such as Facebook, newer platforms such as TikTok, which Douyin rebranded as in 2018, also show high crossover of users. Only .1% of TikTok users are unique to the platform while 73-84% of TikTok users also use Facebook, YouTube, WhatsApp, and Instagram; while between 32 – 56% use Telegram, Snapchat, Twitter, Pinterest, and LinkedIn (We Are Social, 2022, 102). The average number of social platforms used, across male and females, aged 16-44 is between 6-8 (We Are Social, 2022, 101).

In most audience profiles, the largest user base is 18-24 year olds, with Facebook being most popular with the 25-44 year olds. Instagram straddles these two demographics with their user base being equally by 18-44 year olds (We Are Social, 2022). With this general user base and gender dynamic in mind, this research explores the use of social media by higher education students in the field of media, journalism, and publishing.

There is much research on the role of social media in the classroom as a tool for learning with some finding that it ‘can strengthen class material and positively influence discussions, collaborative work, and authoring’ (Boateng & Amankwaa, 2016); and others focusing on the use social media for ‘small group learning’ (Latif, et.al, 2019). Boateng and Amankwaa found that ‘Social media provides students a new mechanism for a familiar exercise’ which allows them to ‘publicly evaluate and comment on their campus environments, institutional policies, classes, professors, and administration, and fellow students in real-time’ (2016). Chugh and Ruhi (2017) provided a literature review of Facebook and its use in higher education as a tool for student learning and teaching, while Luo, et.al. (2020) focus their research on how social media is being used by faculty for professional development.

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<sup>1</sup> For this research I use ‘We Are Social’ which produces up to date social research in conjunction with eight partners, including Statista and GWI.

Research into the areas of teaching and learning uses of social media in higher education often focuses on larger platforms such as Meta and the use of messaging apps including Messenger (Meta), Twitter, and WhatsApp. This is beginning to change as more higher education professionals bring Snapchat, Instagram, Pinterest, and more into the classroom to support student engagement and learning (Manca, 2019). This engagement with social platforms could also ‘facilitate deep learning in the creation of knowledge in e-learning’ at HE institutions (Mnkandla & Minnaar, 2017), and can encourage students to be ‘active participants or co-producers’ of knowledge (McLoughlin & Lee, 2008). Becoming active in developing their learning environment to create Personal Learning Networks can ‘extend beyond their face-to-face contacts’ (Trust, et.al., 2017) and enable them to connect with other students and information at any time or place (Oddone, et.al. 2019).

Though a myriad of research has been undertaken regarding social use in the classroom, amongst academics as professional development, and as a means of developing personal learning networks, little research exists on how higher education students use social media platforms amongst themselves, during and after their classes – without the intervention of the academic, or the formalisation of platform use. This research addresses that lack of knowledge by identifying how a subset of university students engage with platforms and each other before, during, and after class, what they discuss and post about, and how gender and emotional labour come to the fore.

## **There are limits to the equality of access and ability to use social media platforms**

There is always talk about the ‘ease of access’ (Seabrookes, 2020; Butler, N.D.) that is brought to the fore by the use of mobile devices. However, access to and use of social media platforms rely on much more than their perceived openness and accessibility. Though it may seem simple that users, both students of HE and the general public alike, only need to have an email address and device that connects to the internet to sign up for social platforms, there is much nuance to unpack within those affordances.

In their research on who uses social media, Blank and Lutz utilised twelve predictors that influence what an individual or group might experience ‘digital inequalities’ (2017, p. 745). These include ‘classic’ variables such as age, gender, income, and education (2017, p. 745). In order to access social platforms a user must have the money, or access to, a device – whether that’s in a university setting (of which they will also likely need to pay tuition for), owning a device, or using one in a public library or internet café. Users must have the time to access these devices, create an account, develop a profile, and scroll through the site to understand how it works and to interact with others, if they choose. In addition, users must have the mental capacity and knowledge in order to sign up for, and the skills to utilise these social platforms. And, while a large portion of society does have the time, money, and mental capacity to sign up for and use social platforms, this cannot apply across the board.

Blank and Lutz additionally consider areas such as race, life circumstances (such as household status and numbers of people in a household), the device on which the platforms might be accessed, privacy and trust (2017). Beyond access to social platforms, Trust, et.al. indicate that in these ‘digital spaces, learning experiences are mediated by these affordances, biases, and limitations of any platform’ (2017), where users sign up and may not take time to read the small print. Butler notes that Facebook’s initial privacy policy was 1,004 words, and by 2014 it had ballooned to 9,300 words ‘with links to various sub-policies, 50 different settings, 170 options’ (N.D., p.36); and in 2022, Facebook’s data policy, cookie policy, and Terms of Service alone constitute nearly 11,000 words. While users often click to say they’ve read the TOCs, reading and understanding these terms requires a level of intelligence and literacy in addition to time, knowledge, and money to own/use a device. Though users often consider trust and privacy in relation to financial transactions mediated on the internet, they tend to care less when it relates directly to social media (Blank & Dutton, 2012).

Keeping the limitations of access in mind can enlighten educators and researchers on how some students use and engage with others on social platforms, both in and outside of the classroom. In addition, it can influence how we approach research into social media use among cohorts, and what methods, formats and questions work best for widest accessibility.

## **Methodology**

The students that took part in this study were both undergraduates and post graduates in media, journalism, or publishing. The students across these programmes were sent a survey asking them about their social media use generally, how they used it during the classroom, and how they interacted with their cohort within it. The surveys were anonymous and were live at the beginning of the spring semester.

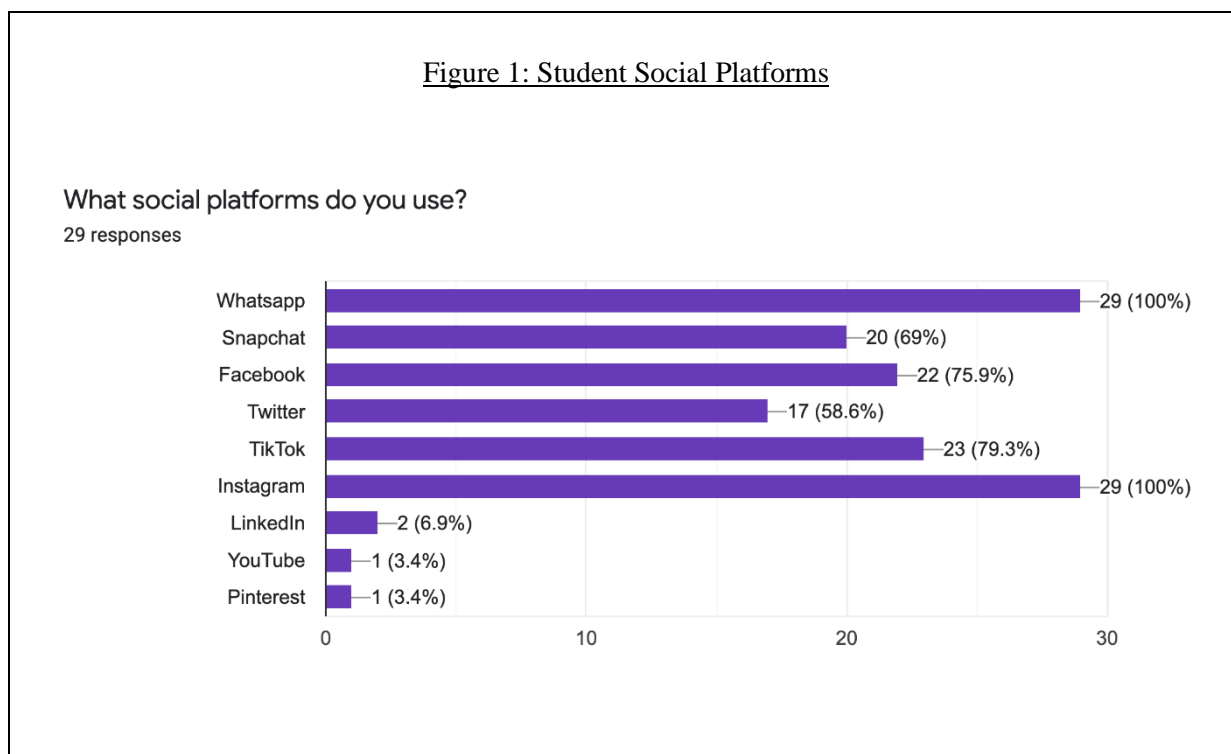
The results from the survey were coded in Nvivo for themes including mental health, social platforms, frustration, and content specific to the course, such as assignments.

Twenty-nine students opted to take part in the survey, meaning that this is a hyperlocal study that indicates that there is more, wider institutional research that should be undertaken in order to explore the relationships between social media use in the classroom, emotional labour, and mental health that came to the fore as a result of this research.

The majority of students who took part in this study identify as taught postgraduates (68.9%). The participants were further broken down by age where the largest group (52%) were 21-24 years old, while 18-21 year olds made up 34% and 26-30 year olds 14%. There were no students over thirty that took part. All of the participants were female -identifying. The media, journalism, and publishing courses are comprised of 80-90% female-identifying students, across all levels and backgrounds, which is higher than the UK average of 55.7% female entrants at UG level in 2019-2020 (Office For Students, 2021). However, the cohort demographics of this research is indicative of the wider UK-based demographics in publishing degrees, and the publishing industry at large, where the majority of students and the workforce are female-identifying (Publishers Association, 2021).

## The platforms students use are driven by communication and engagement

Users choose and reject social platforms for reasons specific to their lived experience and they do not select them at random (Horvát & Hargittai, 2021; Hargittai, 2015; Hargittai & Litt, 2011). This is valid whether at enterprise level, or in small, hyperlocal studies. When surveyed about their general social media use, all participants in this study indicated that they utilise WhatsApp and Instagram, as can be seen in Figure 1.



Here, we see that the platforms on which most participants have a presence facilitate conversation or engagement, either in direct communication (WhatsApp) or in likes, shares, comments and views (Snapchat, Facebook, Instagram, etc.). Though the participants in this study are female-identifying, and Pinterest's user base is 77% female (Statista, 2022), Pinterest only has a reach of 2.9% of the population (We Are Social, 2022, 200), which does correspond to 3.4% of participants or 1 in 29, making use of the platform. The use of Snapchat by 69% of the participants links to their ages, where the majority were 18-24 years old, and the largest Snapchat demographic mimics this age group (We Are Social, 185).

When asked directly about their social media use in the classroom, 82.2% of participants stated that they did, in fact, use social media during class. They use it to chat to others in the class (62.1%), and to those who aren't in the classroom but are part of the cohort (44%). Almost 50% of participants indicated that they used social media to chat with family and friends not on their course, during class time. Of those that do use social media in a classroom setting, over 40% indicated that they use it to engage with platform content, such as scrolling, liking, posting, sharing, and commenting on posts.

Tellingly, none of the twenty-nine participants actually asked the lecturer to repeat something they missed while engaging with social media during class, but 20.7% wanted to and felt they were unable for undisclosed reasons. These numbers are similar to those found by McCoy in his survey of digital distractions in the Gen Z college classroom, where he found that 84.6% of participants were texting and 56.9% were on social networks (2020, p.9). McCoy went on to highlight that the average student (undergraduate and postgraduate) ‘used a digital device an average of 9.06 times each class day for non-class activities’ (2020, p.9).

However, a postgraduate, 26-30 year old participant qualified her use of social in the classroom by stating that, ‘I only do this in the case of an emergency. I don’t like being distracted by social media in class and I also think it’s disrespectful to both my classmates and my lecturer if my phone is constantly buzzing and my attention is focussed elsewhere. Hence, I most often refrain from using social media in class.’ This links to the concept that students do not necessarily have to use social media within the classroom in a distracting manner. In fact, 20.7% of participants use social platforms to take group notes that a friendship group, and sometimes the wider cohort, can access later. Of this 20.7%, two-thirds are postgraduates, who are often committed to getting the most out of their modules and sessions as a means of attaining employability.

Part of doing well on any university course is to understand the content and satisfactorily complete the assignments. These topics were the most prevalent when participants were asked about what they discussed on social media during class. 82.8% of students admitted to asking other students questions during class. Assignments (89.7%) was the most prevalent topic asked about; this was followed by class content (reading, seminar work, guests’ names, what they should be reading or doing in class – 27%). After the class has ended, assignments remained the most discussed topic (62%).

Though 89.7% of students in this study claimed that they are the ones who asked question/s about assignments during class, 100% of participants indicate that they have been asked to clarify some point regarding assignments either during or post-classroom session. 89.7% of students indicated that they have been asked by other students about what happened in class/what they should be reading or doing; while only 58.6% of participants say they were the ones asking their cohort this. The need that some of these participants feel to engage with, respond to, and help others, is linked to obligation to respond when a member of their cohort asks a question.

## **Students feel a social obligation to respond**

‘Everyone helps each other out by answering our questions because we usually respond faster than emailing a lecturer’ (undergraduate, 18-21).

In this study, 62% of students felt obligated, or sometimes obligated, to answer other students' questions regarding the class or assignments when it arrived via social media. Obligation here, is a motivation which has two features: a 'peremptory, demanding force, with a kind of coercive quality' which 'is often tied to agreement-like social interactions [...] on one side, and apologies, excuses, justifications, and guilt on the other' (Tomasello, 2020). Individuals, in this case, classmates, hold each other responsible for a shared sense of answering by a system of 'mutual accountability' (Tomasello, 2020) where expectations are created as 'treating others the way I would like to be treated' (postgraduate, 21-25).

This sense of obligation is linked to social exchange theory, which has been utilised in studies of the workplace (Cropanzano & Mitchell, 2005) and how interactions between individuals and teams within an organisation react to specific obligations (Emerson, 1976). These interactions are governed by rules and norms of exchange where a 'normative definition of the situation that forms among or is adopted by the participants in an exchange relation' (Emerson, 1976: 351). These social exchanges come to the fore when students in these cohort groups consider their obligations to respond to one another as 'the nice thing to do' (postgraduate, 22-25) because 'everyone helps each other out by answering our questions' (undergraduate, 18-21). The rules and norms of exchange continue to exist in the digitally social world where the relationships between the wider group and the individuals within in it are shaped by the accepted 'normal' behaviours of the group and are more readily adopted by new users when they feel involved (Mazambani, et.al., 2015).

The ties these students feel to one another are usually strong, in that they also exist across platforms and often in physical spaces such as classrooms and extracurricular activities (Barnes, 2018). To a lesser degree there are weak or latent ties where students may know of each other, but not interact offline or take classes together (Barnes, 2018). It is within these ties, or relationships, in digitally social situations where students create exchanges of information, which can be considered a favour 'with a general expectation of a future return' (Chen & Hung, 2010, p.227), or reciprocity (Gouldner, 1960). With the majority of participants indicating that they feel some obligation to answer others' questions, reciprocity becomes a theme where 'if I needed help in that aspect, I would hope my classmates would do the same and give me the same support' (undergraduate, 18-21).

41.67% of the twenty-four participants who elaborated on why they felt obligated to answer other students' questions on social media indicated that it was due to feelings of reciprocity. The commentary indicates that students, at both undergraduate and postgraduate levels, would want and expect the same sort of help had they missed out on any information or had not understood a particular aspect of a class or assignment, because, as one participant wrote, 'We are all part of the cohort community so if someone is struggling it is only fair to help them' (undergraduate, 18-21).

Other students also indicated that they feel obligated to reply for the sake of that cohort community where they 'double check with my classmates to make sure that I have everything correct. I have a reputation for being organised and so other people then often turn to me. Sometimes even by me asking a question such as "The assignment is due on the 9th right?" it reminds people about it, so I feel an obligation to continue helping' (postgraduate, 22-25).



These students who choose to answer and share their knowledge, may feel a higher sense of self-efficacy where they are able to share their knowledge to positively effect the way that others in the group may see them (Chen & Hung, 2010), as the above student, who feels they are seen by others as an organised individual.

It is this desire to help and be helped that comes through and develops a sense of community, strengthens ties, and reinforces the reciprocity of social exchange where students feel obligated to help one another; this is closely related to the emotional labour of taking part, which is always gendered.

## **The social obligation students feel is directly linked to their gender and its relationship to emotional labour**

When student participants felt obligated to answer those in their cohort who were asking questions on social media, they are doing what Hochschild considers ‘processing people’ (2012, p.6) where the product is less the physical/digital output of their responses – though this is part of it – and is more ‘a state of mind’ (ibid.). Here, in these digital spaces it holds true that ‘women adapt more to the needs of others and cooperate more than men do’ (Hochschild, 2012, p.165). As mentioned in the methodology, 100% of the participants who opted to take part in this research were female-identifying or non-binary. This is important to note, as ‘[e]motional labour is clearly distributed along the lines of gender [...where] women overwhelmingly perform tasks [... because it] is seen as something that women do because they are naturally suited to it’ (Müller, 2019, p.848). Furthermore, the ‘construction of women as especially communicative digital consumers has found a welcome home in the social media economy’ (Duffy, 2017, p.41).

As it exists outside of the marketplace and can relate to relationships, friendships, and cohort cohesion, the role of answering questions, caretaking, and emotional labour often fell to the women in this study. Emotional labour links to the concepts of immaterial labour and affective labour, the latter of which values human interactions, is heavily gendered (Hesmondhalgh & Baker, 2008, p.98), and includes accessibility, being present, and connectedness with a group (Raun, 2018). The interactivity of receiving and responding to cohort chat across social platforms is the type of labour that women have been, and are more likely to, conduct (Raun, 2018). Where, ‘[females] are socialised into providing emotional support, empathy and care for others. Girls learn [...] that they are the ones responsible for taking up the emotional work when required’ (Müller, 2019, p.852). Because ‘it is the presented gender that shapes the social interactions and dynamics’ (Shen, et.al, 2017, p.183) within these groups, we can expect to see a reliance on emotional, immaterial, and affective labour continuing.

This is not to say that all emotional, affective, and immaterial labours negatively impact those who undertake them. Emotional labour ‘may have positive effects on the individual’ (Lazány, 2010) and increase the level of satisfaction in a role (Wharton, 1993) and their self worth.

Furthermore, these forms of labour can facilitate friendship building, sociality, and allow those who do the emotional lifting by responding to others in the cohort can find such a process highly collaborative and even exciting (Hesmondhalgh & Baker, 2008. p.111).

The different types of unpaid, gendered, and emotional labour have an ‘exchange value’ (Hochschild, 2012 p.7) based in developing and growing social capital. Even though the ‘underlying assumption seems to be that because emotional labour can also be intrinsically pleasurable and rewarding, it therefore cannot be exploited’ (Müller, 2019, p.849). However, it should be noted that not all students engage with answering others’ queries. In fact, many actively do not. ‘Excessive identification with emotional requirements often goes hand in hand with burnout’ (Lazány, 2010), which can be seen in this research by the frustration of the participants.

## **Frustration among students appeared in two ways: the perceived laziness of others and in repeating questions**

Some participants understood that as part of a cohort in these digitally social groups, they, as individuals, can be a ‘‘giver or receiver [of knowledge] at different times’ (Chen & Hung, 2010), as indicated by their consideration of reciprocity. Some students indicated that by being asked questions it helped them ‘to keep on top of what I am doing and feel ahead of the game’ (undergraduate, 18-21); and, ‘because I ask others too and it is just you helping each other’ (undergraduate, 18-21). However, 51.6% of participants indicated that they got tired of other students asking about the class or coursework, with some going further to highlight that this is especially the case when the answers could have been found elsewhere (such as in the module handbook). 48.3% of the participants believe that most of the questions come from those who do not attend class<sup>2</sup>.

This sense of frustration comes through in two particular ways: the frustration of answering those perceived as lazy, and the frustration of repeated questions (especially from the same individuals).

Frustration, as exemplified in Table 1, ‘‘can be viewed both as an external event that has an impact on the individual, or the emotive response that the individual experiences’ (Hadlington & Scase, 2018). Though the questions and commentary by the cohort may be external events in and of themselves, the salient data in this research relates to the emotional experiences of feeling this frustration and how the students respond, where some respond by shutting off the flow of cohort social media saying ‘[s]ometimes I mute group chats to let someone else answer a questions as I feel like I want to focus on my own learning’ (postgraduate, 22-25). In fact, 69% of participants chose to stop engaging with group chats because there were so many questions.

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<sup>2</sup> It is worth noting here that this study was completed in early 2022, when class attendance dropped internationally, even though most students returned to face-to-face teaching in the UK. See articles by Williams, 2022 (<https://www.timeshighereducation.com/news/class-attendance-plummets-post-covid>) and Samson, 2022 (<https://er.educause.edu/articles/2022/3/students-often-prefer-in-person-classes-until-they-dont>).

Table 1: Examples of what students become frustrated about when others in their cohort ask about the classes or coursework.

<b>the frustration of answering those perceived as lazy</b>
I feel it is sometimes unfair if the people asking don't have a substantial reason not to attend class or have never attended a class and still receive the same information as the people who do (undergraduate, 18-21).
...I find these questions can be frustrating, as the information is usually easily available (postgraduate, 26-30).
I find it tiring when people either don't pay attention to important information, or are too 'lazy' to figure it out by looking in the obvious places (postgraduate, 26-30).
I would get tired of it if it were someone who always misses information - start to feel like they don't bother to listen because they know you will tell them (postgraduate, 22-25).
<b>the frustration of repeated questions</b>
Many times people are repeating the same question over and over again and it's usually something that can be found in module guides or emails (undergraduate, 18-21).
Some other students just ask me and my friends the same questions over and over again (undergraduate, 18-21).
Often students ask the same question, even if it has already been answered early in an online chat. If that happens often sometimes you get tired of answering (postgraduate, 22-25).
It's tiring to keep repeating information that was said before and repeated other times in the group chat (postgraduate, 22-25).

Muting or non-engagement with cohort social media can be seen as maladaptive responses to a frustrating situation which could lead to students not seeing extra information shared by the cohort or feeling unable to ask their own questions if the need arises (Hadlington & Scase, 2018). This can precipitate the students lashing out, withdrawing, or feeling embarrassed for asking a question if they are mocked or not answered (or not answered swiftly enough).

Another aspect of the frustration students felt was rooted in the repetition of questions and the amount of messages coming through, where one student indicated that 'Sometimes when there's too many msgs to keep up with you just switch off' (postgraduate, 22-25). This echoes research by Zhang & Cranshaw who found that frustration exists in group chats where there is no better way to catch up with content than by scrolling. They go on to highlight how most chats 'contain a great deal of back-and-forth before reaching a conclusion, and intersperse important information with humor or chit-chat, providing little ability to distinguish the two' (2018, 196:6). Much like the student quoted above, their interviewees also 'chose to ignore missed messages, assuming they were irrelevant by then' (2018, 196:6).

In a long stream of chat, DMs, or commentary online, recalling or finding information is not easy, especially if different aspects of it are being asked repeatedly, and either not answered in subsequent requests, or answered in a different manner by a different member of the group. This can lead to many answers being given to the same question, instead of students going to the source – either the lecturer via email, the handbook, or the VLE. An overabundance of questions and potentially differing answers can cause concern among the students over what is the ‘correct’ answer and can be the cause of anxiety which can have detrimental impacts on a student’s mental health.

## **The expectations of engagement on social media has both negative and positive effects on students’ mental health**

Students who took part in this research mentioned tiredness, anxiety, panic, or stress twenty three times, indicating that social media can ‘have a negative effect on mental health’ (Iwamoto & Chun, 2020, p.239). With the ubiquitous use of smartphones, laptops, and tablets in the student population there will be ‘challenges and opportunities for college student mental health’ afforded by such continual connectivity (Lattie, et.al., 2019). It’s worth noting that though studies have found that time spent on social channels can lead to poorer mental health (Lin, et.al., 2016), and those young adults who use multiple social media channels have ‘substantially higher odds of having increased levels of both depression [...] and anxiety symptoms’ (Primack, et.al., 2017), that another, meta-analysis has found that the negative effect on well-being is almost negligibly small at 0.4% (Orben, 2019).

However, the findings of Orben cannot discount the feelings of stress and anxiety that some students feel when they are faced with their cohort asking repeated questions about their classes across different channels. One student indicated that ‘[s]ome questions are unnecessary and just cause stress amongst others’ (postgraduate, 22-25), while another said that ‘I only mute it when they are talking about topics that make me anxious, e.g., an assignment I haven’t submitted yet’ (undergraduate, 22-25). Others linked obligation to stress in saying that ‘feel that if I know I should help people out to avoid others getting stressed’ (undergraduate, 18-21) and ‘[s]omeone has to answer them eventually, I tend to be that person so that they don’t feel ignored’ (postgraduate, 22-25). These negative effects can be exacerbated by the university experience. University itself is stressful (Covid 19 aside) and this stress ‘can impact [...] student] behavior and memory; more specifically, academic performance (Yerkes & Dodson, 1908)’ (qtd in Iwamoto & Chun).

When a student mentions that ‘I do not like to discuss the assignments with others – both in terms of avoiding plagiarism consequences and stopping other students’ anxiety from having an effect on me’ (postgraduate, 26-30), this student is making an active choice not to take part in the wider group chat in order to relieve the stress of the potential of someone else’s work seeping into their own and to keep any anxiety of others from spreading. Much like Siemens and Weller found that ‘conflicts and tensions arise as the structure of networks clashes with the hierarchical structure of traditional education’ (2011, p.166).

The tensions between what students are asking, sharing, spreading, and institutional knowledge found in the lecturer, module handbook, or VLE can give rise to anxieties in the student cohort. For those students who shut off their notifications and do not engage with cohort social media, including group chats, this could heighten aspects of isolation and loneliness, which, in turn, can drive poor mental health and anxiety (StudentMinds, 2014; Thomas, et.al., 2019).

However, it is not always the case that social media usage has a negative effect. It ‘can be a form of social support’ (Iwamoto & Chun, 2020, p.239) instead. Its use can promote both bonding and bridging social capital, where bonding creates more ‘emotionally close bonds’ (Thomas, et.al., 2020) with others and bridging develops more loosely associated connections (Thomas, et.al., 2020). When students mention the obligation to respond to group questions, they are working within the internal, exclusive nature of the group by creating bonding social capital where ‘classmates would do the same’ (postgraduate, 18-21) because they are alike as students and ‘in it together’ (Claridge, 2018). ‘Bonding social capital tends to help people “get by” and provides the norms and trust that facilitates collaborative action’ (Claridge, 2018), the helping out of one another when questions arise in the cohort social media channels. The downside to this insular group connectivity is that it can breed negative emotions as seen above.

This is not to say that it is better for students to focus on bridging social capital, but it can enhance growth and development (Claridge, 2018) and provide outward facing and wider group opportunities in ways that bonding capital does not. The role of bridging capital is well-placed in student cohort groups as it brings together ‘people with shared interests or goals, but contrasting social identity’ (Pelling & High, 2005); however, the key here is that the groups are inclusive and not echo chambers, which can develop in smaller friendship and assignment groups and more widely across social media (Guess, et.al, 2018; Cinelli, et.al., 2020). By allowing students with different backgrounds, working habits, and anxiety levels to connect, share information, knowledge, and support, bridging social capital within these social media cohorts can keep students on ‘top of what [they are] doing and feel ahead of the game’ (postgraduate, 18-21).

## **TLDR (Discussion)**

Many university students of all levels take advantage of the widespread use and connectivity of social media both in and out of the classroom. The types of social media they are using cross different platforms depending on whether they are communicating within their cohort groups, or with wider social connections. The students who took part in this study made the most use of Whatsapp and Instagram, followed by TikTok, Facebook, Snapchat. Most of them use social media during their classes to chat with others in the classroom, or family or friends outside of the classroom. Many spent class time scrolling, liking, and engaging with social content, but few (6.9%) took the time to post content of their own, even though 61% indicated that engaging with social media interfered with their attention on the class itself.

Students tended to ask each other questions about the assignments and in class-content to clarify points, which led some students to feel a sense of obligation to answer those questions. This obligation links to aspects of reciprocity, where if they answer now, maybe someone will answer them later. It is also intertwined with the gender of the cohort taking part in social media, and the aspects of emotional, affective, and immaterial labour that are highly gendered. However, this emotional labours can lead to a sense of frustration, especially where questions were being repeated, the answers could be found in the handbook, lectures, or on the VLE, or where the answers were lost in long series of texts. These frustrations have a direct impact on the mental health of the students, where some switch off the group chats, which can, in turn, exacerbate feelings of isolation and anxiety.

Taking all of this into account, academics, and the university system more widely, should be aware of how students are using social media both within and without the classroom. One consideration is to look more closely at how groups are structured and how we approach seminar work in ways that can actively distribute the emotional labour involved. The fact that many students prefer to ask their cohort for information instead of the sources (lecturers, handbooks, VLEs) can start to be addressed by fostering a sense of community and communication within the classroom. Use of anonymous posting technology like Mentimeter and Padlet, can allow for live questions to be asked during a session. Likewise, an open document on the VLE where students can ask questions about the class or assignments can encourage students to post questions anonymously which will be answered by the lecturer. This creates a database of definitive Q&As for the cohort to refer to, and it allows the lecturer to understand what the most confusing or problematic aspects of the classes, assignments, or course as a whole, develop.

There is no one ‘correct’ way to approach the complex aspects of student use of social media, but it is vital for academics to understand that it is being used at all times. By starting with knowing how students are using it, perhaps academics can guide them to use it in ways that will benefit them, instead of causing excess emotional labour, frustration, or anxiety.

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## Disclosure statement

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