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Decoding Media Use: Theoretical Examination of Online Communication in Instruction

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ABSTRACT: This paper examines media use and media choice in computer-mediated communication (CMC) within instructional contexts, with particular attention to their theoretical frameworks. 24 journal articles were analyzed; 15 were studies grounded in the positivist paradigm and nine interpretivist studies. Positivist research primarily employed technology- and learning-oriented theories, including technology acceptance, media richness, media synchronicity, uses and gratifications, the cognitive theory of multimedia learning, and the MAIN model, alongside learning frameworks such as cognitivism, constructivism, social learning, social presence, engagement, and dual coding. Studies on social aspects of CMC drew on social presence, channel complementarity, and media multiplexity theories. Interpretivist studies, largely exploratory or case-based, applied social constructivism, virtual communities of practice, the TPACK framework, cultural historical activity theory, and student technology use frameworks to examine media practices, interaction, and motivation. Overall, findings indicate that instructional CMC media choices are assessed based on their effectiveness in supporting content delivery, learner engagement, and learning outcomes, highlighting the need for pedagogically grounded media selection.

Keywords: computer-mediated communication, interpretivist, technology and media use, positivist

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Introduction

The corona virus (COVID-19) pandemic and the continuous growth in use of smart phones and access to internet connection (Kemp, 2018) have contributed to the pervasiveness of communication, wherein people are expected to be always online (Vorderer, Kromer, & Schneider, 2020). Furthermore, the pandemic and the fast pace by which technologies and emerging platforms or channels for communication are partly responsible for the complexity of media choice (Gu, Higa, & Moodle, 2011). Recent studies on social networking sites (SNS) for interaction center on motivations and psychological determinants for use (Krishnan & Atkin, 2014; Ledbetter et al., 2011; Nadkarni & Hofmann, 2012), social capital (Su & Keung, 2017), and sociality (van Dijck, 2012).

In the context of instruction, researches reveal that SNS provide students a platform to communicate with teachers outside class time (Hamid et al., 2015), which may lead to enhanced classroom participation (Rodriguez, 2011). Accessibility is considered a key factor for student-initiated communication beyond the classroom (Leach & Wang, 2015).

Other than out-of-class communication with teachers, SNS, particularly Facebook, "provides a convenient environment in which academic information can be integrated into a space that students are already using" (Irwin et al., 2012, p. 1229).

There has been a shift in researches on communication technologies in instruction, from tools to deliver course content to a platform for interaction and collaboration (Major et al., 2018). In addition, Zawacki-Richter & Latchem (2018) state that the "growing interest in cognitivism and constructivism" prompted researches to view learning as a "social exercise and that the computer is not simply a tool for disseminating information and knowledge but for communication and collaboration, something made increasingly possible by the revolutions in the technology" (p. 144). This is echoed by Sundgren (2017) who argues that "constructivist and socio-cultural perspectives on learning are better met by social networking technologies" (p. 3097).

Instructional communication is an area of study that looks into the intersections among pedagogy, educational psychology, and communication (Mottet & Beebe, 2006). It is defined as "the process by which teachers and students stimulate meanings in the minds of each other using verbal and nonverbal messages" (p. 5). Traditional, teacher-centered instruction is considered as a "one-directional communication process of how teachers influence student learning" (p. 5).

This process of teaching-learning as action (one-way) is studied using theories grounded on rhetoric. In contrast, the relational perspective is used when teaching-learning is viewed as transaction, wherein "meaning is cocreated or mutually stimulated by the source and receiver" (Mottet & Beebe, 2006, p. 14). The transactional and collaborative view of the teaching-learning process is evident in the use of: Twitter (Bista, 2015); blogs and wikis (Avci & Askar, 2012; Sullivan & Longnecker, 2014; Yueh et al., 2015); and Facebook (Kwok & Neo, 2015).

As an educator herself, the researcher witnessed how students, despite belonging to the same generation, vary in their use of digital technologies when communicating with their classmates and teachers. While some prefer face-to-face meetings when accomplishing group tasks, others favor online group chats and in the case of group papers, Google Docs. Moreover, the researcher tried using the QSU e-Aral, the official learning management system of Quirino State University, as a

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collaborative and communication platform. However, since her students were not in the habit of regularly logging into their e-Aral accounts, the researcher realized that they participated more actively in our Facebook Messenger group. She assumes that this is one of the reasons why e-Aral has been underutilized in the university. Perhaps, it is more widely used for content delivery rather than a collaborative, interactive platform.

It is important to reiterate that the pervasiveness of computer-mediated communication (CMC) poses challenges since the "nature of communication actions, the medium through which they are transmitted, and the ultimate intentions form a unique intersection for each individual" (O'Hair et al., 2011, p. 64). Peragine (2014) suggests that the choice of communication medium reflects relational goals. While researches on media choice place more attention to relationship maintenance among friends and romantic partners (Cramer & Jacobs, 2015; Rettie, 2003; Tong & Walther, 2011), teacher-student relationships are different because these are time-constrained and have complex power dynamics (Frymier & Houser, 2000).

Due to the ubiquitous nature of CMC, students tend to expect immediate feedback from their teachers, which teachers find obtrusive to personal time (Morris et al., 2012). The researcher has a colleague who purposely does not respond to messages from students after office hours. In contrast, another colleague gives his mobile number to his students and replies to messages even after 10:00 P.M. Immediate feedback is also expected among students, who often complain that some members do not respond in group chats even if it was evident that they have read the message. They refer to this as being seen-zoned. It is likewise not safe to assume that while students are surrounded by technology-rich environments, they automatically know how to appropriate communication media to a particular context (Christensen & Knezek, 2020; Rambe & Ng'ambi, 2020). Some of the researcher's students use email to communicate with her, claiming that the context calls for a more formal medium. The researcher recalled being offended by one student who sent her a rant about his final grade through Facebook Messenger. At that time, she felt that it was not the proper medium for such purpose. However, it also made her think about the different ways people perceive, choose, and utilize current online platforms.

McCroskey & McCroskey (2006) predicted that there will be a growth of research on the role of CMC in instruction. They envisioned that these would "be directed toward determining how each technological advance in mediated communication can be employed to meaningfully enhance student learning" (p. 42). This statement echoes the positivist foundation of researches intersecting communication and instruction. The authors likewise state:

"More recently, instructional researchers have extended their research to other subareas of communication to test the generalizability of their findings in the instructional context to other contexts…thereby providing a solid research base for broader communication theories related to such concerns as nonverbal immediacy, communication apprehension, use of humor, socio-communicative orientation and style, and communicator misbehaviors. Instructional communication is now a major contributor to general communication theory." (p. 40)

Research Problem

This paper ought to examine the theoretical underpinnings of recent researches on instructional use of online communication media. Specifically, it sought

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to find out the paradigms and perspectives these studies employ. This paper argues that researches which intersect communication, pedagogy, and educational psychology, would inevitably reflect theories under the positivist paradigm, as these studies typically focus on determining how CMC impact learning or how effective a particular communication medium is in achieving instructional goals.

For this study, CMC is used as an umbrella term to include online platforms such as SNS, e-mail, learning management systems (LMS), and instant messaging (IM), that are used by teachers and students to communicate course-related content or interact with each other.

This study is beneficial to researchers who aim to look into media use and choice in instruction, whether this be in the context of teacher-student or student-student communication, or course delivery. This reflects the view of instructional communication researchers on the "teaching-learning process as an inherent communication process" (Mottet & Beebe, 2006, p. 12).

Framework

In order to map out the theories in the articles included in my study, I employed Burrell & Morgan's (1979) sociological paradigms and Mottet and Beebe's (2006) instructional communication perspectives.

Sociological Paradigms: Interpretivist and Positivist

Burrell & Morgan (1979) suggest that the social world can be viewed based on the "meta-theoretical assumptions with regard to the nature of science and society" (p. 24). They identify the subjective-objective dimension as a lens to view the nature of science, while the regulation-radical change dimension is used to explain the nature of society. The subjective-objective dimension represents the dichotomy between the interpretivist and positivist paradigms. These two paradigms are employed in my study to identify and map out theories of media use in CMC, in selected journal articles.

The interpretivist paradigm subscribes to a nominalist and anti-positivist approach, "informed by a concern to understand the world as it is, to understand the fundamental nature of the social world at the level of subjective experience" (p. 28). Opposite this view is the positivist or functionalist paradigm which assumes that "the social world is composed of relatively concrete empirical artefacts and relationships which be identified, studied and measured through approaches derived from the natural sciences" (p. 26). The orientation of this paradigm is highly pragmatic, realist, and determinist.

Instructional Communication Perspectives: Communication as Action and Transaction

Following the perspective that teaching-learning is fundamentally a communication process, Mottet & Beebe (2006) state that this process falls under a continuum with communication as action and communication as transaction at the opposite ends and communication as interaction in the middle.

The communication as action perspective indicates linear, one-way communication from teacher to students. "Teachers hope that their messages ultimately influence how students understand the content and how students ultimately use the information or change their behaviors as a result of internalizing the course content" (p. 14).

On the other hand, the communication as transaction perspective considers relationships and affective responses as more influential than the

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message. Communication is viewed as a nonlinear process, with the source-receiver roles becoming less important since both teacher and students influence each other. "Teachers and students openly debate ideas, clarify meanings, and influence each other until meaning is shared" (p. 14).

In between action and transaction is communication as interaction, which "occurs when teachers remain receptive to the verbal and nonverbal feedback they receive from their students and then, after receiving the feedback, adapt their instructional messages accordingly" (pp.13-14).

Blurred Boundaries: Instructional and Social CMC

Because of the pervasiveness of new media platforms (Vorderer, Kromer, & Schneider, 2020), the researcher also considers the possibility that blurring of boundaries among communication contexts are likely to occur. SNS for instance, while widely employed in instructional contexts, are also used to increase social capital (Su & Keung, 2017), and sociality (van Dijck, 2012).

Figure 1 represents the conceptual framework of this paper. The darker area in the middle illustrates the researcher's argument that more researches on CMC and instruction follow the positivist paradigm. The communication as action and transaction axis represents the opposite ends in the continuum of instructional communication perspectives while the instructional and social axis reflects the possibility of overlapping or blurred contexts in the use of CMC.

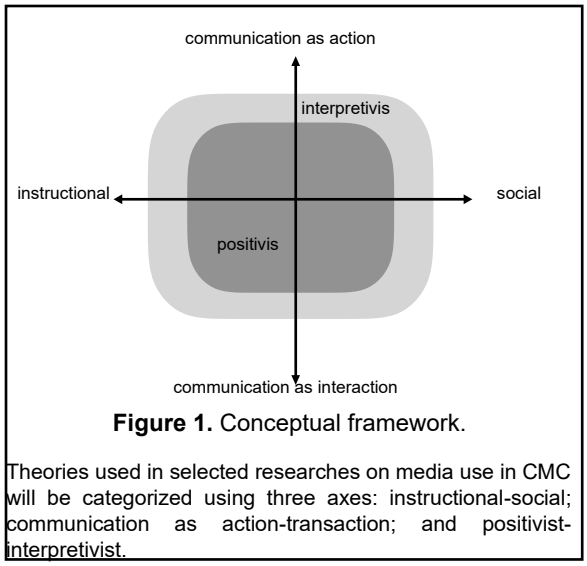

Figure 1. Conceptual framework.

Theories used in selected researches on media use in CMC will be categorized using three axes: instructional-social; communication as action-transaction; and positivist-interpretivist.

Figure 1 shows the conceptual framework of the study

Methodology

The researcher selected journal articles on media use and choice in CMC from 2018-2022 through Google Scholar using the following search words: (a) media choice and instructional communication (14 studies); (b) communication media choice in instructional contexts (30 studies); (c) communication channel choice teachers and students (12 studies); and (d) media choice and interaction (13 studies). After reviewing the researches, the researcher narrowed them further to include only those with explicitly stated theoretical frameworks and with students or teachers as participants. As such, this left the researcher with a total of 24 studies.

Moreover, the researcher categorized the studies into themes, with the instructional-social dimension as the initial axis. This division resulted in 17 studies for instructional context and seven for social. She then determined whether the studies reflected communication as action or transaction, and if they employed the

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positivist or interpretivist paradigm. The researcher identified the theories in each study and mapped them out in the conceptual framework. Discussion of the specific findings of the researches are not included in the scope of my study.

Findings

The researcher classified the researches under the following: media use in instructional CMC and media use in social CMC. Initially, the goal was to combine the opposite poles under the instructional communication perspectives (action and transaction) and sociological paradigms (positivist and interpretivist) to arrive at sub-themes. However, after examining the articles, the researcher realized the absence of communication-as-transaction studies. Instead, the researches focused on instruction characterized by interaction between teachers and students and among students.

Therefore, the four sub-themes under instructional CMC are: (1) action-positivist; (2) action-interpretivist; (3) interaction-positivist; and (4) interaction-interpretivist. For media use in social CMC, the researcher only used positivist and interpretivist social paradigms since the studies under social CMC are non-instructional but have either students or teachers as subjects.

Discussion

Media Use in Instructional CMC

1. Action-positivist.

Nine theories were employed by five researches in this category: technology acceptance model or TAM (Sahasrabudhe & Kanungo, 2018; Van De Bogart & Wichadee, 2018) media richness (Sahasrabudhe & Kanungo, 2018); media synchronicity (Sun & Wang, 2019); uses and gratifications (Gruzd et al., 2018); cognitive theory of multimedia learning (Limperos et al., 2020); cognitivist theory of learning (Sahasrabudhe & Kanungo, 2018); socio-cultural learning theory (Sahasrabudhe & Kanungo, 2018); constructivist theory of learning (Sahasrabudhe & Kanungo, 2018); and MAIN model (Limperos et al., 2020).

TAM was originally proposed by Davis (1989) to predict user acceptance of information technology systems by measuring perceived ease of use and perceived usefulness. Later extensions of the model added behavior and behavioral intentions as main variables, and tested external variables that affect these. Lee, Kozar, and Larsen's (2003) meta-analysis of TAM researches reveal that these have not deviated from the positivist paradigm it originally adopted.

Studies on media choice often refer to the media richness theory (MRT) of Daft, Lengel, & Trevino (1987) which presents a hierarchy or continuum of media based on their "ability to facilitate understanding" (p. 358). These are anchored on a combination of four conditions: feedback, multiple cues, language variety, and personal focus. Face-to-face is considered as high in media richness meeting all four conditions, while text-based media are low in richness. The construct of multiple cues was used in the study of Sahasrabudhe and Kanungo (2018) as possible predictor of learning effectiveness.

Media synchronicity theory (MST) forwards the claim that media has the ability to support synchronicity, "a shared pattern of coordinated behavior among individuals as they work together" (Dennis, Fuller, & Valacich, 2008, p. 575). In their study on tool choice for e-learning, Sun and Wang (2019) state, "a learning task requires a certain level of synchronicity in terms of the process and purpose of computer-mediated communications, which leads to user

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preference of an e-learning tool that enables such a level of synchronicity. That is, students would like to use a tool for a task if they perceive a fit between two along both the process and purpose dimensions" (p. 20).

The uses and gratifications (U&G) theory, originally aimed to examine how mass media satisfy and contribute to the creation of human needs (Katz et al., 1973), was adopted by Gruzd, et al. (2018) to identify the association between patterns of social media use for teaching and reasons for using them.

Sahasrabudhe & Kanungo (2018) employed three learning theories in their study on selecting "an appropriate medium to present the contents of an e-learning program for increased learning effectiveness, and the role of subject matter and participant characteristics in making that selection" (p. 237). According to the authors, the cognitivist, socio-cultural, and constructivist theories of learning "point out that the outcome of a learning program depends on the match between the capability and preferences of who is learning (a learner), the use of symbols or models that are appropriate for what is being learned (domain of learning), and the media used to present that domain" (p. 238).

In their experimental research on the impact of modality, clarity, and technical affordances of online courses on perceived and actual learning, Limperos, Buckner, Kaufmann, & Frisby (2022) used Mayer and Moreno's (2003) cognitive theory of multimedia learning and Sundar's (2008) MAIN model. The cognitive theory of multimedia learning has three assumptions: (1) humans have dual channels to separately process verbal and visual information; (2) the cognitive processing capacity of each channel is limited; and (3) meaningful learning requires active cognitive processing in both channels (Mayer & Moreno, 2003). On the other hand, the MAIN model is an acronym for the four broad affordances of digital media that have shown significant psychological effects: modality, agency, interactivity, and navigability (Sundar, 2008). Whether the effect or outcome would be positive or negative is dependent on "how a particular affordance manifests itself to users" (p.79).

These studies center on measuring the impact of media choice or use on learning and focus on content delivery. Thus, the combination of communication as action perspective and positivist paradigm. Preiss & Wheeless (2021) argue that the use of technology-driven platforms result in deviations from linear models in analyzing teacher-student communication and compel changes in pedagogy. However, it is evident in the five researches included in this action-positivist category decisions on which communication media to use in instructional content delivery would lead to objective measures of: the medium's efficacy; attitudes or motives of users; and learning.

2. Action-interpretivist.

The lone study (Megele, 2019) under this category made use of the social learning theory of Gherardi, Nicolini, & Odella (1998), who state that, "in order to understand cognitive competencies and their acquisition, it is necessary to explore the specific contexts of activities and social practices in which they occur" (p. 275). Megele's action research aimed to redesign a course curriculum by incorporating social media as a strategy for learning. Although the author used self-reflection and qualitative feedback (interpretivist) from students in redesigning the curriculum, the focus of the study was still the delivery of course content (communication as action). This is common among action researches in instruction. Regardless of the absence of objective measures for media efficacy and learning, such researches generally emphasize pedagogy. The researcher

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subscribes to Mottet & Beebe's (2006) claim that studies foregrounding pedagogy are teacher-centered and normally discuss classroom management, enhancing student motivation, and increasing student engagement.

3. Interaction-positivist.

The five researches under this category yielded 10 theories: constructivism (Thoms & Eryilmaz, 2019); engagement (Thoms & Eryilmaz, 2019); social presence (Thoms & Eryilmaz, 2019); social constructivism (Kurtz, 2020; Reychav & Wu, 2021); U&G (Ha & Shin, 2019); MRT (Frisby et al., 2022); rhetorical/relational goal (Frisby et al., 2022); reciprocity (Reychav & Wu, 2021); cognitive absorption (Reychav & Wu, 2021); and dual coding (Reychav & Wu, 2021).

The constructivism, engagement, and social presence theories were used by Thoms & Eryilmaz (2019) to measure the impact of online social networking (OSN) and traditional learning management system (LMS) softwares on student perceptions of learning, social interaction, and course community. The authors worked with constructivism's view of learning which stems from the interactions and experiences of the learner and hypothesized that "these interactions and experiences can be directly influenced by a user's engagement with course technologies" (p. 114). In addition, they utilized the engagement theory which posits that "students must be meaningfully engaged in learning activities through interaction with others, facilitated and enabled by technology" (p. 115). Lastly, the social presence theory was included to determine how OSN functions as a collaborative learning space. Social presence as defined by Lee (2009) is the "psychological state in which the virtuality of social experience is not noticed" (p. 794).

Comparable to constructivism, social constructivism views learners not as passive vessels awaiting to acquire knowledge, but as active participants in knowledge acquisition by participating in discussions, seeking for information, and exchanging opinions with their peers (Kurtz, 2020). This theory was used by Kurtz (2020) to determine the impact of Facebook and a course website on students' perceptions of both learning environments, their level of engagement, and learning.

Reychav & Wu (2021) applied the same theory in their experimental study on the effect of tablet integration in group face-to-face collaboration, on learning and consensus attainment.

They added the dual coding theory (DCT) of Clark and Paivio (1991) which posits that, "mental representations are associated with theoretically distinct verbal and nonverbal symbolic modes and retain properties of the concrete sensorimotor events on which they are based" (p. 151).

Another theory used was Agarwal & Karahanna's (2000) cognitive absorption theory, "defined as a state of deep involvement with software…exhibited through the five dimensions of temporal dissociation, focused immersion, heightened enjoyment, control, and curiosity, is posited to be a proximal antecedent of two important beliefs about technology use: perceived usefulness and perceived ease of use" (p. 665). Finally, Reychav & Wu (2021) adopted theory of reciprocity, which Bandura (1978) originally conceptualized as reciprocal determinism. It views psychological functioning as a "continuous reciprocal interaction between behavioral, cognitive, and environmental influences" (p. 344). In a later work, Wood and Bandura (1989) revised this to a triadic reciprocal causation among "behavior, cognitive, and other personal factors and environmental events" which "operate as interacting

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determinants that influence each other bidirectionally" (p. 361).

Related to the study by Gruzd et al (2018) in the action-positivist category, Ha and Shin (2019) also employed U&G in examining correlations among Facebook and email use to promote interaction in a college class, and academic performance. The MRT which was earlier discussed in the action-positivist category, was used by Frisby et al (2022), combined with the rhetorical/relational goal theory of instructional communication. Mottet, Frymier, & Beebe (2006) claim that teachers have two goals: rhetorical and relational.

Rhetorical goals are teacher-centered and focus on "influencing students to learn and understand the content as presented by the teacher" (p. 267). On the other hand, relational goals refer to "the type of relationship the teacher wants to have with his or her students" (p. 267). The theory posits that "teachers who emphasize relational goals often view learning as something the teacher and students do together" (p. 267), thus, subscribing to a student-centered approach.

Among the five studies, only that of Ha & Shin (2019) clearly looked into teacher- student interactions. The other four studies concentrated on interaction and collaboration among students and only implied the inclusion of the teacher. Using the positivist paradigm, these studies employed theories which called for determining relationships between or effects of communication media on learning. Nevertheless, they underscore the shift from teacher-centered to teacher-as-facilitator pedagogy, giving more importance to learning from experiences and interactions (constructivism, social constructivism).

4. Interaction-interpretivist.

Of the six theories under this category, two have been discussed earlier: social constructivism and social presence. Kalen, Churcher, Downs, & Tewksbury (2022) employed the social constructivism theory in their case study on "instructor uses of social media platforms through a Facebook community of practice and a wiki-based, student-generated exam" (p. 33). Social presence theory was adopted by Szeto and Cheng (2018) in their case study which aimed to "examine the instructor and students' pedagogic interactions in the social presence of a blended synchronous learning environment" (p. 487).

The other four theories included in this category are: technological pedagogical content knowledge (TPACK) framework (Mabuan & Ebron, Jr., 2021); student technology use hierarchical (STUH) framework (Ahern, Feller, & Nagle, 2021); cultural historical activity (da Cunha Jr., van Kruistum, & van Oers, 2021); and virtual communities of practice (Hall, Delello, & McWhorter, 2021).

The TPACK framework (Koehler & Mishra, 2009) adds technology knowledge to Shulman's construct of pedagogical content knowledge (PCK) to describe "how teachers' understanding of educational technologies and PCK interact with one another to produce effective teaching with technology" (p. 62). Mabuan and Ebron, Jr. (2021) used the framework to explore attitudes of students enrolled in an English language class towards a class Facebook closed group.

The use of Facebook groups was studied using three different theories. In order to understand student motivations in using Facebook groups, Ahern, Feller, and Nagle (2021) employed the STUH framework developed by Guo, Li, & Stevens (2012). The framework, based on U&G and means-end chain (MEC) theories, presents "how student technology use motivations can be represented as a set of interrelated and hierarchically organized elements" (p. 199).

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Hall, Delello, and McWhorter (2021), aimed to investigate perceptions of students on using a closed Facebook group as supplement to hybrid and online instruction. The authors claim that "virtual communities of practice (VCoPs), based on Vygotsky's (1962) social constructivism, utilise Web 2.0 platforms to facilitate the sharing of resources and knowledge on topics of mutual interest" (p. 90). Wenger (2000) asserts that "communities of practice are the basic building blocks of social learning system because they are the social 'containers' of the competences that make up such a system," and that through participation in these communities, people "define with each other what constitutes competence in a given context" (p. 229).

The cultural historical activity theory (CHAT) "provides a framework for analyzing interactions … that includes not only the interpersonal/communicative aspects … but also the cultural, historical, political, and economic dimensions" (Foot, 2014, p. 330). The theory was used by da Cunha Jr., van Kruistum, & van Oers (2021) to explore how teachers and students used Facebook groups to improve communication among them and course engagement.

Five of the six researches under this category looked into the use of Facebook to supplement classroom instruction and improve student engagement. The learning and technology adoption theories were employed to explore teacher and student experiences. The methodology used was mostly case studies and the data gathered were narratives of the users.

Summary of Media Use in Instructional CMC

The four sub-themes included 17 studies: five under action-positivist; one for action- interpretivist; five under interaction-positivist; and six for interaction-interpretivist. The studies employed combinations of technology use and learning theories. Media richness and uses and gratifications theories remained in the positivist classification despite being used in both communication-as-action and communication-as-interaction dimensions. Social constructivism and social presence were used in positivist and interpretivist studies but stayed within the communication-as-interaction dimension. This shift in paradigms is possible due to the influence of theorists who introduced the possibility of crossing over to the opposite paradigm. As Burrell & Morgan (1979) state,

"they have forged theoretical perspectives characteristic of the least objectivist region of the paradigm, at its junction with the interpretive paradigm. Such theories have rejected the use of mechanical and biological analogies for studying the social world and have introduced ideas which place emphasis upon the importance of understanding society from the point of view of the actors who are actually engaged in the performance of social activities" (p. 27).

Figure 2 maps out the theories employed by studies on instructional CMC.

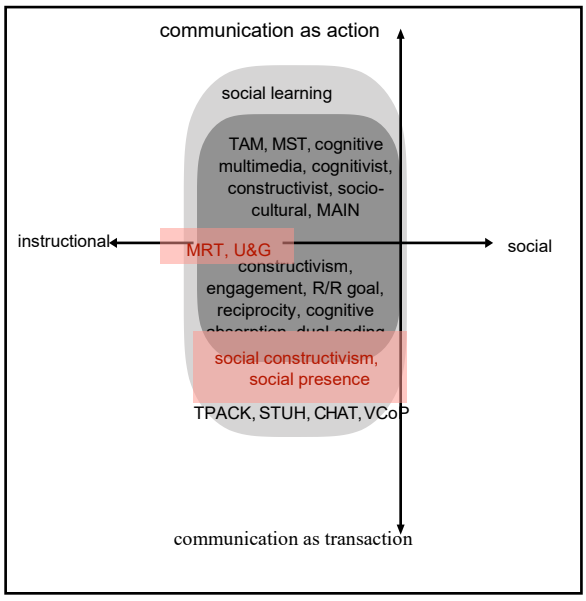

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Figure 2. Media use in instructional CMC as reflected in 17 studies.

(The inner (darker) area contains positivist studies while the outer (lighter) contains interpretivist studies.)

Media use in Social CMC

1. Positivist.

Uses and gratifications was used by Tanta, Mihovilović, and Sablić (2018) to survey adolescents' use of Facebook. They hypothesized that adolescents use Facebook to: socialize and communicate with friends; express attitudes publicly; serve as venue for self-presentation; observe peers; and feel good about themselves.

Social presence, MRT, & MST were again adopted in the studies of Ogara, Koh, and Prybutok (2019), and Geiger &Laubert (2018). The first two theories were combined with social influence to investigate the effects of user experience, social influence, and medium richness, on social presence and user satisfaction with mobile instant messaging (Ogara, Koh, & Prybutok, 2019). The researchers define social influence "as the process by which a group of actors will weigh and then integrate the opinions of significant others within the context of social structural constraints" (p. 455). On the other hand, Geiger & Laubert's (2018) experimental research aimed to "compare predictions from media synchronicity theory (MST) with the influence of personality variables" and "examine media choice in two scenario-based experimental studies with students and professionals in a negotiation setting" (p. 398)

The two other theories were: channel complementarity (Ruppel & Burke, 2019; Ruppel, Burke, & Cherney, 2020); and media multiplexity (Ruppel, Burke, & Cherney, 2020). Channel complementarity advances the idea that "users of a medium who satisfy a particular functional need also use other media types to fulfill that need" (Dutta-Bergman, 2004, p. 659).

Complementarity of communication channels was correlated with social competence among college students (Ruppel & Burke, 2019) and multiplexity in long distance friendships among college freshmen (Ruppel, Burke, & Cherney, 2020).

In theorizing media multiplexity, Haythornthwaite (2005) states, "asking 'who talks to whom about what and via which media' revealed the unexpected result that more strongly tied pairs make use of more of the available media, a phenomenon I have termed media multiplexity" (p. 130). Furthermore, she claims,

While the number of media used differs by tie strength, what is communicated does not differ by medium. It does, however, differ by the type of tie: work- only pairs communicate about work relations; pairs who combine work and friendship communicate about both work and social relations; and friends include more emotional and social communication than non-friends. However, none of these kinds of pairs systematically allocates communications of particular types to particular media. (p. 130)

2. Interpretivist.

Through in-depth interviews, Temel Eginli, & Ozmelek Tas (2018) examined how and why graduate students use SNS. The researchers adopted the uses and gratifications theory as framework.

Lampinen, Lehtinen, & Cheshire (2020) examined how "media choice and identities become intertwined, as devices and communication channels that are chosen for use become signs of identity for a group within a larger community" (p. 110).

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In their case study on college students' media choice and identity work in a peer community, the authors employed Schwalbe and Mason-Schrock's theory of identity as socially constructed, and that shared identities are dependent on signs, symbols, and behaviors which social groups create. The authors claim that, "with a focus on intergroup relations, the social identity approach deals with the structure and function of identity as it relates to individuals' membership in groups" (p. 106).

Summary of Social CMC

As mentioned earlier, the researcher included social CMC within the academic context such as: college students use of instant messaging as examined using media richness, social influence, and social presence; media multiplexity and friendships among college freshmen; and college students' identity work and media choice within their peer community. Five studies followed the positivist paradigm while two for interpretivist.

The media richness theory was used in positivist studies for both communication as action and interaction, and remained in the positivist category for social CMC. Likewise, media synchronicity under action-positivist and social presence under interaction-positivist classifications, remained in the same paradigm under social CMC.

The only theory that crossed over from positivist to interpretivist was uses and gratification, wherein the researchers used thematic coding to extract data from in-depth interviews (Temel Eginli &Ozmelek Tas 2018), as opposed to data derived from choices provided in a survey questionnaire (Tanta, Mihovilović & Sablić, 2018).

Figure 3 presents the theories classified under instructional and social CMC. The upper right quadrant is empty because social CMC looked into two-way communication unlike instructional CMC which included one-way delivery of course content.

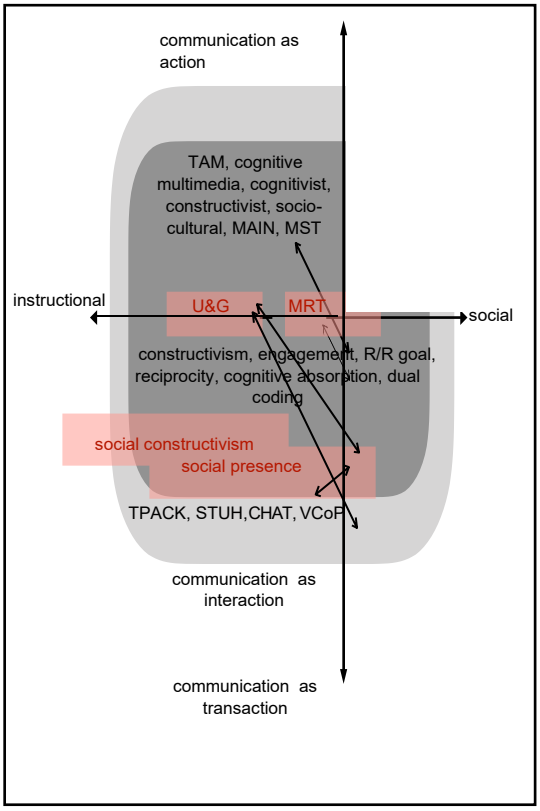

Figure 3. Media use in social CMC as reflected in 7 studies, combined with instructional CMC. The inner (darker) area contains positivist studies while the outer (lighter) contains interpretivist studies.

Conclusions and Future Works

This paper aimed to look into media use and choice for CMC in instructional contexts. Of the 24 journal articles examined, 15 reflected the positivist paradigm while nine (9) were interpretivist. The dominance of studies employing the positivist paradigm supports my argument that communication media choice and use in the context of instruction would most likely examine intersections among

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communication (technologies), pedagogy, and learning.

Thus, these researches employed combinations of theories on communication platforms, teacher and student attitudes, perceptions, cognitive processing, and learning.

Theories on technology and media used in instructional CMC were: technology acceptance, media richness, media synchronicity, uses and gratifications, cognitive theory of multimedia learning, and MAIN model. For cognitive processing and learning, the theories adopted were: cognitivism, constructivism, socio-cultural and social learning, social presence, engagement, reciprocity, cognitive absorption, dual coding, and rhetorical/relational instruction. These studies looked into relationships between and effects of media use on variables such as: learning, learner characteristics, motivations for use, engagement, interaction, and group dynamics. For social CMC, the studies were likewise on media effects and relationships between media and selected variables such as: user satisfaction, personality, social competence, and long distance relationships. Theories used in this category were: social presence, media richness, media synchronicity, channel complementarity, and media multiplexity.

The nine researches under the interpretivist paradigm were either case or exploratory studies. For instructional CMC, the theories employed were: social learning, social constructivism, virtual communities of practice, social presence, TPACK framework, student technology use hierarchical framework, and cultural historical activity. These studies examined media use, attitudes, perceptions, interactions, and motivations. The three researches on social CMC focused on how and why individuals use FB groups, and how identity work is intertwined with media choice. The uses and gratification and identity work theories were employed.

The media richness theory was adopted in both instructional (action and interaction) and social CMC but stayed within the positivist paradigm. This implies that studies on media choice or use often refer to richness of communication cues to ascertain what users perceive to be the most effective medium to accomplish a given task. Similarly, the media synchronicity theory was used in both instructional (action) and social contexts to ascertain relationships between media and user characteristics. This retains the original claim of the theory, that the choice of either higher or lower synchronicity which media characteristics allow, would have an effect on communication performance.

Social constructivism and social presence were employed in both positivist and interpretivist paradigms in the instruction as interaction dimension. In addition, social presence was also used in the social dimension to study how it as affected selected variables such as media richness, in the case of mobile instant messaging. This reflects the claims of previous researchers that learning is a social experience and that online platforms should allow for the blurring of lines between what is real and what is virtual.

Uses and gratifications appeared in positivist researches in the instructional (both action and interaction) and social contexts and in one interpretivist study in the social dimension.

Earlier studies on uses and gratifications focused on relationships between traditional media characteristics and audience needs. However, Ruggiero (2000) posits that, “the U&G approach may serve as the vanguard of an eventual thorough quantitative and qualitative analysis of new media technologies” (p. 24). I consider this as a possible reason why it was the only research that appeared in four

categories: action-positivist; interaction-positivist; social-positivist; and social-interpretivist. This also implies that as new communication media platforms are continuously being used in the context of instruction, there may be a tendency for scholars to appropriate theories which they deem to be more fitting to the individuals and phenomena being investigated.

Within the academic context, it is expected that CMC choice and use will be evaluated in relation to its efficacy in delivering course content, enhancing student participation or engagement, and improving learning. Equally important is ensuring healthy teacher-student and student-student relationships to encourage interaction. This implies that teachers must find the balance between choosing popular media and those that have been proven to aid in learning. The appropriate communication media and instructional communication model (action, interaction, transaction) should be adopted to achieve optimal learning outcomes (Mottet & Beebe, 2006).

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