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*Schematizing and Theorizing
The Link Between Instruction and Communication*

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This dissertation titled "*Schematizing and Theorizing the Link Between Instruction and Communication*" is hereby accepted by the Faculty of Information and Communication Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Doctor of Communication (DCOMM).

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Biographical Sketch

Myrene Agustin Magabo specializes in Communication, Education, Research, Strategic Planning, Theory, Model, and Framework Development ---with a philosophical view---that no single field is sufficient in solving world problems. Myrene is an active member of the International Communication Association (ICA), was elected as ICA Student Board Member, allowing her to concurrently serve as Early Career Representative (SECAC) and as Co-Chair of SECAC for a two-year term (2019-2021). She is currently an Associate Director of the Global Listening Center (GLC) while also serving as Chair of the Instructional Listening Division and as a member of the Ethics and Membership Selection Committee. Myrene has also been a member of the Board of Directors of the American Communication Association since 2006.

Myrene has earned a Graduate Certificate in Instructional Design from the University of Wisconsin (2012), from where she underwent rigorous coaching and mentoring from Professors who are experts in Instructional Design. She undertook rigid training for course development and facilitation, earned a Certificate for Online Teaching from Penn State University, and completed training as a Certified Advanced Facilitator from the University of Phoenix. She completed some Master of Arts in Education/Adult Education and Training courses consisting of Curriculum Theory and Instructional Design, Organizational Communication for Adult Education and Training, Facilitating Change, Facilitating Online Learning, and Social Media for Professional Learning. Myrene has a master's degree in Communication from the University of the Philippines College of Mass Communication, completed all academic courses for the Ph.D. program in Communication at the UP College of Mass Communication (all-but-dissertation), and a bachelor's degree in Economics from the University of San Agustin. She completed 18-unit courses of Master of Arts in Education from the UP College of Education (Social and Philosophical Foundation of Education, Critical Thinking Strategies, Applied Linguistic, and Educational Technology).

Her years of academic experience includes teaching Effective Communication (Speech/Written), Communication Theory, Foundations of Mass Communications, Communications Research, Introduction to Communication Technology and Information Management, Effective Communication, and Critical Thinking courses, Communication Arts courses, Business Communication, Effective College Writing, and Research, Micro and Macro Economics, Labor Economics, Planning for Economic Development. Myrene was Communication Arts Faculty of English at Father Duenas Memorial School in Guam, Communications Instructor at Lancaster Community College in California, and Penn State University (Hazleton) from 2008 to 2015. Myrene has been a faculty of the University of Phoenix Online since 2008 and to this date.

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Abstract

This study examined how instruction (teaching-learning) and communication are linked using Reflective Research Methodology that involved schematizing, theorizing, validating schemas, or mental models guided by a Dual Ladder of Inference Framework. This study elucidated instruction (teaching-learning process), identified communication and learning theories, and highlighted the key indicators that link instruction and communication in an intertwined fashion. As gleaned from the Literature review, the types of Instructional Communication studies have remained the same for decades. There is a need for a unified view of Instructional Communication and the need to advance its theory and model. There is a prevailing view of communication as a vital part of instruction, but some scholarly works view instruction as communication. Instruction and communication are two different terms. However, under rigorous scrutiny, instruction visibly occurs as communication that results in learning. This study involved schematizing, theorizing, validating schemas or mental models guided by a Dual Ladder of Inference Framework within its Reflective Research Methodology. This study presents a methodological approach to theory and model building that hinges on the Ladder of Inference, a Systems Thinking approach that requires iterative research validation of Mental Models or schemas, beliefs, and assumptions. This study has ontological and epistemological values to the field of Instructional Communication. As part of its major outcomes, this study suggests that Instructional Communication must be viewed from its planning phase (design) to its implementation phase, assessments, and evaluation phase. The alignment of all instructional elements is key in evaluating the impacts and effectiveness of instructional communication. This study offers insights valuable to face-to-face (on-site) and online (synchronous or asynchronous) instruction. Sparked by the schema, *Instruction = Communication*, this study offers an enhanced general model of Instructional Communication, *Instruction = Communication → Learning*. In addition, an enhanced theory, definition, and a holistic Instructional Communication Model are proposed.

Keywords: Communication, Instruction, Instructional Communication, Teaching, Learning, Communication Theories, Critical Thinking, Reflective Thinking, Refractive Thinking, Reflective Research

Chapter I

INTRODUCTION

For its ontology, this study analyzed how instruction and communication are linked by elucidating the instructional (teaching-learning) process, identifying communication, and learning theories that are operant within instruction, and key indicators that show the link between communication and instruction. The discernable link between instruction and communication, schematized as *Instruction = Communication* -- was thoroughly examined using an iterative validation process. The link seen between communication and instruction (teaching-learning process) is interweaved. Instruction occurs as communication, just as Flor (2019) highlights Luhmann's (2010) view of communication as fundamentally integral or constitutive of every human activity. This study elucidates instruction (teaching-learning process) through a holistic model of Instructional Communication and offers a general model of instructional communication: *Instruction = Communication → Learning*.

For its epistemology, this Reflective Research study used an inductive, qualitative, constructivist approach. The study's framework is a Dual Ladder of Inference adapted from Argyris' (1990) 'Ladder of Inference' (Peter Senge, 1994). The study framework falls within Systems Thinking, an integrative approach to analyzing the whole rather than just specific parts of a system (Librero, 2013). Argyris' Ladder of Inference is a powerful tool in analyzing and validating schemas or Mental Models that express beliefs or propositional assertions. The data for this study consisted of schemas or Mental Models developed from thorough observations and in-depth interpretations and reflections. The data are appended as an integral part of this study and presented chronologically in Appendixes A to J. The Ladder of Inference necessitates the use of critical, creative, reflective, and refractive thinking approaches.

As part of its major outcomes, this study offers an enhanced theory, process model, and definition of Instructional Communication. The enhanced theory and model of Instructional Communication emphasize the purposeful nature of teaching-learning from planning or design to its implementation phase. The methodology used in this study, its findings, analysis, outcomes, and implications, may prove useful in theory development and model building and may elicit more studies and discourse in Instructional Communication. The study's findings highlight the epistemological and ontological strengths inherent in Instructional Communication. This study advances an enhanced theory, model, definition, and a broader parameter for Instructional Communication.

Background of the Study

This study has its history from a long-standing tradition of reflective research practice. The reflective teaching activities focused on analyzing the vital role of communication in instruction (teaching-learning process), this being an embraced and popular view. The data from observations, reflections, and crossed examinations of information from existing literature showed a discernable interweaved link between instruction (teaching-learning process) and communication. This study utilized a unique reflective research methodology using a dual ladder of inference framework to accomplish its objectives. This study consists of iterative validation processes; thus, certain discursive repetitions may be seen throughout this work.

From Reflection to Schematization

Analytical reflections of the teaching-learning process provided insights that communication does not merely play a vital part in instruction, but the process itself is communication. Instruction occurs as a communication process, schematized as Instruction = Communication as shown in Figure 1 below:

Figure 1. Instruction = communication.

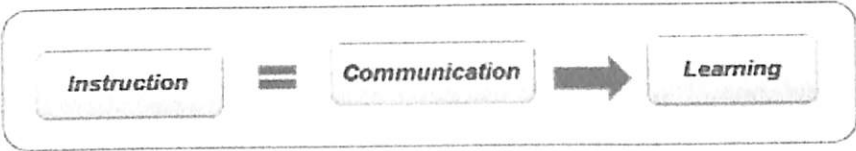


(Appendix A: Selected Data, 2001-2002)

Figure 1 (above) expresses a propositional assertion that runs contrary to the popular notion, requiring a thorough study and validation. Most scholarly works view communication as playing an important role in instruction (teaching-learning process). Such verbiage or notion differs conceptually from the schema formed from reflective research. If communication merely plays a role in instruction, this connotes communication as part of instruction. Instruction is the whole pie or the container. Communication is situated within and occupies a certain portion of that pie or container. The contentious or debatable nature of the schema (Figure 1) makes it a valuable subject for discourse or a topic to "dissertate on" (Collins Dictionary, 2019). The propositional assertion within the schema, *Instruction = Communication*, challenges the popular notion that communication merely plays a role in instruction.

The schema, *Instruction = Communication*, adheres to Luhmann's (1997) notion of communication as a definitive and indissoluble component of any social system. Dr. Alexander Flor (2019) highlighted Luhmann's view that "the entire social world is constituted through communication and through communication only" (p. 1). The constitutive view of communication aligns with Vygotsky's (1962) argument of communication as the only implement used by species in all their activities. In instruction (teaching-learning process), communication is the fundamental tool and inextricable element; communication is how the entire instructional process occurs that results in learning. As such, this study offers an enhanced general model of instruction (teaching-learning) in Figure 2 below:

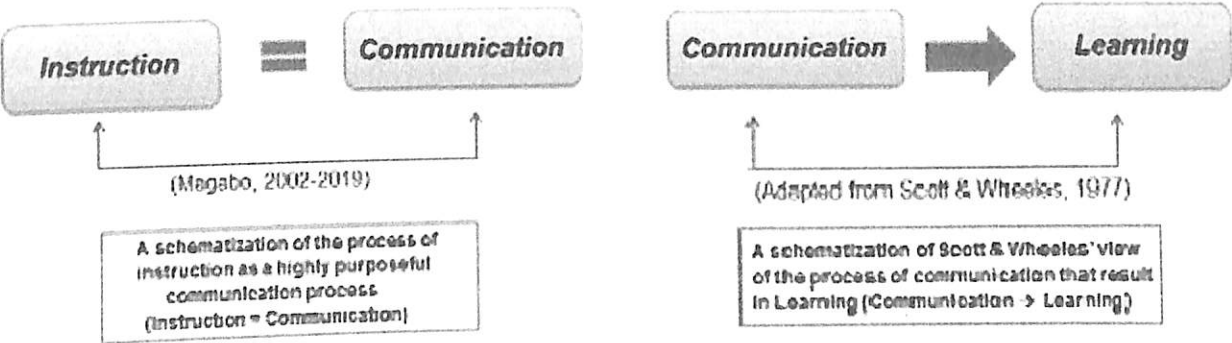
Figure 2. Instruction = communication → Learning



(Appendix J: Selected Data, 2019-2020)

The enhanced general theory and model (Figure 2 above) is validated as consistent with the view that "teaching is communication" (Hurt, Scott, and McCroskey, 1978, p. 112 as quoted in Lane, 2013, p. 3), Gordon Pask's (1968) "Learning as Conversation" and Scott and Wheelless' (1977) view of communication that results in learning. The schematization of the validation of instruction as communication that results in learning is shown in Figure 3 below:

Figure 3. Instruction = communication + [Communication → Learning]



(Appendix J: Selected Data, 2019-2020)

This study evolved from reflection to schematization to theorization. As a result of a continuing Reflective Teaching Research (RTR) focusing on the role of communication in instruction, an unexpected and salient realization, an epiphany, came about. Communication is not merely playing a role in instruction. Rather, it is the process that occurs in the context of the teaching-learning environment. The schema, *Instruction = Communication*, was conceived from outcomes of intensified or deepened participant observation that illumines the elements in the instructional process as follows:

1. **Learners and Instructors** are communication actors or participants.
2. **Message Content** consists of a preplanned, predesigned instructional content, course syllabus, materials, instructional messages, interactive learning activities, feedback and assessment tools, communication, and instructional strategies for real-time interactions.
3. **Desired Effects (teaching-learning outcomes)** are achieved through a well-planned, well-designed, and well-delivered or implemented instruction characterized by a highly purposeful communication process.
4. **Medium or Channel** requires the use of technology to facilitate and enhance learning.
5. **Noise** refers to the undesirable elements that serve as barriers to learning.
6. **Feedback** mechanism is dependent on the teaching or communication style of the actors (i.e., if non-linear, there is a back-and-forth communication between and among learners and the Instructor).
7. **Outcomes** can be intended transformation and meaningful learning.

Oneness in elements reveals oneness in their process. The schematic illustrations or mental models from deepened reflections depict that instruction (teaching-learning) occurs as a communication process. This oneness can be seen through having the same elements within an interlinked process. The same communication elements are present in instruction. It is hard to conceive the process of instruction (teaching-learning) occurring as a process of its own, and one part of it is communication (as commonly viewed). All communication elements are present within the teaching-learning process. Thus, instruction is communication aptly schematized as, *Instruction = Communication*.

The planning or design phase indicates one purposeful process. Even if taken separately, both instruction and communication necessitate a strategic approach in creating messages to achieve desired objectives. Communication plans

and Instructional Designs start with identifying the learning objectives, selecting or creating content and activities, developing assessments and evaluation instruments. The fundamental planning and design steps are the same for both instructional and communication.

The discernable link is also seen through theories. Communication and learning theories that are operant within instruction (teaching-learning process) strengthened and validated the propositional assertion that instruction is communication in its entirety (from the design or planning phase to implementation, assessments, and evaluation). This study provides a robust discussion in Chapter IV of the Communication and Learning Theories that function conjointly or are operating in a complementary fashion within the process of instruction.

The nudging notion within the mind, the schema on the discernable link between instruction and communication, was repeatedly examined through continued observation research and literature review. Through oneness of process and elements, and theories, instruction, and communication are interlinked, aptly schematized as *Instruction = Communication*. The rationale for this study has been built and established. As an outcome of validating the schema, a general model is deduced: *Instruction = Communication → Learning*, given the key indicators that link instruction as communication as one process.

Validations Before Pursuing this Study

The schema (Figure 1: *Instruction = Communication*) was first presented for analysis and validation at an elective course in Education at the UP-College of Education (within a Ph.D. Program in Communication). The schema received strong acknowledgment as a viable schema for further study and validation analysis. “Never ignore a schema in your mind” (Manuel-Ortinero, 2002). The study's conceptualization was diligently churned for years amid obstacles using continued observation and reflective research, putting together a collection of schemas. Until its time has come, finding acceptance as a study in 2017 under a new arena of Sages at UPOU.

Schemas represent realities from observations and existing knowledge. Human beings develop schemas or mental models resulting from interactional experiences with physical, social, and technology-mediated environments. The human mind retrieves and interprets experiences from interactions with people or things, objects, and events directly within the environment or through technological media (Busselle, 2017). The schema, *Instruction = Communication*, is one example of such reflective thinking output that reflects observed realities on the process of instruction. Thus, on the question regarding the schema, it is a valid assumption that the schemas may carry truth in them.

Beliefs expressed through schemas have values for research. Schemas or mental models represent personal beliefs or propositional assertions, which have values. Eaton (1920) argued that ideas, which are also called propositions, could be "true by virtue of some sort of relation between the real world and that which is believed" (p. 45). The human factor in personal beliefs may "engender truth and render reality comprehensible" (p. 45). Propositions or personal beliefs carry elements of truth in them as "...there is always an object of which the proposition is judged true, this object lies somewhere in the realm of fact as a "locus of verification" (p.45). Quoting Shiller, Eaton argued that:

...depersonalization is essentially a fiction that could hide all the subtlest and most interesting influences of vital conditions upon beliefs, and renders impossible any coherent and intelligible accounts of the relations of truth and value (p. 44)

A thesis for experimental studies, a schema for theory, and model building. Experimental studies start with a thesis to be proven. Theorizing may begin with a schema or mental model developed from a wealth of knowledge or insights from observations and reflections (as depicted in the study framework). Model construction could begin from a schema or mental model that could be validated. Schemas within the mind or mental models may represent the truth drawn from experiences and accumulated knowledge (Clear, 2017). If experimental studies require a thesis to begin a study, theory and model building could start from a schema.

Schematizing is key to theory and model building. Eaton's view coincides with the belief that the schema is a potential material for crafting a theory and model. This assertion or belief that *Instruction = Communication* aligns with Eaton's views as ...valuable for scholarly discourse and study. After being subjected to the rigid validation process of all its underlying constructs, this personal belief or proposition, *Instruction = Communication*, resulted in meaningful outcomes that showed the interwoven link between instruction and communication. Most importantly, this study is a bold step to theory development and model building in Instructional Communication.

Schemas help elucidate a process and clarify ideas. In this study, schemas helped illuminate the process of instruction as communication and ascertained the link between instruction and communication. Creating illustrations, drawing sketches has been known to help the thinking processes that enhance memory recall and are considered more powerful than reading or writing (Fernandes, Wammes, & Meade, 2018). Schematization helps clarify certain ideas or concepts. In this study, schemas or mental models aided in the visual, kinesthetic, and semantic presentations of concepts (Terada, 2019, p. 1).

Mathematical symbols used in schemas may take on deeper meanings.

Mathematical symbols are justifiably used in schemas or models as they may take on meanings depending on the context or how the symbols are used. Lutz Geldsetzer and Richard Schwartz's (2013) Pyramidal Schema is highly valued in the natural sciences, which adheres to the more rigorous scientific methods. Thus, their concepts and principles are deemed applicable and significantly valuable to this study that falls under Social Science, which is more flexible. Geldsetzer & Schwartz (p. 44) explained that when formalism is applied to actual states of affairs, the (linguistic or scientific) meaning replaces this logical or mathematical meaning. In conventional hermeneutical terms, the logical signs may refer to a literal surface meaning that establishes a deeper underlying ("background") meaning within a particular discipline.

The "=" symbol signifies links or relationships. The "=" symbol in the schema, '*Instruction = Communication*,' signifies a relationship or link in terms of process. Logical connectors, as explained and demonstrated in Geldsetzer and Schwartz's Pyramidal Schema. Logical connectors mainly consist of varying kinds (such as that only sort or generate propositions with truth values or express complicated ideas), requiring analytical differentiation or discernment. Using mathematical symbols, such as the equals sign, does not denote identical meanings for both terms on the equation's left and right sides. Geldsetzer & Schwartz (p. 56) cautioned readers not to confuse "propositional assertions" with definitions providing examples such as:

- "man = rational animal."
- "some living things = non-plants."
- "some living things = non-animals."
- "Aristotle = an Athenian Philosopher."

The "=" symbol is used for propositional assertions. There are a variety of uses for mathematical symbols. The purpose of the equals symbol is not only to express the equivalency of meanings between two terms. For instance, Wayne Borchardt (2017) wrote an article based on Daniel Kahneman's equation, "success = talent + luck; great success = a little more talent + a lot of luck." In this example, the chances of success are linked to talent and luck, while great success comes from a little more talent and a lot of luck. Geldsetzer & Schwartz (p. 50) explained that "Propositional assertions constitute a store of knowledge," and they are a product out of the "linkage of concepts or expressions" stated in the form of "proposition-forming connectors to form propositions."

Randolph-Seng's (2008) schema, for example, as to how the process of theorizing ensues in the field of Psychology goes: ***"Philosophy + Scientific Method = Theorizing in Psychology"*** (p. 1). Randolph-Seng's schema does not express equivalencies solely based on the definitions of terms on both sides of the equation,

nor the use of the "=" symbol in this study. The = symbol does not represent absolute equality between words or as an "equivalence connector" (Geldsetzer and Schwartz, p. 44). The equals symbol in this study is utilized in "propositional assertions" (Geldsetzer and Schwartz, p. 44) to express relationships or links among concepts or express situational probabilities. As presented in the work of McIlrath and Huitt (p. 3), Carroll's Instructional Model states that **"School Learning = f (time spent/time needed)."** The equals symbol in this instructional model links learning to the time spent or the time needed for learning. Carroll used the **"=" sign** to make a proposition or a theoretical assertion and not state an equivalency of meaning between the terms on each side of the equation.

Personal beliefs, schemas, or propositional assertions are data. Personal beliefs, propositional assertions, schemas, or mental models are best analyzed and validated using Argyris' (1990) Ladder of Inference as it provides a Systems Thinking approach to eliminate personal biases. The steps in the study framework (see Figure 5: Dual Ladder of Inference Framework) allows for research of existing literature, dialogues, and consultations with peers, colleagues, and experts to examine personal assertions, beliefs, schemas, or mental models using an iterative (up and down the ladder analysis and validation) process. Thus, the schemas or mental models used in this study were thoroughly examined and validated.

Dialogues formed part of the strategic approach for validation. To validate the schema or propositional assertion, *Instruction = Communication*, consultations through conversations with peers, colleagues, leaders, and other professionals proved valuable. Validation and gathering of insights from differing feedback and reactions were of importance. The informal conversations as part of the validation process were a huge part of the conscious effort within the reflective research methodology. Ascertaining the schema's acceptability as a subject of study within the scientific or scholarly community (specifically in the Communication field) is imperative for this study.

A formal and peer-reviewed process supports validations. This study availed of peer-reviewed scholarly activities to gather feedback and information on the initial schema, *Instruction = Communication*, and the other schemas used as data for this study. This study also utilized faculty meetings, presentations, discussions, and graduate program classes to make discourses both to gather data and to validate the schema, *Instruction = Communication* (see Fig. 1). The formal validation process included peer-reviewed presentations in international conferences and workshops.

Theorizing comes with qualitative research first. The workshop on "Crafting Theory: Methods of Theory Building in Communication" during the 2019 ICA conference generated a consensus among participants that there is no prescribed process to theory and model building. Developing a theory and model requires innovative, creative, critical, analytical, and reflective thinking approaches. The evolution of theories and models originates from experiences, observations, and

research. This qualitative study is on the right track. Referencing Cacioppo (2004) and Fiske (2004), Randolph-Seng (2008) noted that:

...be inspired by your informed intuition and imagination to construct/extend a theory to bridge them. In turn, these bridges must be strengthened by constructive criticism and the accumulation of evidence (Cacioppo, 2004; Fiske, 2004 as cited in Randolph-Seng, p. 2)

A researcher or theoretician begins the theorizing phase by accumulating knowledge from observations and research. Randolph-Seng (p. 1) described the first and second phases of theorizing as follows:

A theorist examines a systematic collection of evidence to create "intellectual structures" that make sense of diverse findings and, in turn, provide distinct predictions that can be examined empirically (e.g., the elaboration likelihood model; Cacioppo, 2004); therefore: Philosophy + Scientific Method = Theorizing in Psychology

In the above-quoted statement, it is apparent that theories can be built initially from a collection of observed data in this study, schemas, or mental models. It is further evident from Randolph-Seng's schema, "Philosophy + Scientific Method = Theorizing in Psychology" (p. 1), that theorizing does not begin with an empirical study. Even though Randolph-Seng talked about an empirical examination of a theory's predictive power, theory construction begins with knowledge accumulation (from observation, reading literature, knowledge from experience, and feedback from peers, experts, other professionals). This study took advantage of informal conversations, peer-reviewed presentations, conferences, seminars, training, and classes.

The challenges or questions have been addressed well. Schemas are representations of observed realities and have truth values in research, and may use Mathematical symbols. The use of the "=" sign was justifiable and appropriate in expressing the interweaved link between instruction and communication. As a *theoretical assertion of the discernable link between instruction and communication, Instruction = Communication* served as a good starting point for qualitative research (that utilized an iterative validation process). The schema was a great tool for theory and model development, as proven in this study.

Schemas have values in research, and they could represent truth or realities. The use of the "=" sign does not necessarily mean that the same definitions are attributed to two different terms. The "=" symbol is used to express the interlinked relations between instruction and communication in the schema, Instruction = Communication. Not all theories are developed through empirical data. All this validation information gave the confidence to pursue this study.

The Rationale and Significance of this Study

A unified stance, a clear and concise view of how instruction (teaching-learning), and communication are linked comprise the study's core rationale or purpose. As discussed in this study's Background (Chapter I: Introduction), there are two different notions. One notion tends to view instruction as communication. The other notion explicitly states that communication plays a role in instruction. There is a big difference between the two. Therefore, clarifying how instruction transpires is necessary. Another rationale for pursuing this study pertains to the need to strengthen Instructional Communication and address the stagnation in the field (as gleaned from the review of related literature). Enhancing the theory, model, definition, and well-defined parameters for Instructional Communication are also part of the major purposes of this study. The significance of this study lies in the extent of its contributions to theory development and model building, its methodological approach, framework, findings, and implications.

The Rationale of this Study

One of the aims of this study is to elucidate the instructional process. As of right now, there are various models for instruction, each model utilizing different theories. An understanding of how instruction transpires as a process is necessary to build a distinct model of Instructional Communication. "Understanding a process before attempting to improve is critical in any improvement initiative," asserts Dr. Ronald D. Snee (2012) in his R&D Magazine article titled, *"Process Understanding: Critical to Successful Process Development, Operation, and Improvement."* Snee and cohorts conducted a study in 2008 that provides a case in point where an understanding of the process enhances capabilities for development. When it comes to problem-solving, Snee (p. 6) noted that according to Juran and Godfrey (1999), 85% is attributed to "process" and only 15% to people who implement the procedures. On the same resounding stream of thoughts on the importance of process understanding, Snee (p. 6 - 7) argued that having an ample understanding of the process, how the process works, how the process fails are keys to effective problem-solving. An understanding of the process of instruction should help in evaluating how all variables work effectively or otherwise.

A clear understanding of the entire instructional process and its elements is crucial in understanding what drives learning outcomes. What applies to organizations may undoubtedly apply to classrooms or educational institutions as they are all systems. Deetz's (2001) metaphor of organizations as containers where the communication event occurs may apply to classroom instruction. The classroom (physical or virtual) is the container (the environment) where communication occurs. Krippendorff (1990) yielded to the container metaphor and viewed the communication message as the container itself. The elucidation of the teaching-learning process is needed to enhance how the impacts of the communication

elements (inherent parts) and components (necessary variables) are studied. If the process of teaching is well-understood for what it is, the quest to improve education will be highly aided.

There is a need to clarify how instruction occurs as communication. Most studies in Instructional Communication give focus on variables responsible for the impacts of instructional communication. Instructional Communication Models do not present a straightforward process of teaching-learning. McCroskey, Valencic, and Richmond (2004) offered a General Model of Instructional Communication (GMIC) grounded on the Rhetorical Model of Instructional Communication (Mottet & Beebe, 2006 and as noted in Katt, McCroskey, Sivo, Richmond, & Valencic, 2009). The general model consists of "six essential Components: teachers, teacher communication behaviors, students, student perceptions, instructional environment, and instructional outcomes" (Katt, McCroskey, Sivo, Richmond, & Valencic, p. 240). McCroskey, Richmond, & McCroskey's (2006) work focuses on 'the role of communication in teaching and training' investigating the same components or variables. Classroom analysis is process analysis, and clarifying how instruction transpires is imperative. Not only that, instruction cannot occur without communication. Instruction cannot occur outside of communication.

This study aims to elucidate the process of instruction. Instructional Communication scholars still need to present a clear view of the process of instructional communication. Richmond, McCroskey, and Mottet (2015) noted that "Instructional communication researchers view the teaching-learning process as an inherent communication process" (p. 12). The term 'inherent communication process' describes the process of instruction (teaching-learning) as communication and recognizes a view of the teaching-learning process occurring as communication. The authors continued with a line that goes, "Stated another way, teaching and learning could not occur without communication" (Mottet, Richmond, McCroskey, p. 12). Yet, on pages 4 to 5, the authors emphasized the handbook's importance in understanding how and why communication functions in the teaching-learning process.

There is a need for a coherent depiction of how instruction occurs. In 2015, Richmond, McCroskey, and Mottet presented three Models of Instructional Communication, correspond to the three types of communication flow. Instructional communication as action (linear or one-way); instructional communication as interaction (one where there is an exchange of information) and instructional communication as a transaction (learners and educators are both co-creators of meanings). In 2018, the second edition of Richmond, McCroskey, and Mottet's *Handbook of Instructional Communication* was published (edited by Houser and Hosek). The handbook is introduced as a compilation of theory and research on the role and impacts of communication in learning environments on topics in "social identity, technology, and civility and dissent" (p. 1). Even with this recently published work, a need for a clear and distinct view of how instruction (teaching-learning) occurs as communication is apparent.

This study augments the past efforts that overlook communication. Web searches for scholarly journals and publications on the "teaching-learning process" generate tons of studies on various instructional phenomena or problem areas. Most of these works leave out communication as part of the process of instruction. The work of McIlrath and Huitt (1995) is indicative of the academe's efforts to understand the process of teaching-learning, noting that there were efforts from various researchers to come up with models of the instructional process. However, these instructional models do not distinguish well or give recognition to communication. Notably, however, some of these models gave importance to instructional design as part of the process variables. These models are as follows:

1. **Carroll's 1963 model** emphasizes the variable of time a learner receives from the teacher: ***School Learning = f (time spent/time needed)***. McIlrath & Huitt (p. 3) identified Carroll's model's principles to Bloom's 1976 Learning Model as Carroll is known to have a working association with Bloom. This model gives importance to planning and design as part of successful instruction, which is highly argued in this study.
2. **Proctor's 1984 Model.** Proctor's Model shows recognition of the cyclical interaction among variables and the need for quality instruction. These variables include attitudes, school administration policy and support, teacher instructional traits (i.e., norms, values, attitudes), learners' characteristics, and the learning environment conditions that could impact learning. Yet, this model does not wholly illustrate how communication interactions take place in instruction (teaching-learning).
3. **Cruickshank 1985 Model.** Cruickshank's (1985) model includes three variables: "product, process, or presage" (p. 17) and is a more "classroom- and teacher-based" model (McIlrath and Huitt, p.5). **Product** refers to possible behavior changes in learners. **Process** refers to student-teacher interactions, while **presage** refers to a teacher's characteristics such as knowledge, intelligence, experience, success, and other teacher traits (assumed to impact the teaching-learning process and learning outcomes).
4. **Gage and Berliner 1992 Model.** For effective teaching, this model gives importance to instructional planning and design, starting from an objective setting and ending with an evaluation; guided by research and principles in educational psychology
5. **Huitt 1995 Model.** This fifth model includes the family background, the community, the state, school policies, and variables such as teacher and student characteristics and behavior factors that affect student learning achievement.

The tie that binds instruction and communication remains unrecognized.

The above-listed instructional models suggest an interactive teaching-learning process, albeit the lack of recognition that the interaction occurs as a communication. The five models of the teaching-learning process suggest the purposeful nature of the teaching-learning process. They are useful in establishing the felt need to understand the true nature of the process of instruction. There is observably a dearth of study that takes a holistic view of the process of instruction. Most instructional communication studies and models present a dichotomous view that depicts communication occurring somewhere in instruction (teaching-learning). This study argues the inseparable occurrence of communication within the process of instruction (teaching-learning).

This study aims for a unified instructional communication model. None of the existing instructional models depict a holistic instructional communication process. Peter Senge (1990, 1994, 1995) argued that the real functional models must not remain hidden beneath the surface for change to occur. Restructuring or redesigning models is a means to improve and allow for change to occur. Even though Senge's Ladder of Inference is mostly used for organizational change, the framework is universally applicable to any system, such as the classroom system. Instructional Communication Models should also undergo reexaminations and analysis as well as restructuring if need be. This study aimed to address and fill the missing components in the existing communication models and develop a holistic model.

A clear theoretical stance is needed. To say, 'instruction cannot occur without communication' is a safe way of conforming with the popular notion that communication plays an important role in instruction, as seen in Myers' (2017) introduction of the bibliographies in Instructional Communication. There are different schemas (propositional assertions or mental models) produced by these two jargons. One schema could be a pie as instruction (teaching-learning), and a portion of that pie is communication. What percentage of instruction is communication if the communication is only part of instruction? A more clarified verbiage and a unified stance can save the field of Instructional Communication from stagnation.

Having a unified stance leads to progress. "If we are not bonded together in the same foundation, we cannot progress successfully," noted Dr. Serena Miller (2019). Miller's view applies well to the present status of Instructional Communication as it is seen to suffer from stagnation for lack of advancement in its theory and model. Instructional Communication needs a common and purposeful agenda in theory and model building for the field to attain a shared understanding of the process of instruction as communication. This shared understanding may lead to the strengthening of Instructional Communication as a field of study. Unless community members stand on the same foundation, it is tough to achieve successful progressive development for the community.

There is a need to establish a common ground. Finding common ground is essential in any field. The Instructional Communication field needs a unifying stance for its epistemology and ontology upon which it can stand on solid grounds. The prevailing view is that communication is an 'important part of 'instruction,' or communication plays a crucial role in instruction. However, an in-depth critical analysis of instruction (teaching-learning process) shows an intertwined link between communication and instruction. A shared understanding or a common ground and a unified stance about the instructional process can further strengthen Instructional Communication.

There is a need to determine the parameters of Instructional Communication. During the first decade of its existence, Instructional Communication struggled to define its parameters. In their third series of overviews of instructional communication, Scott and Wheelles (1977) noted the difficulties they sensed in accomplishing their overview due to the lushness of the term of instructional communication and due to "the ill-defined parameters for theory and research in the area" (p. 495). Thus, there are varying interpretations, extensive research in communication and bulk of learning theory, and a lengthy saga of studies on "instruction and learning" (p. 495). Understanding the instructional communication process can help determine its parameters and attain specific outcomes through effective processes.

This study may spark a fresh approach to enhancing Communication and its subfield, Instructional Communication. This study could also help define Instructional Communication parameters, which like its mother field, Communication, has problems with its ontology. Having an ontology of its own, an area of study, can have a stronger foundation. Vlăduțescu (2014) has trepidations that Communication lacks its ontology, has problems within its universe, and relatively holds a weak position in the scientific community. Vlăduțescu (p. 24) argued that the field of Communication does not have a robust, rigorous, and explicit ontology for its lack of capability to identify its distinct range of theories. In the words of the author:

Having problems with its own ontology, with its own universe, communication has a relatively unstable situation. When you do not know how far your theories spread, you are constantly in danger to enter someone else's territory and you are always likely to start a conflict. Communication, in its non-rigorous self-knowledge, is thereby a conflictual discipline (Vlăduțescu, p. 26)

This study highlights Instructional Communication as inherently strong. Instructional Communication is said to have struggled to define its identity, its ontology and identify theories and models developed among its scholars. This perceived weak position is notable in how careful Instructional Communication

scholars endeavor not to get out of an invisible fence around it for decades. Instructional Communication scholars have tread cautiously not to step outside of the known parameters. Most scholarly works tended to dichotomize the process of instruction from that of communication, as evident from the literature review. This study elucidates how instruction (teaching-learning) occurs as a purposeful communication process, highlighting the inherent strengths of the field.

This study heeds to the call to rise from stagnation. Conley and Yun (pp. 452-453) concluded that the field of Instructional Communication has stagnated, conducting studies or reviews on the same variables. These variables are the teacher-student characteristics, relationships between and among teachers and students, gender, communication immediacy, clarity, power relations, empowerment, teaching methods, learning styles, socialization factors, teacher and student misbehaviors, evaluations, assessing learning, humor, roles, metaphors, teaching strategies, speech criticism, student evaluation, speech content, and speech communication program. The authors noted that Mottet, Richmond, McCroskey's (2018) Instructional Communication theory emphasizes the variables, constructs, and concepts and how these variables, constructs, and concepts relate to each other and why they are related. While the variables stimulated continuing Instructional Communication studies for the past decades, the field stagnated within these parameters. There is a need for further theorization and model formation in Instructional Communication.

This study aimed to address the need for further theorization. This study addresses Instructional Communication's need to advance its theory and model and enhance its ontological status. A meta-study on scholarly works from 2000 - 2016 conducted by Conley and Yun (2017) revealed that Instructional Communication studies covered the same themes. The same areas of research permeated since the existence of Instructional Communication in 1972. Conley and Yun (p. 463) have expressed their lamentations for what they felt were losses and stagnation in Instructional Communication, which coincide with Vladutescu's (2014) critique of Communication as a weak field. Due to the inability to advance its ontological views, Communication is without ontological standing. Referencing Shepherd (1993, p. 87), Vlăduțescu (2014) noted that:

Disciplines forward unique ontological views; they tell us what matters about Being, and they represent essentialist ideas. From modernity point of view, then, how can there be a discipline of communication? Nullius in Verba: words are nothing. How can one be a disciple of nothing? (p. 24).

This study responds to the need for theory and model building. Citing Blalock (1969), Dubin (1969), and Freese (1980), Kraemer and Frey noted that except for the work of Shoemaker, Tankard & Lasorsa (2004), "a scarcity of textbooks that cover more than the formal requirements and logical principles of

"theory construction" (para. 2). This lack of a specific theory construction method contrasts sharply with the high importance placed on theory building by the scientific community. "The collection, development, and dissemination of methodological knowledge about how to develop both original and well-crafted theory only form a small part of our methodological research and teaching" (Kraemer and Frey, para. 2).

Up to this era, there is a lack of literature and work on theory and model development in the mother field of Communication and its subfield, Instructional Communication. *"The state of theory building in communication has been the object of lamentation, disappointment, caricature, even ridicule, but also appeals and aspiration throughout the history of our field..."* (Kraemer and Frey, 2019, p. 2). Kraemer and Frey further noted that:

"inspiring and instructive collections of individual experiences and approaches to theory-building have been published, e.g., in psychology (Kruglanski & Higgins, 2004), human resource development (Turnbull, 2002) and management (van de Ven, 1989), but not in communication" (para. 3).

This study heeds to the call for theory and model development. Dissertations must be responsive to the need for theory and model development in the field. During her presentation at the 69th International Communication Association's Annual Conference, Dr. Serena Miller argued that a study's most relevant contributions must be on how that study contributes to existing theories. In her presentation, Dr. Miller shared her advocacy for truly relevant studies on theory development. She believes too that "Great scholars are creative artists." Miller further emphasized: "Do not be afraid to go beyond what has already been said or done by scholars." The takeaway from that presentation is that graduate students must be empowered to become theoreticians. As theoreticians, they must be critical, creative, reflective, innovative, and refractive thinkers. This study addresses the need for theory development.

The Significance of this Study

This study is of significance to both the field of Communication and the field of Education. This study's outcomes elucidated the process of instruction (teaching-learning) that clarifies the interlinkage between instruction and communication. This study developed models that clarify and elucidate how teaching-learning transpires as a communication process. This study offers a unifying stance for the ontology and epistemology of Instructional Communication as it clarifies the process, underscores theories and key elements of instructional communication.

The outcomes of this study offer an enhanced theory and model. This study offers an enhanced general model of Communication that aligns well with the view that “teaching is communication” (Hurt, Scott, and McCroskey, 1978) and with Scott and Wheelles’ view of communication that results in learning can be aptly schematized as ***Communication → Learning***. Scott and Wheelles’ definition of instruction blends well with the schema, Instruction = Communication. These notions do not affirm the schema, Instruction = Communication, but also enhances the initial schema into ***Instruction = Communication → Learning*** (instruction is communication that results in learning).

With an enhanced theory comes a fortified definition. A unifying view of instruction as a purposeful communication process can ultimately benefit Instructional Communication scholars, educators, institutional leaders, and instructional designers. The elucidation of instruction (teaching-learning) as a communication process fortifies instructional communication theory and model. A unified view of the definition of instructional communication could strengthen the field of Instructional Communication.

With an enhanced model, greater clarity of the instructional process. This study worked to address the need to elucidate and clarify the elements within the process of instruction. If researchers want to understand what drives learning outcomes, they must understand the entire process and its elements. The reconceptualization of the teaching-learning process is what is needed. Instructional Communication studies must begin at the planning phase and end at the evaluation phase. This study argues that without full consideration of the factors in teaching and learning, student-teacher relationships and student understanding as a learning outcome may not suffice the needs of times. This study establishes a clear, descriptive process and models for instructional communication and provides new insights into the field's epistemology and ontology.

The Instructional Models proposed in this study will make a huge difference in studying learning outcomes. George Gerbner (1963) views classroom analysis as an analysis of the process and messages in the classroom and Gerbner's own words:

Scrutiny of communication in the classroom is an analysis of messages and processes. It leads, on one hand, to self-analysis and, on the other, to a concern with the full range of consequences implicit in communication as a humanizing process (Gerbner, p. 13)

A purposeful instruction has a well-defined set of objectives, well-aligned course materials, and activities that ensure achieving the desired outcomes. The alignment of tools for assessments with all the course's instructional design elements is vital to implement effective and efficient measures for the instructional course's success. A

proper grasp and understanding of the theories in communication and learning theories can help design, implement, assess, and evaluate teaching-learning effectiveness.

This study brings a robust discourse on theories in the field. In general, theories help explain certain phenomena, help elucidate the substance or elements, and illuminate a process. Richey, Klein, & Tracey (2011) note that theories serve various social scientific thinking functions regardless of their form. Littlejohn (1989) speaks of the first function of theory for summary and organization of knowledge. Theories also provide for the underpinnings and construction of theoretical propositions and help in the profound analysis and interpretations of existing phenomena. As Dubin (1969) asserts, "the more profound the descriptive knowledge, the better the theory is likely to be" (p. 237). Identifying theories operating within the instructional communication process could help in the long-standing efforts to strengthen the field of Instructional Communication. The key elements of instructional communication are solidified by identifying communication and learning theories operant within its process. This study brings a highly enriching discussion on the intertwined and complementary functions of theories operating within the instructional communication process.

This study has epistemological and ontological values that go in tandem. Littlejohn and Foss (2008, and as cited in Vlăduțescu, 2014) noted that epistemology and ontology always go in tandem. Elucidating and identifying the elements within the process of instructional communication has ontological value. Schematizing, developing a model and theory contribute to the ontology of the field. The methodological approach within the study framework may help strengthen the research methods in Instructional Communication; thus, it speaks of its epistemological value. This study's ontological values rest largely on the new perspective or view of communication as part of, not merely as having an interface with instruction but also as communication. The major outcome of analyzing the schema, ***Instruction = Communication*** is a new form of knowledge and enhanced theory and general model: ***Instruction = Communication → Learning***.

This study's methodological approach has epistemological implications. This study's methodological approach offers valuable insights relevant to Bryman's and Bell's (2011) considerations on epistemological assumptions focusing on 'what is or what should be regarded as acceptable' knowledge in a field discipline. Millwood (2014) used this validation approach to examine and validate mental expressions (models or instructional designs) as data for his study. The gathering of evidence from previous scholarly works and gathering feedback from other practitioners and experts through dialogues and peer-reviewed presentations or workshops are validation processes within the iterative steps in the Dual Ladder of Inference framework. The methodological steps used in this study is of epistemological value as it can be applied as a norm in theory development.

The values of “constructivist-critical-reflective” research lie within its “philosophical and epistemological underpinnings” and “methodology” (Morley, 2008, p. 151). The methodological techniques used in this study have epistemological values (i.e., using the Ladder of Inference to validate Mental Models or schemas presents a powerful tool in investigating how a process of instruction occurs). The study framework ensures the Researcher's assumptions are bias-free through an iterative, highly reflective, information-driven validation process.

This study's framework offers epistemological significance to the field. Since epistemology is concerned with investigating what distinguishes a justified belief from opinion, the study framework and the strategic approach used in this study are of considerable significance to theory and model building. The data (Mental Models), outcomes, analysis, implications, and recommendations presented in this study are significantly valuable to Instructional Communication's ontology. The Dual Ladder of Inference Framework for validating mental models is of great value to the epistemological body of knowledge in Instructional Communication.

This study could strengthen the ontology of Instructional Communication. Vlăduțescu (2014, p. 24) lamented the lack of an established identity and strong foundation for Communication due to its lack of ontology. In Vlăduțescu's words, Communication lacks “the existence certificate of a universe.” The Reflective Research data generated from this study may address Vlăduțescu's concerns regarding the field of Communication. This study provides a distinct process and description of instructional communication.

This study is significant to the field of Education. A clear understanding of instruction (teaching-learning process) as a communication process that requires purposeful planning and implementation is of great importance to Education. The ideas, the process, and models of instructional communication reiterate the importance of well-planned and well-designed courses responsive to the industry's workforce skills requirements. The workforce skills requirements go above and beyond the soft skills readiness for college graduates. This study's findings have practical implications for the efforts to develop industry-specific skills requirements (i.e., Science, Technology, Engineering, and Math (STEM) courses).

A strong understanding of how instruction transpires as communication can help administrators, academic leaders, educators, instructors or professors, and instructional designers in curricular program development and designing instructional courses. The observation data and findings in this study highlight the importance of Instructional Design. The perspectives offered in this study can help educators, instructors, or professors appreciate Instructional Designers' role in providing the necessary instructional design expertise in planning and designing courses.

The Research Problem

The findings from the literature review magnify the need and establish the rationale for this study (as discussed lengthily in Chapter 2). There thrives a vast body of literature on Instructional Communication Studies striving to explain or mitigate effective instruction (teaching and learning). However, not so many scholarly works have given a particular focus on the process of instruction, vis-à-vis the process of communication. It can be gleaned from the review of literature a need for a distinctive model that depicts the instructional communication process. The field's theoretical stance does not stand on solid grounds. While extensive studies have reviewed scholarly works in Instructional Communication, there is still a need to emphasize and clarify how instruction and communication are linked. There is still a need to elucidate the process of instruction. There is still a need to explore and discover theories operant within the instructional process. This study aims to address the following general and specific research problems or questions:

General Research Question:

How are instruction and communication linked?

Specific Research Questions

To provide a concrete answer to the general problem or research question, this study aimed at addressing three specific questions as follows:

1. How does the process of instruction transpire?
2. What communication and learning theories, models, or principles clarify the relationship between instruction and communication?
3. What key indicators show how instruction and communication are linked?

Research Objectives

This study endeavored to achieve the following specific objectives:

1. To elucidate the process of instruction vis-à-vis the process of communication;
2. To analyze theories and models that clarify the relationship between instruction and communication; and,
3. To underscore the key indicators that link the communication process and instruction (teaching and learning process).

The Theoretical Framework

The following theories, models, and frameworks provided theoretical groundings, as well as ethical and methodological principles in the conduct of the study:

1. Systems Theory (for holistic approach)
2. The Ladder of Inference (which is within systems thinking)
3. Mental Models Theory (utilized within the Ladder of Inference and falls within systems thinking)
4. Schematization Theory (as it relates strongly with Mental Models)
5. Reflective Learning: Dewey (1933), Schön (1983, 1987, 2010), Kolb (1981, 1984), Gibbs (1988), Sagor (2000a) McIntosh (2010), as utilized in the recent works of Millwood (2014) and that of Stynes, Murphy, McNamara & O'Hara (2018)
6. Critical Thinking
7. Refractive Thinking (Lentz, 2011)
8. Creative Thinking (as espoused by McIntosh, 2010)

Systems Theory

Systems theory is known for its holistic applicability to studies in intrapersonal, interpersonal, intergroup, and human/nature interactions, especially in perception studies. Given its interdisciplinary characteristics and its functional applicability in explaining or clarifying principles or concepts in all types of systems, Systems Theory provides a good framework for studying the dynamic process of communication that occurs within the process of instruction. Systems theory, as an approach, may carry both ontological and epistemological facets. In the words of Alexander Laszlo and Stanley Krippner (1998):

As a field inquiry concerned with the holistic and integrative exploration of phenomena and events, systems theory pertains to both epistemological and ontological situations. But rather than constitute either an epistemology or an ontology, it is more reminiscent of the Greek notion of gnosiology concerned with the holistic and integrative exploration of phenomena and events. There are aspects of the systems approach that are ontological and aspects that are epistemological, and aspects that are at once both and should not be circumscribed to either (Laszlo and Krippner, 1998, p. 49)

Systems Thinking is a powerful tool. Librero (2013) spoke of Systems Thinking as a viewpoint, a tool or approach that is powerful in investigating the mutuality of elements within a system. Citing Pegasus Communication and Lyneis (1995), Librero notes that Systems Thinking provides an effective mechanism for solving continual problems and encourages individuals to investigate the whole, not just parts of a system. Systems Thinking guides individuals to view the relations, links, or relationships between or among mechanisms, objects, things, or entities. Due to its ontological and epistemological strengths, Systems Theory appropriately applies to instructional studies. Laszlo and Krippner (p. 49) highlight two of the multifaceted uses of systems theory as follows:

1. *For the “study effectiveness of the technological design of an online classroom; and,*
2. *The “cybernetic feedback loop mechanism in the teaching and learning process.” For this study, the “cybernetic feedback loop mechanism in the teaching and learning process” (Laslo and Krippner, p. 49) takes center stage.*

The Ladder of Inference

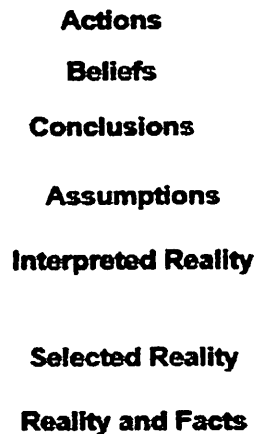
The Ladder Inference (Argyris, 1990; Senge, 1994), as the study framework's core foundation, helped ensure unbiased data analysis of one's assertions, assumptions, propositional assertions, or beliefs. Levene (2016) notes, “Our beliefs might be founded on a faulty selection or interpretation of data” (p. 3). To address bias, faulty assumption, and thinking errors inherent in mental models (which are formed from people's deeply rooted beliefs, images, schemas, assumptions), Chris Argyris offered a disciplined way of “managing mental models” (Singapore, 2019, p. 2). The Ladder of Inference by Argyris (1990) is notable for its critical, reflective, and creative problem-solving benefits and its potential to provide a systematic and holistic approach to modifying current conceptual models to generate fresh perspectives.

The Ladder of Inference is a tool for examining mental models. Argyris' Ladder of Inference serves as an effective guide in the discipline of mental models. Singapore noted that Argyris' Ladder of Inference “helps us throw light on why this happens and consciously leads us to a place where we may work with mental models more rigorously” (p. 2). The Ladder of Inference is a toolbox for thinking. It “is an essential framework for understanding human reasoning, identifying opportunities, and keeping group reasoning on track. The Ladder of Inference is especially helpful when the challenge involves ambiguity or complexity” (Levene, 2016, p. 1). The Ladder of Inference has also been valuable in improving existing conceptual or theoretical constructs and their relationships as the validation process continued during the study.

The Ladder of Inference is a step-by-step guide to reasoning, critical, evaluative, and reflective thinking processes that help individuals arrive at a more accurate

worldview. It is a valuable tool in examining strongly held beliefs and assumptions versus facts and with the beliefs of others. The Ladder of Inference provides a multiple loop approach (climbing up and going down the thinking ladder), as shown in Figure 4 below:

Figure 4. Steps in Argyris' Ladder of inference.



(Adapted from Argyris's (1990) Ladder of Inference)

The iterative steps are used to review reality and facts, select data from them carefully, and then examine and analyze one's assumptions and beliefs before making decisions or before taking action. Peter Senge (1995, p. 5) concurred that the Ladder of Inference applies well to the field of Education even though it was originally developed for business organizations noting that their Systems Thinking approach is:

... about how human beings learn, and about the new ways we will need to think and interact in the 21st century, in a world characterized by increasing interdependence. There is really nothing intrinsic in any of the basic disciplines, for example, that distinguishes business from education. You can make pretty compelling arguments that systems thinking, building a shared vision, dialogue, and learning how to reflect on our mental models are, at some level, educational undertakings more than business undertakings. That's the reason that in fact there has been so much of a crossover, even though The Fifth Discipline was not written for an education audience.

Systems Thinking is ingrained in the Ladder of Inference. As espoused by Peter Senge (1994, 1995), Argyris' Ladder of Inference is notably used in any system and learning transformation, including the Reflective Research Methodology. Through the Ladder of Inference, individuals effectively check and countercheck their beliefs or mental models, which is an intrinsic characteristic of the Systems Thinking approach. Raines (2009) points to Peter Senge's Theory as falling under Systems Thinking. Systems theory helps identify the elements and connections among significant aspects of a system (such as process flow and outcomes). The Ladder of Inference utilizes the Systems Thinking approach within its framework and foundation.

Mental Models Theory

Mental Models Theory within Systems Thinking is highly central to the framework and fits well as one of the major theoretical underpinnings for this study. The representative data obtained from Reflective Research activities consisted of schematic representations (schemas) or mental models developed from the reflective teaching practice. Mental Models are powerful tools as they are "simulations of the world the mind constructs when reasoning and thinking" and, as such, "are powerful tools in many respects" (*What are Mental Models?*, n.d., p. 1). James Clear (2018) succinctly defines a mental model as a clarification that elucidates how certain things operate or function, such as a framework, a theory, hardcore beliefs that aid in interpreting and understanding the relationships of things or concepts.

Mental Models Theory contends that everyday reasoning depends on the simulation of events. Mental Models Theory refutes that "human reasoning that relies on rules of inference akin to those of a logical calculus" and contradicts theories that postulate rules analogous to "probabilistic calculus" (Mental Models and Reasoning Lab, 2019, p. 1). Philip Johnson-laird (2008) explained that individuals create mental models as they go through their thought processes, noting that the perceived realities can be expressed through mental models.

Mental Models have explanatory power. Despite its unclear beginnings (Xie, Zhou, and Wang, 2017; Volkamer & Renaud, 2013; Johnson-Laird, 2005), Mental Models Theory was first advanced by the American philosopher Charles Sanders Peirce in 1986. In 1967, Scottish Psychologist Kenneth Craik advanced a comparable notion that the human minds construct "small-scale models" of reality akin to Wittgenstein's picture theory. Craik contended that the human brain could decode or interpret external realities into small-scale models within one's mind, as triggered by what has been observed or experienced from the environment. Thus, mental models possess explanatory or even predictive powers of one's understanding of the world, making the theory useful in learning and training studies (Xie, Zhou, & Wang, p. 2).

Mental models have an illustrative function. Mental Models aided in elucidating how instruction transpires and clarifying how instruction and communication are linked. Mental Models provide representations of the “real, remembered, hypothetical, or imaginary situations” such as “mental sketches, architect’s blueprint, comic strips, diagrams” (*What are Mental Models?*, p. 1). Proponents of mental models claim that “*cognitive scientists have argued that the mind constructs mental models from perception, imagination, knowledge, and the comprehension of discourse*” (Mental Models and Reasoning, p. 1).

Mental Models are powerful tools for exploring relations. Mental models are best used when exploring relationships among objects or concepts (Schaeken, Vandierendonck, Schroyens, and Ydewalle, 2014). They also noted that the motivation behind the mental models’ approach was dissatisfaction with the Mental Rules Model’s ability to provide a “plausible explanation of systematic patterns in experimental results” (p. 1). The mental models’ approach allows the subjects to accurately visualize the objects’ positions and relations in the given scenario. In so doing, one can “*construct a model of the situation described by the assumptions*” (p. 1).

Mental Models are better than Rules Theory. Based on studies conducted, not all logical facts can be proven mathematically or computationally. According to Laird (2007), Psychologists thought that human reasoning depends on formal inference rules (like the logic of calculus). However, evidence refutes this thinking and found that the Mental Models theory is better than Rules Theory. The view that logic depends on visualizing possibilities is consistent with the foundation that starts from a world view, insights, awareness, or understanding of the world. Logical reasoning is dependent on a set of assertions, a recall, or a mixture of them. Mental models work better than the use of theory of Mental Rules.

Individuals formulate or create mental models of any distinctive possibilities and draw inferences or conclusions from them. The ability to use counterexamples to refute invalid inferences provides a foundation for rationality. The reasoning is a simulation of the world magnified with one’s knowledge and not merely a formalized reshuffling of sentences’ logical frames. Thus, not all mental models have to be proven right through computational means and are better than the Rules Theory.

Mental Models have accuracy, intricacy, or simplicity. Mental Models serve a vital function in elaborating the conceptual ideas in this study. A Mental Model could either be intricate or non-intricate theory or assumptions. Drawing on cognitive psychology for its explanation, Mental Models are judgments, actions, representations of thoughts, beliefs, perceptions, feelings, values, and ideas (*What are mental models?*, 2019). The use of mental models helps determine how individuals make sense of the world, and most importantly, how they act (Senge, 1994) to transform and improve as a result of one’s reflective and critical thinking.

Schematization Theory

A communication theory related to mental models theory is the schematization theory (Herbert and Burt, 2001), originating from Grize, a Swiss Logician and Mathematician (Littlejohn and Foss, 2009). Grize worked with Piaget on studies that explore how human minds learn. For Grize, every communication act is a form of schematization or symbolic scheme since individuals form logical and meaningful mental symbolic schemes (conveyed through language). The communication messages are interpreted by receivers, thereby resulting in the construction of meanings. Meanings are reinterpreted and reconstructed as the process of communication goes on. Such logical schemas or structures enable predictability in human reasoning. Grize's communication theory is fundamental to the Constructivist Theory, both in learning and communication.

The schematization theory has some implications on the way learners listen and absorb information. Farangi and Kheradmand Saadi (2017) conducted a dynamic assessment or schema theory concerning listening comprehension. The authors cited Anderson and Lynch (1988). They argued that the listeners or receivers of information must activate "various types of knowledge" and apply "what they know" (p. 6) to the information they gather to be able to gain an understanding. Therefore, background knowledge is responsible for schema development during the listening, reading, or encoding process is vital to learning.

Reflective Learning Theory

Reflection is research. Reflective Learning was advanced by notable scholars such as Dewey (1933), Schön (1983, 1987, 2010), Kolb (1981, 1984), Gibbs (1988), Sagor (2000b) McIntosh (2010), as utilized in recent works of Millwood (2014) and that of Stynes, Murphy, McNamara & O'Hara (2018). They view reflections as research and an effective means of advancing and enhancing their expertise in their profession. Developing critical and self-reflective practice is crucial to enhancing professionals' knowledge and expertise, and Argyris's Ladder of Inference provided an excellent tool to demonstrate reflection as research. Scholarly works of theorists Donald Schön (1983-), David Kolb (1985), and Graham Gibbs (1988) were notable for their works on exploring the different ways adults and professionals learn and develop their expertise in their fields of practice through reflections.

This study concurs with Lewin's (2007) self-reflective loop process that cycles from planning, action, observation, reflection, re-planning, and action. This reflective loop process is highly similar to Argyris' (1990) Ladder of Inference (as Peter Senge, 1994) presented. For Kolb (1981, 1984), the ideal learning process cyclically engages four modes, such as a definite experience, observation, reflection, the formation of abstract concepts and generalizations, the application, or testing the implications of concepts in new situations.

Observations as research. Observations from experience are central to the Reflective Research process, and Graham Gibbs's (1988) Reflective Research ideas coincide much with Dewey's "learning by doing." The reflective research method as part of one's professional practice enables a practitioner in the field to examine his or her professional activities, approach, or methodology for the continuous advancement of his or her professional expertise. This approach encompasses applying critical, reflective, and reflexive evaluations of the values and theories that guide one's profession.

Reflective Research is a disciplined inquiry. A disciplined inquiry generates a wealth of knowledge. When professional practitioners of any craft or discipline reflect on their actions and how these actions resulted in positive or negative impacts, they can utilize the power of research on their actions or activities. Reflections aid in refining ways of doing things. Richard Sagor (2000) of the Institute for the Study of Inquiry in Education views reflective efforts to improve or refine one's action as a "disciplined inquiry. Reflective Research follows systematic and rigorous steps in analyzing its reflective data, such as used in this study.

The reflective method used in this study conforms with Richard Millwood's (2014) methodological approach, where he had considered his collections of work in Educational Design from where he drew significant outcomes. Reflective research leverages the discursive power of reflections among scholars and activists. Scholars may take advantage of the discursive power of their reflections upon their activities or actions, thereby enabling them to produce new knowledge for the practice of their profession. Citing Somekh & Zeichner (2009, p.5), Millwood (chap. 3) noted the "discursive power" and the generation of a "wealth of knowledge" drawn from reflections.

This study, just like Millwood's, used data from reflections. Richard Millwood's dissertation used the outcomes from a decade of Reflective Action Research and scholarly endeavors as data for his Reflective Research Methodology. Millwood used the most significant models he developed in Instructional Design. Millwood focused on analyzing mental representations he created and used throughout his career using an iterative process. He contends that the iterative reflections and evaluation of one's work or designs "is a model of learning that helps the educational designer make effective decisions." In a research undertaking, reflections can generate rich data from mental expressions, schemas, or mental models, which this study used as data for analytical validation purposes.

Previous works inspire the use of Reflective Research methodology. Drawing inspiration from the previous works of Millwood and Riley (1988), Norman (1983), Kolb (1984), and von Glaserfeld (1995), Millwood created a Learning Theory Map called the "Holistic Approach to Technology Enhanced Learning (HoTEL)." The Learning Map identified no less than 25 Learning Theories and their respective Theorists, corresponding world views or paradigms, the key concepts, and

corresponding scientific disciplines. Millwood's dissertation proves that reflecting on one's thoughts, ideas, and output generates a wealth of new knowledge, generates new theories and models. Likewise, this study was able to identify communication and learning theories operant within the instructional communication process and generated schemas and models that enhanced the depiction of the instructional communication process. The inspiring works of scholars on Reflective Research methodology gave confidence to the approach used in this study.

Critical Thinking Theory

This study necessitates Critical Thinking. The use of logic and reason and consideration of other professionals' and experts' viewpoints are Critical Thinking aspects of this study. Critical Thinking necessitates a process of both inner dialogues with self (Reflective Thinking) and an External Dialogue (conversations with others to gather their perspectives and validate one's world views) – a principle or concept that the Ladder of Inference requires. Critical Thinking is an indispensable element in using the Ladder of Inference and is a necessary component of validating Mental Models in Reflective Research. Critical Thinking is part of a Reflective Researcher's ability to ask questions about alternative possibilities. According to the article, "A Theory of Critical Thinking" (n.d.):

Alternative possibilities are represented by mental models. A process of questioning mental models is (or should be) adopted because of its reliability for achieving the purposes of the participants within the available time (A Theory of Critical Thinking, para. 1)

Critical Thinking is used for a bias-free analysis of mental models. Critical Thinking Theory is multifaceted and multi-dimensional (A Theory of Critical Thinking, para. 2) and is crucial in avoiding bias in interpreting and analyzing mental models. Two prominent leaders in Critical Thinking point to the value of Critical Thinking and show that a person may take a stance, make a claim, or make an argument without necessarily being stuck on his or her biases. Robert Ennis (1987) sees Critical Thinking as "reasonable reflective thinking that is focused on deciding what to believe or do" (Ennis, p.10). Critical Thinking, probing, questioning one's mental models, beliefs, and assumptions, gathering facts from drawn inferences, identifying implications, and building a well-grounded frame of reference are crucial. Critical Thinking utilizes and fuses research on at least three topic categories, adapting knowledge drawn from various scholars or authors. This study fits the first category of Critical Thinking studies described in "A Theory of Critical Thinking" (n.d., p. 1) as the type that involves:

Theories of reasoning according to which people represent information about a problem or situation by means of mental models of alternative possibilities, evaluate the models in the light of relevant background knowledge, update the models by adding new information as it becomes available, revise models to resolve internal inconsistencies, and draw conclusions by inspecting the surviving possibilities (adapted from Johnson-Laird, 1983; Johnson-Laird & Byrne, 1991)

Refractive Thinking

Refractive Thinking encourages a bolder path for researchers and suggests an expanded approach to Critical and Reflective Thinking. Since this study is highly conceptual and attempts to theorize and examine the link between instruction and communication, the task requires a more analytical, critical, reflective, and refractive thinking approach, especially in analyzing personally developed Mental Models. Refractive Thinking paves the way toward taking in knowledge and processing ideas, thoughts, and information beyond the traditional boundaries of critical thinking and reflections. Authors like Prayitno, Subanji, and Muksar (2016), Maslukha, Lukito, and Ekawati (2018), Medeni & Medeni (2012), Pagano and Roselle (2006, 2009) consider refraction as transformative knowledge that confirms the use of critical thinking and problem-solving.

For Dr. Cheryl Lentz (2011), Refractive Thinking is about “moving beyond conventional thinking and wisdom to see the world not as it is, but as the world could be underlying the important forces and dynamics that are needed to create and sustain innovation and social change” (Abstract). The distinction between ‘*reflection*’ and ‘*refraction*’ is a feature of this study that makes it unique from other Reflective Research studies. *Reflection* mirrors the image of the object back. In the same manner, reflective research activities iterate the existing facts, ideas, and insights. *Refraction* goes beyond the level of reflection. Refraction shows the hidden or invisible colors of light. The addition of Refractive Thinking in this study framework allows for the projection of ideas, thoughts, and insights beyond what is already known or accepted knowledge or views.

Creative Thinking

Creative Thinking is as important as Critical Thinking, and the two work in complementary ways. They provide a check and balance for each other. Creative Thinking exerts efforts to develop new ideas, find innovative ways to do things or solve problems. In comparison, Critical Thinking evaluates the value or the validity of existing ideas or innovations. As noted in “Critical Thinking vs. Creative Thinking”

(n.d.) Creative Thinking is considered generative, more divergent, always seeking possibilities, and “accomplished by disregarding accepted principles.” Critical Thinking utilizes “accepted principles,” which are more “analytical” and “convergent,” and focuses on probabilities, not possibilities (p.1). The complementary functions of both Critical Thinking and Creative Thinking are emphasized by Laura Lucas (n.d.) as she notes that “Critical and Creative Thinking complement each other when it comes to problem-solving” (p. 11).

While Critical Thinking analyzes information and roots out the true nature and facets of problems, creative thinking drives progress toward solving these problems. Lucas also referred to what Dr. Andrew Robert Baker said about Creative Thinking and Critical Thinking, “*Exceptional creative thinkers are people that invent new solutions to existing problems that do not rely on past or current solutions.*” Creative Thinking is valuable in advancing the theory and model development in this study. A creative thinker does not allow barriers from rejections or oppositional views to block the flow of innovative ideas. Lucas (p. 11) argues that “novel unorthodox solutions that do not depend wholly on past or current solutions” are facilitated by Creative Thinking.

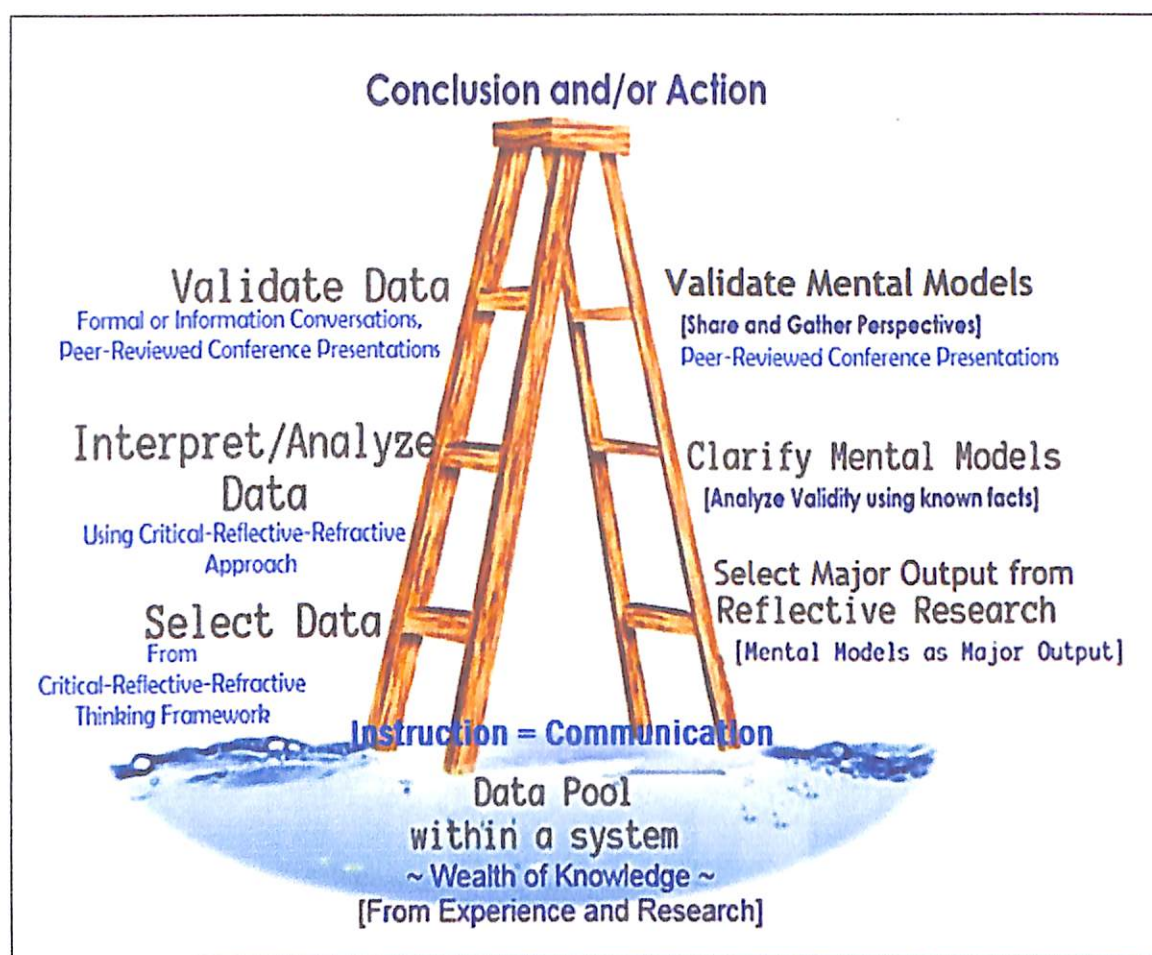
Creative Thinking is an essential part of this study. An aspect of thinking that is Creative Thinking, even in research, includes activities that involve the creation and use of mental models. In the third paragraph of McIntosh's (2010) conclusion for chapter four of his book, “Action Research and Reflective Practice,” he emphasized two extremely significant thoughts valuable to the use of mental models and creative thinking in this study. The author stated that:

...creativity would not exist if it were not for the capacity to imagine or visualise. For the purposes of research, it also relates to that which we experience, both internally and externally — both our inner and our material worlds in which we exist. (McIntosh, p. 110)

McIntosh (2010) argues for the value of creative thinking. Often Critical Thinking occurs after Creative Thinking has generated ideas to vet those ideas and determine their value. The valuable outputs, new ideas, and innovations from Creative Thinking are undoubtedly an integral part of Reflective Research and theory development and model building. McIntosh (2010) emphasized the importance of Creative Thinking and the outcomes of creative visualization for “purposes of research” (McIntosh, p. 110). Creative Thinking liberates the mind from the bondage of constraints and limitations. It transcends “...what appears to be the limitations of a problem” (Lucas, p. 1). With Creative Thinking, problems become opportunities. A Creative Thinker challenges his or her assumptions, does not make unfounded claims or judgments, and persistently works hard (Harris, 2016) to prove a point. Mumaw (2012) noted that Creative Thinking is an innate skill that facilitates new ideas, new inventions, new products, advanced methods, and solutions to problems. Most of all, in this study, the in facilitating the advancement of theory development and models.

The Conceptual and Operational Framework

Figure 5. Dual ladder of inference framework.



The Dual Ladder of Inference Framework (Figure 5 above) serves as a conceptual and operational study framework. The core foundation of the study framework hinges on Argyris' (1990) Ladder of Inference, as featured in Peter Senge's (1994) work. Rotman School of Management (2012) describes the Ladder of Inference as an integrative thinking tool that utilizes a pool of data accumulated from research, reflections, and experience. The Ladder of Inference's integrative feature in terms of thinking analysis best suits this study's theorizing and model-building aspects. This study framework features one ladder on the left-hand corner providing the conceptual framework and another ladder on the right-hand corner for the operational framework. At the bottom of the Ladder of Inference is a pool of data -- reality, belief, schema, and wealth of knowledge obtained from experiences and research. That reality is embodied in one's personal beliefs.

As illustrated in Figure 5 above, the study begins with the Researcher's perceived link between instruction (teaching-learning) and communication. The perceived link

is represented by schema, or propositional assertion, *Instruction = Communication* (developed from experience and reflective research). Using *critical-reflective-refractive* thinking, the Researcher selects the best data, analyzes the data, applies and tests assumptions, and develops a well-informed belief or conclusion. The five iterative (up and down the ladder) steps in the Dual Ladder of Inference Framework consist of the following:

Step 1: Selection of data. The selected data, presented as an integral part of this study (see Appendices A to J), consisted of mental models accumulated from years of instructional experience and reflective research. The selected data were examined, analyzed, and validated using feedback from peer-reviewed presentations, workshops, paper publications, and informal and formal conversations.

Step 2: Interpret and analyze data. This phase involved clarifying mental models by finding scholarly thoughts and theories or models applying critical, reflective, and refractive thinking. Interpretations of mental models were validated through colleagues' feedback and perspectives.

Step 3: Validate all personal assumptions. Validation and analysis consisted of informal discussions with colleagues and formal collaboration through peer-reviewed papers and presentations.

Step 5: Conclusion. The highly reflective, evaluative, and refractive thinking processes rendered the final step with thoroughness and caution in interpretations and analysis. *Instruction = Communication* is validated, and as a process produces learning (accumulation of knowledge and skills) schematized as *Instruction = Communication → Learning*.

The framework used for this study served as an efficient tool for theory and model building and an effective check against self-biases. The framework offers a systematic step in scrutinizing one's assumptions, personal schemas, or mental models formed from an individuals' data bank of experiences. "We don't see things as they are, we see them as we are," goes a quote from Anais Nin in "Mental Models" (2019, p. 8). The validation process followed the iterative (up and down) steps in the Dual Ladder of Inference Framework. The iterative steps in the analytical and reflective validation process helped avoid hasty conclusions and personal biases—two major "Dangers of Climbing the Ladder of Inference" (Gelinas & James, 2017). In this study, the interpreted wealth of knowledge from research and experience within the system's Data Pool that was the subject of analysis and validation is the propositional assertion, *Instruction = Communication*.

For its data analysis, this study utilized Mental Models that elucidate the process of instruction (teaching-learning) vis-à-vis communication and other supporting

concepts used in the validation process. The validation analysis included research of existing scholarly works and gathering viewpoints from peers, professionals, and experts regarding the schema, *Instruction = Communication*. The study also identified learning and communication theories and key indicators that link instruction and communication.

This Reflective Research used a bias-free study framework. The bias-free theorizing and reflective research have references to Schön's (1983, 2010), Moon's (2006) reflective learning and theory building (Moon, p. 45), and Wellington's (2016) (Stynes, Murphy, McNamara & O'Hara, 2018, p. 159). Mental representations and schemas represent beliefs or propositional assertions that must be validated without bias. Stynes, Murphy, McNamara & O'Hara (2018) developed a Reflection-On-Action Rubric that provides a self-appraisal framework.

The rubric consists of four elements "in a continual cyclical process" (Stynes, Murphy, McNamara & O'Hara, p. 163) that guided this Researcher to engage in analytical and reflective questions that put a check on personal biases. Self-reflective questions used as rubrics or criteria against self-bias included, but not limited to, what scholars, experts, peers, and other professionals say or think about the researcher's viewpoints? Do scholarly thoughts or theories support the Researcher's propositional assertions? Do repeated validation analyses reflect consistent results that validate the Researcher's assertions?

There is the validity of Data from self-reflections. Reflective thinking involves thinking processes aimed at developing judgments or conclusions about one's understanding, perceptions, perspectives, and beliefs formed from the world's experiences and an examination of one's views against existing facts and knowledge (Dewey, 1933). One's theoretical stance, beliefs, propositional assertions, schemas, assumptions, mental representations can be validated in various ways. One way is through examinations of beliefs and assertions using evidence from research. Another is the use of logic and reason, honest and ethical self-reflection. Using self-appraisal questions and observing the iterative validation steps within the study framework rendered a less biased, if not completely a bias-free study.

While it is true that there is always a tendency for bias within a person's assumptions and in the selection of data (Levene, 2016), the validation process using the steps in the Ladder of Inference effectively eliminates biases. Within the Ladder of Inference are potent ways of treating the dangers of personal biases and ensure fair and unbiased conclusions on the validity of schemas or mental models and propositional assertions.

Chapter II

REVIEW OF RELATED LITERATURE

Review of Meta Studies and Multifarious Sources

The information and knowledge from the literature review helped in directing the foci areas for research problems, questions, and study framework. The literature review provided a glimpse of the status and past accomplishments in Instructional Communication and revealed areas that need improvement. The main bulk of relevant literature is comprised of meta-studies in Instructional Communication from peer-reviewed journal articles. The literature review also included web materials and scholarly works relevant to establishing the need to pursue this study. There is an apparent need for theory and model development in Instructional Communication, as gleaned from the literature review. It was also apparent that there is a need to clarify the link between instruction and communication and a need to elucidate the process of instruction (teaching-learning). Based on the knowledge gaps uncovered in the literature review, this study explored how instruction and communication are linked, analyzed the instructional communication process, identified theories and key indicators linking instruction and communication. This study used the knowledge and insights gained from various sources relevant to the study's methodological approach, particularly materials that helped guide the direction of this study.

A Comprehensive Fifteen-year Meta-Study

The most recent meta-study is Nino Andre Conley and Kimo Ah Yun (2017). They analyzed articles in instructional communication published in the Communication Education Journal in the last fifteen years, from 2000 to 2016. The authors pointed out that past studies focused mostly on critical self-reflection and wide-ranging surveys that reveal the current state of research in Instructional Communication. The authors highlighted that "no comprehensive content analysis has been conducted in the area of instructional communication in over 15 years" (p. 452). Conley and Yun's comprehensive meta-study accentuated the field's lack of advancement, as the same types of studies were conducted for the past decades. To prove their point, the authors identified two extensive content analysis studies before their study as follows:

1. ***The work of Staton-Spicer & Wulff in 1984*** was the first comprehensive content analysis in Instructional Communication literature between 1974 and 1984. This meta-analysis examined a total of 186 studies from published works in the "Speech Communication Association (SCA; now NCA): Communication Education, Communication Monographs, Quarterly Journal of Speech, as well as the regional journals: Western Journal of Speech Communication, Southern Speech Communication Journal, Communication Quarterly, and the journals and yearbook of the ICA: Human Communication Research, Journal of Communication, and Communication Yearbook" Conley and Yun (pp. 452 - 453).

The authors found Staton-Spicer and Wulff's meta-study insightful, with "potential for disciplinary distinctiveness" and expectations on educators to be "communicators in the classroom." This first comprehensive literature analysis is said to have not given details of the methodology used for the content analysis.

2. ***Waldeck, Kearney, and Plax's work in 2001*** was the next study content analysis of Instructional Communication literature published in about 23 different journals between 1990 and 1999. The study used coding of literature content and topics, providing more distinct, more defined categories that included what dominant theories scholars used in research and how most Instructional Communication studies get published in Communication Education at 47%.

Findings showed no advancements in the field. In examining the previous studies for the last 15 years, Conley and Yun (p. 453) uncovered that scholars in the field had not made advancements in research areas. The scholarly undertakings in Instructional Communication revolved around examining the same variables, such as theory, methods, subject matters, examinations of the contributions, and influential factors that formed the body of research. Conley and Yun's findings revealed that a broad spectrum of research done by communication scholars focused on critical reflections on research conducted in the past. Most studies centered on "a wide range of theories, deriving most of its data from surveys administered to college students, and predominantly on refining and further exploring previous research topics in new contexts" (p. 451). Conley and Yun (p. 451- 452) identified these critical reflective studies as follows:

1. *Review of the history, development, and content of current and past research agendas (Eadie, 2009, 2011; Myers, 2008; Rubin, 2009)*

2. *Recommendations for future research* (Hunt, Wright, & Simonds, 2014; Morreale, Backlund, & Sparks, 2014; Witt, 2012)
3. *Examinations of methods and research topics* (Floyd, 2014; Hendrix & Wilson, 2014; Hess, 2015; Mazer & Graham, 2015)
4. *Critical reflections led scholars to a more vigorous and heuristic system of studies and gave a distinct identity to the field of discipline* (Kahl & Lederman, 2009; Nerone, 2006; Waldeck, Plax, & Kearney, 2010)
5. *Comprehensive analysis of instructional communication literature argued the significance of consistent and systematic scrutiny of its outcomes, impacts, and contributions* (Staton-Spicer & Wulff, 1984).
6. *Studies that examined and identified the potencies and shortcomings elucidated, contested, and offered recommendations "for future directions" were notable in the works of Sprague, 1992, 1993, 2002; Timmerman, 2009; Waldeck, Kearney, & Plax, 2001*
7. *Research that centered on the types of contributions and their usability, specifically "on issues pertaining to methods, theories, concepts, research focus, the type of research contributions, and the utility thereof" (Myers, 2010; Sprague, 1992, 1993; Timmerman, 2009)*
8. *Reflective studies, analytical reviews, methodology articles, and summaries noted as valuable to maximizing Instructional Communication's value: Hess, Smythe, & Communication 451, 2001; Hooker & Denker, 2014; Thweatt & Wrench, 2015*
9. *Self-analytical reviews about how researchers have created a space for discourse and collaborative endeavors to enhance the quality of Instructional Communication studies: Mazer & Graham, 2015; Sitzmann et al., 2010; Sprague, 1992*

The value of this study is established from Conley and Yun's meta-study.

The above findings highlight the absence and lack of theory development in the field, the stagnation in the field, thus highlighting the need, rationale, and importance of this study. As a meta-study on the scholarly works in Instructional Communication from the recent decade (2010 – 2016), Conley and Yun's meta-study provides highly relevant data and analysis on the development and progress in the field. Conley and Yun's meta-study alone proved the need for this study.

There is a need for new research pathways. Conley and Yun (p. 463) lament the opportunity costs incurred in repetitive studies noting that for a decade, Chesebro & McCroskey in 2001, Witt, Wheelless, & Allen in 2004, and Mazer, McKenna-Buchanan, Quinlan, & Titsworth in 2014 conducted the same communication immediacy studies. The results merely reaffirm that the lack of a teacher's communication immediacy is perceived negatively by students, and high immediacy is positively perceived. The need for new research pathways in Instructional Communication is obvious, and in the words of Conley and Yun (p. 463):

While such efforts of exploring core subject matters provide a thorough understanding of a concept in various contexts, there is a cost that should be considered: the opportunity cost of not pursuing new research endeavors that deviate from the common path.

Conley and Yun recommended that “*since communication is an inherent part of teaching and learning,*” Instructional Communication scholars should examine “if instructional communication research could bridge gaps, extend ideas, and explain communicative aspects of the phenomenon that is being investigated (p. 463). Such a recommendation is logical yet reflects the prevailing view that communication is part of the process of instruction (teaching-learning). Although considered indispensable, communication is regarded only as an essential part of the teaching-learning process (instruction). Examining how instruction transpires and identifying theories within its process will clarify how instruction and communication are linked.

The findings in this study can bridge the gap and open new pathways. With Conley and Yun's detailed analysis of the existing gap in the current literature, this study addresses the need to find new pathways for advancing the field of Instructional Communication. Instructional Communication can continue to advance its theory and model through a more clarified link between communication and instruction and a well-elucidated instructional communication process. This study offers new pathways that can help counter the field's stagnation.

In theorizing “about the instructional communication process,” Mottet, Richmond, McCroskey (2006) dedicated an entire Chapter 12 of their book, underscoring the essential elements of their theory development. The theorization comprised identifying what variables, constructs, and concepts must be included, how these variables, constructs, and concepts relate to each other, and why they are related. The authors noted that “Instructional communication researchers view the teaching-learning process as an inherent communication process. Stated another way, teaching and learning could not occur without communication” (p. 12).

There is 'an unclear' sense of recognition of instruction as communication.

There is an unclear recognition of communication, although certain definitions imply a communication process when defining instruction (teaching-learning). Referencing Preiss and Wheelles (2014a), Conley and Yun define Instructional Communication as an "area of research that investigates the communicative dynamics of teaching and learning relative to the exchange of meanings between, and among teachers and students, situated in any context or setting, about any subject matter, of any field" (p. 542). This definition is suggestive of communication being part of the instructional process. The teaching-learning process is highlighted but described or defined in ways suggestive of communication as its process. The sense of recognition of communication appears to be there with instruction as the distinct process, with some parts of that process having communicative dynamics.

In some works, communication is not fully recognized. To some theorists and scholars wanting to bring light to the teaching-learning process, communication is completely absent in their rhetoric but deciphered in their definitions or description of the process. For instance, Bunkers' (1999) definition of teaching-learning (as quoted below) describes a process of human communication. However, the definition is purely attributed to teaching-learning, and communication is not recognized in the definition. Bunkers' (p. 1) definition of the teaching-learning process goes:

From a human becoming perspective, teaching-learning is a process of engaging with others in coming to know. The teaching-learning process as a lived experience of engaging with others in coming to know involves the multidimensional processes of expanding imaginal margins, naming the new, going with content-process shifts, abiding with paradox, giving meaning, inviting dialogue, noticing the now, and growing story.

For Parse (2004), "Teaching-learning is a never-ending journey of giving-receiving in coming-to-know (p. 1). From this definition, teaching-learning happens every day for a lifetime, not necessarily within the confines of a classroom learning environment. Parse's definition equates to the communication process of sending-receiving messages or information even though communication is not recognized as the process taking place. For Abbatt and McMahon, "Teaching is helping other people to learn" (as quoted in Prozesky, 2014b, p. 30).

In some works, a hint of recognition of 'instruction as communication.' Prozesky (2000) emphasized 'the role of communication in teaching' and the importance of communication skills when teaching for improving teaching practices. The author underscored the link between instruction and communication by defining communication as follows:

What is 'communication'? According to the Concise Oxford Dictionary the word means 'the act of imparting, especially news', or 'the science and practice of transmitting information'. These definitions clearly show the link between 'teaching' and 'communication': teachers are constantly imparting new knowledge or transmitting information. (Prozesky, p. 44)

As shown above (and in most scholarly works), the link between instruction and communication is explained by defining communication, then linking the process with instruction. Such an attempt does not provide a sense of clarity but very suggestive of the intertwined link between communication and instruction (teaching-learning process). This study aims to do so. If teaching is defined as "transmission of information" and "communication is the science and practice of transmitting information," the process is the same. Despite their oneness in their process and definitions, communication is attributed as merely playing a role in instruction. This study aims to clarify and elucidate the process of instruction as communication using schemas or mental models.

There are untapped pathways for advancement in the field. Commonly seen in the previous scholarly works are pathways for advancement that remained untapped. In addition to the repetitive research topics, there are critical areas that are yet to be explored (i.e., the felt need for new directions to energize the field of Instructional Communication and to bridge the missing links). Conley and Yun's 2017 meta-study made it even more pressing to conduct this study. The strongest point raised is the need to discuss "communication" as an "inherent part of instruction" as they further emphasized that

Instructional communication could thereby make different types of contributions to the greater field of education. For instance, scholars could seek to bridge gaps between theory and praxis, investigate what type of instructional messages impact learning outcomes that are typically of interest to the field of psychology or sociology (e.g., cognitive processes or social learning dynamics), and explore how messages or mediums can be manipulated to increase desired outcomes. (p. 463)

Conley and Yun highlight the value of this undertaking. The above recommendations from Conley and Yun strengthen even more the value of this study. Expanding the value of Instructional Communication to Education and Psychology reaffirms the tripartite connection in Education, Communication, and Psychology. The quest to fill in the gaps between theoretical and applied all support

the importance of this study. Examination of instructional messages, which is a part of instruction, also means analyzing the instructional content. The analysis and implications reached in this study consider all teaching-learning elements from the planning and design phase (which include instructional materials that shape the vital messages plus considerations of medium or channel) to implementation, assessments, and evaluation.

There are signs of stagnation in the field. The meta-study of 456 scholarly works between 2000 and 2016 by Conley and Yun (2017) revealed that Instructional Communication studies focused on the same themes or areas of research since Instructional Communication's existence as a field. Conley and Yun (p. 463) lamented the opportunity costs incurred in repetitive studies, which they have found in their in-depth review of Instructional Communication studies in 16 years. The authors pointed out that studies in Instructional Communication have remained focused on the same themes and variables. For decades instructional communication studies revolved around the same themes: "affective learning, public speaking, teacher immediacy, cognitive learning, Pedagogy, communication competence, communication across the curriculum, teacher clarity, teacher credibility, and motivation" (p. 463). This study may pave the way for Instructional Communication to move past beyond the recurring themes and variables it has been using in the past decades.

As can be gleaned from Conley's and Yun's conclusion, none of these studies have elucidated the process of instruction (teaching-learning) vis-à-vis communication. This study takes a significant leap and deviates from the usual research themes carried out in the past. In 1977, Scott and Wheelles' work highlighted that the foci of concerns in Instructional Communication in the last decade were about helping students acquire effective communication skills and on pedagogical concerns. The authors also underscored the continuous efforts to look at the possible links between learning outcomes and instructional methods with communication. The authors noted that:

attempts to integrate human communication phenomena with theories of learning as well as on the relevancy of human communication phenomena to extant models of instructional design and to specify the impact of human communication on various measures of cognitive growth (p. 495).

For the past decades, the same foci of concerns have remained at the heart of Instructional Communication studies. In its introduction of the bibliographies in Instructional Communication, Myers (2017) noted that since its formal recognition by the International Communication Association as a field of study in 1972, Instructional

Communication studies covered topics which Conley and Yun lament as the same foci of studies as follows:

...instructor teaching strategies and preferences, student learning styles and orientations, instructor classroom management practices, instructor and student characteristics, and the development of communication relationships) not only influence how and why students interact with their instructors and their peers but also the ways in which students respond favorably to the learning environment. (Myers, p. 1).

There is a need to elucidate the instructional process. There must be clarity as to how the process of teaching-learning occurs. For decades, Instructional Communication scholars have investigated the interface between instruction and communication and the role that communication plays in instruction. The notion that prevails reflects the types of studies conducted in the field. The latest version of the “Handbook of Instructional Communication” (Houser and Hosek, 2018), praised for its wide-ranging compendium of theory and research, is described to have focused on the role and impacts of communication in teaching-learning environments. Does communication merely play a role in the teaching-learning process?

A Validation of Conley and Yun’s Analysis

Validation of the noted stagnation in the field proves evident in Scott Myers’ (2008, 2010) works that identified similar types of Instructional Communication studies for the past decades. Myers reviewed studies that analyze “the communicative factors in the teaching-learning process that occur across grade levels, instructional settings, and subject matter” (p. 156). Myers commended the authors for their studies and achievements that give uniqueness and prominence to Instructional Communication. Myers considered the “collective body of research” to be indicative that “the field of instructional communication has continued to maintain its verdant existence” (p. 156). Sixteen years after Myers’ (2010) meta-study, the semblances among Instructional Communication studies remained the same Conley and Yun (2017, p. 463).

For Conley and Yun, the field’s stagnation manifest. They suggest a more expanded and diversified way of studying instructional communication that uses a more “pragmatic approach to exploring communicative aspects of teaching and learning” (p. 463). They recommend observation studies documenting and analyzing the classroom’s communication dynamics (with theoretical groundings and methodology in Instructional Communication. This study is highly significant to such recommendation as the Instructional Communication model proposed in this study

can be an excellent tool for enhanced analysis of the classroom dynamics. The outcomes and recommendations of this study may counter the stagnation in Instructional Communication.

First off, an understanding of the process to attain freedom from stagnation. To counter the field's dormant state, Instructional Communication scholars must first elucidate the process of instruction. Before undertaking a process observation type of study, a clear understanding of instructional communication is vital. As a participant observing the process of instruction while at the same time reflecting on the experiences, this study genuinely revealed the instructional process as communication. The mental models as the data used to analyze, validate, and elucidate the instructional communication process are by-products of reflective observations of the actual learning situations (online and onsite). An understanding of the process of instructional communication is key to improving approaches to Instructional Communication studies.

And now is the time to take off. The Instructional Design Model offered as part of this study's significant outcomes could be valuable to bring Instructional Communication studies to a greater level. According to Conley and Yun (p. 460), of the 456 published scholarly works between 2000 and 2016, the same topics were studied. These studies included affective learning, public speaking, teacher immediacy, cognitive learning, Pedagogy, communication competence, communication across the curriculum, teacher clarity, teacher credibility, and motivation. Now is the time for newer and enhanced pathways and possibilities.

Progress in Terms of Scholarly Works in the Field

The history and definitions of Instructional Communication may also reveal the works accomplished in Instructional Communication. Since 1972, when the International Communication Association (ICA) created the Instructional Communication Division, Instructional Communication scholars found greater opportunities to present and publish their scholarly works in ICA's annual publication (as noted in Myers 2008, 2010). The field's history was rooted in education, and there some notable theorizing work done in the field.

A history rooted in communication education. Instructional Communication's history can be traced back "to the field of communication education, which focused on teaching traditional communication subjects such as interpersonal communication and public speaking" (Conley and Yun, p. 542). Its initial publication was issued in 1952 in the "Speech Teacher," one of the influential Communication Education journals by the National Communication Association (NCA; Morreale et al., 2014; as noted in Conley and Yun, p. 542). With such an increasing body of research in Instructional Communication, in 1978, the *Speech Teacher* became the *Journal of*

Instructional Communication, now known as *Communication Education*, noted Conley and Yun (referencing Brown, 2002; Hendrix & Wilson, 2014; and Morreale et al., 2014).

There were studies on predictors and measurements. A study on “predictors and correlates of teacher behaviors, student communication, classroom characteristics, and various learning outcomes” from the seminal work of Michael Scott and Lawrence Wheelless (1977); and “measurement and refinement of constructs such as communication apprehension, verbal and nonverbal immediacy, instructor clarity, confirmation, and credibility, affective and cognitive learning, power, teacher competence, communicator style, student satisfaction, interest, engagement, humor, student motivation, and classroom characteristics by James McCroskey.” (Mazer and Graham, 2015, p. 209).

There was a series of overviews in Instructional Communication. Wheelless and Hurt (1979) published a series of overviews of Instructional Communication in the three existing Yearbook volumes down the road and earlier on. The first of their three series reviewed studies related to Instructional Communication. Their second series focused on “*theory* relevant to the instructional communication process” (p. 525). Their third series examined practices in educational environments providing the foundations for utilization and recommendations for further studies. The third series covered the following major points:

1. “instructional strategies or methods are described and evaluated as instructional communication systems.”
2. Discussions on “(1) *traditional systems* including lecture, recitation, groups, laboratory, and independent study; (2) *mediated systems* including educational media and programmed teaching devices; and (3) *innovative systems* including experience-based learning, personalized system of instruction, and guided design.”
3. Description and evaluation of “instructional communication approach in terms of their interactive nature, instructional goals, developmental levels of students, students’ cognitive styles, efficiency, accuracy, and student satisfaction. (Wheelless and Hurt, 1979, p. 525)

McIlrath and Huitt explored five Instructional Models. “Models are great visual aids in understanding a process as models may highlight “the main ideas and variables in a process or a system” contend McIlrath and Huitt (1995, p. 1), whose work offers five models of instruction that illustrate the variables and the various instructional elements. They compared the instructional models that depict the interactions between the communication participants or actors (teacher and

learners). The reflection There must be a clear model that elucidates how the instructional process transpires.

There was work on theorizing. Mottet, Richmond, McCroskey (2006) theorize "about the instructional communication process" with a detailed chapter in their book. Their theorization comprises identifying what variables, constructs, and concepts must be included, how these variables, constructs, and concepts relate to each other, and why they are related. Mottet, Richmond, McCroskey (p. 12) echoed how scholars in the field view the teaching-learning process as "an inherent communication process," stating that it cannot occur without communication. The term 'inherent communication process' describes the process of instruction (teaching-learning) as communication and recognizes a view of the teaching-learning process occurring as communication. This view is noted as a view from Instructional Communication scholars.

There was a 2009 meta-study. Gayle, Preiss, Burrell, & Allen (2009) explored the crossroads on teaching-learning practices found among meta-studies (i.e., computer-mediated teaching, Critical Thinking, gender, nationalities, fairness or equity, teacher immediacy). Their study is a repeat of research and topics conducted between the 1980s and the 20th century. As opposed to what the title of their study suggests, "*Classroom Communication and Instructional Processes*," the authors made no specific focus on the process of instruction. Their work pinpointed the main concerns related to classroom communication to learning achievement, categorized broad domains of literature (teacher effectiveness, practices employed to enhance learning, and the impact of student-teacher interpersonal interactions), and examined empirical summaries on studies on oral communication practices.

There was a Meta-Study in 2015. Mazer and Graham's (2015) meta-study covered a whole range of variables that comprise communication elements. The areas covered in their analysis include almost all elements that depict the entire communication dynamics within the teaching-learning process. However, in their two-paragraph conclusion, the authors argued that "*Scholarly efforts do not operate or exist in isolation*" (p. 238). The authors believed that to have "*a more systematic research structure contributing to the corpus of instructional communication, it is vital to review parallel research efforts in other disciplines*" (p. 238), noting particularly that *Educational Psychology*

...offers instructional communication scholars an opportunity to explain, predict, and test the role of communication in teaching and learning in elegantly designed and controlled research studies. This can invigorate new areas of research, assist scholars in understanding how fragmented research programs interconnect and inform each other, and further our knowledge of measurement, communication, teaching, and learning (p. 238, bold italics added)

There was a bibliographical collection in 2017. Myer's introduction of the collection of scholarly works in the Oxford Bibliographies also reveals the same topics of Instructional Communication studies for decades as the author stated that:

Since its formal recognition as an area of academic study in 1972 by the International Communication Association, instructional communication researchers examine how several factors—such as instructor teaching strategies and preferences, student learning styles and orientations, instructor classroom management practices, instructor and student characteristics, and the development of communication relationships—not only influence how and why students interact with their instructors and their peers, but also the ways in which students respond favorably to the learning environment (Myers, 2017, Introduction)

Past and Recent Works That Reflect A Divided Stance

The notion or belief that 'communication is just an integral part of instruction' prevails as seen through past and present scholarly works, definitions, and study treatments on instruction. The discourse and language reveal a popular view of communication merely as part of the instructional process, emphasizing that communication plays a role in effective teaching. Most scholars and experts view communication as a component of the teaching process. While instruction (teaching-learning process) transpires as communication, most authors refer to communication as having a role in the instructional process.

Some past works present instruction as communication. Hurt, Scott, and McCroskey (1978) argued that "communication is the teaching process" (p. 112). The authors also argued that "a difference between knowing and teaching is communication in the classroom" (p. 3; as quoted in Lane, 2013). In 2006, McCroskey and co-authors stated that communication is inherent in instruction (teaching-learning), and without communication, instruction cannot occur.

Recent works highlight communication as playing a role in instruction. In 2018, Mottet, Richmond, and McCroskey published the second edition of their 2006 *Handbook of Instructional Communication* (edited by Houser and Hosek). The handbook aims to guide Instructional Communication researchers and help meet the challenges educators face in traditional and nontraditional settings, with resources and survey instruments for instructional assessments. The handbook is introduced as a compilation of theory and research on the role and impacts of communication in learning environments on topics in "social identity, technology, and civility and dissent" (p. 1).

In Scott Myer's (2017) introduction of scholarly works in Oxford Bibliographies, Instructional Communication is defined as a discipline that centers on the role of communication in the teaching-learning process. In Myers' words:

Instructional communication is a discipline that centers on the role that communication plays in the teaching-learning process independent of the type of student learner, the subject matter, or the instructional setting" (Introduction).

There is a difference between 'being an inherent part' and 'being it.' While it is more convenient to succumb to the more popular view ("Argumentum ad populum" or the "Fallacy of Popular Appeal"), this study stands its ground on the principle that a popular view may still be subject to scrutiny and validation. Thus, this study looked thoroughly into the process of instruction and can confidently assert clarity on instruction (teaching-learning) as communication reflected through an enhanced theory, definition, a general model, and a holistic model of instructional communication. The difference between the popular verbiage "an inherent part" or "communication plays an important role" and the view that "instruction is communication" must be addressed for clarity.

An invisible line dichotomizes the process. Nyquist, Wulff, and Abbott (1989) shared their view of "an active interface between communication and instruction" (p. 377) while acknowledging that some communication concepts permeate into the whole "instructional development" and their organizational endeavors. In explaining the course on Instructional Communication, Derek Lane (2013) states that "Instructional communication (IC) focuses explicitly on ***the interface between communication and instruction***" (para. 1, bold italics added). These views present a dichotomy rather than an interweaved or interlinked process. Instruction as communication is not perceived. Communication is seen as either working within instruction, or interfacing with, or as part of instruction.

The phrase "the interface between communication and instruction" speaks of a dichotomy between communication and instruction as a process. Stanton's (1989) article also suggests an "interface of communication and instruction" (p. 364). It underscored the distinction between the purposes and aims of "communication education and instructional communication" (p. 364) and explained how the then-graduate program in speech communication at the University of Washington represents the interface (crossing point) between communication and instruction. This notion speaks of two things or two systems interacting (interfacing) with each other.

An unnecessary dichotomy exists. Instructional Scholars mostly refer to the role of communication in the instructional process. For instance, Sprague (1992)

contends that Instructional Communication should be studied in an applied context from the interpersonal communication or mass communication perspective to investigate the role of communication in instruction (of any subjects at all levels). These studies entail looking at *teacher-learners characteristics vis-a-vis clarity and immediacy, students' characteristics, learning styles, instructional methods, pedagogy, communication, and student-teacher relationships*. While these variables are all contained within the instructional communication process, a sense of disconnect and an invisible dividing line is apparent. The view that prevails is that communication merely plays a role in the process of instruction. Most instructional models depict communication as part of a teaching process and not as a communication process in its entirety.

Knowledge of identity is a strength. Knowing and understanding its own identity as a field begins with recognizing its true nature as a process. Most Instructional Communication scholars view the teaching-learning process where communication performs a function within that process. Analytical reflections from experience contradict this view, which is why this researcher pursued this study. If Instructional Communication scholars cannot see the interweaved link between instruction and communication, it will continue to thread on a narrow path. A path that constricts communication as merely taking part (performing a role) in the process of instruction. It is time that scholars from Communication and Education take an in-depth analysis of the instructional communication process. A common understanding of how instruction occurs as communication shall enhance the long-standing scholarship tradition of Instructional Communication.

Instructional Design: An Overlook Variable

Another valuable insight from the literature review is the importance of Instructional Design or instructional plan – an overlooked variable in Instructional Communication endeavors. The instructional design process for a highly impactful, relevant, and productive instruction replicates highly purposeful communication planning and designing. Prozesky (pp. 44-45) recognizes instructional materials as written communication, evident by a section on communication handouts that outlines criteria for its effectiveness in content, layout, and writing style. The author also emphasized the importance of verbal and non-verbal communication skills in teaching. Again, just like most scholars who studied instructional communication, Prozesky also presented the basic S-M-C-R Model of Communication with feedback as an important component of improving teaching skills. The instructional communication process must be viewed holistically, from its planning or design stage to implementation, assessments, and evaluation. Instructional Communication studies have overlooked the importance of Instructional Design or instructional plan as a variable.

Design matters and is part of the whole process. Instructional Design impacts the effectiveness of instruction (teaching-learning process). Effective teaching and effective learning do not only depend on the dynamic method of student-teacher interaction. The instructional plan and design (i.e., the course syllabus and sequencing of course modules), the instructional materials, and learning activities impact the learning outcomes, be it in a face-to-face learning environment or online. The outcomes of the instructional process are highly dependent on instructional design.

Isman, Dabaj, Altinay, & Altinay (2003) conducted a comprehensive study using a triangulation approach to use a field experiment on a sample of secondary learners. They then used surveys and interviews on another sample group of secondary schoolers. Their study analyzed the effects of instructional design on the quality of learning, and they concluded that learning outcomes are products of effective and efficient instructional design. A major part of their study explored the hypothesis developed by Branch (1992) on the correlation of planning learning activities in the instructional design to impact learning outcomes.

As part of the instructional design, well-aligned learning activities enhance the possibilities of achieving the desired learning outcomes. The planning or design phase is part of the entire instructional communication process. As the basis for their triangulated study, Isman, Dabaj, Altinay, & Altinay reviewed a vast body of literature on the instructional design process, where they examined the “elements of an instructional unit that provide for the preparation, delivery, and evaluation of instruction” (p. 9). They found that most of the studies suggest the importance of instructional design in delivering or implementing instruction.

The success or failure in instruction may lie in instructional design. Richey (1996) explored Richard Gagne’s instructional design model that emphasizes learning activities as vital elements of systematic design and strategic implementation of instruction. Martin (1998) argued that the failure or success of learning should not be solely blamed on learners. The instructional design could also be a factor in teaching-learning success. Baylor (1998) proposed an instructional design strategy that considers input from novice learners. Tessmer and Wedman (1992) found that instructional activities are not part of most instructional designs. Merrill and Li (1988) studied the prototype of an Instructional Design Expert (ID Expert) that uses the following phases: 1) “problem identification”; 2) “conceptualization”; 3) “formalization”; 4) “implementation”; and 5) “testing.”

Instructional Design impacts the instructional communication process. Impactful learning results from a well-designed course and useful course materials. The lack of alignment in Instructional Design (ID) presents one of the biggest challenges in instruction. Alignment of objectives, learning materials, and activities, formative and summative assessment tools are essential in facilitating the efficient and effective instructional process. The extensive literature review on instructional

design conducted by Isman, Dabaj, Altinay, & Altinay in 2003 provides excellent enlightenment to examining instruction from its conceptualization, design, or planning stage to the implementation and evaluation stage.

Conole (2013) probed how learning effectiveness can be an outcome of how instruction has been designed. Conole stressed that human learning depends on Instructional Design, how learning conditions were prepared, and how instructional techniques and instruments are developed based on experimental studies. The author also emphasized feedback where educational technology, audiovisual systems, and teaching machines are being utilized. When analyzing the impacts of instructional communication, the design or instructional plan must be taken into consideration.

Instructional Design helps reduce noise or barriers to learning. Noise or barriers to learning does not only consist of physical or natural sounds but includes Psychological factors. Identifying noise or barriers to learning within the classroom is ensured within the design and planning phase. A well-planned and well-designed instruction can also mean effective instructional materials and communication messages that pave the way for effective implementation and effective instructional communication. Since the teaching-learning process can be affected by conditions wherein learning is conducted, by the strategies and tools, by the feedback mechanism, by the educational technology used, by the audio-visual systems or materials, all these are part of the instructional design considerations.

Cybernetics and noise reduction are part of the design process. Reducing noise or barriers to learning is one of the essential functions of instructional design. Noise reduction from the perspective of this study focuses on qualitative means of reducing barriers to learning. In instructional design, the concern is more qualitative and not mathematical. Weiner's (1961) work on Cybernetics was inspired by wartime efforts to develop 'mechanical control systems.' The filtering method to remove undesirable or unnecessary interference is significant to any human communication process. Removing unwanted noise to reach the communication goals effectively certainly applies to the instructional communication process. Weiner's "use of filtering to remove unwanted information to reach the communication goals effectively can apply to the teaching and learning process, although not in mathematical terms within a machine.

A poorly designed syllabus can be 'noise.' Another noise or barrier to learning is the instructional design's lack of alignment in a poorly designed course syllabus. Aside from just merely challenging, this can result in making students less interested or less motivated. A course material communicates big messages to learners. An overwhelming course material reflects a poorly crafted communication message for learners (online or on-site). The impacts of this barrage of noise hinder the efficacy expected from a learning environment.

Feedback can just be noise. The tone and quality of feedback can take on the form of “noise” and can impact how learners understand or misunderstand ideas, react, learn to be confused in the process. Abramenska (2015), who cites the work of Cho and Rathbun (2013), Stansfield, McLellan, and Connolly (2004), noted that noise in the communication system might readily come from the instructor himself or herself. Nimrod Delante (2017) finds that feedback can be noise if learners cannot comprehend the feedback or if learners feel discouraged by the corrective tone in the feedback). The author used the reflection-on-action (ROA) framework, anchored on Schon’s (1983), and utilized a thematic analysis of written feedback. Delante’s work suggests that context, culture, and personality characteristics can be key factors influencing the way instructors provide feedback to students. On the other hand, the student’s cultural background and level of English language proficiency, the learning context, and personal values may impact the way learners may receive and perceive the message from the feedback. The instructor’s feedback messages are instrumental in creating, reducing, or even eradicating the noise emanating from conversations in the online teaching and learning environment.

Noise may reduce learners’ motivation. A great takeaway from the author’s work is that feedback may reduce motivation if not crafted well and become noise. This set of feedback information reflects another communication element present within the process of instruction. A critical insight can be ruled out: feedback can be mere noise if not crafted expertly and delivered with utmost care and sensitivity. Regardless of the type of feedback, be it instructive, suggestive, probing type, expressed opinion, corrective, affirming, or negating, the bottom line is that feedback is a crucial communication element that must be well-crafted. Otherwise, feedback can just be another noise in the instructional communication process. Overall, Delante’s work addressed the need for thorough classroom dynamics observations within the instructional communication process.

Meta-study suggests more work for quality outcomes. A “state-of-the-art” and comprehensive meta-study by John Hattie (2009) solidifies the need to analyze classroom communication dynamics and their effectiveness. Hattie’s 2009 study synthesizes over eight hundred meta-studies in 15 years of research, analyzing what works best for schools. The author emphasizes the need for increasing student engagement to increase human potentials, abilities, and skills. In 2012, Hattie published his work on “Visible Learning for Teachers,” which embodies the results of his 15 years of study on effects (learning outcomes) involving more than 80,000,000 students and 140,000 effects. The book presents an amalgamation of over 800 hundred meta-studies and 50,000 studies on “what factors effectively impact student learning. Hattie’s work is a vital part of teachers’ professional development in many countries and a groundbreaking meta-study.

Hattie’s work synthesized 800 meta-studies related to student achievements, where one hundred influences were identified to have either positive or negative

effects on learning outcomes. The focus of the meta-study was to identify “what works best for students’ achievements?” Those studies have a great emphasis “on teaching strategies, computer-assisted instruction, prior learning achievement, and gender” (Visible Learning.org, 2014). One major conclusion of Hattie’s meta-study is the need to improve instruction to attain meaningful learning outcomes in the teaching and learning process. Even with this huge meta-study of 800 meta-studies, the function of Instructional Design may not have been given good consideration.

Meaningful learning outcomes are a product of design. Instructional Design as a key variable is an area that Instructional Communication scholars have less explored in their works. As can be gleaned from many educational endeavors, scholarly thoughts, and studies, the most crucial concern or goal of instruction is achieving meaningful and relevant learning outcomes. Thus, planning, strategic creation of course materials and learning activities, effective crafting of instructional content, and designing formative and summative assessment tools are necessary for effective instruction.

Concluding Thoughts on the Literature Review

The literature review helped establish the need to elucidate and clarify the link between instruction and communication by analyzing how the instructional process occurs by examining the theories and identifying the key indicators of the link between instruction and communication. Thus far, studies had focused on the “communicative factors” in the teaching-learning process (such as the learners, the instructor, the exchanges of meanings) across grade levels, various instructional settings (e.g., the classroom, the organization), and across subject matters (Friedrich, 1989; Staton, 1989). There is not one holistic Instructional Communication Model that elucidates the process of Instruction. In Mottet, Richmond, and McCroskey’s “Handbook of Instructional Communication,” the authors illustrated a model of Instructional Communication as Mutual Influence (2016). They identified three Instructional Communication Models reflecting *Communication as Action*, *Communication as Interaction*, and *Communication as a Transaction*. Each of these three models offers bits and pieces of a puzzle.

So many studies are not the sole indicator of progressiveness. Instructional Communication indeed remains to be a verdant field characterized by so many activities and studies. However, Mazer and Graham (2015) opined that while they find that Instructional Communication used methodological and sophisticated means of measurement, the field is still “struggling with important practical and conceptual issues” (p. 238). Stagnation indeed is apparent from the lack of a unified stance, from the lack of a consistent view of the process of instructional communication. Despite so many studies, Instructional Communication has not advanced the field.

Decades spent in the same direction, looking at the role of communication. Instructional Communication studies “focus on the role of communication in all

teaching and training contexts, not just the teaching of communication” (McCroskey and McCroskey, 2006, p. 35 as cited in Myers, p. 149). The works of Newcomb & Allen (1974), Preiss and Wheeless (2014), and that of Richmond and Frymier (2010) were known to have steered the founding of the Instructional Communication Division of the International Communication Association. While focusing first on teaching communication, Instructional Communication shifted to investigating the role of communication in the teaching-learning process. However, Instructional Communication scholarships have sailed on the same path (Conley and Yun, 2017).

Decades of the same variables are signs of stagnation. Based on its historical past, Instructional Communication has steered the same course. Conley and Yun's 2017 comprehensive content analysis (pp. 452-453) on literature published between 2000 and 2016 reveals that the same variables in the past decades remain the focal point of interest in Instructional Communication studies. Conley and Yun (pp. 452-453) opined that up to this date, the field of Instructional Communication stagnates and has dealt with reviews on the same variables.

Evidence of stagnation is seen through the collection of works. Conley and Yun's analysis may apply well to Oxford's Bibliographies' Instructional Communication studies (Myers, 2017). Studies investigate the same variables. These variables include teacher-student characteristics, relationships between and among teachers and students, gender, communication immediacy, clarity, power relations, empowerment, teaching methods, learning styles, socialization factors, teacher and student misbehaviors, evaluations, assessing learning, humor, roles, metaphors, teaching strategies, speech criticism, student evaluation, speech content, and speech communication program.

ID software underscores the importance of Instructional Design. Due to the high importance of Instructional Design (ID) alignment, some experts have diligently developed ID software that helps align all instructional design elements. Dedicated to the mission of ensuring alignment in instructional design or plan, Elsherbiny and Cennamo (2019) developed an Automated Course Alignment Tool. The Course Alignment Software helps check the alignment of learning objectives, content or materials, learning activities, and assessment tools of a given course. Elsherbiny and Cennamo (p. 1) assert that the task of creating a well-aligned course design or plan could be “laborious and time-consuming, and requires knowledge of the alignment model.” However, with the ID software, the tasks of designing a course will be less challenging.

Russell and Pirolli (1992) created a computer-aided design (CAD) system for instruction known as “Instructional Design Environment (IDE).” A consulting team composed of “successful instructors in business education, cognitive scientists, workers in teacher education, and the IDE development team” was formed to take part in the study that “was grounded in cognitive science research and is called example-based minimalist design (EBMD),” (Isman, Dabaj, Altinay, & Altinay, 2003, p. 8). Matthew Prineas and Marie Cini (2011) noted how technology help in improving instruction and in achieve learning goals and better learning outcomes.

Chapter III

METHODOLOGY

Research Methods and Design

The Design

This study is highly descriptive and qualitative, built upon a Reflective Research Methodology integrated with an innovative approach towards theory and model building from a constructivist perspective. This study was inspired by Kolb (1985), Gibbs (1988), Dewey (1933), Schön (1983), as referenced and used in the works of Richard Millwood (2014) and that of Stynes, Murphy, McNamara & O'Hara (2018), and Boyer's (1990; 1996) Reflective Research scholarships. The study framework followed the Dual Ladder of Inference steps, a modified version of Argyris' (1990) Ladder of Inference.

Reflective Research Methodology. Through the Reflective Research Method, practitioners examine their professional activities, approaches, methodologies, beliefs, assumptions, theories, and practices for continuous improvements. These improvements extend to the individual and the professional or scientific community where the individual belongs. Alvesson & Sköldberg (2000) regard Reflective Research as a valuable tool that allows individuals to assess their beliefs, assumptions, and performances by analyzing and counter-checking their perspectives with others. Thomas Groenewald (2010) noted that Reflective Research entails "...researching and paying much attention to own theoretical suppositions about practices" (p. 1).

Giving reference to the thoughts of Alvesson & Sköldber, Groenewald highlighted the essential features of Reflective Research to include: "*careful interpretation and reflection* " (Alvesson & Sköldberg, p. 5); reflections aimed at amplifying consciousness of one's theoretical assumptions and a deeper understanding of one's thinking. It is also a systematic reflection on numerous levels—an "*interpretation of interpretation*" (Alvesson & Sköldberg, p. 6) that involves the "(re)construction of reality in which practitioners perform, critically interpreting, and reflecting." The Researcher ponders upon "the prevailing conditions" and how the "underlying theory, cultural values, and political perspectives" affect interactions or communication. Reflective Research is a challenging quest requiring contemplation on one's underlying postulates or assumptions (Groenewald, p. 1).

This study is not the first to use this type of Reflective Research. Millwood utilized his Instructional Designs, which he considers expressions of ideas that require examinations and evaluation, "using technology to consider how they support either, expression, or evaluation." Millwood subscribes to Von Glaserfeld's notion of "Knowledge as mental representation" (p. 51), which strongly suggests that mental models or schemas are a valuable part of evolving knowledge in any field of study if validated. This study's use of schemas or mental models as data is highly like Millwood's use of Mental Representations, which are developed from one's knowledge and interpretations of observed reality from experiences and knowledge found in the existing literature. Millwood also used discussions with colleagues and peer-reviewed conference presentations to validate his mental representations or designs. Millwood submits to the idea of validating one's mental expressions through instructional designs (in this study, the schemas or mental models). Thinking errors and faulty assumptions can hinder a truthful analysis of one's thoughts, ideas, and beliefs. The sincere efforts to counter personal biases in Reflective Research resulted in rich data. Peer-reviewed presentations and discussions, conversations with peers, colleagues form part of data gathering and validation analysis. The validation analysis also included a thorough review of existing scholarly works and thoughts, examinations of learning theories, and communication theories. The popular view runs contrary to the propositional assertion in this study. Thus, the iterative validation steps within the study framework were a perfect fit for the Reflective Research Methodology.

Reflective. Critical. Discursive. Reflective Research practice engages one to make reflections on action for continuous learning. The process entails thoughtful observations and analysis of one's actions and the theories and values that guide and inform one's practices. Reflections on actions are an approach that encompasses the application of critical and reflexive evaluations of the values and theories that guide individuals in the practice of their profession. Quoting Somekh & Zeichner (2009), Millwood (2014) highlighted the discursive power of reflective action research. "In generating research knowledge and improving social action at the same time, action research challenges the normative values of two distinct ways of being – that of the scholar and the activist" (Somekh & Zeichner, p. 5, as quoted in Millwood, chap. 3).

Descriptive Research. As a qualitative study that utilized a reflective methodological approach, this study qualifies as descriptive research. According to Dulock (1993), it is the type of research that aims to give precise descriptions and characteristics of a specific condition or group to uncover new definitions or meanings, provide explanations of what exists and how events occur. Descriptive research uses observation, descriptions, and documentation of certain "aspects of a situation as it naturally occurs" (Dulock, p. 154). The author further noted that the fundamental foundation of descriptive research is the precise or methodical account or explanation of "something" or "someone" and is the cornerstone of this research design.

This study followed a disciplined Reflective research method. Given this study's highly conceptual or theoretical nature, the reflective methodological approach followed a disciplined inquiry, akin to Richard Millwood's (2014) study. Millwood (chap. 3) used his collections of works in Educational Design as data for his dissertation. In this study, the teaching-learning process has been systematically reviewed, analyzed, and elucidated using mental models or schemas to provide an accurate description of its process. This study also clarified the link between instruction and communication by identifying theories and key indicators that link instruction and communication. This study drew generalizations from observations (inductive method) about how instruction transpires, what theories are operant in the teaching-learning process, and the key indicators of the link between instruction and communication.

The ethical practice was seriously considered. The Researcher's bias is a critical concern in utilizing data from reflective research methodology. However, the study framework adapted from Argyris' Ladder of Inference has a built-in mechanism that applies bias elimination (Stynes, Murphy, McNamara & O'Hara, 2018). Two major questions were used to help in a bias-free validation analysis of mental models in this study:

1. Are the Researcher's world views and interpretations of experiences validated, supported with logical or factual reasoning based on existing literature?
2. Are the Researcher's propositional assertions, schemas, or mental models crossed-examined and supported by others' perspectives? What do others think of the researcher's worldviews?

The Data

The data presented and analyzed in this study are collections of mental models developed as valuable outcomes of the yearly Reflective Action Research, many of which had been part of peer-reviewed presentations and paper publications. The data provides the visual constructs or models drawn from the yearly summary of the analytical, critical, reflective thinking, and metacognitive (thinking about thinking) processes that this Researcher engaged in. The data consisted of a collection of mental models (schemas) created from years of reflective research practice. The data in this study were created from constant reflections, critical evaluations, and refractive thinking on instruction as practiced and experienced throughout the years were subjective to systematic validation through the Dual Ladder of Inference as the study framework. The collections of reflective research output are made an integral part of this study. The reflective research data are annexed as Appendix A to Appendix J.

The Scope of Study

Through a qualitative approach, this study focused on the Reflective and Descriptive Research data from 2002 to 2020 concerning instruction vis-à-vis the process of communication, utilizing selected mental models or schemas. The selected and highly relevant mental models or schemas came from Faculty Scholarship activities. Boyer's (1990) Model of Scholarship gives credence to the well-rounded scholarly nature of teaching and how the profession enables faculty or educators to contribute to multiple means to their respective fields or areas of the discipline. Through constant reflections on the teaching-learning activities, schemas and mental models were formed and used as data for analysis or validation.

Logical and factual information for scholarly sources was used to validate assertions or schemas (mental models) used as data in this study. Research and collaborative dialogues (formal and informal) with colleagues or practitioners formed part of the process. The feedback received, including negations, criticisms, inquisitions, and acceptance of the concepts, strengthened the pursuit of clarifying and elucidating the necessary concepts for this study. The informal dialogues consisted of conversations with colleagues, and the formal dialogues are those discussions during the peer-reviewed presentations and workshops at conferences.

Method of Analysis

This study analyzed and validated schemas or mental models used as data to clarify the link between instruction and communication through the Reflective Research process. Guided by the iterative steps in the Dual Ladder of Inference Framework patterned after Argyris' Ladder of Inference, the schemas or mental models were analyzed and validated. The process of instruction as communication was elucidated using the schemas or mental models. The link between instruction and communication was further ascertained by identifying learning and communication theories operant in instruction and the key indicators that link the two.

The validation process (as previously used in Millwood's 2014 study) included collaborative research activities such as seeking ideas from colleagues in the profession through research, conversations, discussions, forums, peer-review workshops, papers, and presentations. The validation process also included reviewing conceptual thoughts associated or generated within the mental model vis-à-vis data from existing literature, collaborative actions – discussions with colleagues and other professions, gathering feedback, and presenting the models through presentations and workshops. The data analysis of schemas or Mental Models used systematic evaluations using a multiple loop process or an up and down the ladder approach, as indicated in Fig. 5: Conceptual Framework: A Dual Ladder of Inference.

Ontology and Epistemology

The ontology or the type of knowledge that a study seeks to know impacts "...the choice of research methods via epistemology, research approach, research strategy, and methods of data collection and data analysis (Ontology-Research- Methodology, n.d., p. 1). According to Jonassen (2006), ontologies have something to do with *describing things and their relationships to answer the question, "What is it?"* For this study's ontology, the linkage between instruction and communication, the theories, and key indicators of such linkage were identified and clarified.

Ontologies indeed reveal the "types of epistemological knowledge" (Bryman, p. 1), which could be "procedural, situational, and strategic knowledge based on how processes are performed" (Jonassen, p. 1). They may also include "phenomenological knowledge types (tacit, compiled, socio-cultural, and experiential knowledge) based on human experiences" (p. 1). Quoting Littlejohn and Foss (2008, p. 17), Vlăduțescu pointed out that "...In communication, ontology focuses on the nature of human social interaction because the way a theorist conceptualizes interaction depends in large measure on how the communicator is viewed" (p. 20). In this study, the focus was on the process of instructional communication. By elucidating how the process of instruction (teaching-learning) occurs, the elements, the relationships, the categorizations, definitions, clarifications of concepts, the structures are also clarified. An enhanced ontological view, theory, and model of Instructional Communication spell out this study's success.

On the other hand, Epistemology has something to do with the methodological approach or how to attain knowledge. This study's methodological approach offers valuable insights relevant to Bryman's and Bell's (2011) considerations on epistemological assumptions focusing on 'what is or what should 'be regarded as acceptable' knowledge in a field discipline. This study's epistemology considered the type of relationship between the Researcher investigating the knowledge and the knowledge or the ways of knowing (Allison and Hobbs, 2006). With Reflective Research, bias is a big issue to reckon with, which this study addressed well within its study framework. The schemas or mental models and propositional assertions were well-examined and validated rigorously using the multi-loop analyzes.

This study's epistemological and ontological values go in tandem. Epistemology and ontology always go in tandem (Littlejohn and Foss, 2008 as cited in Vlăduțescu, 2014). Elucidating and identifying the elements within the process of instructional communication has ontological value. Schematizing, developing a model and theory contribute to the ontology of the field. The methodological approach and the study framework may help strengthen the research methods in Instructional Communication; thus, it speaks of its epistemological value.

Key Terms in this Study

Every study carries with it a unique character and voice. Important terms referring to a field of study, a theory, or a model are treated as proper nouns to distinguish their prominence and prime importance in this study, such as in the following instances:

1. If used to refer to the field of Communication, the term shall be written with the first letter of the word in upper case to differentiate it from the informal noun to be written as: 'communication.'
2. Instructional Communication refers to the field as distinguished from the informal noun 'instructional communication' within the sentence (unless written at the start of a sentence requiring capitalization).
3. Fields of science or areas of expertise such as Instructional Design, Education, Psychology, Physics, and the like take the proper form of nouns in this study.
4. Theories, Models, Approaches may be treated as proper nouns in this study (i.e., Mental Models Theory, Universal Design for Learning or UDL, Berlo's Communication Theory, Cybernetics, Convergence Theory, Pedagogy, Andragogy, among other terms).
5. The terms propositional assertions or beliefs, schemas, and mental models are synonymous.
6. Instruction is interchangeably used with the term teaching-learning process and may be referred to simply as instructional communication.
7. The use of the equals (=) within the schema, Instruction = Communication, is not intended to express equivalencies of meanings between the two terms. The = sign is used to express a propositional assertion that the process of instruction is communication.
8. Instructors may also refer to Professors or Educators.
9. Validations refer to steps taken to validate mental models or schemas through discussions, presentations, consultations with peers and colleagues, as well as peer-reviewed presentations, workshops, and publication of work.
10. The Dual Ladder of Inference refers to the Study Framework adapted from Argyris' Ladder of Inference.

Chapter IV

DISCUSSION AND ANALYSIS

The discussion and analysis of data follow the descriptive-analysis-synthesis model (Bloomberg & Volpe, 2019). The 'findings' section is essentially the description part of the Discussion and Analysis. This chapter describes the data, analyzes, and summarizes the findings and analysis. Consistent with the descriptive-analysis-synthesis model, this chapter presents and describes the selected data (see Appendixes A to J) to analyze and validate the link between instruction and communication, to elucidate the teaching-learning process, the theories, and key indicators of the link between instruction and communication. The selected mental models or schemas are presented in chronological order within a two-column table or matrix format and are an integral part of this study.

As discussed in the Methodology section, all propositional assertions or personal beliefs and assumptions of this researcher were validated through formal (peer-review scholarly activities) or informal (discussions with peers and colleagues). The Researcher's personal views, assumptions, and beliefs were examined, analyzed, and validated through research, which consisted of gathering information from existing scholarly works relevant to the study and collecting feedback from experts and colleagues in the field.

All assumptions and interpretations of mental models were crossed-examined against existing concepts, assumptions, theories, or models from the published scholarly works. Conversations with colleagues, peers, comments from peer-reviewed presentations, and research papers were also avenues of gathering experts' feedback. The Ladder of Inference's highest step (top of the ladder) is where the study's concluding action rests. This study's major outcome affirms the initial theoretical assertion, *Instruction = Communication*, resulting in an enhanced theoretical stance that instruction is communication that results in learning, schematized as *Instruction = Communication → Learning*.

FINDINGS and ANALYSIS

The attained objectives of this study guide the discussion of findings and analysis. The analysis used a reiterative approach to validate how instruction and communication are linked, elucidate how the instructional process transpires, identify theories, and synthesize key indicators of the link between instruction and communication. The analysis includes examining whether the data in this study corresponds, agrees, contradicts, or deepens knowledge discovery and enriches the existing literature body.

Achieved Objectives

The Dual Ladder of Inference proved valuable in meeting both the general and specific objectives of the study. This study certainly attained its goal of knowing and understanding the link between instruction and communication through the following:

1. Elucidation of how the process of instruction (teaching-learning) transpires;
2. Identification of communion theories and learning theories conjointly or synergistically operant within the instructional communication process; and,
3. Summation of the key indicators that show the link between instruction and communication

The Framework works as a Systems Thinking approach. The Dual Ladder of Inference Framework that employs an iterative Systems Thinking approach supported the methodological Reflective Research process and helped arrive at a well-informed and impartial validation analysis. The study framework's efficacy shows evidently in this study's epistemological values. Schematizing or using mental models as data effectively helped in achieving the study objectives. The findings have ontological values that can enrich the discourse and widen the research scope in Instructional Communication. The theoretical groundings proved fit for the study. The Ladder of Inference, Mental Models, Critical Thinking, Creative, and Refractive Thinking theories strengthened the Reflective Research Methodology. The Dual Ladder of Inference Framework as a Systems Thinking approach proved to be a valuable framework for schematizing and theorizing the link between instruction and communication. The initial schema, '**Instruction = Communication**,' was developed into an enhanced general model that theorizes instruction as communication that results in learning, schematized as '**Instruction = Communication → Learning**.'

Objective 1: Elucidating the Process of Instruction

The schematizations (Figures 6, 7, 8, and 9) elucidate the process of instruction and shows the intertwined link between instruction and communication. Instruction (teaching-learning) transpires as a communication process within the context of a learning environment. Repeated and continuous analytical reflections on the teaching-learning process clarified that a classroom develops into a system with its culture and norms (resulting from the communication process). The teaching-learning process models (Figures 6, 7, 8, and 9) are cybernetic-based and depict the communication elements and their process.

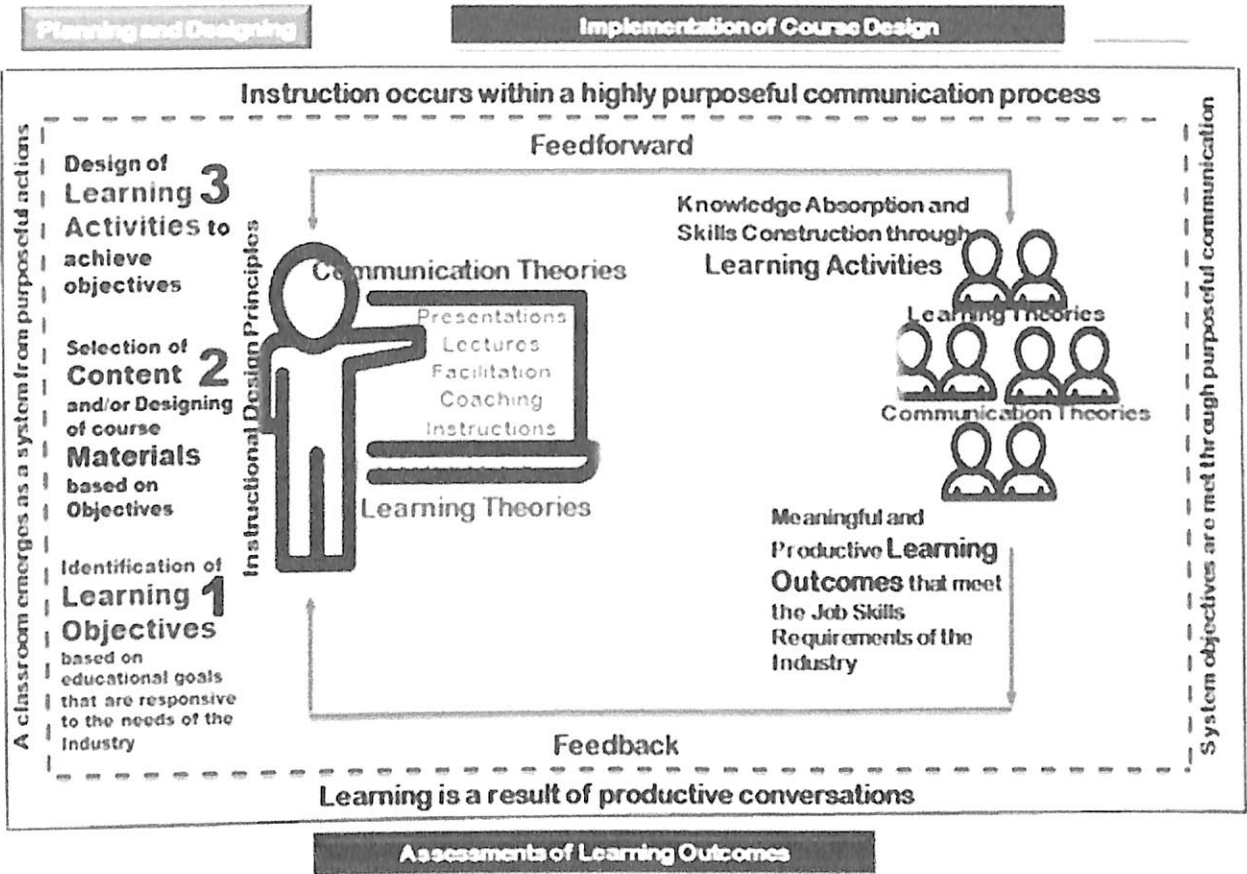
The intertwined link is highly visible through process analysis. The link between instruction and communication is visibly intertwined. All the communication factors are also present within the instructional process (such as noise or barriers to learning, the environment's conditions, the alignment of instructional design, motivational factors, etc.). If planned and implemented well, instruction is a highly purposeful communication process and not just a purposive act. The thorough critical and reflective, and refractive review of the instruction process resulted in a clear and final concluding thought that affirms the propositional assertion that Instruction = Communication. There is an interlinked between the process of teaching-learning and communication.

The propositional assertion is validated and expanded. This study's final phase validated the schema, Instruction = Communication, which stands for instruction (teaching-learning process) is communication. This validation conforms with the assertion made by Hurt Scott and McCroskey (1978) that "communication is the teaching process" (p. 112), and with McCroskey, Valencic, and Richmond (2004) who asserted that "teaching is communication." Instruction (teaching-learning process) is a communication process that occurs within a learning environment. Instruction = Communication → Learning.

An Instructional Communication Model is proposed. The study's main outcome produces an enhanced Instructional Communication Model. The result of the reflective analysis and iterative validation process of selected data (selected schemas or mental models) confirm that the instruction (teaching-learning process) consists of all the communication elements and communication actors working together to achieve the desired learning outcomes. Instruction (teaching-learning) must be a purposeful communication process rather than purposive by its intents and purposes. Communication does not merely play a role somewhere in any specific part of instruction. Communication is a process that occurs instruction (teaching-learning) occurs. Instruction (teaching-learning process) can occur merely as a purposive communication act or implement as a highly purposeful communication process. Instruction = Communication is appropriately expanded as *Instruction = Communication → Learning*.

Instruction, as a purposeful communication process, utilizes learning theories and communication theories. Communication is what the process of instruction is within the context of a learning environment. The Instructional Communication Model (see Figure 6 below) elucidates the key elements in the teaching-learning process from the planning and designing phase to the implementation Phase to the assessment and evaluation phase.

Figure 6. Instructional Communication Model: A Systems Approach.



(Appendix H: Selected Data, 2015-2016)

The above holistic model allows for multiple measures and research observations of Instruction (teaching-learning process). The model includes within its precepts the “inner dialogues” that go within the process of individual learning as in the classic accounts from the works of Vygotsky (1966), Mead (1934), and Luria (1961). The Conversation Theory of Learning may also apply to the conversation of two people where they are “exchanging, justifying and demonstrating theories and their

associated models and procedures." Pask (1968, p. 15). The Instructional Communication Model in Figure 6 (above) is cybernetics-based and adheres to the System Thinking approach, and depicts the following:

1. Meaningful and productive instruction occurs within a highly purposeful communication process.
2. Classroom learning objectives are met through a purposeful communication process (intent planning and design before the implementation phase).
3. A classroom emerges as a system with a distinct culture due to a purposeful communication process, meaning a classroom culture can be cultivated through communication.
4. Gordon Pask's 'learning as conversation' results in meaningful and productive outcomes if effectively implemented from well-designed and well-planned instruction.
5. Effective Instruction (teaching-learning process) depicts a highly purposeful communication process: From Design or Plan to Message Sending to Implementation (Message Encoding, Meaning Making, Feed Forward, and Feedback Cycle: Assessments and Evaluation).
6. Learning theories and communication theories work mutually within the process of instruction.
7. Instruction (teaching-learning process) occurs as a communication process. Communication is the process within which instruction (teaching-learning) occurs.
8. Instructional Communication is a field of study concerned with evaluating the communication dynamics within the teaching-learning process and how the instructional design or plan impact the implementation process (message encoding, meaning-making, feed-forward, and feedback cycle).

Prominent scholarly thoughts serve as pillars of the proposed IMC. Existing scholarly thoughts on instructional communication highly validate the above-proposed Instructional Communication Model (Figure 6). Pask's view of *learning as conversation*, Scott and Wheelles' view of *communication that results in learning*, and Richmond, McCroskey, and cohorts' view of *teaching as communication* are strong validation factors for the initial schema, *Instruction = Communication*, and for the final schema, *Instruction = Communication → Learning*. The model reflects the integrated process of instruction and communication.

Instruction (teaching-learning) transpires as communication. As illustrated in Figure 6, the same communication elements are present in instruction; learning and communication theories integrate within the process. The separation of the fields (Instruction being a different field from Communication) has nothing to do with the process. The dichotomous notion or verbiage as if communication occurs somewhere in the teaching-learning process could be a misnomer. To state that communication plays an important role or to speak of an interface between instruction and communication is fuzzy. The instructional process transpires as a communication process from the planning or design phase to the implementation, assessments, and evaluation of the instructional process.

The design phase is part of the instructional process. The practical implementation of a course depends mainly on how well the course was planned and designed. Figure 6 illustrates the Systems view of the instructional communication process and may also serve as a “cybernetic-based” Instructional Design Framework that integrates both systems and communications theory with both communication and learning theories within the framework. The framework incorporates the strategic creation of instructional courses responsive to the industry sector's skills needs.

Instructional Designers help ensure that all instructional elements are well aligned for effective and impactful instruction. Teaching by design ensures a more purposeful instructional communication process. Higher education faculty must work collaboratively with Instructional Designers to help them plan and design the courses they teach. Those who teach college courses can benefit from workshops or training on designing courses with well-aligned instructional elements.

Instructional Design is vital to instructional communication's effectiveness. A shared understanding of how the process of instruction transpires can further solidify the foundation of Instructional Communication. Instructional Communication scholarships may be strengthened and may be of proper support to the development of quality instruction (teaching-learning process) -- in ways that support the achievement of the global goals of education (Sustainable Development Goals, 2019) and serve the transformative role of education. Instructional Design is a vital component of an effective instructional communication process.

Instructional Design is vital for effective instruction. Instructional Communication must give Instructional Design importance as a key variable in evaluating the teaching-learning process's impacts. The proposed Instructional Communication Model in Figure 6 concurs with Conole (2013) and Isman, Dabaj, Altinay, & Altinay (2003). They advocate the importance of instructional design for effective instruction. Conole (2013) stressed the importance of Instructional Design as part of the instructional process's success or failure. As a result of a review of human learning development, Conole stressed that human learning depends on Instructional Design and the planned instructional techniques and instruments for assessments or evaluation based on experimental studies. The author also

emphasized feedback as a crucial part of modern education where educational technology, audiovisual systems, and teaching machines are being utilized. Dabaj, Altinay, & Altinay argue that the instructional process and the results rely on instructional design quality after their comprehensive study on instructional design impacts learning outcomes.

Instructional Design is part of the process of instruction. While it would seem correct to think that the design phase is outside of the instructional communication process, it is more logical to consider it part of the systematic process. A person who wants to communicate a message, influence, or change another person's behavior would first plan and craft the message before sending it out, even at the interpersonal level. At the very core of instruction are the intended outcomes. The planning and designing phase of instruction forms part of the entire instructional process.

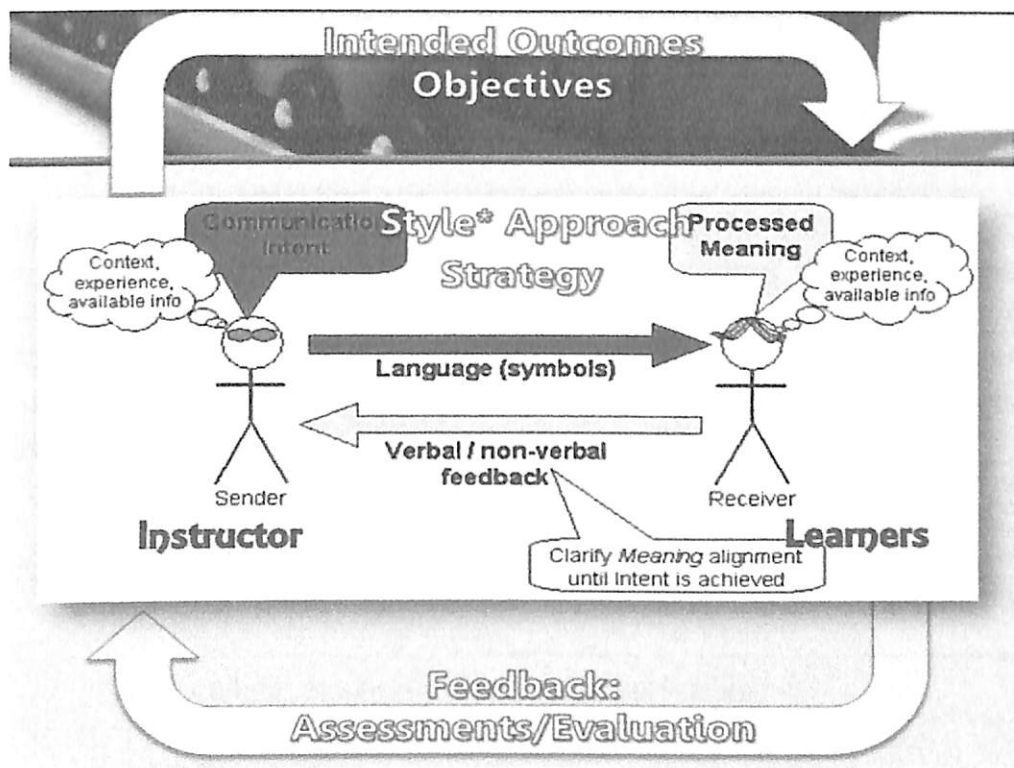
Instruction must be planned and designed. The design phase determines the types and quality of communication formats and interactions that could take place in the classroom. Therefore, segregating the design phase from the delivery phase may not prove systematic. The instructional design phase includes crafting information or message and course material selection, creating learning activities, determining the types of interactions, and specifying the information or knowledge that should be communicated to the learners based on the desired learning outcomes. The desired learning outcomes are specified as the learning objectives. Instruction can be highly purposeful if delivered from a well-crafted instructional plan or design, and all parties engaged in the process with determined intent.

School practices validate the Instructional Communication Model. The School of Science and Technology of 'Yashwantrao Chavan Maharashtra Open University (YCMOU) created a "Teaching-Learning Process Model" based on Killedar's Learning Cycle that employs the Instructional Design principles (Kamlaskar and Killedar, 2015). The cyclical teaching-learning process model consists of learning objectives, delivery of information; Interaction (through learning activities); Evaluation, and Feedback (p. 138). Killedar's Learning Cycle or Teaching-Learning Process Model validates the proposed Instructional Communication Model (Figure 6) and the succeeding instructional communication process models (Figures 7, 8, and 9).

Instructional Design principles and models support the Model in Figure 7. The creation of learning objectives is a component of the planning and design phase in Instructional Design. The first phase of the Teaching-Learning Process Model and Killedar's Learning Cycle is the 'learning objectives.' The component missing in Killedar's model is the selection and creation of content and learning activities. Its model includes the implementation phase (delivery of information and interaction through learning activities), evaluation, and feedback. The evaluation phase analyzes how well the delivery of information and interactions attain the lessons'

objectives. Figure 7 (below) closely resembles the elements in Killedar’s Teaching-Learning Process:

Figure 7. The process of instruction and intended outcomes.



(Appendix F, Selected Data, 2011-2012)

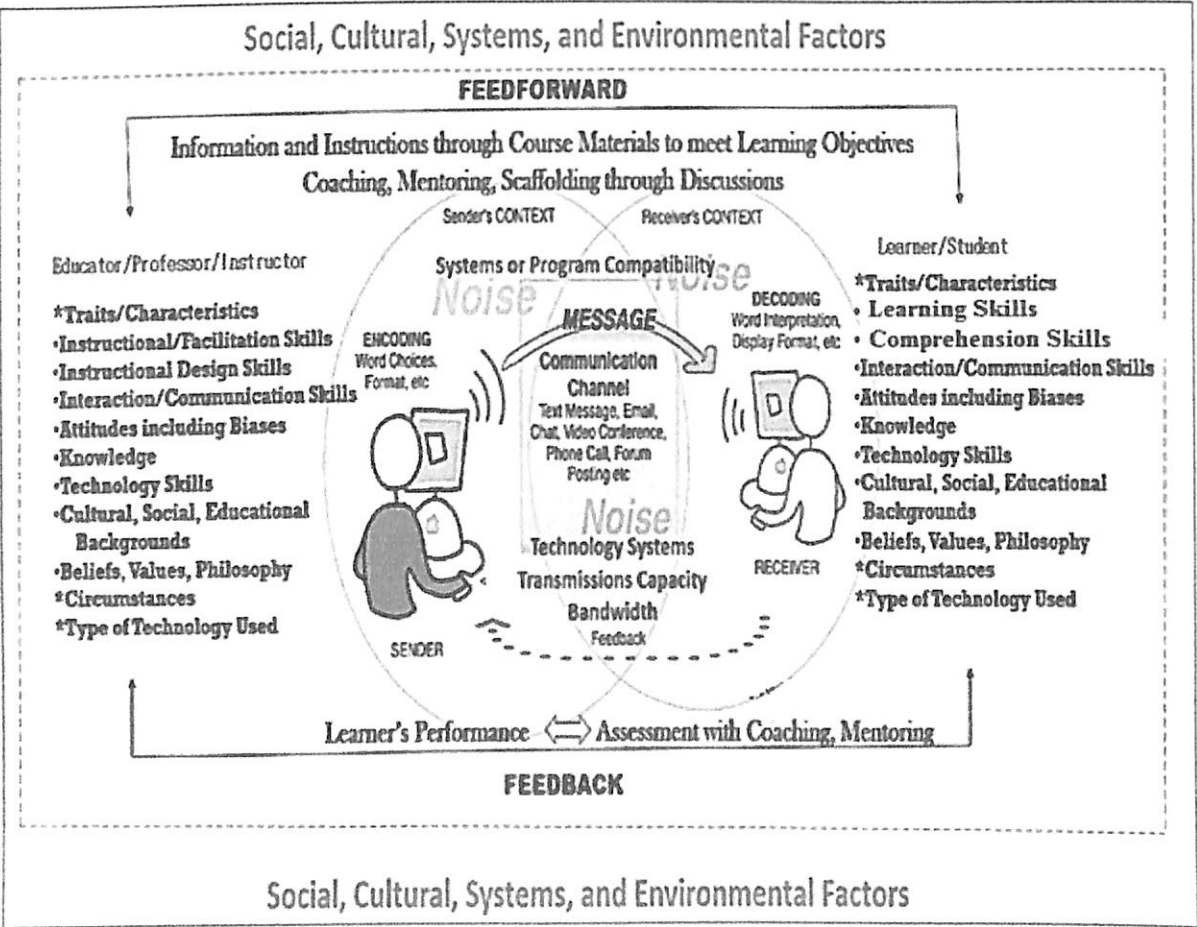
Yenna Monica (2013) presented a similar Teaching-Learning Process Model that begins with Planning, Implementation, and Evaluation with feedback and reflection during the implementation phase and within the evaluation phase. In the planning and design of instruction, learning objectives, content, and instructional activities are crucial components but not well-emphasized in existing models. The proposed cybernetic-based and Systems Thinking Instructional Communication Model (Figure 6) conforms well with most Instructional Design Models that adhere to sound instructional design principles. Thus, proving to be an enhanced version of current teaching-learning models.

Effective instruction is an outcome of purposeful communication. There is a variation between “purposive” and “purposeful.” From their definitions and from the Systems Thinking perspective, “purposive” refers to the perceived intent of an observed action or behavior from another person. A purposive action is executed without a heartfelt and mindful intent but is perceived as serving a purpose. A purposeful action or behavior, on the other hand, is made with intent and purpose

carried out through a plan, scheme, or design. Thus, instruction can be deemed purposeful if emanating from a well-designed, well-planned course implemented with a deliberate intent to achieve meaningful learning outcomes. A “purposeful behavior” is what *Checkland (1993)* describes as “willed,” and *purposive* is one where “an observer can attribute purpose” (“Managing complexity: A systems approach – introduction,” 2017, paragraph 5, section 5.3) regardless of intent. Merriam-Webster Dictionary defines purposive action as one that is “serving or effecting a useful function though not as a result of planning or design.” Purposeful action is one with “a conscious purpose” in mind; it is “*intentional*” planned or designed with “*meaningful, purposeful activities.*”

Communication goes beyond performing a role in Instruction. Figure 8 below depicts the detailed instructional process from actors (Professor, Instructor, educator, and learners), their traits as factors, technology factors, content or materials for the subject matter, communication channel, the feedforward, and feedback mechanism. All these elements in the process of instruction are communication elements.

Figure 8. The detailed process of instruction: A system view.



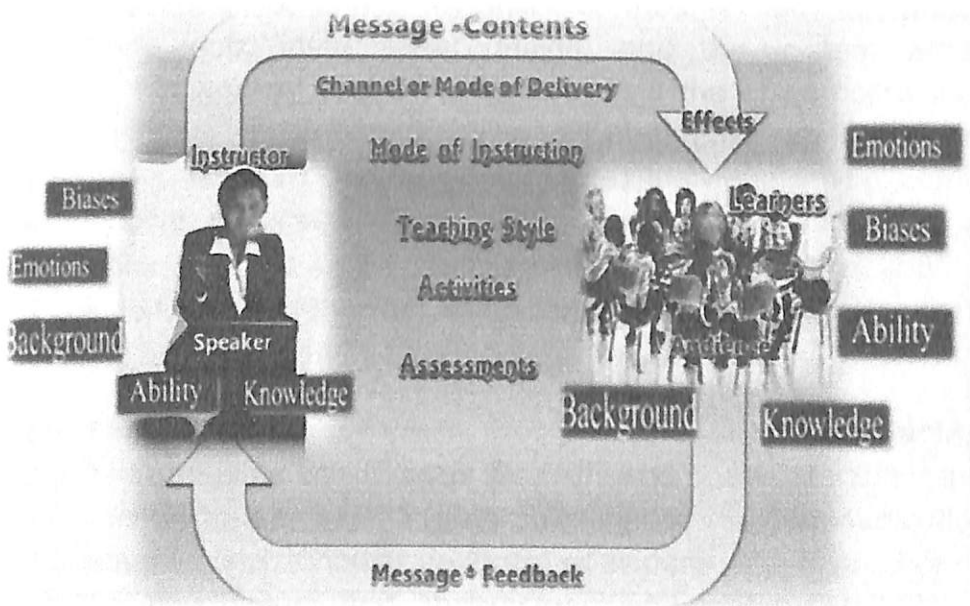
(Appendix G-2, Selected Data, 2013 – 2014)

Figure 8 (above) depicts the social, cultural, systems, and environmental factors that can either prevent or help shape meaningful and productive instruction (teaching-learning). The classroom is viewed as a system that is part of a larger societal system. How content and activities are chosen or created, how instruction is implemented, assessed, and evaluated can be affected by factors within a system. Thus, a holistic model that includes Instructional Design is proposed Figure 6).

Sender-Recipient and Learners-Instructor Traits

An earlier schema or mental model (Figure 9 below) of the instructional communication process reflects instruction's purposeful nature that resembles Berlo's (1960) Communication Model:

Figure 9. Instructor's and learners' traits in instruction.



(Appendix G-1, Selected Data, 2013 – 2014)

Figure 9 (above) shows the process of instruction as communication with the Source-Message-Receiver-Effects (S-M-C-R-E) and the feedback loop. The model highlights the Sender-Receiver traits, emotions, circumstances, backgrounds, abilities, biases, and existing knowledge as factors affecting how the process transpires and creates impacts. This schema (as among the early ones developed) depicts the teaching-learning process as communication in congruence with Henson's (2003) and the Universal Design for Learning (CAST, 2011 and 2018).

The Process Models Elucidate Instructional Communication

Prominent scholarly thoughts helped validate Figures 6, 7, 8, and 9 as these mental models conform mostly with the influential instructional model presented in the works of McCroskey, Valencic, and Richmond (2004) and McCroskey, Richmond, and McCroskey (2006). Figures 6 to 9 are more focused on the process. The models elucidate how the instructional process transpires. They go beyond the six essential components of the GMIC (teachers, students' views of teachers' verbal and non-verbal communication behaviors, students' perceptions of teachers' credibility and effectiveness, students' temperaments, intelligence, experiences, and the learning environment). The process models show that instruction (teaching-learning) cannot occur outside of communication. Communication does not merely play an important role in instruction. Rather, communication is the process within which instruction transpires.

McCroskey's GMIC depicts Shannon and Weaver's (1949) Mathematical Model of Communication that has the Source (teacher), Receiver (student), noise, messages, encoding, and decoding. These six essential components are well-illustrated in Figures 6, 7, 8, and 9 schemas or models, with the addition of a cybernetic feedback loop, instructional design, and the system within which instruction occurs. McCroskey and cohorts also view the classrooms as learning systems or instructional environments. The environmental factors may include institutional culture, classroom setting or structure, individuals who comprise the institution, the physical, political, and social climate, and many more factors, which serve as a variance of error when testing instructional communication theories. Figures 6, 7, 8, and 9 clarify the indissoluble link between instruction and communication and are validated by existing scholarly thoughts.

This study elucidates the process, not just the essential elements. The schemas or models presented in Figures 6, 7, 8, and 9 are process models that show how the teaching-learning process transpires as communication. Most Instructional Communication scholars have not considered the instructional plan or design among the key factors that impact teaching-learning. Their Instructional Communication Models suggest the process of instruction as communication, albeit the lack of consideration of the instructional design or plan as a key factor that largely impacts the outcomes of the teaching-learning process. The GMIC, for instance, does not include instructional design or plan, an additional component of the proposed Instructional Communication Model (ICM), as illustrated in Figure 6.

A Proposed Instructional Communication Model (ICM)

As a major output of this study, an Instructional Communication Model (ICM) is proposed (see Figure 6). The ICM is supported by elaborating the instructional

communication process differently (see Figures 7, 8, and 9), depicting all communication elements within the teaching-learning process. The ICM identifies and describes the actors (teachers and students), teacher-student skills and characteristics, the learning environment, and the instructional communication process. The proposed ICM is an enhanced version of the general model of instructional communication (GMIC). The ICM is strengthened through a clear depiction of the cybernetic communication loop process within which instruction occurs. The ICM provides an enhanced instructional communication theory and model and offers an enhanced definition for Instructional Communication as a field of study.

With the proposed model, a new theory is formed. Most scholarly works attempt to link teaching to communication by defining communication as part of the teaching process, and other scholars (outside of the Communication) field adopt this view. Prozesky (2014), for instance, emphasizes “the role of communication in teaching” and “the importance of communication in teaching” (p. 44) for improving teaching practices. Such scholarly works present communication as if communication occurs only as part of instruction and resides in a section or space within the entire instructional process. The proposed Instructional Communication (IMC) Model depicts a theory that the entire teaching-learning process is a communication process from its conception (planning and design phase).

With an enhanced theory and model comes an enhanced definition. In analyzing the instructional communication impacts, the instructional design or plan must also be considered a key factor. The instructional design or plan is key to the quality of interactions, quality of communication exchanges, the quality of feedback loop mechanism in the classroom, the assessment tools, the assessment process, the reduction of noise, or barriers to learning. A purposeful instruction (planned or designed) is set apart from a purposive (unplanned, no course design instruction). Therefore, Instructional Communication studies may, in general, analyze the purposiveness and purposefulness of instruction. An enhanced instructional communication model and theory also means an enhanced definition of Instructional Communication.

Instructional communication redefined. Instructional Communication can be defined ‘as a field of study that evaluates the communication dynamics within the teaching-learning process and assess how the communication factors, elements (intrinsic), and vital components (such as instructional design and implementation strategies) impact the quality of learning outcomes.’ The relationship between instructional design and implementation phase (message sending, encoding, meaning-making, interactions through learning activities, and feedback cycle: assessments) must be part of Instructional Communication studies’ inclusive concerns.

The Use of the Right Rhetorical Phrase: A Must

The use of the right rhetoric clarifies the process. Instruction cannot occur outside of communication. Using the right phrases can help clarify the process of instruction as communication. The phrases that depict communication as playing a role in instruction or as a vital component of instruction may not accurately depict the instructional communication process. Based on the process models developed (Figures 6 to 9) and based on analysis and validations of data, communication occurs when instruction (teaching-learning process) occurs. Thus, an inseparable or intertwined process of instruction and communication occurs.

Instructional skills include design skills. The proposed model of the Instructional Communication process (in Figure 6) may find some conformity with Shulman's (1987) "knowledge growth in teaching" model. The model cogitates the teacher's subject matter (content) expertise and teaching competencies (pedagogical skills). These instructional skills include classroom management or governance, understanding of learners, diverse traits and backgrounds, curriculum and course materials, the school system, and school district requirements (Nussbaum & Friedrich, 2005).

Instructional communication is a process by design. As a purposeful communication process, instruction must be planned and carefully designed, then implemented and assessed. In the planning phase, the objectives or learning outcomes are identified. Content or instructional materials form the big bulk of conversations, instructional messages, classroom interactions, and activities. Assessments and evaluations are a necessary part of the process. The whole gamut follows a cybernetic loop process within the Systems Thinking approach. Instructional Communication studies have focused on the "communicative factors" in the teaching-learning process (such as the learners, the instructor, the exchanges of meanings) across grade levels, various instructional settings (e.g., the classroom, the organization), and across subject matters (Friedrich, 1989; Staton, 1989). Given these various scholars' perspectives, the instructional design process's inclusion within the Instructional Communication Model in Figure 6 is appropriate and validated.

One interlinked process, as seen through their definitions. The link between communication and instruction is easily obscured by the idea that they are two different terms. Communication is commonly perceived as part of the teaching-learning process (instruction). However, even by their definitions, their link as a process is inseparable. If teaching is defined "as a process of constantly imparting new knowledge or transmitting information" (Prozesky, p. 44), and communication is defined as "the science and practice of transmitting information" (Concise Oxford Dictionary as cited by Prozesky, p. 44) is the process of instruction, not communication? In terms of process, communication is the vehicle through which instruction occurs. Instruction cannot occur outside of communication.

The process is the same, occurring as one. Scott and Wheelles (p. 95) assert the linkage between learning and communication by referring to communication as a process that results in learning. What is this form of communication that results in learning? As seen through their definitions, the link between communication and instruction validates the schema, Instruction = Communication. If learning is linked to communication and communication is believed to result in learning, the schema, Instruction = Communication → Learning is also validated. If Gordon Pask sees learning as conversation, both schemas (Instruction = Communication and Instruction = Communication →) are validated.

The components or elements are the same. Prozesky (pp. 44-45), like most scholars, recognizes instructional materials as written communication, as evident by a section on communication handouts that outlines criteria for its effectiveness in content, layout, and writing style. The author also emphasized the importance of verbal and non-verbal communication skills in teaching. Again, just like most scholars who studied instructional communication, Prozesky also presents the basic S-M-C-R Model of Communication with feedback as an important component of improving teaching skills, without recognizing the process of instruction as communication. Rather, Prozesky refers to communication as an important part of instruction. Communication is being situated within the instruction process as if other components of the instructional process are not part of the communication dynamics. However, the components or elements in the process of instruction are the same as that of communication. Instruction (teaching-learning) occurs within the process of communication.

The schemas or models (Figures 6, 7, 8, and 9) highlight the communication elements and essential factors determining instruction's effects. The flow of interaction in instruction consists of a cybernetic loop and communication elements. Within the process of instruction, the communication flow of sending a message or transmitting information (encoding), receiving (decoding) messages, and giving feedback occur (be it online or face-to-face). Even with technology-mediated classroom instruction, the same feedforward and feedback mechanisms occur in instruction as it does in any human communication process. The detailed process of instruction illustrates how teaching-learning cannot occur outside of communication.

Decoding and Listening as Important Parts of the Process

The Decoding process involves listening, within which interpreting and absorbing information takes place, and if supported with appropriate learning activities, it can aid in active learning. Citing Wipt (1984) and Vandergrift (2011), Aponte-de-Hanna (2012) suggested that listening must be viewed "from the cognitive theory perspective" (p. 2). In the teaching-learning process, listening goes beyond hearing

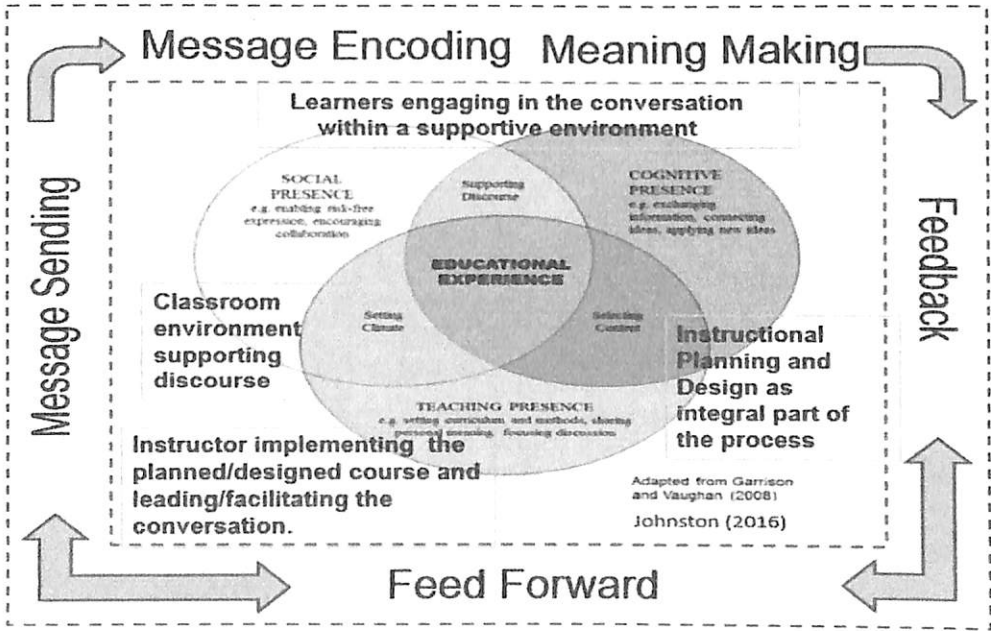
words or utterances and differentiation of sounds. Listening must rise to the level of understanding, analyzing, integrating, and applying the concepts heard.

Decoding must come with intentional listening. It is of prime importance that learners use their metacognitive skills to listen and comprehend effectively during the decoding phase. There are so many more dynamics that go with the process of encoding within the process of instruction. Tony Lynch and David Mendelsohn (2010), in chapter 11 of “An Introduction to Applied Linguistics,” noted that used to be, listening was thought to be a mere process of decoding. However, listening goes beyond mere decoding. Intentional and active listening include interpreting the decoded message and, at the same time, being able to show or give a response to the speaker. During the encoding process, listening enables learners to comprehend, react, absorb, interpret, and utilize information.

Learners must be taught or guided on using metacognitive, cognitive, and socio-affective strategies to facilitate comprehension and make their learning more effective. Meta-cognitive strategies include manipulation of the material to be learned and applying specific listening techniques. Socio-affective strategies are techniques used when collaborating with others to verify understanding or to lower anxiety. Research shows that skilled listeners use more metacognitive strategies than their less-skilled counterparts (O'Malley & Chamot, 1990; Vandergrift, 1997a).

The process is captured through the three-presence experience. Johnston's (2016) *three-presence-educational-experience* (Figure 10 below) further strengthens the theoretical proposition that instruction occurs within the highly purposeful communication process.

Figure 10. Three-presence-educational-experience.

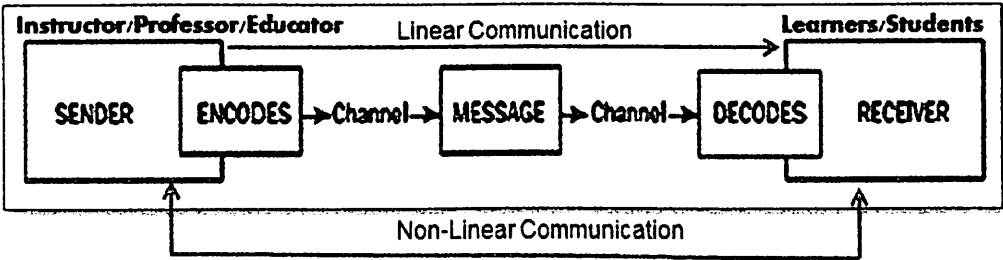


Adapted from Johnston, 2016 (Appendix I Selected Data 2017-2018)

The direct link between the communication style and instructional style is illustrated in Figure 11 above. A linear communication style allows for fewer or no interactions, and learners are mere listeners or recipients of ideas or information. If non-linear communication is used, transactional or interactional communication occurs in the classroom. Instructors or professors who are not required to use predefined course syllabi and course materials may dictate what type of communication flow occurs in their classes. College courses may either be dominated by linear type instructional flow or non-linear depending on the Instructor's or Professor's communication styles, manifesting a direct link in their instructional styles.

Non-linear communication can be ensured through Instructional Design. In classes where Instructors or Professors are required to use predefined course syllabi and course materials, the instructional communication style corresponds to the instructional approaches embedded in the design. Courses that follow the principles of effective Instructional Design reinforce the adaption of non-linear communication styles. Those who prefer the non-linear communication style allow for transactional or interactional communication flow. A non-linear communication flow in the classroom is illustrated in Figure 12 below:

Figure 12. From linear to non-linear model of instruction.

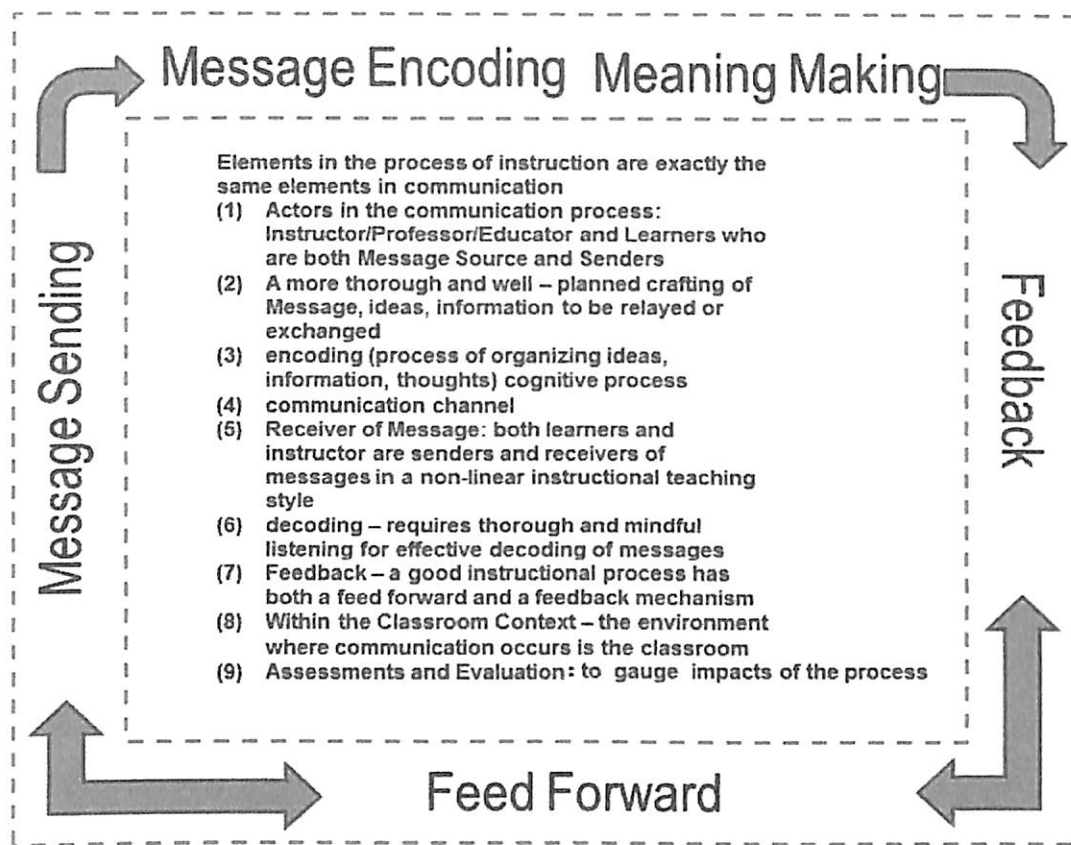


(Appendix B, Selected Data, 2003 – 2004)

Figure 12 illustrates that instruction (teaching-learning process) does not deviate from any human communication process, as it occurs as a complete communication process within the context of classroom learning. These two simple schemas later evolved into more complex and detailed instructional communication schemas or models (Figures 6, 7, 8, 9), emphasizing that communication is not merely part of the teaching-learning process. Instruction occurs as communication.

Figure 12 is further depicted in a more detailed manner in Figure 13 (see below). Both Figures 12 and 13 models illustrate the assertion that instruction occurs within the process of communication. Figure 13 below asserts that instruction occurs within the dynamics of communication:

Figure 13. Instruction occurs within the dynamics of communication.



(Appendix C, Selected Data, 2005 – 2006)

Figure 13 (above) embodies the assertion that instruction, as a communication process, consists of the following communication elements:

1. **Message Sender – Receivers** consist of the Instructor/Professor or Educator and the Students or Learners.
2. **Instructional messages** are planned in the course syllabus, designed within the course materials, hand-outs, presentation materials, and messages in the classroom discussions and interactions. Additional instructional messages take shape as interactions continue to occur in the instructional process.
3. **Desired Effects (Learning Outcomes)** are to inform, motivate, change, transform, and enhance knowledge and skills achieved through a well-planned, well-designed, and well-delivered instruction and a more thorough and highly purposeful communication process. With learning outcomes added to the model, the schema becomes *Instruction = Communication → Learning*.
4. **Medium or Channel** can either be direct from person to person or through technology to enhance learning.

5. **Noise** consists of **barriers** to learning that interfere with the instructional process
6. **The feedback** mechanism is dependent on the teaching or communication style of the actors (for example, if non-linear, there is a back-and-forth communication between and among learners and the Instructor).
7. **Mode of Delivery and Implementation**, instructional communications can either be done face-to-face (with or without technology aid) or online (technology-mediated environment).
8. **Assessments (Formative and Summative) and Evaluation** are both necessary components of Instruction and Communication.

A Well-Illumined Instructional Communication Process

The process of instruction is illuminated. The mental models in Figures 6 to 9 all provide good illustrations to support the conclusion that instruction occurs as a communication process. The schemas or mental models clarify the link between instruction and communication is elucidated. Instruction (teaching-learning process) occurs within the process of communication. With the instructional process elucidated, the link between instruction and communication is clarified. Instruction (teaching-learning process) occurs within the complex process of communication and communication only. The process of instruction cannot occur outside of communication.

Instruction = Communication. Figures 6, 7, 8, and 9 provide the schematic elucidations that validate the schema, Instruction = Communication. Instruction (teaching-learning process) is analogous to any human communication process. These mental models depict the process of instruction as a highly purposeful communication process. Communication is typically initiated by the Instructor or Professor, or Facilitator to achieve the desired learning outcomes (outlined as learning objectives in the instructional design). The learners are also sources of information (through feedback) and may initiate the communication process. Figures 6, 7, 8, and 9 elucidate instruction as communication that results in learning schematized as Instruction = Communication → Learning.

Instruction is purposeful communication that results in learning. The proposed enhanced Instructional Communication Model (ICM) schematized as, *Instruction = Communication → Learning* asserts that instruction is a purposeful communication process that results in learning. Productive conversation or teaching-learning process depicts a highly purposeful communication: Message Sending, Message Encoding, Meaning Making, Feed Forward, and Feedback Cycle based on a well-designed instructional plan.

The communication styles, interactions, conversations, feedback loop mechanism, and culture cultivated in a class depend largely on the Instructional Design. As a purposeful communication process, learning outcomes are core to the intents and purposes of the process. Communication begins with a plan (formal or informal), and so does instruction (teaching-learning) but with a thorough plan and concrete objectives. Instructional effectiveness can be expected with the instructional content, learning activities, feedback, assessments, and evaluation tools.

Finally, a clarified process of Instructional Communication is depicted. Instruction as a purposeful undertaking can be more effective, more meaningful, and productive. As illustrated in Figure 6: A Proposed Instructional Communication Model (IMC), the entire instructional process begins with objective setting, selection or creation of content and learning activities, implementation, assessments, and evaluations. A cyclical or cybernetic loop process of communication characterizes well the process of instruction. Instructional designs and instruction methods that promote practice activities instead of quizzing or testing can enhance learners' listening process (especially second language learners), as can be gleaned from Mendelsohn (1995; 2006).

Therefore, the first objective of this study is accomplished. All the process models of instruction (Figures 6, 7, 8, 9) clarify the process of instruction as communication. Therefore, this study's first objective is accomplished as the teaching-learning process is elucidated (as a highly purposeful communication process). And as such, the initial propositional assertion 'Instruction = Communication' was not only validated but expanded to 'Instruction = Communication → Learning'. The first objective of this study, which is to elucidate the process of instruction vis-à-vis the process of communication, has been well-accomplished.

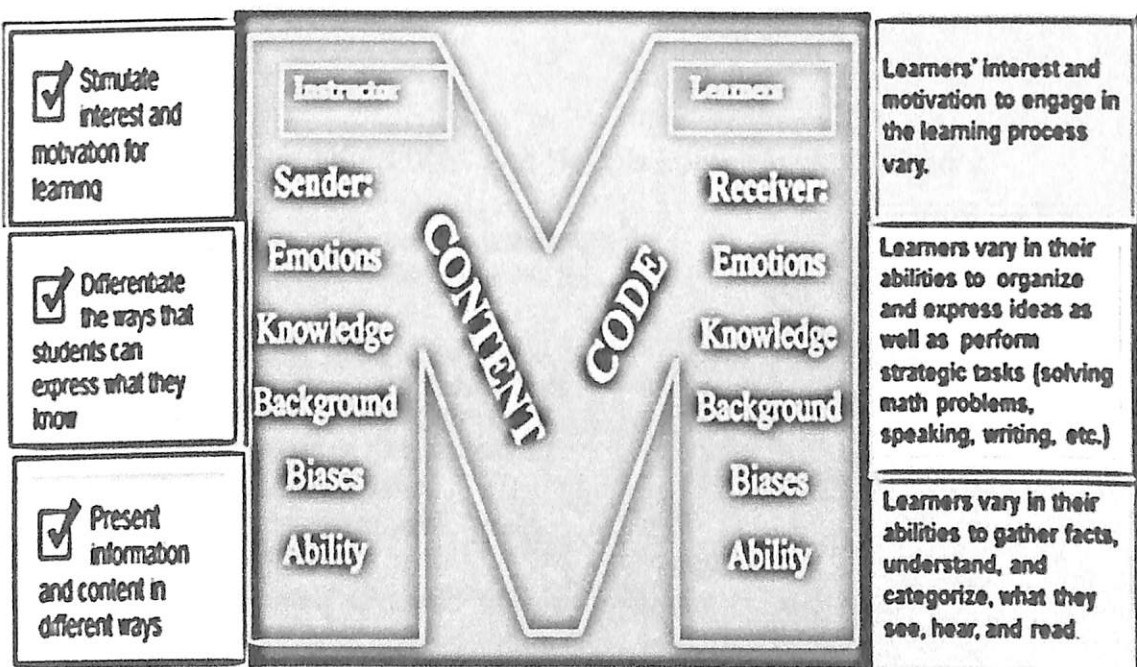
Objective 2: Analysis of Learning Theories and Communication Theories

The analytical reflections made it evident that instruction is communication. Learning and communication theories function either in a complementary or intertwined manner. Theories help and guide scholars in exploring (heuristic function), describing, explaining, and understanding concepts and relationships among concepts. It is deemed crucial in this study to analyze what theories are operant within the teaching-learning process. There are communication theories that operate within the teaching-learning process. As James White (2005) argues, "The major **function of theory** is to describe, explain, and predict behavior. **Theory** is heuristic for it stimulates and guides the further development of knowledge" (chap. 5).

Theories that function intertwiningly are identified. Berlo's Communication Theory (1960) and the Universal Design for Learning (2002), Henson's learning theory (2003) and Berlo's Model, The Frame of Reference Theory in Communication and Berlo's Communication Theory) are among these theories that are intertwined in instruction. The five major learning and communication theories (Cognitivism, Behaviorism, Constructivism, Experientialism, Social and Contextual Theory) operate intertwiningly within the process of instruction. Within Craig's (2016), Seven Traditions of Communication are learning and communication theories operant within the teaching-learning process. Bloom's Taxonomy and Studio Thinking Framework do operate in tandem at various levels of learning and communication. Furthermore, Learning Theories such as Bloom's Taxonomy of Learning, Convergence Theory, and Horton's *Absorb, Do, Create* are operant within Ausubel's Listening Theory.

Berlo's Communication Theory and UDL. Even though proponents of the Universal Design for Learning (UDL) have not recognized Berlo's Communication Theory (Magabo, 2012), UDL employs the concepts within Berlo's Communication Model (S-M-C-R-E). Figure 14 below depicts this analysis:

Figure 14. Berlo's communication theory and universal learning design.



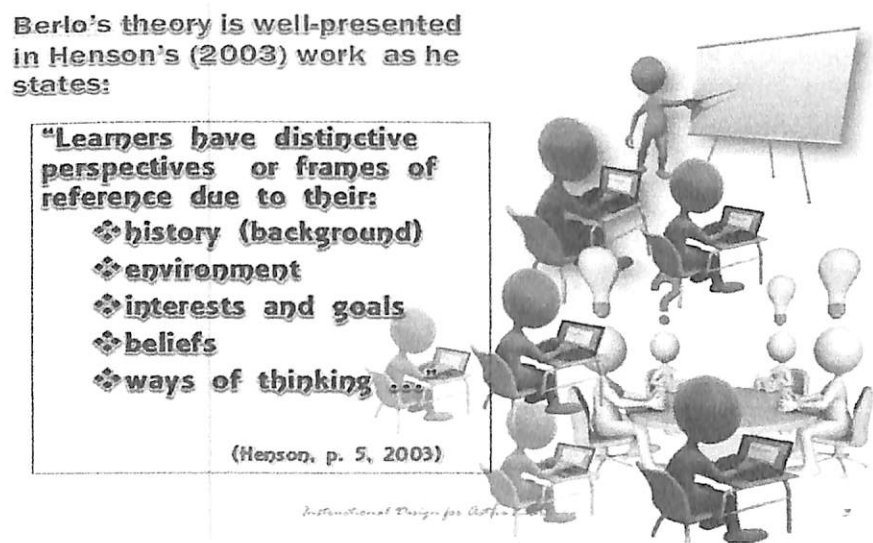
(Appendix G-1, Selected Data, 2013 – 2014)

Both Berlo's Communication Model and the UDL are concerned with the diverse instructor's and learners' traits (i.e., emotions, knowledge, backgrounds, biases, abilities). Learners' abilities to encode information, understand and categorize ideas

or information vary, therefore, requiring instructors to provide varied content and ways of delivering information or instruction. Operating in an intertwined fashion, Berlo's Communication Theory and the Universal Design for Learning (UDL) are valuable in the Instructional Design Process and its implementation. Both are concerned with learners' varying abilities to express their ideas and perform tasks, requiring instructors to allow multiple assessments on learners' knowledge and performance. Both are concerned with learners' varying interests and motivation levels, making it a must for instructors to make various approaches to stimulate interests and varied ways of motivating learners to engage in the learning process.

Berlo's Model and Frame of Reference in Henson's Learning Theory. Henson (2003) contends that learners have a frame of reference and distinctive perspectives that affect their learning. Likewise, the Frame of Reference theory in communication contends that beliefs, cultural values, preferences, biases, and attitudes serve as a filtering mechanism on learners' perceptions, impacting how they interpret and create meanings. Learners have different reference frames (due to varying historical backgrounds, environment, interests, goals, ways of thinking, and understanding). Learners' frames of reference become a decision frame (Tversky Kahneman & Tversky, 1981) that serves as the basis for making choices, taking action, and conceiving possible outcomes. Figure 15 (below) illustrates Henson's Frame of Reference and Berlo's Theory operating in the same fashion in instructional communication.

Figure 15. Henson (2003) and Berlo's communication theory.



(Appendix G-1, Selected Data, 2013 – 2014)

Learning theories and communication theories function as one. The five major learning theories and communication theories have similar assumptions and explanations regarding instructional communication phenomena as presented in Figure 16, Table 1 below:

Figure 16. Table 1 - Learning theories and communication theories.

5 Major Learning Theories	Communication Theories
1. Behaviorism Key <i>behaviorism</i> theorists such as <i>Thorndike, Pavlov, and Skinner</i> hypothesized that learning is a change in observable behavior caused by external stimuli in the environment. Behaviorism's critical principle is the reward or punishment of new behavior, commonly described as the 'carrot and stick' approach to learning.	The most popular communication theory that falls under Behaviorism Theory is the Magic Bullet Theory or Hypodermic Needle Theory—a theory that assumes a communication message triggers attention or reaction from the public and the specific purpose of the message response the public as intended. Behaviorism in Communication is concerned with how human minds are conditioned to act in specific ways due to negative or positive (rewards or punishments) stimuli from the environment. In Communication (interpersonal, group, organizational, and mass media levels), Behaviorism Theory applies in the ways language is manipulated when crafting communication messages. Hartman (1963) on Behaviorism noted that communication studies are concerned with how stimuli are arranged to create the desired effects. As the title of Carr's (1985) book suggests, "Behavioral Approaches to Language and Communication" behaviorism has had a great deal of influence in the use of language and communication to impact transformation and learning. Thus, for the behaviorist, systematic manipulation of verbal behavior is of paramount importance, and educational intervention quickly assumed a central place in the field's research literature (p. 37).
2. Cognitivism took over <i>Behaviorism</i> as the dominant learning paradigm in the 1960s. Cognitivism focuses on transmitting information from a knowledgeable 'expert' to less knowledgeable learners. Cognitivism proposes that learning comes from mental activity such as memory, motivation, thinking, and reflection.	Transmission theories or models in Communication fit into the Cognitivist theory of learning, the main focus of which is the transfer of information from a sender (assumed to know more) to a receiver (assumed to know less) and include: Source-Message-Channel-Receiver (SMCR), later revised into Source-Message-Channel-Receiver-Effect as influenced by Harold Lasswell's (1948) "Who Says what? Through which channel? To whom? With what effect?" (McQuail & Windahl, 2015, chap. 2). The Shannon and Weaver Model of Communication (Communication Theory, 2011) is a modified version of Sender-Message-Channel- Receiver with "noise" interference in the Channel.

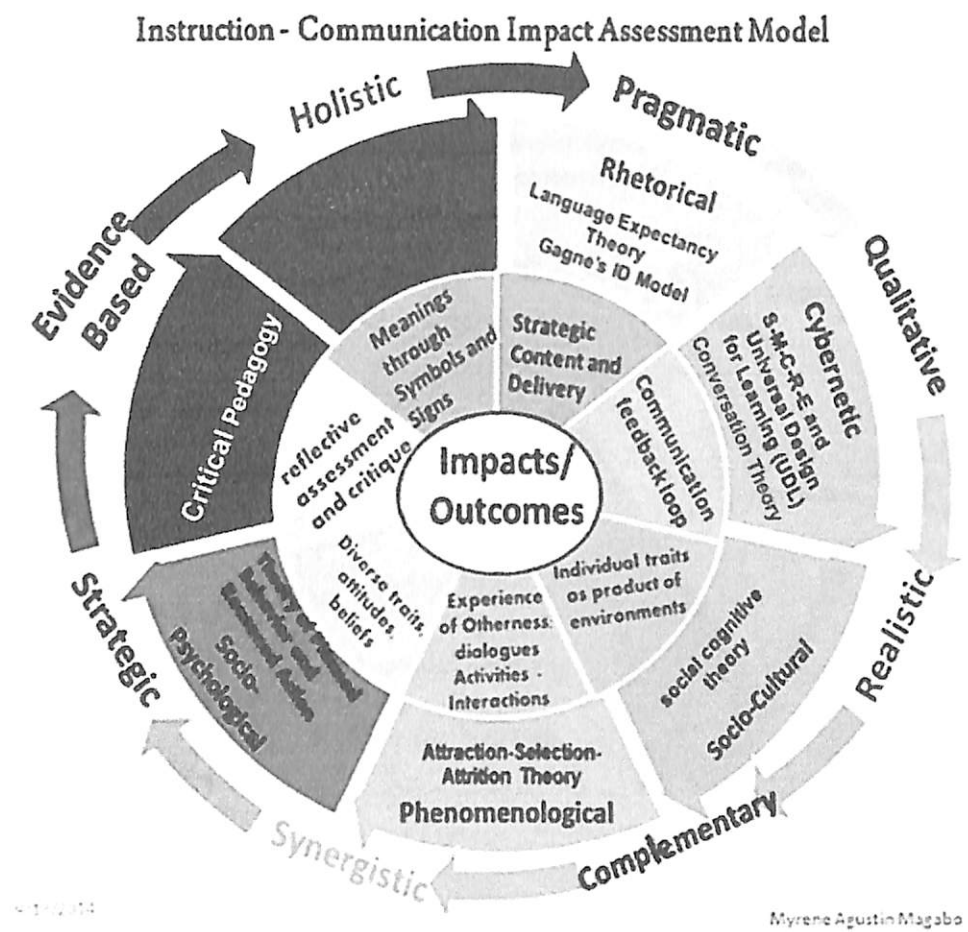
Figure 16. Table 1 continued...

5 Major Learning Theories	Communication Theories
3. Constructivism Theory Recognizing that a stimulus in the environment does not just trigger learning but instead, learners take active roles in constructing their understanding, making varied interpretations, and deciding whether to use what they have learned. Constructivism Theories contend that learning comes through observation, processing, and interpretation. The early development of constructivist theory can be attributed to John Dewey, Lev Vygotsky, 1978, 1980, 1986; Jean Piaget & Cook, 1952.	Constructivism is also popularly used in communication since the main goal of communication is to inform and transform. Constructivism Theory as a theory of learning is defined as "a process of constructing meaning; it is how people make sense of their experience" (Merriam, Caffarella, & Baumgartner, 2007, p. 291) Constructivism in communication is a theory used to explain individual differences in people's abilities to communicate. Jesse Delia's "theory of constructivism offers a cognitive explanation for communication competence" (Griffin, 2012, p. 98). Constructivist Theory helps explain why instruction or communication's effects vary mainly due to differences in individuals' abilities to absorb and construct information and express it to others. (Burluson and Bodie, 2008)
4. Experientialism Donald Schön (1983) and David Kolb (1985) are among the top proponents of experiential learning, which they believe to occur not just cognitively but is attained through experience (coupled with reflections). The learning process follows a cycle of experiential stages from concrete experience to observation and reflection, to the formation of abstract concepts and generalizations, and testing implications of concepts in new situations.	In Communication, Phenomenology (Bayne & Montague, 2011) looks at the communication process as 'the experience of dialogue with others. Phenomenology is concerned with perception, thought, memory, imagination, emotion, desire, and volition to bodily awareness embodied action (and intentions and consciousness), and social activity, including linguistic activity. Phenomenology studies conscious experience as experienced from the subjective or first-person point of view. Having first-hand experience or first-hand knowledge gives a person an edge. Stewart (1978) identified the defining characteristics of a dialogic approach to communication grounded in a critical aspect of Husserlian or Existential Phenomenology or philosophical anthropology. The essay also suggests that dialogic communication scholars' most pressing challenge is to explore views of language developed in Heidegger, Gadamer, and Buber's works.
5. Social and Contextual Theory argues that learning does not occur solely within the learner but comes from their interactions with the group and community in which they live, work, and study. Learning is a shared process by observing, working together, and being part of a larger group, including colleagues of varying levels of experience, who can stimulate each other's development. (Thompson, 2012).	The Social Communication theory framework (Management Study Guide, n.d.) considers communication as a result of interactions among individuals and communication. Coordinated Management of Meaning Theory (CMM theory) helps explain how individuals socially communicate, resulting in creating meanings and managing social reality. CMM Theory contents that individuals co-construct social realities through the meanings they have co-created as an outcome of the communication process. Vocate's (2012) intrapersonal communication theory is rooted in Mead's and Vygotsky's "sociogenetic views.

Congruence among theories. The link between instruction and communication is further highlighted through the unity between Communication and Learning

Theories within Craig’s (2016) Seven Traditions of Communication. The Wheel of Theory Alignment Model illustrates the link between instruction and communication through theories, concepts, principles, or models.

Figure 17. Wheel of theory alignment model.

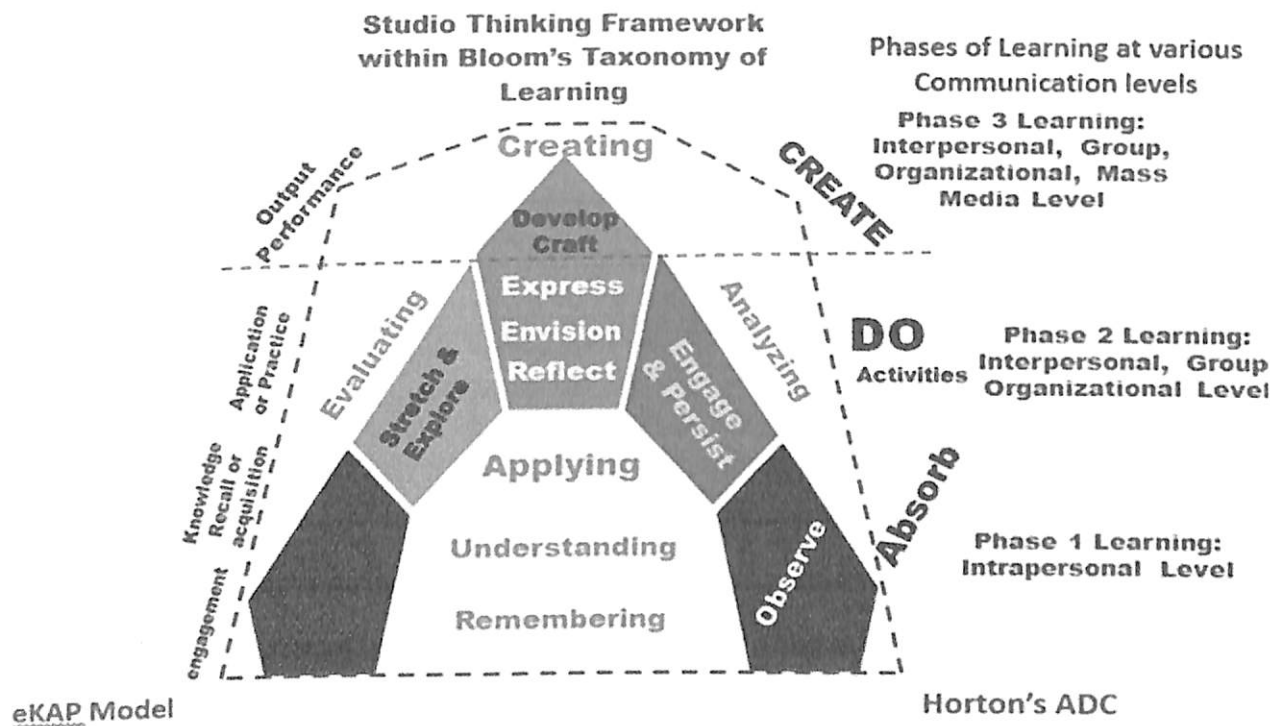


(Appendix 7 G-2, Selected Data, 2013 – 2014.)

The Wheel of Theory Alignment Model (Figure 17 above) summarizes the analysis that learning theories or models align with Craig’s (2016) Seven Traditions of Communication. In Craig’s (1999) landmark article, “Communication Theory as a Field,” the author proposed a unifying framework called The Seven Traditions in Communication, within which purposeful process theorists may engage in dialogues and enrich the discourses on the practical implications of communication.

Learning theories operate at various levels of communication. The analytical and reflective study of the process of instruction distinctly revealed how learning occurs at various communication levels from the intrapersonal, interpersonal, group, or organizational, and at the mass media level, and is illustrated below (Figure 18: Learning at Various Levels of Communication):

Figure 18. Learning at various levels of communication



(Appendix 7i, Selected Data, 2017-2018)

The above model (Figure 18) shows how learning occurs at various communication levels, which is another evidence of the interlink between instruction and communication. Bloom's Taxonomy of Learning categorizes learning levels through various activities, succinctly categorized using Horton's Absorb, Do, and Create activities. The Studio Thinking Framework contends that learners acquire information that helps them absorb ideas (Sheridan, 2011), which resonates with Bloom's Taxonomy's first level: Recall or Remember. For Horton, this is an Absorb Activity or knowledge acquisition or recall (Magabo, 2016). The observed thinking habit applies to learners' absorption of knowledge (i.e., listening to presentations or lectures, videos, review text, or visual materials). From observing or gathering ideas and information, the learners begin to understand the concepts, thus taking them to the second level of Bloom's Taxonomy.

As learners stretch and explore, engage, and persist, they can apply their learned or understood concepts, thus, enabling them to reach the third level of Bloom's Taxonomy. As learners reflect, as they question, explain, elaborate, evaluate, they climb up the next highest level of thinking in Bloom's Taxonomy: Evaluate. As learners envision (imagine, plan) and express (find and show meaning), the Analysis component of Thinking in Bloom's Taxonomy is attained. When learners **develop craft** (master specific techniques & can fully execute Studio Practice), Bloom's highest thinking level is attained: to **Create** (to innovate, produce a material, design, develop, produce an output). Figure 23 demonstrates the three learning phases; each phase corresponds to the three levels of communication: Intrapersonal (learning within self), Interpersonal or Group or Organizational Level (learning with others), and Combined Interpersonal, Group/Organization, Mass Media Level (expression or sharing of learning with others, the community, and society as a whole).

Learning Phase 1: Occurs at the Intrapersonal Level of Communication

In the knowledge acquisition and recall phase, learners engage in what Horton calls Absorb Activity, which corresponds to observe and understand the Studio Thinking Framework. The absorb activities are expected to reach the **Remembering** and **Understanding** in Bloom's Taxonomy. At this phase, learning occurs within the intrapersonal level of communication as learners learn individually from the ideas or information they gather from the course materials (in whatever form of medium: digital, print, audio, video, or through a live presenter or lecturer). Knowledge recall or acquisition occurs within the Intrapersonal.

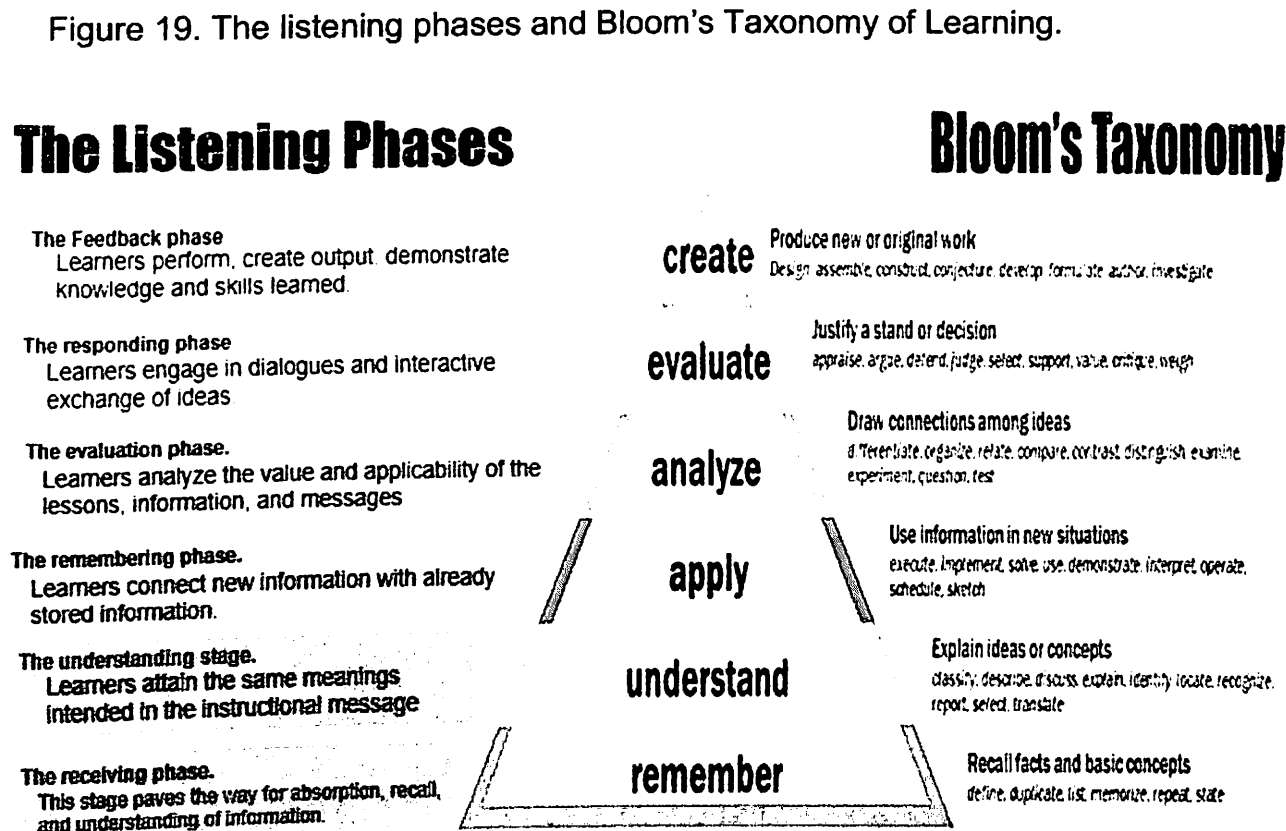
Learning Phase 2: Interpersonal, Group, or Organizational Level

Application of knowledge can occur within the Interpersonal, Group, or Organizational level of communication as learners interact with others in a classroom (online or face-to-face). As learners stretch and explore, engage, persist, envision, reflect, express, and practice (Studio Thinking Framework), they apply the knowledge they have absorbed, recalled, and understood. These applications or practice activities are called Do Activities for Horton. In all these STF thinking habits of the mind (stretch and explore, engage, and persist, envision, reflect, express, and practice), three of Bloom's Taxonomy are materialized: Applying, Evaluating, Analyzing.

Learning Phase 3: Mass Media Level

At the highest level of learning, the Creation Phase or Performance Level of learning (in Bloom's and Horton's), learners may publish their work on the web or in print, conduct a presentation, or do a performance to demonstrate the skills acquired or presented globally on a mass media scale. Learners may also share their work at a mass media level through the digital or e-portfolio.

Listening Theory and Bloom's Taxonomy of Learning operate in tandem. Referencing Rost (2002), Larry Vandergrift (2016) defines listening as an active process of receiving, interpreting, negotiating, constructing, creating meanings on the information received from a speaker. Of considerable relevance, Ausubel's Meaningful Learning Theory, which details six phases of listening, correspond to Bloom's Taxonomy of Learning, as illustrated in Figure 19 below:



(Appendix H, Selected data, 2015-2016)

Figure 19 (above) shows how each listening phase in Ausubel's Meaningful Learning Theory corresponds to the level of learning in Bloom's Taxonomy.

1. The receiving phase of listening paves the way for absorption, recall, and understanding of information.
2. The understanding phase corresponds to Bloom's learning level, where learners are expected to have attained the same meanings intended in the instructional message (Convergence Theory).

3. The remembering stage of listening occurs as learners connect new information with already stored information, resulting in either long-term memory or loss of information.
4. The evaluation stage of listening occurs when learners analyze the value and applicability of the messages, analyze the course content's value, credibility, usability, and the value of learning activities to real-life situations.
5. The responding or interactive stage of listening (feedback stage) occurs when learners express reactions (verbally or non-verbally or in writing). After watching a video or lecture, learners accomplish an activity or engage in the discussion forum. At this stage, learners may also be performing the skills learned. This phase is also the best phase for applying information at the formative phase.
6. Feedback phase (summative). Formative feedback occurs within the interactive exchange of ideas (which may include discussion messages, written assignments, quizzes, surveys, or performing the skills to demonstrate lessons learned—then summative feedback at the end of each module, session, or lesson.

Communication Theories Operant within the Instructional Process

The decoding or listening process, Frame of Reference Theory, Vygotsky's Learning Theory, Bloom's Taxonomy of Learning, and Convergence Theory operate in an intertwined manner. Some communication theories operate in the teaching-learning process. Watzlawick's (1967) Axioms are seen as operant within the existing Instructional Communication Models. Also analyzed to have major importance in instruction is Gordon Pask's Conversation Theory (1969), the Convergence Theory (Schramm and Kincaid, 1975). However, it must be noted that Berlo's Communication Model provides the basic framework of looking at instruction as communication. Scott and Wheelles (1977) point to Berlo's theory as key to the discernable link between instruction and communication.

Vygotsky's (1978) Learning theory echoes effective encoding or listening. Ausubel's (1977) theory of meaningful learning echoes Vygotsky's (1978) scaffolding theory. If new information is not related or is not familiar to the learner's existing cognitive knowledge structure, meaningful learning would not happen. For learning to be meaningful to learners, the learning task must be relatable to the learners' knowledge structure. Apprehension, or the fear of having a lack of understanding of the message or the lack of ability to comprehend the information correctly, may lead to learners' disengagement from listening. When this occurs, learners disengage too from most of the learning benefits during classroom lectures.

Ausubel's theory of meaningful learning requires Vygotsky's scaffolding of concepts to make learning effective. Ausubel's theory of listening helps explain how listening within the process of instruction may take several stages. Each stage rising to a crescendo within the hierarchy of learning in Bloom's Taxonomy (Anderson, Krathwohl, & Bloom, 2001), the **e-KAP** (engagement through activities, Knowledge Absorption, Application, Performance) Model, and Horton's ADC (Absorb, Do, Connect activities) as illustrated Authors often link instruction through the definition of below: Theoretical Framework for Instructional Design.

Learning is conversation. Gordon Pask's (1975) Conversation theory validates all the schemas or models in this study that depict the process of instruction. As reiterated by Richard Culatta (2019), Gordon Pask's "Conversation Theory" has its origin from Cybernetics, which argues that learning results from conversations and that the teach-back process is highly essential to learning. Culatta (para. 3) stresses that "The critical method of learning according to conversation theory is teach-back in which one person teaches another what they have learned."

Conversation Framework in a Quadrant. The Centre for Development Innovation of Wageningen University and Research Centre adheres to the four types of communication. The framework ensures learning occurs among actors or stakeholders, noting that: "Adam Kahane and Otto Scharmer describe four types of conversations, explaining that people relate to each other at different levels of conversational complexity" (p. 1). The quadrant for the four types of conversations validate how conversations in learning environments may occur as follows:

1. **Absorption or Listening phase.** The first quadrant, termed by the authors as 'Talking Nice,' is a phase of conflict avoidance (Boss, 2017). The listening or absorbing phase (Horton, 2012) is key to remembering and understanding information (Bloom's Taxonomy).
2. **The second quadrant, "Talking Tough or Debating."** The exchange of clashing ideas could be productive (Hefferman, 2012), leading to new ideas and insights. Debating or argumentation can be a fruitful exercise for learners when administered and facilitated within the learning environment.
3. **The third quadrant where Reflexive Dialogue** is a type of conversation that enables learners to voice out ideas and opinions, to speak freely, allowing new insights, new assumptions, and new paradigms to surface. Amidst diversity, unity is central to this type of conversation.
4. **In the fourth quadrant, "Degenerative Dialogue,"** communicators listen and consider their views, thoughts, ideas, and opinions from within versus that of others around them from the system.

The quadrant for the four types of learning conversations is one great evidence of instruction occurring as communication. Some scholars are supportive of conversation or dialogue as a form of deeper learning. Baker, Jensen, and Kolb (2002), in their book, *"Conversational Learning: An Experiential Approach to Knowledge Creation,"* named these scholars as follows:

1. *Mortimer Adler (1982) suggested "a model for educational reform where teachers play three roles: as a lecturer (providing declarative knowledge), as a coach (developing critical skills), and as a facilitator (uses Socratic dialogue that produces or generates new ideas).*
2. *Rorty (1980) was a proponent of improvement or enlightenment through conversation.*
3. *Habermas (1984) advanced the "emancipation theory through exemplary speech communications.*
4. *Vygotsky (1978) was known for learning advancement through the Proximal Zone of Development.*
5. *Taylor (1991) is notable for the alignment of perspectives through significant conversations.*
6. *Freire (1992) argued that learning must be profound, attained through dialogue that is "transforming, transcending, and problem-posing: a "... revolutionary futurity. Hence it is prophetic..." (p. 72)*
7. *Gadamer (1994), noted for his ideas on the "Fusion of Horizons." (Baker, Jensen, and Kolb, pp. 3-4)*

Paul Watzlawick's Axioms of Communication

Paul Watzlawick's study on interaction elucidates how communication is stimulated during interpersonal communication – under which the interactional process of instruction is classified. For effective communication between individuals, these five axioms are required. Watzlawick's axioms consider diverse traits, differing viewpoints, schema, and frames of reference; thus, individuals will always vary in their interpretations of messages or information.

These diverse traits are the same considerations that Berlo, UDL, and Henson have emphasized. These diverse backgrounds, abilities, schemas, and frames of reference are part of the instruction challenges since the goals, intents, purposes, and objectives of instruction bring about the same levels of understanding, knowledge, or learning amidst diversity. Despite divergence, convergence is

achieved. While there are no perfect means and no perfect outcomes, convergence remains the instruction's principal aim. The axioms are useful in understanding the instructional communication process.

The First Axiom: "We cannot not communicate." Paul Watzlawick's first axiom suggests communication is pervading, ever-present. Communication exists everywhere and in every human action or inaction. Despite the absence of actions or the absence of spoken words, a communication message can be perceived. Communication in instruction begins from the framing of objectives, from conceiving, creating, and determining the expected outcomes. Instruction is always expected to attain meaningful outcomes; thus, instruction is purposeful rather than purposive.

The Second Axiom: "Communication = Content relationship," explains how different communication approaches and message content are used depending on the types of relationships among communicators. Even the content of the communication can be delivered following the type of relationship that exists among communicators. In instruction that applies the best practices, various learning conversations are employed, including applying the Universal Design for Learning (UDL). In the linear form, the information transmission style of communication is not highly encouraged. The second axiom supports identifying best practices, best communication styles, best content creation, delivery, and the best learning activities that encourage student active engagement.

The Third Axiom: "Punctuation on Messages = Power Relations." The types of power relations in the classroom are based on how the actors punctuate or stress the messages. The "nature of the relationship depends on the punctuation of communication sequence." The third axiom helps explain how individuals vary in how they craft and deliver their messages and how individuals also make varied interpretations of meanings. Punctuating instructional content and messages could be one function of instructional planning and design.

The Fourth Axiom: "Digital and Analogic." These forms of communication include virtual or online communication messages such as email, social media, text messages, and other non-verbal forms of communication.

The fifth axiom: "all communication is symmetrical or complementary." The fifth axiom identifies two types of relations between or among communicators. The first relation refers to the symmetrical interchange, characterized by equal power relations among communicators. There is the neutrality of power. No one dominates or is in control of the process of communication. The second one is characterized by one party trying to dominate and to be in control and the other party being submissive or surrendering. The fifth axiom is relevant to power relations and the type of interactions that occur in the classroom.

Communication Theories that Explain the Process of Learning

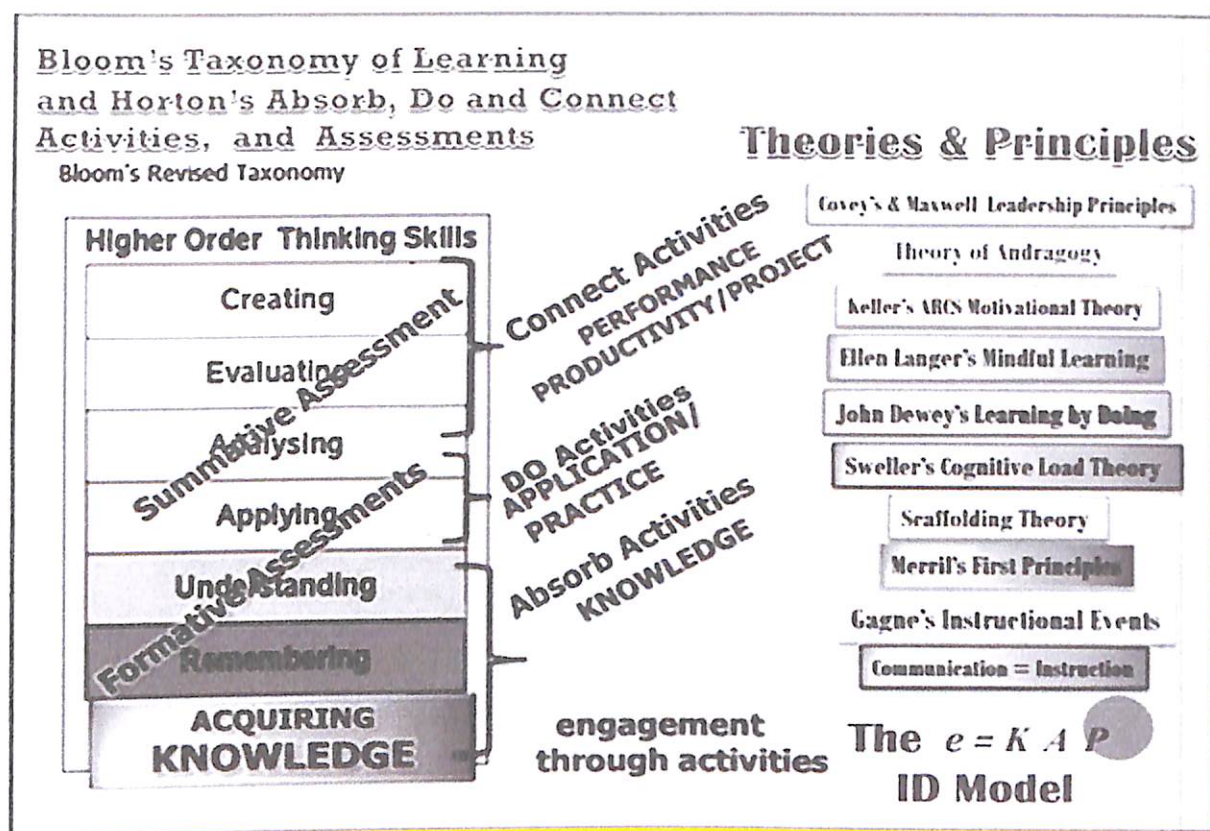
Gordon Pask's (1975b) Conversation Theory validates the instructional process models (Figures 5, 6, 7, and 8). Kopstein & Siedel (1971) succinctly expressed the need to use cybernetics in employing instructional strategies for effective instruction. The feedback loop or iterative process through the principles of cybernetics. Kopstein & Siedel noted that "As an alternative basis for deriving meaningful instructional strategies, **cybernetics** has much to recommend it" (p. 1). The instructional process occurs as communication, which is not a new concept nor a mere deconstruction of instruction.

The process of learning as a conversation is purposeful. As underscored by Paul Pangaro (2013), Gordon Pask referred to as conversation those core interactions "that have goals." This concept is termed Cybernetics and was popularized by Norbert Wiener in 1948. Gordon Pask's Conversation Theory argues for the process of learning as a conversation. Pangaro (p. 3) noted that actions with the purposeful intent of "achieving goals" require communication for such actions to be effective (Weiner, 1948). The "connection and information flow between the actor and the environment" are made possible (Pangaro, p. 3). Pangaro highlights the purposeful nature of 'learning as a conversation' and validates that teaching-learning is a purposeful communication process.

Cybernetics applies to effective classroom governance. Cybernetics uses a dialogic approach (Scott, 2001) and is an interdisciplinary science that has expanded from its original focus on machines and animals to studying life and mind and their purposeful or goal-directed behavior. Cybernetics relates to effective classroom governance (Heylighen and Josslyn, 2003) on second-order cybernetics. Cybernetics, the study of life and mind, is of Greek origin, "Kybernetes" or steersman, which according to Plato, is "*the science of effective governance*" (Panagiotakopoulos, 2005, p. 28). The cybernetics of learning relates to classroom governance, which stresses the importance of instructional design.

Cybernetic-based models. The teaching-learning process is elucidated through the different instructional communication process models (Figures 6, 7, 8, and 9). The process models adhere to the cybernetic loop process within the Convergence Model of Communication espoused by Kincaid and Schramm (1975). The Cybernetic approach serves as an effective force for classroom learning governance and in the study of life and the human mind seeking elucidations of the purposeful oriented actions or behaviors (Heylighen and Josslyn, 2001). Mathematician Norbert Wiener (1961) revived and elaborated on these dynamics in communication in his book "Cybernetics, or the study of control and communication in the animal and the machine." All the cybernetic-based models integrate both systems and communications theory, with learning theories operating within the instructional communication dynamics.

Figure 20: Theoretical framework for instructional design.



(Appendix E, 2009-2010 Selected Data)

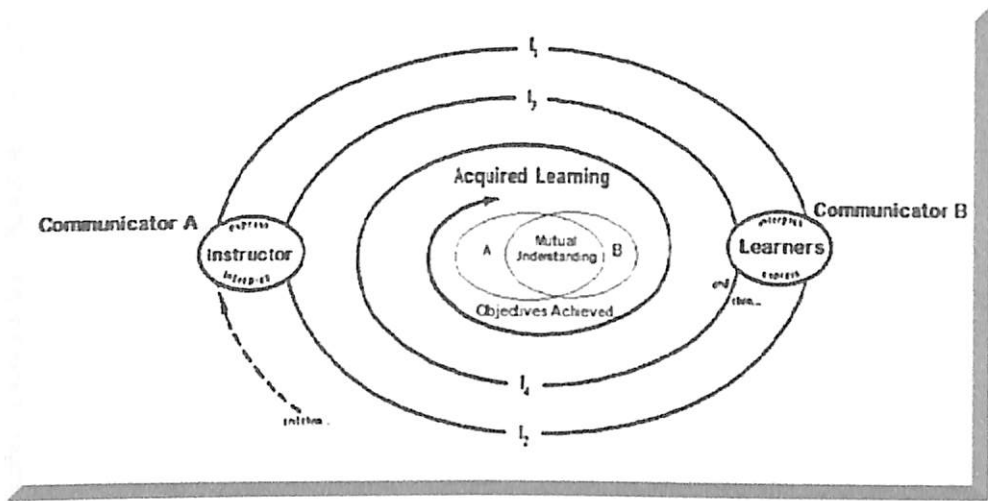
An Instructional Design Framework must be grounded on theories. The proposed Instructional Design Framework in Figure 20 (above) is founded on learning theories, instructional design principles, and the theoretical assertion, *Instruction = Communication*. The Theoretical Framework shows how Horton's Absorb, Do, and Create activities fit into Bloom's Taxonomy of Learning, how formative assessments and summative assessments of learning can be at various learning levels. Figure 20 proposes that instructional communication is a purposeful communication process and depicts that learning is achieved through communication and student engagement in learning activities (Magabo, 2016). The Proposed Instructional Design Framework also underscores the various theories discussed in the peer-reviewed presentations and workshops that highlight and incorporate '*Instruction = Communication*.'

The Theory of Meaningful Learning (Ausubel, 1977) applies Vygotsky's Scaffolding Theory as it contends that learning occurs when individuals can relate their already known concepts to the new ones. Meaning is a "clearly articulated and precisely differentiated conscious experience that emerges when potentially meaningful signs, symbols, concepts, or propositions are related to and incorporated

within a given individual's cognitive structure on a non-arbitrary and substantive basis" (Anderson & Ausubel, 1965, p. 8).

Convergence Theory. The process of instruction (teaching-learning) that results in learning can be well-illustrated using Convergence Theory as depicted below:

Figure 21: The convergence model of communication for instruction.



Adapted from Kincaid and Schramm, 1975 as illustrated in Flor, 2004
(Appendix I, Selected Data, 2017-2018)

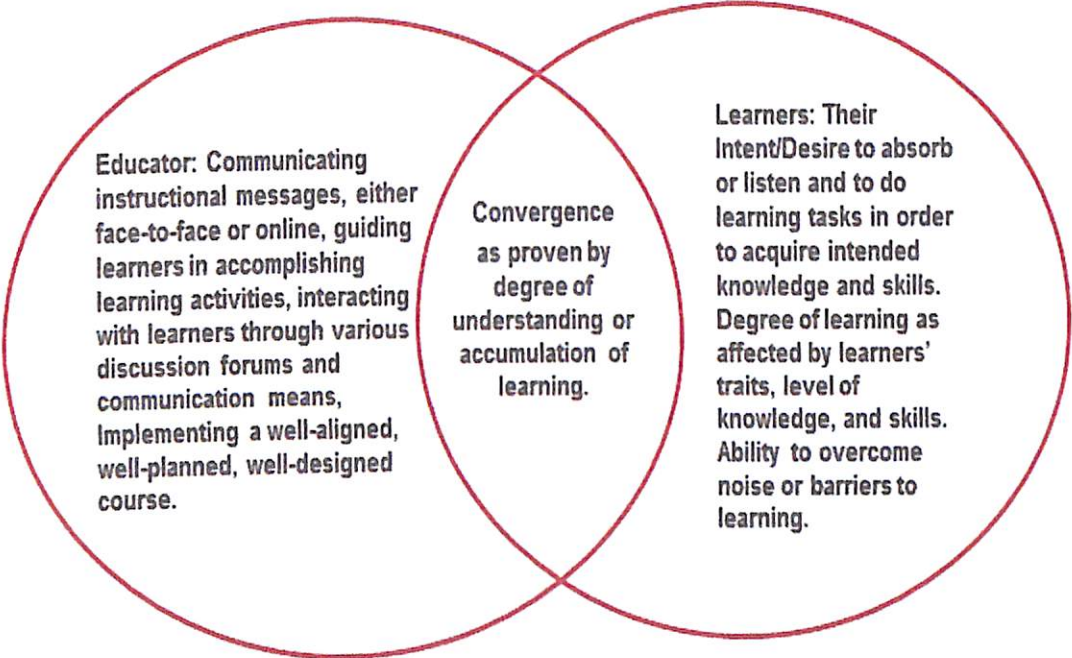
Figure 21 (above) shows the strong applicability of the Convergence Model to the highly purposeful nature of the process of instruction (teaching-learning). Lawrence Kincaid's (1975) paradigm of communication "as a cyclical process of convergence and divergence" (Abstract, p. i) is of paramount importance to the process of instruction (teaching-learning process). The Convergence Model of Communication (Kincaid and Schramm, 1975, p. 33) is crucial in understanding the levels of achievement of learning objectives. Its theoretical assumptions include the consideration that not all communication involvement is intentional among individuals. Kincaid's Convergence Theory clearly illustrates the communication process within a classroom learning system and is a valuable tool that illustrates the purposefulness of instructional communication.

Convergence Theory validates Figures 6, 7, 8, 9. In a learning environment or system, learning is the point of convergence. The degree or level of learning determines the degree or point of convergence in each learner. The Convergence Model and its theoretical assumptions are fit to be adapted into the instructional process as it validates the proposed general model of instructional communication, *Instruction = Communication → Learning*. When the process of instruction begins, communication begins. The point of convergence in instruction (teaching-learning)

occurs if learners attain the desired learning outcomes specified in the Instructional Design or Plan. Convergence Theory also validates the proposed IMC (Figure 6) and all the process models (Figures 7, 8, and 9).

The Mental Model below (Figure 22) is an operationalization of the Cybernetic Loop process depicted in the Convergence Model, with the Instructor or Facilitator of learning as Participant A and the learners as Participant B.

Figure 22. Learning as a point of convergence.



Appendix J, Selected Data, 2019-2020)

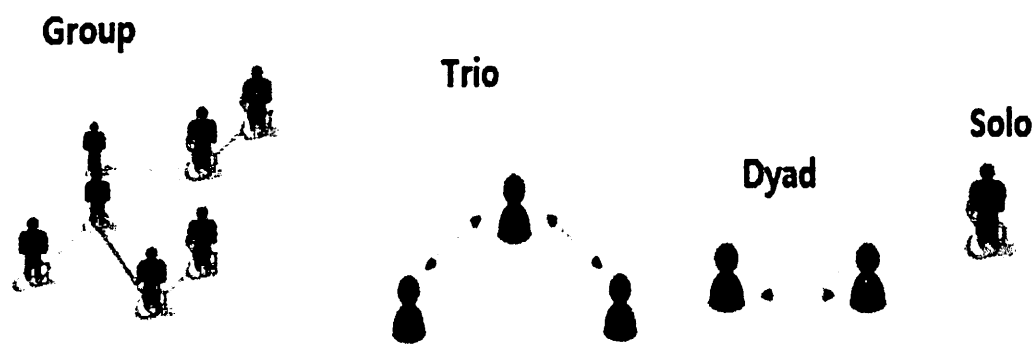
The Point of Convergence Model in Figure 22 (above) operationalizes that the point of convergence in the Convergence of Mutual Understanding (Kincaid, 1975 p. 32). Figure 22 echoes the highly purposeful communication nature of instruction. In learning, despite divergence, convergence should be achieved. Convergence in the instructional communication process takes two forms. The first form is a mutual understanding of what should be learned; the second form is the degree of understanding or accumulation of learning.

The convergence (point of understanding) can be assessed using measurable learning objectives (objectives that specify what learners must 'be able to do after engaging in instruction). It must be noted that despite receiving the same instructional guidance, materials, time, and attention, not all learners will achieve the

same convergence point. Due to diverse traits, abilities, backgrounds, frames of reference, there will always be a divergence in instruction, and the goal of instruction is to bring convergence. The schematized instructional communication process in Figures 6, 7, 8, and 9 depict that learners' traits and instructor's traits vary. Thus, learning outcomes vary.

Convergence and Formation of Communication Networks

Figure 23. Learning as a point of convergence forms networks.



Appendix D (2007-2008)

Classroom learners (online or onsite) tend to form various communication networks identified in Peter Monge and Noshir Contractor's (2006) seminal work on Communication Networks. Learners tend to form dyads, trios, or groups, with some individuals that prefer to be independent of the rest and most likely dislike the idea of team projects. It can be observed that the communication networks are consequently formed based on learners' interests in a particular topic, similarity of views on certain issues, cultural backgrounds, geographical locations, degree programs they pursue, communication vibes, etc. The formation of communication networks tends to support collaborative learning and can be tapped to enhance the effectiveness of the instructional communication process.

Instruction is Communication: A Process Bonded by Theories

The interlock or intertwined link between instruction and the communication process is revealed further through theories. The link between instruction and communication is seen not only through Berlo's Communication Model or Theory. There appears to be logic in examining in-depth communication and learning

theories within the instructional communication process. Instruction as a communication process (online or face-to-face) can be analyzed within systems and communications theories.

Universal Design. The analysis of communication theories and models, even from the basic S-M-C-R-E model, could help show the intrinsic nature of instruction as a highly purposeful communication. The feedback loop and effects included in the SMCRE model can best align with the Cybernetics approach. The Universal Design for Learning (UDL) Theory employs the concepts within the SMCRE, even though the proponents of UDL do not even recognize the striking semblance of the instructional design process with the SMCRE Model. Likewise, Krippendorff (1994) highlights the cyclical and iterative process of instruction starting from the development of instructional plan or design, implementation, assessment, evaluation, or up to the 'creation of knowledge' espoused in the work of Senge (1990).

Conversation Theory and Cybernetics are at work. Christopher Pappas (2016) presents a theory of systematic, technology-based approach to Instructional Design (ID) anchored on Gordon Pask's (1975) Conversation Theory. The Theory of Conversation outlines the core principles, identifies the levels and types of conversations within the process of instruction. The entire process of instruction from planning or designing to the implementation phase can be plotted within the "cybernetic loop" process, as can be seen, operant in Gordon Pask's (1968) Conversation Theory.

Cybernetics clarifies the interlinked process. The literature on Cybernetics provided further clarity to the intertwined link between the process of instruction and communication, rather than a dichotomous perception that views only the 'role of communication' in instruction. In the abstract of their work alone, Kopstein & Siedel (1971) have succinctly expressed the need for the use of cybernetics in employing instructional strategies for effective instruction due to the need for "principles of iterative feedback control and regulation in the instructional process" (p. 1).

The cybernetic approach to the study of the entire instructional process may be a way to address one gap in the current practices, beliefs, and perspectives regarding the communication process within the instruction process. Communication is missing in the considerations of the instructional design process. While instruction (teaching-learning) aims to produce meaningful outcomes, the communicative nature of instruction is not highly given importance in most instructional designs. Gordon Pask (1975b) viewed learning in cybernetic terms as "the control of learning," and he suggests a cybernetic theory of learning where learners and the teacher of the class are in "conversation" with each other (see also Scott, 2001). The model includes within its precepts the internal dialogues within the human mind, which are inherently present within the process of individual learning as in the classic accounts from Vygotsky's works (1978, 1980).

Cybernetics is the science of effective governance. Cybernetics proved to be an interdisciplinary science, which has expanded from the original focus on machines and animals to studying life and mind and explaining their purposeful or goal-directed behavior. Cybernetics relates to effective classroom governance (Heylighen and Josslyn, 2003) on second-order cybernetics. Cybernetics, the study

of life and mind, is of Greek origin, "Kybernetes" or steersman, which according to Plato, is "*the science of effective governance*" (Panagiotakopoulos, 2005, p. 28). The cybernetics of learning relates to classroom governance, which stresses the importance of instructional design. An impactful teaching-learning process does not merely occur by chance. It is planned and designed.

Conversation Theory and Vygotsky's Learning Theory. The Conversation Theory (CT), which aligns with Vygotsky's (1986) sociocultural theory, helps unmask the nature of instruction as a purposeful communication, with the goal of creation, innovation, integration, productivity. As cited by Valenzuela (2002), "Tharp and Gallimore (1988)" contend that "the sociocultural perspective has profound implications for teaching, schooling, and education," which has implications on the view of human development as a result of social interactions. Valenzuela (2002) emphasizes the scaffolding principle of learning engagement. Citing Kublin et al. (1989), Valenzuela noted how Vygotsky viewed "learning as an outcome of learners' engagement in social events and as a result of their interaction with others with the objects and situations in the environment" (p. 287). The sociocultural perspective strengthens the view that meaningful conversations (discussions) serve as a scaffold to student learning.

Conversation Theory has implications for learning designs. In Conversation Theory, Instructional Designers (IDs) are considered reflective participants who observe the instructional process (Gordon Pask and Bernard Scott, 1972). The "second-order cybernetic-based approaches" such as that of Krippendorff (1994) are known to be, according to Senge (1990), particularly valuable to learning systems since the cyclical process allows for feedback that is valuable to creating change and transformation. Conversation theory (Scott, 2001) elaborates all essential elements holistically in communication or instructional events. Conversation Theory's important implications for learning designs strengthen the bond between instruction and communication. Instruction must be a purposeful and productive conversation.

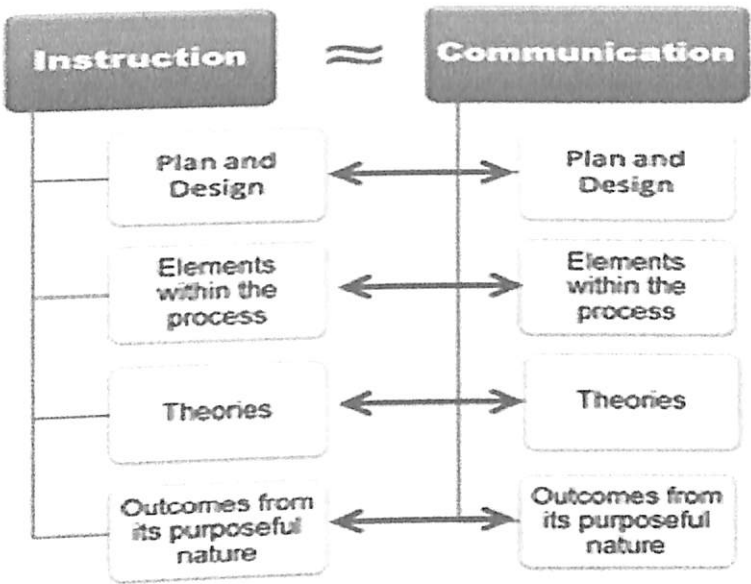
Gerbner offers a theory of communication that applies to teaching. In a 15-page article, "*A Theory of Communication and Its Implications for Teaching*," Gerbner argues the role of communication in society's transformation. In this work, Gerbner distinguishes a "communication approach" or communication theory or discipline as one that is mainly concerned with the role that messages play in the lives of the people and society. Central to Gerbner's view of communication is the humanizing function of communication to elevate human standards as individuals gain knowledge, understanding, and skills and develop a culture through communication. Gerbner applies a theory of communication and its implications to teaching in a manner suggestive of instruction as communication.

Gerber's transformational communication is purposeful. Gerbner's view of the transformational role of communication suggests that instruction is purposeful communication. Gerbner's intent to apply a communication theory to the teaching-learning process comes quite close to this study's intentions. Given the primary role of teaching and learning to impact knowledge and skills, instruction is inherently purposeful (deliberate with purpose and objectives to attain) and not just purposive (executed without planned objectives).

Objective 3: Identifying the Three Key Indicators

The third study objective summarily identifies the key indicators that link instruction and communication, as can be gleaned from the findings in objectives 1 and 2. The key indicators of how instruction and communication are linked include their oneness in process, elements, planning or design procedures, theories, and intended outcomes. The essential elements in the process of instruction are the same elements within the process of communication. As fully examined and discussed, learning theories and communication theories operate within the process of instruction (either complementary or integratively). These key indicators are best depicted in the schema (see Figure 24) below:

Figure 24. Expanded view of 'Instruction = Communication.

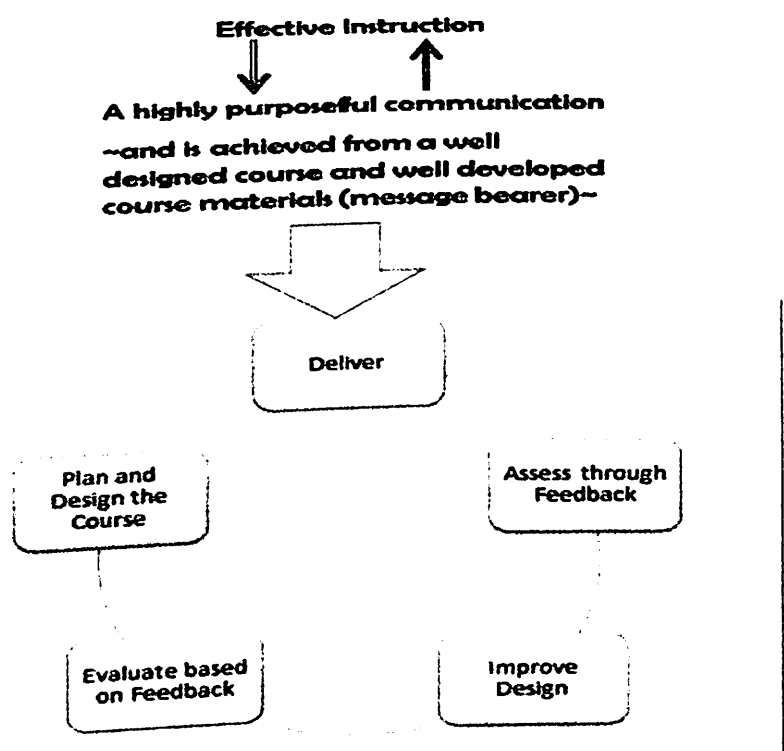


(Appendix B, Selected Data, 2003 – 2004)

Both have the same elements within a purposeful process. Figure 24 (above) sums up the key indicators of communication and instruction as interweaved and as a purposeful process. Instruction occurs as purposeful communication with the intent to attain the desired outcomes or objectives. Instruction cannot occur outside of communication. As instruction occurs, all communication elements are present in that process (learners and instructor of diverse traits, backgrounds, knowledge, temperament, different communication styles, skills, knowledge, instructional content/message, channel or medium, the feedback loop, effects). The purposeful process of instruction begins from its design phase, where desired outcomes are identified.

Learning theories and communication solidify an interweaved link. As previously discussed lengthily, the theories explain and strengthen the interlink relations between communication and instruction. Through the theories operating within the instructional process also reveal the bond that ties instructional with communication. The schema below (Figure 25) illustrates the propositional assertion that effective instruction results from a highly purposeful communication process implemented following a well-designed instructional plan.

Figure 25. Effective instruction = highly purposeful communication.



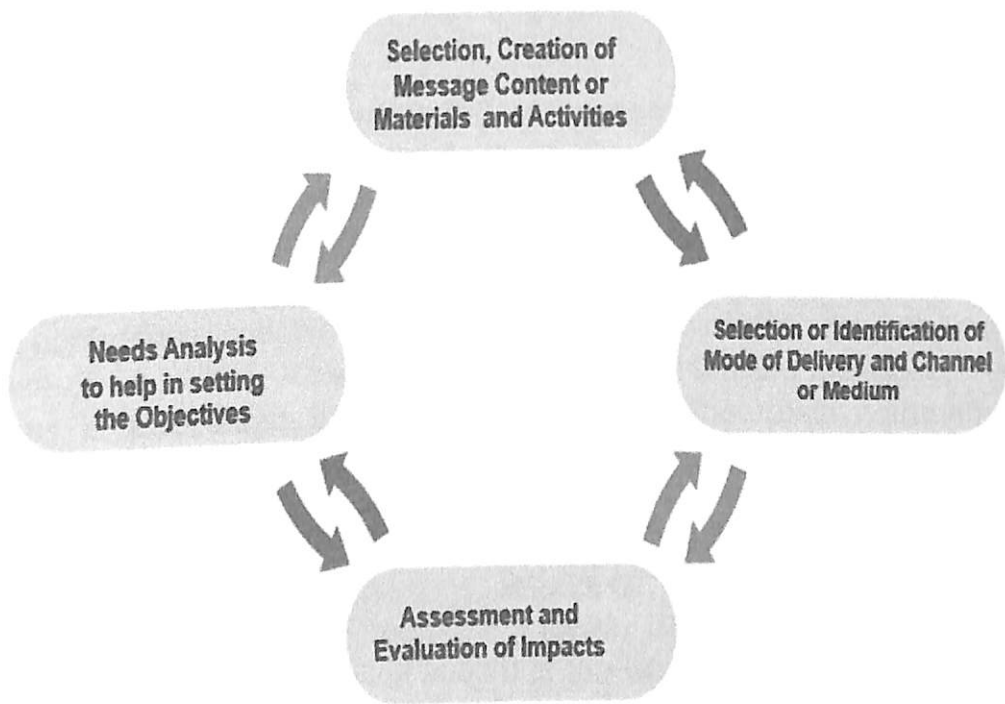
(Appendix C, Selected Data, 2005 – 2006)

One Fundamental Design Process. Instruction and communication follow the same fundamental design process. Both use the same systematic planning and design method that could lead to highly purposeful and productive communication. (Magabo, 2012). For a course to truly bring out the best in learners, the alignment of all instructional elements is imperative (Magabo, 2017). Roach, Niebling, & Kurz (2008, p. 1) define alignment “as the extent to which curricular expectations and assessments are in agreement and work together to guide educators’ efforts to facilitate students’ progress toward desired academic outcomes.”

Lovlie (p. 79) pointed out the successful use of Hartson and Pyla's (2012) "Lifecycle model" for their course design, which features the cyclical iteration of analysis, design, implementation, and evaluation. Branch & Kopcha (2013) suggest a continuing cycle of identifying the desired learning outcomes, choosing strategies for effective instruction (teaching-learning), deciding on the appropriate technological and media tools, and assessing performance. Cohen (1987) asserts that learning objectives, course content or materials, learning activities, assessments, feedback mechanisms, and evaluations must align.

The schema or model below (Figure 26) shows the fundamental steps (cyclical process) in designing or planning instructional communication:

Figure 26. The cyclical instructional design process.



(Appendix G-2, Selected Data, 2013 – 2014)

The fundamental Instructional Design (ID) process illustrated above follow the general process of communication planning as follows:

1. **Analysis of needs in aid of objective setting.** This phase includes analyzing the audience or learners and their learning or communication needs) vis-à-vis the curriculum's goals. Kemp, Morrison, Ross, and Kalman

(2007) recommend front-end analysis for all teaching endeavors and consider the context or environment in which instruction must occur.

2. **The Selection or Creation of Content or Communication Message.** Major instructional communication messages are delivered through the course materials and are mostly patterned from the learning content.
3. **Channel or Medium.** This step includes choosing the technology to be used depending on the mode of delivery.
4. **Assessment and Evaluation tools.** A crucial part of the design phase is creating assessments and evaluation tools used during the implementation phase.
5. **Analysis of the implementation process.** After the implementation phase, the cycle of design starts again with the first step.

Instruction and communication follow the same planning and design steps.

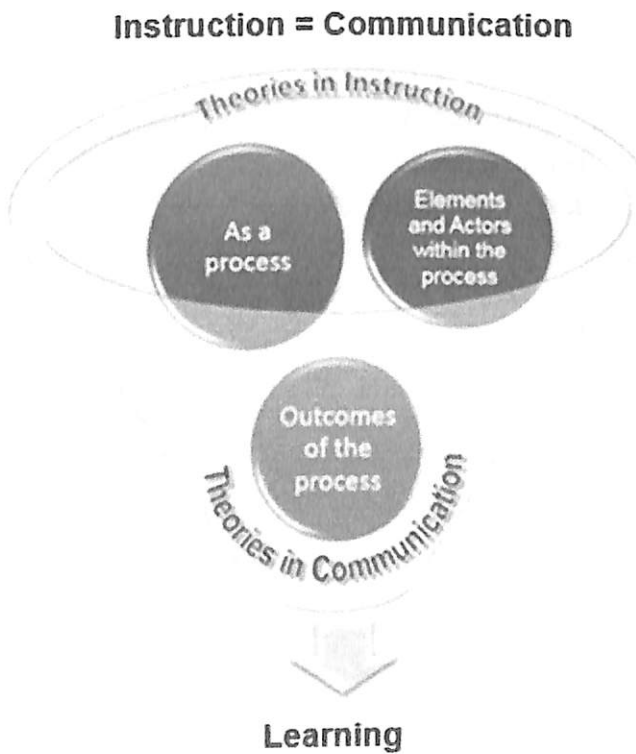
The above schema (Figure 26) depicts the cyclical process of Instructional Design, which are the same cyclical steps in Communication Planning and Design. The fundamental steps in creating a Communication Plan are the same as that of the Instructional Design phases. These fundamentals steps were part of the peer-reviewed conference and workshop paper presentations at the 4th International Conference of Education, Research, and Innovation (Current practices, trends, and experiences in Education: Exploring the use of a theoretical foundation for an instructional design model across the curriculum, 2011). The highly intertwined nature of communication and instruction (teaching-learning) manifests through the instructional design process. The alignment of all instructional elements: from objectives to learning content, to activities, to implementation strategies, assessments, and evaluation tools, is crucial. The use of best practices in implementing the learning activities is vital in the whole instructional process. In the "Designing Communication Design" article, Anders Sundnes Lovlie (2016) noted that:

In the design field, many scholars have described the design in various ways as a method for producing knowledge: as a form of science (Simon, 1969), a way of thinking (Rowe, 1987) or knowing (Cross, 2006), a "reflective conversation with the situation" (Schön, 1983), a process of meaning-making and a fundamental part of what it is to be human (Krippendorff, 2006; Nelson & Stolterman, 2003).

Therefore, effectiveness in instructional communication is by design. A well-designed instruction is more likely to achieve its goals and objectives effectively, and so is communication. The design of instructional materials strategically addresses what learners should know, acquire, and be able to perform or do after the learning session. The course materials comprise a big chunk of the communication messages. Purposeful instruction and communication intend to create a change in behavior to improve knowledge and skills. Needs assessment is crucial in the selection of content, creation of materials, as well as selection and or creation of activities. How the instructional process shall be implemented is identified in its design. Is it going to be face-to-face or online? What should be the appropriate channel? Tools for assessments and evaluations are created in alignment with the course objectives during the design phase. A well-planned, well-designed course ensures a purposeful process that results in learning.

Finally, Figure 27 (below) illumines the intertwined link between instruction and communication as it illustrates the key indicators of the link between instruction and communication (process, elements, actors, outcomes, and theories).

Figure 27. Instruction = purposeful communication → Learning



(Appendix J, Selected Data, 2019 – 2020)

Chapter V

SUMMARY, IMPLICATIONS, AND RECOMMENDATION

Summary

This study clarified the discernable link between instruction and communication schematized as Instruction = Communication through an iterative validation method within the Dual Ladder of Inference framework. In addition to achieving this main objective, the need to elucidate the instructional communication process, enhance its definition, theory, and model, as seen through the literature review, was accomplished. Instruction is planned, designed, and implemented as a purposeful communication undertaking that results in meaningful learning. An enhanced general theory and model of Instructional Communication is offered:

Instruction = Communication → Learning.

The three specific study objectives were fully achieved. First, the study elucidated the process of instruction (teaching-learning) using schemas or mental models to clarify the link between instruction and communication. The schemas or mental models generated from rigorous Reflective Research were used to understand the discerned link between instruction and communication, Instruction = Communication. The multiple loop analysis and validation process illuminated instruction (teaching-learning) as, ideally, a purposeful communication process that results in learning. Communication theories and learning theories that are operant in instruction were identified. The interlinkage between instruction and communication is distinguished in their design procedures, elements, implementation process, definitions, theories, and outcomes. Cybernetics, Learning as Conversation Theory, Convergence Theory, and other Communication Theories strongly suggest that instruction (teaching-learning) is a highly purposeful communication.

One interlocked process. The assertion '*Instruction = Communication*' may raise a contemptuous reaction. However, after this thorough study, it can only be concluded that the teaching-learning process occurs within the communication process. As instruction occurs, communication occurs. Instruction (teaching-learning) cannot occur outside of communication. *Instruction = Communication* appropriately schematizes the instructional communication process. This study concludes that instruction is a purposeful communication that results in learning schematized as ***Instruction = Communication → Learning.***

Instruction = Communication, a validated theoretical assertion. The selected data (schemas or mental models) from Reflective Research that were analyzed and validated illuminated the process of instruction as a communication. Instruction (teaching-learning) is a communication process within the context of a learning environment. It can be more effective if done purposefully from the design phase to its implementation phase, assessments, and evaluation phase. After a lengthy and thorough iterative validation process, the original assertion was expanded into ***Instruction = Communication → Learning.***

Kaplan's (1964) notion of a theory fits perfectly with the initial and the enhanced theoretical assertion after the analysis and validation process. The proposed theory and model of Instructional Communication finds a strong ally in Kaplan's argument that a theory is "...not just the discovery of a hidden fact; the theory is a way of looking at the facts or organizing and representing them" (p. 309). For Kaplan (p. 308), a theory "...involves more than observation; it calls for the exercise of creative imagination" (as also cited in Richey, Klein, & Tracey, 2010, p. 6). The enhanced general theory or model, ***Instruction = Communication → Learning*** is not a discovery of something new.

Instruction = Communication → Learning, an enhanced theory, and model. The enhanced theory and model of instructional communication encapsulates its complex nature and its elements. Instruction transpires as communication within the context of a learning environment. ***Instruction = Communication → Learning*** qualifies as a theory within Littlejohn's (1989) first function of organizing and summarizing knowledge. "The first function of theory is to organize and summarize knowledge" (Littlejohn, p. 21), and as quoted in Richey, Klein, & Tracey (p. 8), who deemed such function of a theory highly valuable in the practice of instructional design (ID). For them, the first function of a theory "encompasses such a broad spectrum of study and is applied to many diverse settings" (p. 8). Hoover and Donovan's general definition of 'theory' speaks to an overall descriptive, explanatory role. Often, descriptive research informs the foundation for theoretical constructions.

Implications

The major outcomes of this study offer fresher perspectives through a proposed enhanced theory, definition, general model, and holistic Instructional Communication Model that considers the instructional plan or design as a vital component in the teaching-learning process (instruction). Three major sets of implications are seen based on the findings and outcomes. First-- the methodological, ontological, epistemological implications from this study framework, data, and findings. Second, and most comprehensive, the theoretical and philosophical implications, offering an

enhanced theory and model and enhanced definition for Instructional Communication. The data and findings on theories necessitate a robust discourse and a need for further exploration, identification, and classifications of learning theories and communication theories. All these implications may spur some advancements in the field. Third and most crucial, the findings and data have implications for instructional practices.

Methodological, Ontological, and Epistemological

Methodological Implications

While there is no prescribed method for theory development, this study proved that theory development and model building could be done systematically. This study utilized various theories for its study framework. With the proven usefulness of the Dual Ladder of Inference Framework, theorists may either use this framework or develop a similar framework that can aid them in crafting and validating theories and in developing models to illustrate or schematize theoretical assertions. The concerns for the lack of systematic theory development and model building have been addressed in this study. Qualitative, reflective, observation research could use an iterative validation process such as the Ladder of Inference is valuable in crafting a theory. Schematizing (utilizing mental models or mental representations) is an excellent tool that supports theory and model building, as proven in this study. A researcher or an investigator, or a theoretician should not ignore a schema within the mind but, instead, study it and explore its realms of possibilities. A study that begins with a theoretical or propositional assertion is an essential step to theorizing and model building and must not be discouraged. A thesis is for empirical study; a schema or propositional assertion is for qualitative research.

Descriptive research is for descriptive theory. This research demonstrates how a descriptive theory is investigated, analyzed, and validated through descriptive research using a reflective methodological approach. Often the research which forms the foundations for the construction of propositions is descriptive. Dubin (1969) asserts that "the more profound the descriptive knowledge, the better the theory is likely to be" (p. 237). Miller and Miller (1999) underscored the importance and value of **descriptive research** on the underlying set of facts, assumptions, and rules within the system. Descriptive research is accomplished through observations and case studies, resulting in the development of explanatory theory. Hoover and Donovan's general definition of "theory" speaks to the general illustrative nature and its descriptive role.

Ontological Implications

The ontological values of this study could enrich the discourse and broaden the scope of Instructional Communication studies. From a holistic view and Systems Thinking standpoint, the planning and design phase of instruction is part of the complex instructional communication process, as emphasized in education's pedagogical (young learners) and andragogical (adult learners) strategies. The illumination that instruction (teaching-learning process) transpires as communication that results in learning has implications on the current ontological view that communication plays an important role in instruction. The instructional communication process has been elucidated through the various mental models (schemas) developed, presented, and discussed in this study. All instructional elements synergistically and effectively create more vibrant, meaningful, and **productive conversations** that result in learning outcomes (i.e., knowledge and skills that are responsive to the industry's workforce skills needs requirements). Thus, the initial schema *Instruction = Communication* is enhanced. Instruction is communication that results in learning schematized as, *Instruction = Communication → Learning*.

Instruction (teaching-learning process) is a communication process that occurs within the context of classroom learning. The instructional process, just like any other human interaction, occurs within the entire process of communication. Not a single teaching-learning event occurs outside of the communication process. The prevailing notion of communication as playing a role in instruction could be an understatement of the true nature of instructional communication. An elucidated instruction (teaching-learning process) as a purposeful communication process gives Instructional Communication a clear ontology. The true nature of instructional communication is encapsulated through an enhanced general model of instruction as communication that results in learning schematized as ***Instruction = Communication → Learning***. This ontology comes with an enhanced theory, an enhanced model, and an enhanced definition of Instructional Communication.

The foundation of 'instruction as communication that results in learning' could be traced back to Communication Theory's historical roots. Communication theorists Bateson, Ruesch, and Watzlawick suggest a view of communication to be present in every human interaction. *Instruction = Communication* asserts that every individual is a member of the field of Communication because every being that exists engages in communication. Thus, every being or every individual is a communicator. Communication, as a vehicle, accentuates the permeating power of communication in all aspects of human existence and activities. "One cannot not communicate" is Paul Watzlawick's first Axiom of Communication (Watzlawick et al., 1967, p. 51; and as noted in Lutterer, 2007).

Instructional Communication scholars must recognize the true nature of instruction (teaching-learning) as a communication process. The instructional

process (teaching-learning process) occurs as communication – the true nature or ontology of Instructional Communication. While it is true that a field of study must have its own theories and principles, not merely borrowed from other fields. How else can Instructional Communication be a unique field? It must be recognized that communication is ubiquitous. Communication permeates all aspects of human interactions. Instruction is just another form of human communication where ideas, information, knowledge are shared and received, and meanings are constructed and deconstructed.

Unless Instructional Communication scholars accept the reality and true nature of communication, the field will continue on its futile journey to nowhere. Its approaches could revolve around the same variables they used for their studies in the past three decades. As noted in most recent literature studies, Instructional Communication scholarships have circled on the same variables, offering the same knowledge levels. In contrast, global spheres have far-reaching opportunities to provide. The field of Instructional Communication must be concerned with analyzing the highly purposeful nature of instruction. Instructional Communication, as a field of study, should place under its mainstream consideration the ways of understanding instruction through a systems approach, looking through the process as a purposeful communication process – wherein various theories operate to make the process effective, productive, and meaningful.

Epistemological Implications

The study's theoretical groundings proved indispensable in ensuring thorough, unbiased validations of the selected data used in the study. All the elements in instruction and communication are the same within the context of a learning environment. The Mental Models developed throughout the years of Reflective Research illumined instruction as a process that occurs within the communication dynamics. Learning theories and communication theories mutually, synergistically, or conjointly happen within the process of instruction, thereby affirming the theoretical assertion: Instruction = Communication.

The schemas or mental models depict a fusion of concepts and learning and communication theories. Theories that describe learning also depict specific communication theories and principles corroborated with the initial mental model: Instruction = Communication. Instruction = Communication has grounds to stand on as a theoretical assertion that highlights, reflects, and refracts the process of instruction to occur inseparably within the communication process.

The innovative but disciplined ways of forming a theory and developing a model in this study are important to theory development. Even though there is no prescribed procedure (which could only restrict the theorizing process), a practical

framework, such as the Dual Ladder of Inference Framework used in this study may prove useful. The iterative means of analyzing and validating a Researcher's assumptions and assertions within the data (i.e., schemas or mental models) can be adapted as a methodological research approach to theory and model development. The framework can also be used in Reflective Research studies as the iterative process of validating one's assumptions through research and consultation with others eliminates the risk of bias.

This study proved that expressing beliefs and theoretical assertions in schematic forms (visual illustrations) extremely helpful. Schemas or mental models provide a skeletal frame or flesh to the conceived ideas, giving them illustrative clarity. This study showed that a theoretical assertion or schema or mental model could initiate a thicker discourse and be a subject of in-depth study that could lead to theory development. Schemas or mental models should be encouraged and made part of the Instructional Design of a Theory and Model Building course. Reflective, Critical, Refractive Thinking approaches are valuable to theory and model building within the Dual Ladder of Inference Framework. Schematizing within the reflective thinking process, developing mental models could be an effective and fruitful learning activity for a theory and model-building course.

Theoretical and Philosophical Implications

Theoretical Implications

Instruction = Communication → Learning offers a new theory, new definition, and an enhanced general model of Instructional Communication. Instruction as communication that results in learning clings back to the historical roots of Communication Theory. Communication theorists Bateson, Ruesch, and Watzlawick suggest a view of communication to be present in every human interaction. ***Instruction = Communication*** asserts that every individual is a member of the field of Communication because every being that exists engages in communication. Thus, every being or every individual is a communicator. Communication, as a vehicle, accentuates the permeating power of communication in all aspects of human existence and activities. "One cannot not communicate" is Paul Watzlawick's first Axiom of Communication (Watzlawick et al., 1967, p. 51; and as noted in Lutterer, 2007).

With a theory comes a model. Model building is an integral part of theory development as models are natural outcomes of well-studied schemas or Mental Models. The Ladder of Inference proved valuable in theory development and model-building for scholarly endeavors as the process provides multiple loops for clarifying and validating assumptions. ***Instruction = Communication*** as a simple Mental Model was worth examining, and as it has provided an impetus for crafting an enhanced

theory of instructional communication. The new theoretical assertion may draw new forms of criticisms and elicit a robust discourse. It may call attention to more interpretations, analysis, clarification, and validation from the scholars and practitioners, which could mean a vigorous process of theory and model building in Education and Instructional Communication as a sub-field of Communication.

Not all theories serve a predictive function. There are scholars, the likes of "Jonassen, Hennon, Ondrusek, Samouilova, Spaulding, Yueh, et al., (1997) who question if predictive theory applies to predict with accuracy all types of human cognition" as noted in (Richey, Klein, & Tracey, pp. 7-8). Besides, researchers have an unsettled argument on relational reasoning as to which one is better: the mental model theory or the inference rules theory (Van Der Henst, 2002). This argument is indicative of the need to recognize what tests would best fit a particular type of theory. Alternatively, not all theories necessarily serve predictive roles. Not all theories can validate their factuality or truth based on numbers from computational manipulations (for now, until new and highly sophisticated software is made available for qualitative analysis that resembles the human mind).

Studies on human subjects' cognitive reasoning for predictive studies have been problematic (Richey, Klein, & Tracey, pp. 7-8). It is most likely that some theories and models are just not fit for predictive functions. If a theory is a descriptive one, it may not necessarily require testing its predictive function. Studies of predictions typically require the use of conditionals (i.e., if and then, propositions) and applications of "modal logic" using terms such as 'necessarily' or 'possibly' to "qualify the truth of a judgment" (Garson, 2018, p. 1). However, there may be some problems with conditionals. Goodwin & Johnson-Laird (2018), in their article titled "The Truth of Conditional Assertions," noted how their study on conditionals also revealed discrepancies and difficulty in their experimental tests using conditionals.

The initial set of their test results favor the Mental Models' theory contrasted by another set of results that corroborates with other theories of conditionals (*Khemlani, 2018*). To validate the results, the authors developed two new sets of tasks they called "collective truth task," and the authors observed that the "...results consistently matched the three possibilities, thereby corroborating the model theory" (p. 1). Goodwin & Johnson-Laird (p. 1) argued that "...human reasoning violates all normal modal Logics" and that it was evident from their meta-study "how human reasoning violates all orthodox systems of modal logic" (p. 1).

All of these suggest that not all theories serve predictive functions. A descriptive theory performs its role of providing descriptions of a phenomenon or a process and could not be inferior to a popular theory with a predictive function. The studies on conditionals may also suggest that both descriptive and predictive theories may be negated or modified but could not be said to be completely wrong in their assumptions.

Now, an enhanced theory and model of Instructional Communication.

Instruction and communication are two different terms. However, their definitions, their elements, theories, and the process of occurrence depict an interweaved link. Instruction (teaching-learning) is a form or type of communication. Gordon Pask's (1968) learning theory asserts '*Learning as Conversation*.' Hurt, Scott, and McCroskey (1978) noted that "teaching is communication" Scott and Wheelles (1977) defined learning as the "acquisition of cognitive, affective, and/or behavioral capabilities." They view communication as the process of eliciting cognitive, affective, and/or behavioral commonalities through verbal and non-verbal messages" (p. 495). Their views validate ***Instruction = Communication*** and suggest that instruction (teaching-learning) is communication that results in learning, aptly schematized as ***Instruction = Communication → Learning***.

An enhanced theory and model mean an enhanced definition. The new theoretical assertion, '*Instruction = Communication → Learning*,' offers an enhanced definition for Instructional Communication. As illustrated in Figure 6, Instructional Communication must utilize a Systems Approach to analyze how the instructional design (alignment of objectives, content, activities, assessment tools) impacts communication dynamics and how such dynamics impact teaching-learning quality. Instructional Communication, therefore, is concerned with analyzing the variables that impact the teaching-learning communication dynamics and how such dynamics impact learning.

The communication variables in Instructional Communication consist of all communication elements and the conditions that affect the communication actors (Educators or Instructors or Professors, and Learners). These conditions are not limited to the learning environment but, foremost, include the instructional design. The instructional design is a key determinant of teaching-learning communication dynamics, classroom interactions, feedforward, and feedback mechanism in online or face-to-face instruction.

With this enhanced definition, Instructional Communication studies could address the fundamental instructional communication research question: *How well do the key variables (communication elements) and the teaching-learning components (including instructional design and instructional strategies) bring about the desired learning outcomes?*

Implications on the Philosophical Foundations

The origins of Communication theories and models coming from various fields are evidence that communication is ubiquitous, ever-present, all-pervading. The criticism that Communication is borrowing its theories from other fields (or that it is a bastard field) cannot hold so much weight. The supremacy of communication rests

on its laurels as being present in all human activities. Communication was and will always be present in the alpha (beginning) and the omega (end) of all things. Vlăduțescu's (2014, p. 24) lamentations of communication as lacking in "form and ontological prominence" may just be a result of the failure to recognize or assert the true nature of communication and its universal and all-pervasive communication presence in every being and every human activity.

Vlăduțescu's (p. 24) lamentations contain the voice of reason and a call for action. The last line in the above-quoted words from Vlăduțescu (p. 24) calls for communication scholars not to allow the field's dimming or submit to the demise of communication into nothingness. Otherwise, communication scholars shall be disciples of "nothing" (Vlăduțescu, p. 24). This study is an exploration of Instructional Communication's 'own' universe, and the theories and models discussed in this study are proofs of an existent and alive 'universe.' Communication scholars are not disciples of "nothing," as Vlăduțescu (p. 24) has noted. This study finds that communication sits on the high throne and has prime importance in all human transactions.

Now is the time to rise from stagnation. Vlăduțescu's (p. 24) lamentations signal an active call for Communication scholars to heed ironies spoken and become bold theoreticians, philosophers, innovators, and model builders. It is time for Communication scholars to be strong advocates in advancing and asserting the crown of Communication as a field. Communication is never and can never be a stagnant field but has always been active in every interaction and activity within this universe. All lamentations should serve as an encouragement to assert the ever-present existence of communication within every human undertaking. Vlăduțescu (p. 26) noted that until the field becomes rigorous, it will not be able "to come to agreements and make partners and friends." The strengthening of the tripartite coalition among Communication, Education, and Psychology could strengthen Instructional Communication. This study provides avenues for the field to move away from a sense of stagnation.

The field of Communication must recognize that the distance between itself and the farthest star is where it is. Communication is ever-present everywhere. It is omnipresent in everything. The field of Communication must acclaim its true existence and relinquish its territory so it can begin its gigantic task of unifying the universal elements forcefully. Regardless of the diverse visions, its mission is only one: to bring convergence. Unless communication settles to see where its crown is situated, it will remain a wandering star, and it will never be able to have a glimpse of its own majestic and supreme existence. To be in everything is an inherited nature that the sub-field Instructional Communication possesses. Instructional Communication does not need to wander far to find its unique identity as a field. It must only begin to look through within itself to find the truth.

The article *"You Cannot Not Communicate – Paul Watzlawick"* by Harald Sack (2018) echoes that communication permeates every human interaction and activity. Watzlawick's first axiom (Watzlawick et al., 1967, p. 51) stresses the communicative aspects present within every thought. Jurgen Ruesch was already promoting Watzlawick's first axiom (Ruesch and Bateson, 1951). "We can never abstain from communicating" for "...as human beings and members of a society, we are biologically compelled to communicate" (Ruesch and Bateson, 1951, p. 7; as also quoted in Lutterer, p. 1023).

The notion and the clamor for the lack of ontology for the field of Communication is a misnomer. For years, the field of Communication has tarried far, searching for its own identify, hoping to develop newer theories or models that spring forth from discoveries within its territory. The quest to reach unreachable stars is over. The ontology of communication comes with the fact that experts in other social science fields developed their theories. There is no denying that communication is ontologically part of every action of every interaction or transaction. No areas of study can thrive without the pervading presence of communication. Communication has its pervading presence in every being or existence. Such is the ontology of communication. Such is "the nature of its being."

Communication is as old as creation. Kincaid and Schramm (1975) gave thorough considerations on the naming of things that are of existence. For the authors, what gives distinction among languages or terms are the given meanings to the concepts "of information in human communication," noting that the word "inform" is comprised of "form" plus the prefix "in." Kinkaid and Schramm (1975) point to Bateson (1972, p. xxiii) to have traced the distinction between substance and form back to the central origin myth of Judeo-Christian thought found in the Old Testament.

¹In the beginning, God created heaven and the earth.

²And the earth was without form, and void; and darkness was upon the face of the deep (Kincaid and Schramm, p. 16)

The full text of the above passage by Bateson is part of chapter 1 verses 1 to 5 of Genesis (Genesis 1: 1-5) and is followed by the following verses:

³And God said, "Let there be light," and there was light. ⁴God saw that the light was good, and he separated the light from the darkness. ⁵God called the light "day," and the darkness he called "night." And there was evening, and there was morning—the first day.

An existence would never be without communication. Using the term "myth" for Bateson's above-cited biblical passage (xxiii), the authors noted that the next passages distinguished light from darkness, followed by the naming of Light as Day and Darkness as Night. The authors argued that the source of substance (matter) is negated in the above passage. As part of their in-depth discussion of form, Kincaid and Schramm argued that the giving of names is almost related to if not "inseparable from the act of dividing and classifying according to form," and such distinction is purely conceptual. In another sense, substance and its form are the same; they are inseparable and nonexistent without one another. This argument strongly suggests that a name or a term comes with every existence of any matter or being. Therefore, for every existence, creation, or being, there resides communication; there resides a word, a name, or meaning.

How important is the 'word'? How important is a name given to an existence? To explore further the biblical or metaphorical discourse on the Word, John chapter 1:1 and John 1:14 state:

¹ In the beginning was the Word, and the Word was with God, and the Word was God.

¹⁴ *And the Word was made flesh...*

Communication is as old a creation. Without the word or the communicative term affixed to any existence, it remains without distinction, and it is as good as being non-existent. Any matter or being with its inseparable form and substance also has an inseparable name or term necessary for its existence. A communicative name or term is an ancillary part of anything that can be considered existent (evolved or created). So, without naming day and night, sun, and moon, what gives meaning to their substance and form? Any physical matter or any being (evolved or created) can be given its classification, or its existence recognized or perceived; it has its properties or traits as the basis for its name or classification. The word a fundamental communication vehicle or tool existed right in the beginning. It is only fair to say that communication is as old as creation. With every existence or with every creation is communication.

Even if this biblical passage from the Gospel of John is to be considered a metaphor, and even if argued that everything simply sprouts into existence and not from a Divine Creator, the fact remains that what is existent carries with it a word, a name, or label. Every evolved or created matter carries a communication element. Any existence comes with a communicative element that allows it to be recognized by others. The Word, which is flesh and blood of communication, exists right at the beginning of any existence. Any existence must communicate itself to be perceived;

thus, it shall exist. Citing (Bateson, 1972), Kincaid and Schramm (p. 17) elaborated that:

To be perceived, a certain form must be recognizably different from other possible forms. Information is simply the difference that makes a difference, and communication is the transform of such a difference through a complete information circuit (Kincaid and Schramm, p. 17)

In the beginning, was the word. Then this word was made manifest as in the fullness of one's existence or being-- be of Christ or any human being. From the naming, the utterance of a word comes the existence of something in Genesis. If biblical passages are taken as metaphors, this still could not negate that the word, the name, comes with the form and substance of any matter (created or evolved). As even the most respected text known to humankind asserts that, "In the beginning was the word..." (John 1:1). This widely accepted belief (taken metaphorically or literally) bears the essential elements of communication within its narrative: the word. Even before the creation or evolution of any creature, the word was already there. The "word" was present in the very beginning—the thought, the spoken command, "Let there be light, and there was light" (Genesis 1:3), and so on. Then all creations came into existence through that spoken thought. That "word" spoken became into every "being" and life.

What thought-form of the universe did all things emanate? What determines their evolved existence if not assigned a word, a name, an idea to declare their own specific being or existence? What is a tree if a word tree is not used to name it? What is a bush, or what is a fire if not assigned a communicative term or word to declare its being or existence? Is it not a form of communication when a particular name is given to distinguish one species from another? A state of being cannot be without first a title or a term to communicate its existent. Otherwise, what defines and ascertains its existence?

Communication's strength lies in its perceived weakness. Communication inherently permeates all human interactions; therefore, the task of separating communication (and its theories) from all other fields may prove futile. All human transactions and activities cannot proceed without communication. This very nature of communication is its strength and not its weakness—a clear understanding of the instructional communication process and the theories operant within its process reveals its inherent strengths. There are learning theories that operate in the same way as communication theories, as identified and discussed in this study's findings. Communication inherently permeates all human interactions. Communication is the soul of every human transaction, and this is not a weakness but a strength of its own.

Strength perfected in weakness. This study speaks of the strength of the field, perceived as a weakness. One of the weaknesses of Communication and its subfield, Instructional Communication, is that scholars from other fields developed its theories. As Vladutescu (pp. 24-26) lamented, Communication does not have its theories developed by scholars within its domain. However, in a more refracted or even just from a Critical Thinking standpoint, Communication's weak spot is where its strength lies. As a vehicle or as a tool of every human activity (Vygotsky, 1962), this powerfully speaks of communication's unique and distinct presence in every human endeavor. Thus, Communication sits prominently as a field, as a discipline within the thrones of other fields or disciplines (i.e., Business Communication, Development Communication, Health Communication, Management Communication, and the list could go on).

Instruction is highly purposeful communication. Instruction (teaching-learning) is a highly purposeful communication process seen through the following key identifiers of the intertwined link between communication and instruction:

1. Communication and instruction are interlinked **as one process** consisting of the same elements geared toward attaining the desired learning outcomes.
2. Theories in instruction and communication perform similar roles or interlocking functions; and,
3. As a meaningful conversation or communication process, instruction (teaching-learning) must be deliberately planned, implemented purposefully, and not just purposively.

Third: Implications on Instructional Practices

As the true nature or ontology of Instructional Communication is highlighted in the study findings and analysis, the need for collaborative undertakings among Instructional Communication scholars and Instructional Designers is brought forth. Understanding the need, importance, role, and functions of design in impactful instruction could strengthen and enhance Instructional Communication scholarly endeavors. It will not only strengthen the field but will redefine and enhance its parameters.

Instructional Communication and Instructional Design must forge a pact. There are striking similarities between the holistic Instructional Communication Model (Figure 6) and Instructional Design models. However, the first is more concerned with evaluation, while the latter is more concerned with the initial phase (design or plan) of instruction. Nevertheless, they are both of core importance in ensuring effective instruction. The enhanced Instructional Communication model recommends a Systems Thinking approach. Instructional Communication must

analyze how the instructional design (alignment of objectives, content, activities, assessment tools) impacts communication dynamics and how such dynamics impact learning quality. An alliance between the two fields must be forged.

The pre-and post-instruction tasks are integral to an effective process. *Instructional Design is a vital pre-implementation phase, and Instructional Communication, at the end phase of instruction.* Instructional Designers (IDs) are concerned with planning (designing) and must start their work before implementing instruction. Instructional Communication scholars are concerned with teaching-learning dynamics and the impacts created by such dynamics. In other words, IDs are responsible for the pre-implementation of instruction while ICs are tasked with the evaluation of instruction post-implementation phase.

Purposeful and holistic approach. In addition to tackling the divide on communication within the process of instruction, this study's theoretical dimension suggests a holistic Instructional Design Model or framework that can help enhance the effectiveness and purposefulness of instruction. This study's proposed Instructional Communication Model (ICM) advocates for a holistic approach, a well-planned, well-designed, purposefully implemented instructional communication process that equips graduates with the workforce skills that match the industry sector needs. This study adheres to the holistic Systems Thinking approach within a unified stance from the purposeful nature of the instructional communication process.

Reflective Teaching Research is valuable for professional empowerment. Reflective teaching and reflective research should be encouraged and supported by educational institutions. A Reflective Teaching Model adapted with permission from Indiana University (see Appendix 7h) is proposed to provide a comprehensive assessment of one's instructional skills.

Recommendations

The major recommendations are given based on the implications of the findings and outcomes of this study. Instructional Communication should have a clear theoretical stance and utilize the enhanced general model and detailed process models that demonstrate how instruction (teaching-learning process) transpires as communication. This major step can strengthen the ontology and epistemology of Instructional Communication as a field. Instructional Communication scholars must make further explorations and investigations of theories operating within the process of instruction. More learning and communication theories could still be identified, assigned distinct names, and given a thorough analysis of their interrelations.

Considerations and adaptations of the proposed enhanced theory and definition of Instructional Communication are recommended in the hope of advancing the field of Instructional Communication. Collaborative undertakings among Education and Instructional Communication scholars are deemed important in strengthening and engaging the industry sector in delivering meaningful learning outcomes.

Strengthen the Field through a Clear Theoretical Stance

As has been highlighted in previous sections and above discussions, two views exist: one that views communication as a part of the teaching-learning process (instruction), and another suggests teaching as communication. Instructional Communication needs to concretize its theoretical stance, adopt an enhanced theory and model, refine its definition, and define its parameters further. Upon thorough validations and reflective analysis demonstrated through the various models or schemas (Figures 6 to 9), communication is not merely a part of the teaching-learning process. Neither does communication merely play a role in instruction. Rather, instruction (teaching-learning) is communication that results in learning. Instructional Communication can be strengthened as a field of study if it makes a clear theoretical stance that asserts an authentic ontology and epistemology. Instructional Communication scholars must be bold and courageous to step on its legitimate territory as a field of study. A clear stance (not two) must be had for Instructional Communication.

Adaption of the Enhanced Theory and Model

It is further recommended that the enhanced theory and model of Instructional Communication be adapted, as they encompass the study of communication about the process and outcomes of instruction (teaching-learning) in both traditional (onsite or on-campus) and nontraditional (virtual or online) learning environments. The enhanced theory and model of Instructional Communication illuminate the process of instruction (teaching-learning) as communication taking place within the context of a learning environment and, as such, allow for a more holistic evaluation and analysis using its systems thinking approach (see Figures 6, 7, 8, 9). The enhanced theory and model of Instructional Communication clarify *that while* instruction and communication are two different terms, their definitions, their elements, theories, and process of occurrence depict an interweaved link. Instruction (teaching-learning) is a form or type of communication. Instruction cannot occur outside of communication.

Enhanced Definition and Well-Defined Parameters

An enhanced definition provides for well-defined parameters. As a general definition, from the theoretical assertion, '*Instruction = Communication → Learning*' instruction can be defined as communication that results in learning. Instructional Communication, from a Systems Thinking approach, is a field of study that analyses how instructional elements and instructional design (alignment of objectives, content, activities, assessment tools) impact the communication dynamics and how such

dynamics influence the quality of learning outcomes. Instructional Communication, therefore, is concerned with analyzing the variables that impact the teaching-learning communication dynamics and how such dynamics impact learning. The communication variables in Instructional Communication consist of all communication elements and the conditions that affect the communication actors (Educators or Instructors or Professors, and Learners). These conditions are not limited to the learning environment but, foremost, include the instructional design. Enhancing the definition of Instructional Communication can result in well-defined parameters that could spur advancements in the field.

Strengthen the Tripartite Approach with Current Approaches

The results of this study conform to the interdisciplinary foundations of Instructional Communication. Farris, Houser, Hosek (2017, chap. 1 in the second edition of *The Handbook of Instructional Communication*) noted the field has groundworks rooted in Psychology, Communication, and Pedagogy. Keeping up with the interdisciplinary foundations is a sign of strength within the systems approach. It allows for a holistic view of instruction from its inception (design or planning phase) to its implementation and evaluation phase. Since Instructional Communication scholarship focuses "on exploring how the interactions between teachers and students influence" the cognitive, affective, and behavioral "learning outcomes" (Farris, Houser, Hosek, chap. 1), the functions of theories in Psychology cannot be negated.

As Mottet & Beebe (2006) have underscored, Instructional Communication and Educational Psychology are concerned with predicting and understanding the three learning domains (cognitive, affective, and behavioral). The appropriate instructional approach for the different contexts and various types of learners can help shape learning conversations, dialogues, and learning activities, determining the instructional impacts. From psychology comes the cognitive thinking process (how learning occurs when learners encode ideas or information during the listening or absorption phase of Instruction. Learning theories are valuable in understanding how learning occurs.

However, Pedagogy is not the only existing instructional approach. One way to strengthen the tripartite approach is to recognize that Pedagogy is not the single instructional approach. The tripartite approach should include Andragogy (adult learning), Heutagogy (self-learning), and Real-Life Learning approaches. Instructional Communication should not stagnate with the common Pedagogical Theories (cognitivism, constructionism, and behaviorism). The canons of Andragogy and Heutagogy should be considered as explored in Halupa's (2015) "Pedagogy, Andragogy, and Heutagogy" and their linkages to transformative education.

Strengthen the Tripartite Approach with Academe-Industry Linkage

To identify the essential skill requirements, graduates will need to work with the industry sector, a systems approach framework for developing course learning

objectives, content, and learning activities. The instructional design must ensure that courses are responsive to the job skills requirements of the industry. The academe and the industry sector must identify relevant content and instructional materials that will help meet the desired learning objectives and identify and create learning activities that will ensure learners acquire industry-relevant skills.

This recommendation supports the efforts exerted by the U.S. Department of Labor, Employment & Training Administration. It aligns well with the Generic Building Blocks Competency Model that guides in identifying relevant and highly desirable know-how, expertise, and competencies that college graduates must be genuinely workplace ready. This competency model identifies at the top levels of the hierarchy the industry-specified skills for their workforce. If adopted by colleges and universities, this model shall require close ties and collaboration with the industry sector, not just in internships or community outreach projects but also in developing the program curricula and course designs.

Relevant learning outcomes are significant transformations. In this global era, the learning outcomes must be highly relevant and responsive to the industry sector's workforce skills requirements. Student learning outcomes must not remain at the level of knowing and understanding but extend to doing, applying, integrating, synthesizing, and evaluating knowledge to solve world problems. Higher education institutions must develop college graduates with industry-specific skills, in addition to soft skills (i.e., communication skills, critical thinking skills, collaboration and leadership skills, and the like). Now is the time to usher in an era of stronger collaboration among Education and Instructional Communication scholars and foster stronger collaboration between the academe and the industry sector to fulfill instruction's transformative role.

Promote Collaborative Efforts Among IDs, ICs, and Faculty

Enhance and promote collaboration among Instructional Designers (IDs), Instructional Communication scholars (ICs), and faculty in developing courses and designing instructional materials and activities that are learner-centered and genuinely help meet the needed skills that the industry needs for the workforce resource. Instructional Communication's scholarly endeavors have inherent values to the field of Education, and it carries with its intrinsic contributions and implications to Instructional Design. Thus, to be of actual value to education, instructional communication studies must take a systems approach and become more holistic in their mission, vision, and goals. Instructional Communication scholars must not shy away from collaborative studies with Educators and Instructional Designers. The need to include Instructional Design as part of instructional skills is necessary.

Studies must consider the Systems Thinking Approach

Instructional Communication studies must be holistic and must be concerned with examining not just the communication variables during the implementation of instruction. Instructional Communication must also consider how the plan and design

of instruction affect the communication dynamics and how such communication dynamics affect learning in the classroom. Figure 6: Instructional Communication Model: A Systems Approach provides a framework for a holistic approach to Instructional Communication studies. Instructional Communication studies may opt to address or analyze the instructional communication dynamics. These questions may include but are not limited to the following:

1. What are apparent or observable communication traits among actors in the learning environment?
2. Is the Instructional Design well-aligned ensuring good communication and classroom governance?
3. Are the content and learning activities well-designed to meet the learning objectives?
4. Are the materials engaging, motivating for learners?
5. At the implementation phase, the study evaluates the purposefulness or purposiveness of instruction. Is the delivery or implementation of the instructional plan purposeful or simply purposive?
6. How dynamic is the communication or interaction between and among students and the instructor?
7. Is there active engagement among learners? Are they listening and absorbing the lessons well?
8. Is there a good feedforward and feedback mechanism?

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APPENDIXES

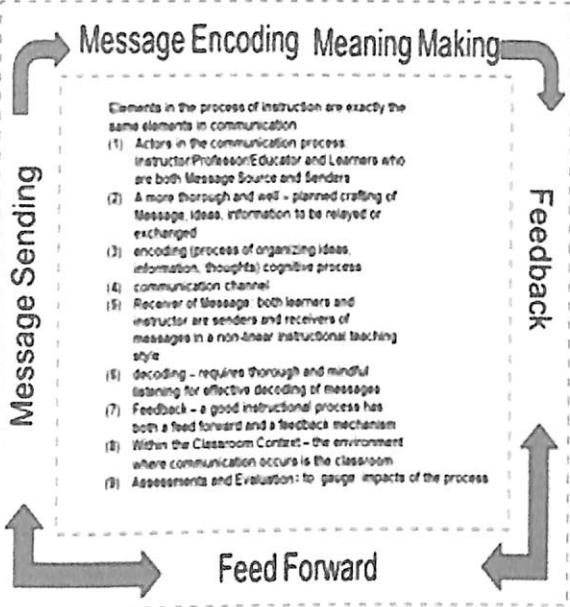
APPENDIX A: SELECTED DATA (2001-2002)

Mental Model/Schema	Reflections and Validations
Repeated reflections, continuous examinations of the process of instruction formed a schema in the mind that the same communication elements are present, the same planning and design requirements are needed in an effective instruction (teaching-learning process). The thoughts were schematized as: The mental model makes it hard to conceive instruction (teaching-learning) to occur outside of the communication process. <i>Why the schema, Instruction = Communication?</i> Giving the process of instruction an in-depth examination, what the reflections perceived are as follows:	REFLECTIONS 1. Actors (Source-Receiver) are the Instructors/Professors or Educators and Students or Learners. 2. Messages to achieve learning objectives are planned, embodied within the course design, and course materials (serve as communication materials). 3. Medium or Channel considerations (technology use that enhances the proves and improves the learning environment) 4. Noise or Barriers to learning are the same as that in the Communication process 5. Desired Effects are achieved through well-planned, well-designed, and well-delivered instruction. The process is a highly purposeful communication process. 6. Assessments and Evaluation (both in instruction and communication): The intended Effects are measured, assessed, and evaluated. Most often, the process is highly purposeful. VALIDATION When presented to the class in Psychological and Socio-Cultural Foundations of Education, the class and the Professor's (Dr. Ortinero's) evaluation of the presentation expressed encouragement in pursuing a study to further analyze the metacognitive and conceptual thoughts within the schema (Instruction = Communication). Another part of the recommendation was to research communication principles, theories, and models that align with instruction theories.

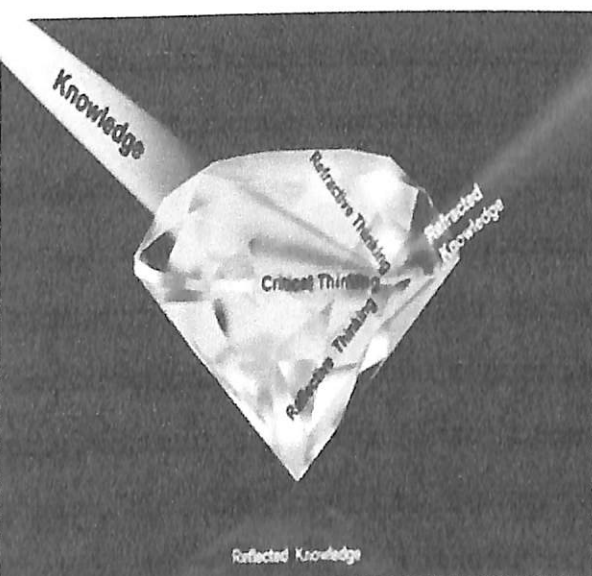
APPENDIX B: SELECTED DATA (2003-2004)

Mental Model/Schema	Reflections and Validation
Adapted from Schramm's Communication Model	REFLECTIONS The same planning and design process, the same communication elements, uses communication principles, and purposeful nature. The more observations and reflections on improving instruction outcomes, the more I see the entire process occurring within the highly purposeful communication process. Instruction (teaching-learning process) is made possible through the process of communication. A deeper reflection at instruction as a process gives instruction and communication two parallel worlds or parallel universes. Every process and element in instruction is the same as the process of communication. So, how can communication be merely a part of the instructional process (teaching and learning process)? The instructional process is a communication process in its entirety. Communication is not just part of instruction but a process through which instruction (teaching-learning) occurs. VALIDATION. When discussed and consulted with peers in Communication and Education, some showed acceptance or openness, and some showed hesitance to the idea. These two early schemas were later used to develop other schemas into elaborate models for Instructional Design and illustrate instruction as communication that went through the peer-review process.

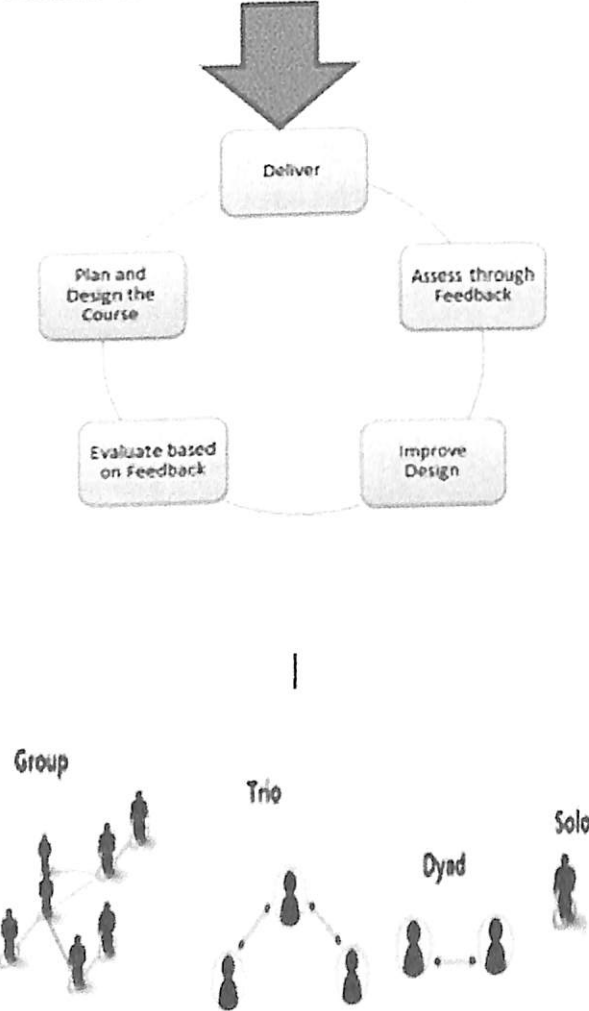
APPENDIX C: SELECTED DATA (2005 -2006).

Mental Model/Schema	Reflections and Validations
 Message Encoding Meaning Making Elements in the process of instruction are exactly the same elements in communication (1) Actors in the communication process: Instructor/Professor/Educator and Learners who are both Message Source and Senders (2) A more thorough and well-planned crafting of Message, Ideas, information to be relayed or exchanged (3) encoding (process of organizing ideas, information, thoughts) cognitive process (4) communication channel (5) Receiver of Message: both learners and instructor are senders and receivers of messages in a non-linear instructional teaching style (6) decoding – requires thorough and mindful listening for effective decoding of messages (7) Feedback – a good instructional process has both a feed forward and a feedback mechanism (8) Within the Classroom Context – the environment where communication occurs is the classroom (9) Assessments and Evaluation: to gauge impacts of the process Message Sending Feedback Feed Forward	Reflections and Consultations: This schema presents a cyclical instructional communication process consisting of all the communication elements. Conversations with colleagues and department heads elucidated instruction and helped clarify the link between instruction and communication. Clearly, the elements in the process of instruction are precisely the same in communication. Actors in the communication process: Instructor/Professor/Educator and Learners who are both Message Source and Senders. A more thorough and well-planned crafting of Messages, ideas, information to be relayed or exchanged. Encoding: organizing ideas, information through cognitive processes) communication channel The receiver of Message: both learners and instructor are senders and receivers of messages in a non-linear instructional teaching style decoding – requires thorough and mindful listening for effective decoding of messages Effects – learned knowledge or and skills depending on the manner of teaching Feedback – instructional process has both feedforward and a feedback mechanism <u>Context</u> = the environment where communication occurs in the classroom The Refractive Thinking-Learning Model was developed from conversations and reflections that focused on what should be considered as meaningful outcomes of instruction. Teaching-learning should bring out the best in learners, enabling them to be thinkers and doers with productive skills relevant to their needs and society. This model is validated through the current educational approaches used in colleges and universities. Critical Thinking is recognized as crucial, along with applying knowledge into productive and innovative output. Knowledge becomes visible (akin to a refractive light) through valuable performance and productive outputs.

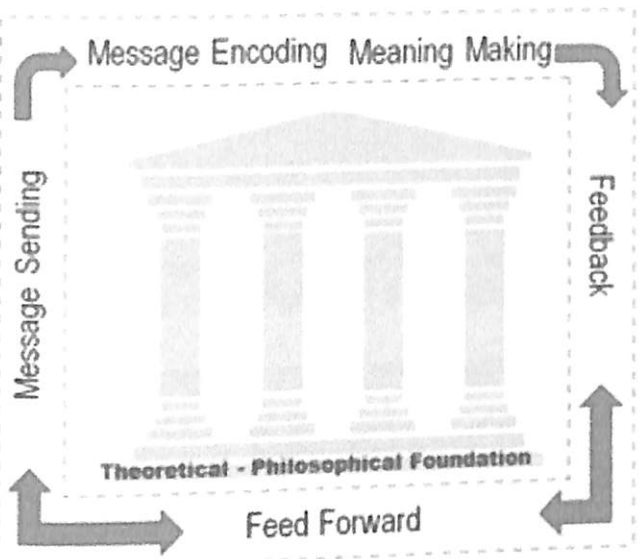
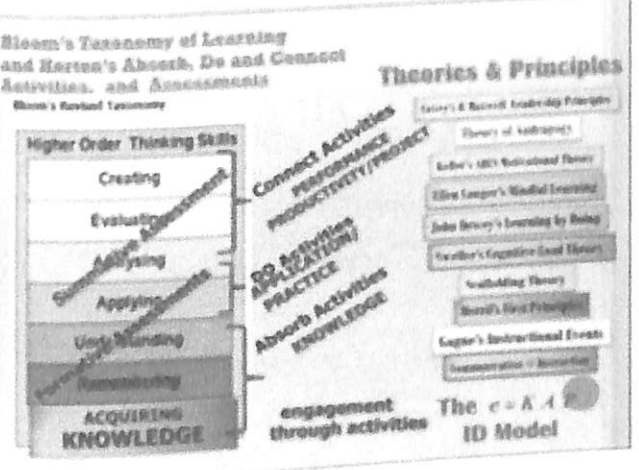
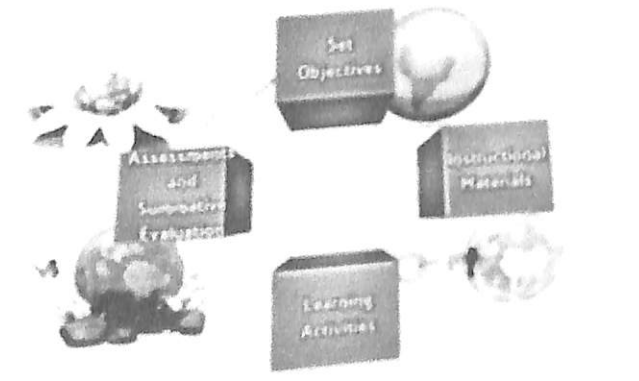
Refractive Thinking Learning Model



APPENDIX D: SELECTED DATA (2007-2008).

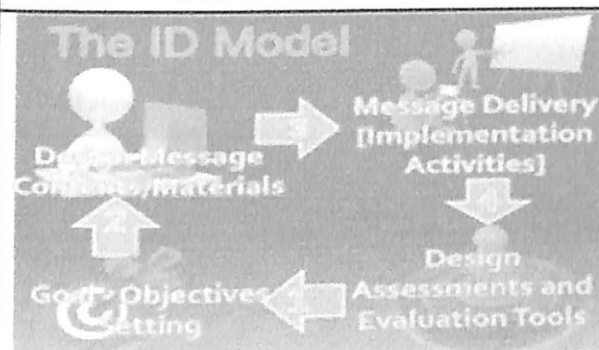
Mental Model/Schema	Reflections and Validations
Effective Instruction A highly purposeful communication ~and is achieved from a well designed course and well developed course materials (message bearer)~  Group Trio Dyad Solo	Reflective observations and conversations with colleagues and department heads on the conceptual ideas proved enriching. Instruction must be planned. The objectives are identified and aligned with learning activities to attain a meaningful and productive conversation process between learners and the Instructor. Thus, effective instruction must be highly purposeful. Instruction occurs within the dynamics of communication At the intrapersonal level, the instructor/professor or educator plans and designs what to communicate, how to describe the desired learning outcomes (what learners should know, acquire, be able to do) The course materials are a major part of the communication messages. The implementation or delivery of the planned messages within the designed materials occurs at the interpersonal communication level or mediated communication. Intrapersonal, Dyadic, Group Communication Dynamics arise within the instructional process. Interactive lectures allow for constant feedforward and feedback mechanism between and among actors/participants in the classroom—instructor Feedback in the form of grading student output or performance. The student evaluation o feedback completes the cycle of the feedback loop mechanism. Communication competence is not limited to one's ability to do a lecture. Design and implement a course, feedback mechanism, willingness to change, and improve the teaching profession's forms.

APPENDIX E: SELECTED DATA (2009-2010)

Mental Model/Schema	Reflections and Validations
 That, there is not a single event in instruction that is not communication.  	Conversations, discussions with my colleagues at the University of Phoenix (online) and Penn State University inspired the development of an exploratory study on the use of theories for an Instructional Design Model that can be used across curriculum. Effective instruction based on Instructional Design Model or Framework founded on sound theoretical - the philosophical foundation has been created. Faculty Training and workshops on Instructional Design and course materials development helped enrich the conceptualization of an Instructional Design Framework founded on communication and learning theories. Communication facilitates all the necessary learning activities aimed at creating cognitive and behavioral impacts on learners. Not a single instructional activity can fall outside the perimeters of a highly purposeful communication process. For instruction to be impactful, it must be done in a highly purposeful manner. There must be a mindful, thoughtful crafting of ideas to be learned by learners and strategic activities that enable all learning activities. Learners must be mindful, too, for them to learn effectively. The fundamental dynamics of instruction (teaching-learning process) occur within a purpose-driven communication process in a classroom environment (face-to-face or online). VALIDATIONS: These schemas were part of peer-reviewed presentations, and a paper was published as a journal article.

APPENDIX F: SELECTED DATA (2011-2012).

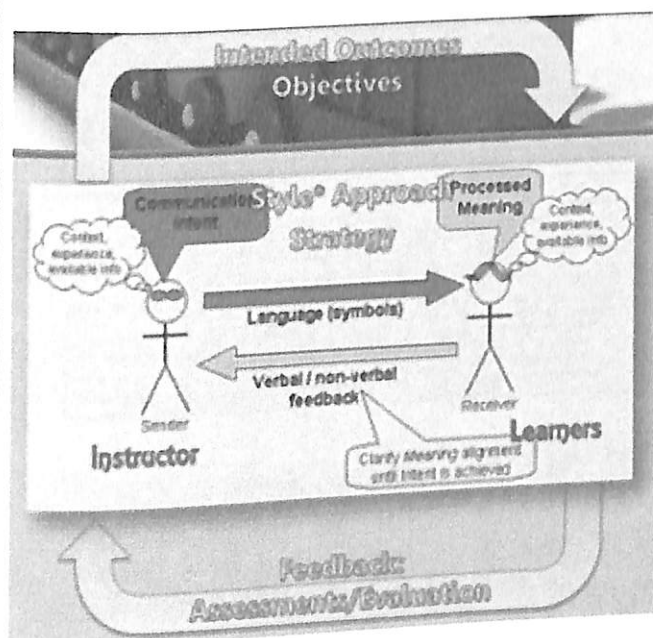
Mental Models/Schema



THEORETICAL FOUNDATION:

Dewey's "Learning by doing" +
Gagne's 9 Instructional Events +
Langer's Mindful Learning +
Andragogy [Adult Learning Theory] +
Instruction = Communication

Learning Engagement



Adapted from Cummings, Long, Lewis (1983), as seen from the work of Decker, D., & Lewis, R. (2004).

Reflections and Validations

The basic steps in the Instructional Design (ID) process are the same as the fundamental steps in designing communication plans. The ID Model patterned after a commonly used communication design, and the planning framework went through a peer-review process. It was presented and discussed at the 2011 Schreyer Conference (September 12th) at Penn State University-Main Campus, University Park Pennsylvania Campus.

Instruction = Communication (Magabo, 2011) passed a peer-review process when presented in a conference paper as part of the theoretical foundations for Instructional Design at the 4th International Conference of Education, Research and Innovation (ICERI) held on November 14-16, 2011, in Madrid, Spain. The paper was published from the undertaking. As part of its theoretical groundings, the proposed theoretical foundation for Instructional Design with Instruction = Communication argued that not a single event in instruction is not communication.

This Instructional Communication Model was presented in two peer-reviewed workshops at Penn State Dubois Campus to explain why instruction (teaching-learning) is a highly purposeful communication. Instruction=Communication. Not all instructional deliveries are purposeful, and some are merely purposive.

[Workshop on Instructional Design Model that Fosters Student Engagement April 30, 2011, Penn State Dubois Campus]

[Workshop on Planning & Designing Instruction that Promotes Higher Levels of Learning Engagement, August 18, 2011, Penn State Dubois Campus]

APPENDIX G-1: SELECTED DATA (2013-2014).

Mental Model/Schema

Communication and Instructional Styles:

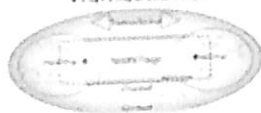
Linear

- Personal Model Instructional Style
- Consultative Instructional Style
- Authoritative Instructional Style

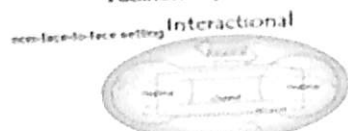


Non-Linear

Transactional



Facilitator Style of Instruction



Berlo's theory is well-presented in Henson's (2003) work as he states:

"Learners have distinctive perspectives or frames of reference due to their:

- history (background)
- environment
- interests and goals
- beliefs
- ways of thinking

(Henson, p. 5, 2003)



Reflections and Validations

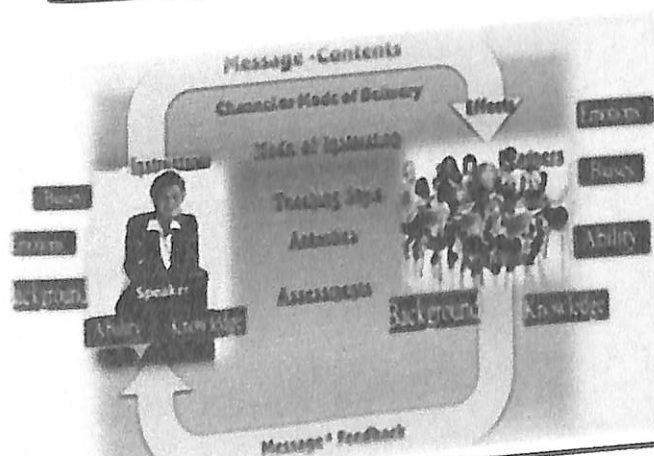
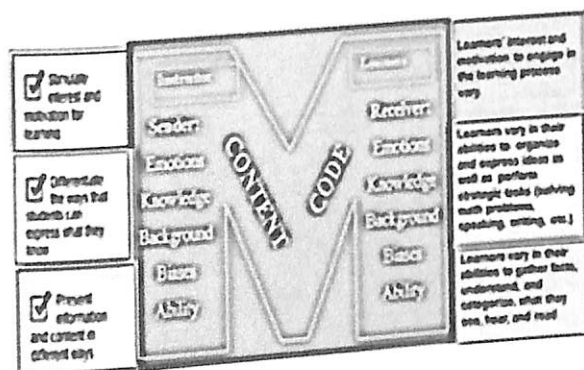
Validations for the schema, Instruction = Communication:

A Course Design on "Instruction = Communication" was one of the major projects for the Graduate Certificate program in Instructional Design - University of Wisconsin. All accomplished works earned 100% or 4.0 grades. The course covered the following objectives:

1. Review the instruction process as a highly purposeful communication (Explained why **Instruction = Communication**). Re-examine diversity factors that impact the teaching and learning process.
2. Analyze how the principles of Universal Design for Learning (UDL) relate to the theory of Communication in terms of diversity concerns. Go over Communication Styles and how each relates or affects one's instructional style.
3. Examine how Henson's (2003) learning theory jibe with Berlo's (1960) communication theory and that of at the

2013 American Communication Association Conference in Lafayette, Louisiana

1. Presented how the Universal Design for Learning (UDL) relates to the concept of
2. Instruction = Communication and incorporated both Berlo's UDL is operating within the process of teaching.
3. Illustrated and explained the schema: Instruction = Communication.
4. Berlo's theory and Henson's thoughts were presented.



APPENDIX G-2: SELECTED DATA (2013-2014)

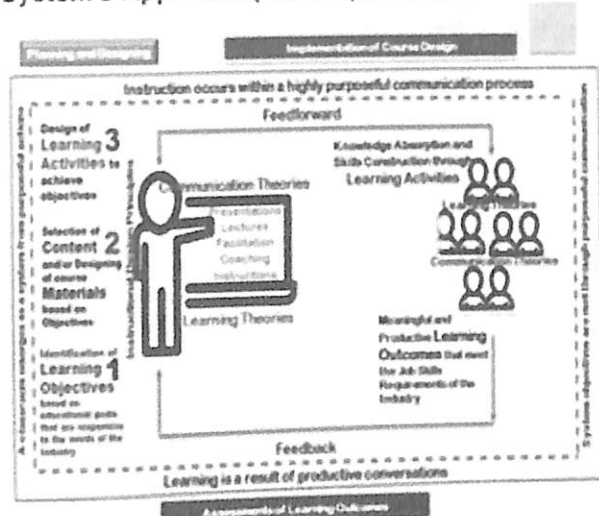
Mental Model/Schema	Reflections and Validations
Instruction-Communication Impact Assessment Model Instruction-Communication Impact Assessment Model The diagram illustrates a circular model with eight segments surrounding a central core. The central core is labeled 'Impacts/Outcomes' and includes 'Experiences of Observers', 'dialogues', 'inferences', and 'Interactions'. The segments are: Holistic, Pragmatic, Qualitative, Realistic, Complementary, Strategic, Evidence Based, and Rhetorical. Each segment contains specific theories or models. Arrows connect the segments in a clockwise cycle. Below the circle is a box labeled 'Social, Cultural, Systems, and Environmental Factors'. FEEDFORWARD Instruction and Instruction through Course Materials to meet Learning Objectives Coaching, Mentoring, Scaffolding through Characteristics FEEDBACK Learned Performance Assessment and Coaching, Mentoring Selection, Creation of Message Content or Materials and Activities Needs Analysis to help in setting the Objectives Selection or Identification of Mode of Delivery and Channel or Medium Assessment and Evaluation of Impacts	REFLECTIONS Even within the various Communication Traditions are theories of learning that align with the Tradition's theoretical thoughts. Several Learning and Communication theories align with the Seven Traditions. Some widely used and highly significant theories integrate within the proposed Instruction-Communication Impact Assessment Model. VALIDATION An Essay was written presenting the Instruction-Communication Impact Assessment Model and passed the scrutiny in a DCOMM course in 2013. The neutral feedback needed more exploration and elaboration into merging theories in learning and theories in communication. REFLECTION A schematization of the process of instruction used a holistic and Systems Thinking Instructional Communication VALIDATION The holistic model (which is an expansion of the two previous early schemas from reflections) was presented and discussed with peers in Communication and colleagues in the teaching profession. The model was also made part of an academic course work in 2014. The model seemed to have provided more clarity about the process of instruction and highlight the interlink between instruction and communication. The most common question that arose was: "Is the entire process communication even though instruction requires a design and planning phase?" Analytical Reflection: An Instructional Design Framework based on the Communication Design planning framework was created in 2014, reaffirming other Instructional Design Process models. Is the design phase not part of instruction?

APPENDIX H: SELECTED DATA (2015-2016)

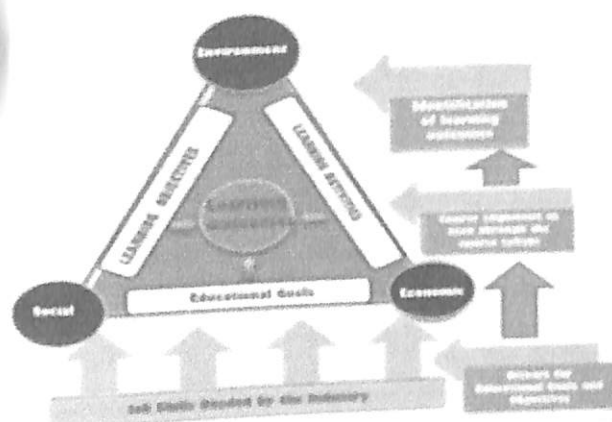
Mental Model/Schema

Reflections and Validations

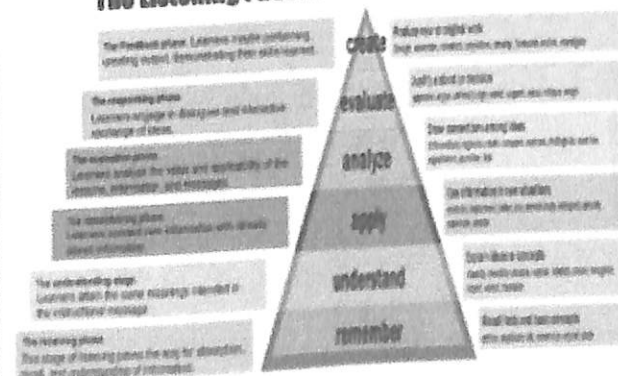
System's Approach (Holistic) ID Model



Systems approach curriculum development and instructional design model



Ausubel's Listening Phases with Bloom's Taxonomy

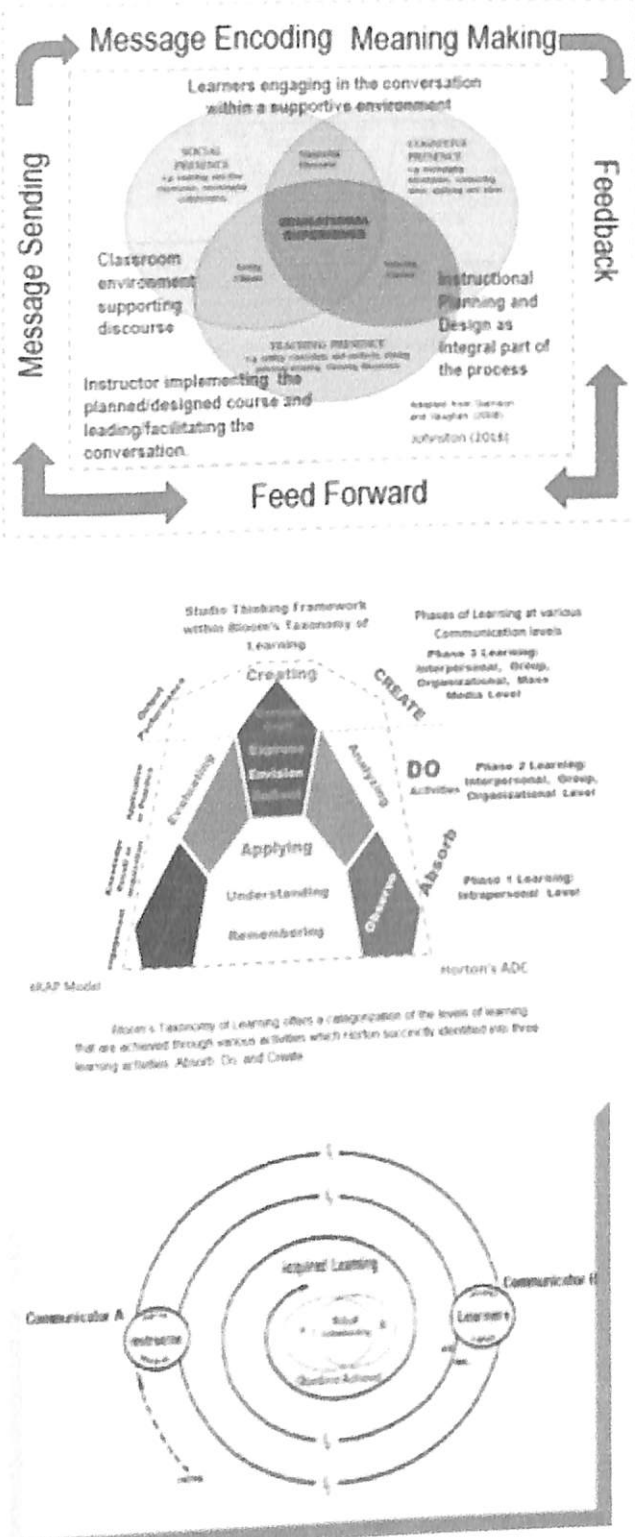


In various presentations and faculty discussions: Advocated and presented the idea that the entire dynamics of instruction (teaching-learning process) occur within a purpose-driven communication process in a classroom environment (face-to-face or online). Effective Instruction (teaching-learning) depicts a highly purposeful communication: Message Sending, Message Encoding, Meaning Making, Feed Forward, and Feedback Cycle. This Model begins with the design and planning phase of instruction to implementation and evaluation. This Model of the Instructional process expands the previous Instructional Communication Models (see Figure 8f Table 9 and Figure 8g Table 10).

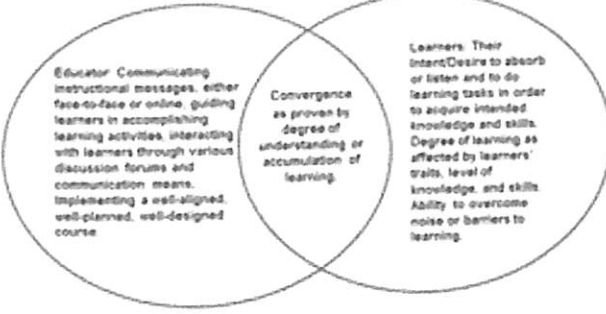
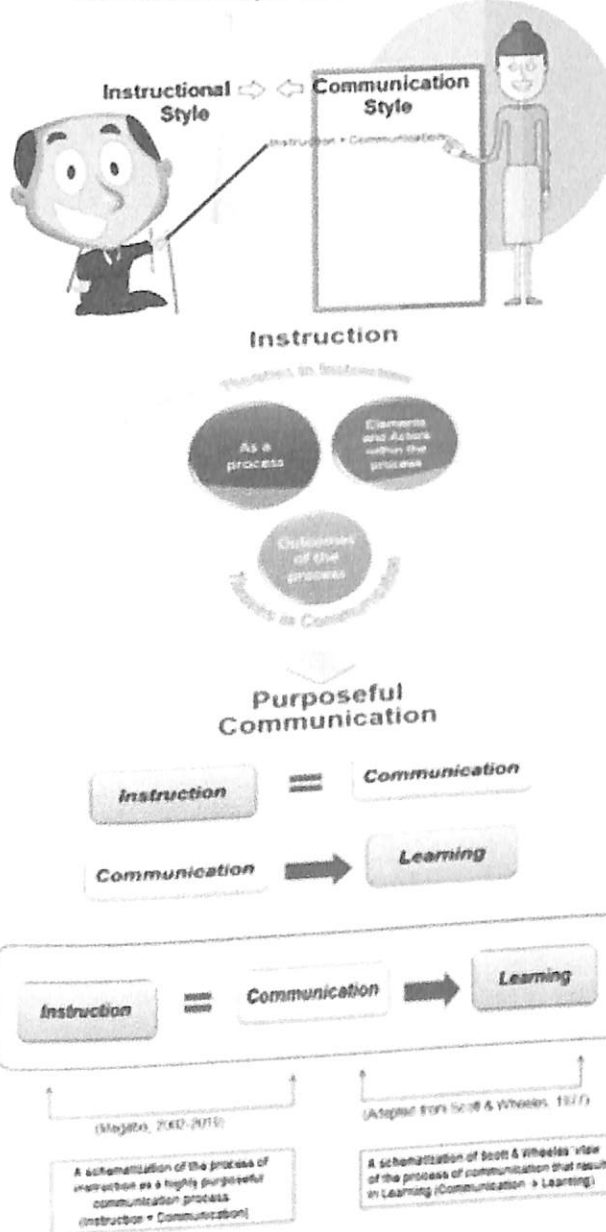
A Systems Approach to curriculum and instructional design is of importance. Curricular programs must align with societal values and norms and be responsive to a sustainable system or economy. Learning objectives should be crafted based on educational goals, and learning activities (including content) are designed to meet or achieve the learning objectives. The overall system's social, environmental, and economic needs are the drivers for developing educational goals and objectives. For these current economic and social conditions, learning outcomes are expected to be responsive to the workforce skills requirements needed in the industry sector.

Ausubel's Meaningful Learning Theory with its Listening Phases correspond to Bloom's Taxonomy of Learning and applies to the Encoding process.

APPENDIX I: SELECTED DATA (2017-2018).

Mental Model/Schema	Reflections and Validation
 Message Encoding Meaning Making Learners engaging in the conversation within a supportive environment Classroom environment supporting discourse Instructor implementing the planned/designed course and leading/facilitating the conversation. Message Sending Feedback Feed Forward Adapted from Johnston and Johnston (2016) Studio Thinking Framework within Bloom's Taxonomy of Learning Phases of Learning at various Communication levels CREATE Phase 3 Learning: Interpersonal, Group, Organizational, Mass Media Level DO Phase 2 Learning: Interpersonal, Group, Organizational Level Absorb Phase 1 Learning: Intrapersonal Level Horton's ADC Bloom's Taxonomy of Learning offers a categorization of the levels of learning that are achieved through various activities which Horton succinctly identified into three learning activities: Absorb, Do, and Create Communicator A Communicator B Learned Acquired Learning Learned	This model is a schematic validation of Instruction=Communication: Adapted from Johnston, J. (2016). <i>three-presence-educational-experience</i>. Higher E-Learning. Retrieved from http://higherelearning.com/best-practices-for-synchronous-online-discussions/three-presence-educational-experience Effective Instruction (teaching-learning process) depicts a highly purposeful communication: Message Sending, Message Encoding, Meaning Making, Feed Forward, and Feedback Cycle. An Analytical reflection on the process of instruction: Looking through the lenses of Studio Thinking Framework, Bloom's Taxonomy, Horton's Learning Theory, and eKAP (engagement brings about Knowledge Acquisition leading to Productivity or Performance of skills). This Reflective output illustrates that learning occurs at various communication levels: intrapersonal, interpersonal, group or organizational, and a mass media level. The Convergence Model of Communication (Schramm and Kincaid, 1975) supports mental models that depict instruction's cybernetic loop process. This model adapted from the Convergence Model led to the Quadrant's development for the Four Types of Learning Conversations. These schemas or models were presented, discussed, and went through scrutiny of peers or colleagues.

APPENDIX J: SELECTED DATA (2019-2020).

Mental Model/Schema	Reflections and Validations
Applicability of Convergence Theory in Instruction  Communication Style = Instructional Style  (Majeto, 2002-2019) A schematization of the process of instruction as a highly purposeful communication process (Instruction = Communication) (Adapted from Scott & Wheelers, 1977) A schematization of Scott & Wheelers' view of the process of communication that result in Learning (Communication → Learning)	This mental model depicts the point of convergence at the intersection of Educator and Learners' conversation or instructional communication process. Convergence is proven by the degree of understanding or by the accumulation of learning. Educator: Communicating instructional messages, either face-to-face or online, guiding learners in accomplishing learning activities, interacting with learners through various discussion forums and communication channels, implementing a well-aligned, well-planned, well-designed course. Learners: Their Intent/Desire to absorb or listen and do learning tasks to acquire intended knowledge and skills. Degree of learning depending on learners' traits, level of knowledge and skills, ability to overcome noise or barriers to learning. Communication Style = Instructional Style. Instruction is purposeful communication. Instruction is a communication process that occurs within a learning environment, consisting of all the communication elements and communication actors working together to achieve the desired learning outcomes. By its intents and purposes, instruction (teaching-learning) must be a purposeful communication process rather than just being purposive as a purposeful communication process utilizes theories in instruction (learning theories) and communication theories. Learning augments the initial schema as per Scott & Wheelers' (p. 95) <u>linkage between learning and communication: Communication → Learning</u> These schemas or models were presented, discussed, and went through scrutiny of peers and colleagues.