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Doctoral Virtual Supervisory Meeting: Engagement Optimization Strategies

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Abstract: The emergence of COVID-19 has seen widespread adoption and use of virtual interaction in business, academic, and other areas where hitherto their use was not imaginable just a few years ago. The adoption of virtual interactions has also seen growth in a number of service providers as well as enhancement of the quality of interactions. However, this advancement in virtual technologies does not guarantee their optimal use. This qualitative study's main purpose was to explore discursive practices that impact virtual meeting experiences as they take place during the course of the doctoral supervisory process in Kenyan universities. The study used media richness theory and channel expansion theory to analyze the affordances of computer-mediated communication presented to the user to conduct virtual meetings. Drawing upon survey and interview transcripts, it was found that the choice of virtual meeting channel was based on the availability of technology and past experience enhanced the perception of the effectiveness of virtual meetings. This study proposes strategies for enhancing the virtual supervisory process based on the media richness theory, channel expansion theory, and research data. The strategy addresses the aspects of management of risks, virtual meeting etiquettes, supervisory relationship, and confidentiality as well as after the meeting follow-up. The proposed strategies will enhance academic interaction and can be used in similar interactions in other fields.

Keywords: Virtual Supervisory Meeting, Media Richness Theory, Channel Expansion Theory, Technology Affordance, Computer-Mediated Communication

1. Introduction

1.1. Virtual Meeting Tools

Virtual meetings like WebEx and Adobe Connect are not new in the world of communication. The business sector was the pioneer user in the facilitation of professional interactions between companies and distributed work (Thompson, James, & Stanciu, 2010; Bargiela-Chiappini, Nickerson, & Planken, 2013. Virtual meeting uses include distance education [1], telehealth, and even family setups [2].

The telecommunication infrastructure has witnessed rapid growth worldwide in equal measure with the advances in the computing industry. The current debate is on 5G networks and gigabyte storage capacity. However, the "can you hear me?" question is the order of the day in virtual meetings. Though virtual meetings are the next best alternative to a face-to-face meeting, they are continually being perceived as inadequate alternative means of communication to face-to-face which creates barriers to their widespread implementation and use [3].

1.2. Higher Education and Virtual Meetings

Higher education has been dodged with many challenges in the recent past ranging from inadequate funding to understaffing. Doctoral studies being part and parcel of higher education, have not been spared either. The challenges experienced in doctoral studies include an insufficient number of qualified staff to supervise doctoral students, and inadequate funding for doctoral students just to name a few. As a cost-cutting measure, a good number of doctoral students take their studies either on a part-time basis or as online students. The emergence of the COVID-19 pandemic in the

early part of 2020 has seen many governments world over put restrictions on physical interactions. The Kenya government announced the suspension of the face-to-face mode of teaching in all institutions of learning in mid-March 2020 [4] and encouraged the education sector players to embrace the virtual learning mode. All this is happed at a time when most universities in Africa in general and Kenya, in particular, were not adequately prepared to embrace virtual learning [5].

1.3. Doctoral Supervision

There is no gold standard model of graduate supervision which can be applied in all situations, across all disciplines. Effective supervision must be an evolving process that concentrates on meeting the needs of different students, programs, and administrative structures. The supervisory model in most universities can be grouped into three categories of master-apprentice, co-supervision, and team supervision. The apprenticeship model also referred to as the master-apprentice, traditional, or dyadic, model is where the supervisor acts as a critical mediator and mentor, forming a symbiotic and cooperative relationship with the student [6-9]. Co-supervision involves a pair of supervisors supervising a single student while in team supervision, a team of supervisors supervises either a student or a group of students. In all these models, the supervisory exercise can be conducted with different degrees of engagement subject to proper planning.

The Doctoral College of Leicester University identifies providing advice, guidance, and feedback on doctoral students' work and progress as well as enabling students' skills and career development as the core functions of supervisors [10]. In the physical interaction setting, appropriate communication and pedagogical skills can be used to enhance their achievement. However, in the virtual environment, their realization requires well though execution strategy. The purpose of this paper is to investigate the use of virtual meetings in the doctoral supervisory process and come up with strategies for enhancing the process. This study is guided by two objectives which are; to evaluate the application of virtual meetings in the supervisory process and design a set of strategies that can be used to guide virtual supervisory meetings.

2. Literature Review

2.1. Virtual Supervisory Meetings

Different execution strategies are required for the effective and efficient utilization of virtual supervisory meetings as an alternative to face-to-face interaction to ensure that the desired outcome is realized. A virtual meeting environment poses challenges to both the supervisor and the students since it's conducted in a setting where the ability to clearly see and hear each other is constrained. Research findings show that virtual meetings such as conferencing do not always overcome the 'human moment' issues [11]. To overcome the challenges associated with technology-enabled supervisory meetings, and help supervisors and doctoral students conduct a fulfilling and satisfying supervisory exercise, there is an urgent need for scholars to conduct studies in this area and developed a holistic structured approach to guide the process of the virtual supervisory meeting.

The possibility of conducting virtual meetings is a result of rapid developments in Information Communication Technology (ICT) that support computer-mediated communication, (CMC). With the emergence of the COVID-19 pandemic and financial challenges being experienced by higher educational institutions (HEI), universities have no choice in embracing ICT-based solutions if they are to remain afloat. The enormous growth in ICT in the last 10 to 20 years has a lot of potential in enhancing the operational excellence of educational doctoral studies practices. However, research shows that the uptake of ICT in doctoral studies is limited [12]. Though there are a plethora of studies utilization of ICT in doctoral supervision, there are limited studies if any, that have addressed the execution of the virtual doctoral supervisory meetings. This paper seeks to fill that gap.

Some of the most commonly used asynchronous applications to communicate in supervisory are emails, discussion boards/forums, blogs, Wikis, podcasts, and social media platforms. Virtual meetings have become an essential part of doctoral supervision. Meetings are essential components of an effective supervisory process for both student satisfaction and completion of studies [13].

2.2. Engagement in Virtual Supervisory Meetings

In the virtual supervision of students, the focus should be on the two most important aspects including how to best support and engage students in the supervisory event or meeting, and what approach, tools, or delivery ideas to use. When it comes to increasing engagement, virtual meetings follow most of the principles that apply to regular meetings. However, virtual meetings are even more challenging; people are more susceptible to boredom, multi-tasking, and many other distractions. For the virtual supervisory meetings to realize the intended output, the supervisor should put more emphasis on engagement design rather than on the process [14]. Engagement as used in this paper is taken as an attentive state of listening, observing, and giving feedback, leading to protagonistic action in group interaction [15]. The supervisor and student engagement level influence the realization of the supervisory output, and as such, it is of interest to create transparency about the engagement states of the process. Engagement in virtual meetings is partly influenced by the affordances of the media used in a virtual meeting. This study used the media richness theory and channel expansion theory and media naturalness theory to analyze the affordances of the user to conduct virtual meetings.

Media richness theory [16], puts emphasis on the nature of the information that needs to be conveyed as the guide for choosing technology to use in CMC [17]. The theory is based on the premise that different channels pose a varying degree of richness in the information that they give. Media attributes can be measured based on their ability to handle

equivocality or uncertainty. The theory determines the "richness" of a medium based on the availability of immediate feedback (support for two-way communication), multiple cues (visual or auditory), language variety, and persona focus (incorporates more personal feelings and emotions). Based on the four metrics, video conference is second to face-to-face in terms of richness but ahead of audio systems and text systems in that order respectively [18]. With respect to virtual supervisory interactions, the theory can be helpful in understanding which media are best for which tasks and it also acknowledges interactions can be uni-directional.

The limitations of MRT in evaluating the factors that shape individuals' perceptions of communication media led to the emergence of channel expansion theory (CET). CET emphasizes the role of experiential factors in an organizational context, communication technology channels, messaging topics, and communication participants [19]. This theory posits that the bandwidth of a medium grows over time as the users become familiar with it. This means that a less dense medium could be developed into a denser medium providing that the parties using it are on the same level on the learning curve for using it [20]. Four key experiential conditions that guarantee the achievement of the goal that will lead to the development of richness perception of media are (i) experience with the channel, (ii) experience with the messaging topic, (iii) experience with the organizational context, and (iv) experience with the co-participants [21]. According to CET, the perception of media richness is a social construct determined by individuals aligned with those in their networks. Concerning virtual supervisory meetings, the usability of the various virtual meeting tools that seems less efficient at the start will improve with their continual usage by both the supervisor and the students. As per the theory, again, video conference is second to face-to-face and ahead of audio systems and text systems in that order respectively. The strength of CET is its ability to cover a broader scope of media types. CET also takes into consideration that the organizational context, as well as the relationship between experience and perceived richness, is easily understood (temporal order). Critics of CET argue that there is not enough evidence to show that the messaging topic is a significant predictor of media richness [21].

The theory is relevant in virtual supervisory meetings because it can be used to convey a clear message on the essential elements in managing meetings within doctoral studies with the objective of selecting a specific type of communication media. The actors in virtual doctoral supervisory activities can get the important message of consistent virtual meeting conduct so that all participants move at the same pace in the learning curve for the types of channels that are employed. CET makes it clear that by using a particular virtual communication media, it is manageable to expand the bandwidth of these types of channels, thus, increasing their level of application, and the potential for reliable virtual meetings.

Apart from MRT's limitation in evaluating the factors that shape individuals' perceptions of communication media, it has another limitation in that it does not consider human evolution over time. To overcome this challenge, Ned Kock [22] developed the Media Naturalness Theory (MNT) also referred to as the psychobiological model or r compensatory adaptation theory. MNT is a theory of communication media with a special focus on electronic communication and developed based on human evolutionary principles. The theory is centered on the media naturalness hypothesis, and posits that other things being equal, a decrease in the degree of naturalness of a communication medium (or its degree of similarity to the face-to-face medium) leads to the following effects in connection with a communication interaction: (a) increased cognitive effort, (b) increased communication ambiguity, and (c) decreased physiological arousal [22]. The theory has been used to understand human behavior toward technology in various contexts including education [23].

MNT argues over time, the Stone Age hominid ancestors have communicated primarily face-to-face and evolutionary pressures have led to the development of a brain that is consequently designed for that form of communication [24]. The MNT hypothesis has important implications for the selection, use, and deployment of virtual supervisory meeting tools in a university.

With respect to doctoral virtual supervisory meetings, MNT is compatible with the notion that, regardless of the obstacles posed by low naturalness media, individuals using those media to perform collaborative tasks may achieve the same or better task-related outcomes than individuals using media with higher degrees of naturalness.

3. Methodology

The purpose of the study was to investigate the use of virtual meetings in the doctoral supervisory process and come up with strategies for enhancing the process. A case study research design was used to conduct the research. This is because data was to be gathered from a variety of sources and by using several different methods [25]. Kibabii University was chosen because it had running doctoral programs that were shifted from face-to-face to online mode of study and supervision when the Kenya government suspended face-to-face mode of study. The research sample was randomly selected from second and third-year doctoral students in the department of information technology. These were students who were at the stage of developing their proposals and theses at the time of physical interaction restrictions.

Research data was collected through an online survey that allowed the mapping of attitudes, values, opinions, preferences, and skills of doctoral students in relation to virtual meetings, which ICT support and the available ICT infrastructure in the university to be used. To enhance further understanding and triangulation of the data collected through surveys, structured interviews were used.

4. Findings

In total 16 respondents participated in the online survey which consisted of 25% female (4) and 75% (12) male. Respondents were asked if they had received ICT training with respect to doctoral research and the results indicate that less than half (43%) of the respondents received the training. Respondents were asked about the form of communication they use with their supervisors. Communication through email was the most popular will all respondents indicating that they use it. File sharing and presentation sharing are used in equal measures by three-quarters of the respondents and the least used form of communication is collaboration tools. Research data indicate that the preferred frequency of interaction with supervisors is once a fortnight (53%) followed by weekly (25%) and the least preferred frequency is monthly (18%).

The research data further indicate that the COVID-19 pandemic significantly affected the frequency of interaction between the supervisor and the students. The usage of video conferences before the COVID-19 pandemic was negligible (6%) and the most form of interaction was (94%) followed by email (88%) and telephone (75%) respectively. With restrictions on physical interactions, email became the predominant use (94%) and video conference (44%) usage increased.

The respondents indicated that the alternatives to face-to-face interaction used during the period of in-person meeting restriction were very effective were less than a quarter (18%), over one-third (38%) felt the interactions were effective while 44% felt that the interactions were somehow effective.

On the question of what guided the choice of medium of communication, close to half (44%) indicated that access to technology guided the choice, with close to one-third of the respondents indicating that familiarity with technology guided the selection.

MRT, CET, MNT and research data were used to formulate the proposed Strategy for virtual meeting Management.

Table 1. *Strategy for virtual meeting Management.*

Strategy	Elements
Management of Risks	Rehearse with the chosen technology in advance.
	Join the meeting 15 minutes before the start time to have time for testing the microphone and the camera.
	Confirm the time of the meeting
	Have a fallback option
	Participants to have at least one backup system at their disposal
	Assume a technology learning curve
Virtual meeting Etiquette	The meeting should start and end on time
	Put your camera on
	Be present—don't work on other tasks or stare at your phone
	Turn your microphone off when not talking
Engagement	Employ a combination of shared spaces.
	Share a planned agenda prior to the meeting
	Agree on "ground rules" to guide the virtual meeting.
	Be courteous to others to the participants. Examples here include avoiding side conversations and background distractions.
	Ask the student (s) to contribute
	Be engaging.
	Take breaks.
	Participants to consider using a headset or headphones.
	Participants to speak slowly and clearly.
Supervisory Relationship	Have a small talk before starting
	Begin your virtual meeting with a quick check-in
Confidentiality	Promote a safe virtual environment -
	Ask for consent before recording the meeting
After the meeting follow up	Check out action items that are in progress

5. Discussion

Objective one of the meeting sought to evaluate the application of virtual meetings in the supervisory process. The findings indicate that the choice of channel of the supervisory virtual meeting is guided by accessible technology and not message type as postulated by the CET. This slightly affects the perception of success of the virtual meeting as seen in the study findings. Exposure to technology is another aspect that the research findings confirmed. The doctoral students who had prior ICT training reported a positive perception of the effectiveness of virtual meetings as opposed to those who did not have ICT skills. The research data show that the interviewed students feel the effectiveness of the approach though not very effective, is effective enough for doctoral students. Going by the channel expansion theory's postulation that continued use of a channel increases the affordance of the technology in virtual meetings. The analyzed research data is in support of CET, there is a positive correlation between the doctoral students trained on the use of ICT in doctoral studies and their perception of the effectiveness of virtual supervisory meetings.

Interesting personal observations made during virtual interactions were that some participants, more so ladies are not comfortable having their cameras on during the online engagement. Some of the reasons attributed to this are

conservation of the data bundles and enhancing the audio quality in areas where there are internet accessibility constraints. To address such eventualities, the supervisor who is presumed to be the virtual interaction host can adjust the application of the proposed strategies based on a case basis.

With the initial onset of the COVID-19 pandemic, many institutions of higher learning had to either put in place or enhance their ICT infrastructure to support online learning within a short period of time. Given research evidence showing that doctoral students' satisfaction with supervisory meetings is a distinct component of their overall satisfaction and significantly contributes to the timely completion of the program [6] it is important for universities to take the time to properly put in place strategies of enhancing virtual supervisory process. The strategy should address issues like management risks, virtual meeting etiquettes, how to enhance engagement, and supervisory relationship management. Confidentiality and after the meeting follow-up issues also need to be addressed.

Research on virtual doctoral supervision indicates that doctoral candidates are more likely to report feeling isolated and dissatisfied with doctoral supervision in online than in blended programs [26]. Gray & Crosta [27] posits that virtual supervision creates additional challenges to the process of interaction. This study recommends that supervisors should start virtual interactions with check-in on candidates' social and emotional wellbeing. This fulfills the emotional venture characteristic of doctoral supervision [28].

Our findings also suggest that many doctoral students and their supervisors were unaware of social norms or meeting etiquette, thus concerned departments and schools in universities should provide expectations about how supervisory meetings should be presented and/or how the participants should conduct themselves in virtual supervisory meetings. In addition, doctoral supervisory participants should be provided with training on ways to improve meeting structure by utilizing the affordance provided by the technology and guided the theories that guide CMC such as Media richness theory, channel expansion theory, and media naturalness theory.

6. Conclusion

Despite the limitation of virtual meetings in comparison to face-to-face, it is the best option that supervisors can engage with their students in circumstances where the latter is not feasible. Thankfully, the potential in doctoral supervision is enormous, while virtual supervisory might not materially solve the engaging and satisfactory problems of meeting culture itself, they actually offer several advantages over in-person interaction. As scholars embrace the blended approach of supervision, there's a huge opportunity to improve the basic structures shaping the virtual engagement process.

The limited requirements for virtual supervisory meetings which are computing devices with internet connectivity make them more cost-effective compared to a physical meeting. Considering the costs such as accommodation, and travel costs in terms of time and money, the virtual supervisory meeting is a cost-cutting option.

Virtual supervisory meetings can also be eco-friendly. Since virtual supervisory interaction systems work on green technology, universities can adopt it as a contribution to reducing the increasing amount of carbon in the environment. This environment-friendly communication method that reduces travel and paper printing can be used by all categories of universities both small and big institutions.

Areas of further research that emanate from this study are researching the relationship between virtual supervisory practice and doctoral completion rate.

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