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5 Teacher Clarity: An Analysis of Current Research and Future Directions

Abstract: In the 1960s and 1970s, researchers in Education and related fields conducted a series of studies exploring how teachers' behaviors had effects on students. Of the variables explored in those studies, teacher clarity was identified as the one with the most promise for further exploration. Based partly on that optimistic conclusion, teacher clarity emerged as a significant program of research in both the Education and Communication fields. A recent meta-analysis summarizing such research revealed that teacher clarity has moderate-to-strong correlations with both affective and cognitive learning. Despite such attention, the construct has been plagued by a lack of precision in defining exactly what constitutes teacher clarity. The current chapter presents a framework for understanding teacher clarity by exploring its theoretical foundations and presenting a conceptual framework for defining the construct. Specifically, we suggest that teacher clarity can be thought of as students' perceptions of teachers' communication-related behaviors that assist in selecting, understanding, and remembering information. Those behaviors can be categorized into five general areas: pre-instructional clarity, instructional message clarity, explanatory clarity, presentation clarity, and adaptive clarity. This framework is used to identify potential areas for future research on the topic.

Keywords: affective learning, cognitive learning, information processing, organization, structure, teacher clarity, instructor clarity

During the 1960s and 1970s, researchers in Education and allied fields conducted a series of studies that were generally called *process-product* research. Central to this program of research was the objective of identifying teachers' behaviors that had some effect on students' learning across cognitive, affective, and behavioral domains. Despite criticisms of such research (for a discussion see Gage & Needels, 1989), the process-product studies highlighted several behaviors, many of which were focused on communication, that had potential effects on learning. A synthesis of such research by Rosenshine and Furst (1971) identified 11 categories of behaviors that showed some connection to learning. Of those, teacher clarity emerged as the strongest. Subsequent to Rosenshine and Furst's claim that teacher clarity was the most promising of the teacher-effects variables, researchers in both Communication and Education have attempted to further define the construct and to also further identify connections between teacher clarity and students' learning.

Nearly a half-century after Rosenshine and Furst highlighted the teacher clarity construct, conclusions are scant on how to best give meaning to the term. As noted

by Civikly (1992), “Explanations of the concept of teacher clarity have been more opaque than transparent. At best, definitions of teacher clarity have been translucent, providing some diffusion of enlightenment about the role of teacher clarity in teaching effectiveness and student learning” (p. 139). Similarly, Titsworth, Mazer, Goodboy, Bolkan, and Myers (2015) observed a “lack of agreement on exactly what clarity is and how clarity behaviors are enacted in the classroom” (p. 23). Thus, researchers interested in teacher clarity are faced with a dilemma. Although teacher clarity is perhaps one of the most promising links between teacher behaviors and student learning, the lack of precision in defining the construct makes programmatic research challenging and actionable results elusive.

Despite conceptual confusion on how to define teacher clarity, studies exploring the construct have consistently documented positive effects of teacher clarity for students’ learning. A dissertation completed by Fendick (1990) summarized results of 92 separate studies/effects and observed an average correlation of .33 between the teachers’ use of clarity and students’ learning. Subsequent meta-analyses were separately completed by both Titsworth and Mazer, and Goodboy, Bolkan, and Myers (both are reported in Titsworth et al., 2015). The first of those analyses, performed by Titsworth and Mazer, observed an average correlation of .52 between teacher clarity and students’ affective learning, and an average correlation of .34 between teacher clarity and students’ cognitive learning. The Goodboy, Bolkan, and Myers meta-analysis revealed generally similar results, with an average correlation of .53 for the clarity-affective learning relationship, and an average correlation of .46 for the clarity-cognitive learning relationship. Collectively, these meta-analyses show that, despite imprecise definitions, there are generally moderate-to-strong relationships between teachers’ clarity and students’ learning. Because of the strength of this relationship, and its generally consistent observation across studies spanning several decades, continued exploration of the construct is warranted.

This chapter provides readers with an overview of research exploring teacher clarity with the hope of spurring new lines of research on the topic. We begin with a discussion of information processing theory and negotiated meaning, which are the primary theoretical links between teacher clarity behaviors and student learning. Next, we analyze various attempts to operationalize teacher clarity, including exploratory studies, experimental manipulations, and scales developed to assess the construct. We then present key conclusions drawn from research exploring teacher clarity before concluding with suggestions for future research. Findings from literature on the topic are summarized throughout so that readers will develop some understanding of observed connections between teacher clarity and student learning.

Theoretical Foundations for Teacher Clarity

Although much of the teacher effects research, which provided the impetus for teacher clarity studies, has been criticized for being somewhat atheoretical (Gage & Needels, 1989), teacher clarity studies have been guided by two distinct theoretical perspectives. The first perspective, *information processing*, attempts to explain theoretical links between teacher clarity behaviors and student learning. The second, *negotiated meaning*, attempts to explain how clarity is enacted as a communicative behavior. Both perspectives are important to an overall understanding of teacher clarity and its potential effects.

Typical classroom situations involve teachers, using a variety of modalities, presenting students with opportunities to select, process, retain, and use information. Contemporary theories describing this process rely on principles of cognitive psychology and are generally referred to as information processing theories. Information processing theory, in the main, assumes that various factors influence the abilities and efficiency with which learners are able to select, understand, retain, and use information. The various ways with which teachers present information, including the clarity of presentation, represent a category of those factors. The application of information processing theory is most apparent in studies by Chesebro and McCroskey (2001), as well as Titsworth (2001), though it is arguably an implicit theoretical perspective guiding all teacher clarity research.

The top half of Figure 1 provides a visual representation of a basic information processing model. In any given learning situation, learners are exposed to stimuli. For instance, when a teacher lectures, learners are exposed to a variety of aural, phonetic cues – what we might more generally refer to as language. These phonetic cues, along with other types of cues relevant to any particular learning situation (e.g., accompanying slides or other visual references), presents a “complex task” for learners (Kleinschmidt & Jaeger, 2015, p. 148). First, the learner must have sufficient background knowledge in order to identify and select various stimuli. If a learner does not share the same language as the presenter, the ability to identify phonetic patterns constituting the language being used would be severely hampered, if not completely absent. Second, the learner typically has no control over the pace of the stimuli. As rate of presentation increases, so too does the probability that learners will simply miss cues. Third, the mapping of cues to meaning is non-deterministic. In the Communication field, this principle is often expressed as follows: there are a variety of meanings that can derive from specific symbols, and there are a variety of symbols that can infer the same meanings. The varied nature of these stimuli can potentially result in “contradictions, conflicts, anomalies, erroneous information, and other discrepant events in the learning materials, and can result in a state of cognitive disequilibrium” (Park, Plass, & Brünken, 2014, p. 126). Thus, the stimuli encountered by a learner are diverse, complex, and must be actively interpreted for learning to occur.

The first step in interpreting meaning for stimuli is *attention*, or the sustained and focused effort given to selecting and interpreting stimuli (see Rosegard & Wilson, 2013). Attention resources vary for most adults (see Tummeltshammer, Marechal, & Kirkham, 2014). *Exogenous attention*, also called automatic attention, is driven by reflexive focus on salience, novelty, and factors that could trigger instinctual responses such as fight or flight. For example, exogenous attention might be automatically focused on the source of a loud noise in a classroom. *Endogenous attention*, also called selective attention, is voluntary and willful. Endogenous attention is devoted to stimuli that are perceived as important for achieving certain objectives, goals, and outcomes in a particular situation (e.g., information necessary for a quiz or project). As noted by Tummeltshammer and colleagues (2014), “Efficient control of attention requires arbitration between these subtypes, through disengagement, attention shifting, and inhibition of automatic responses” (p. 1981).

Once information is attended to, learners must process that information in two interrelated memory resources called short-term and working memory. *Working memory* involves the resources through which learners actively analyze and make use of new and pre-existing information (Cowan, 2008). That is, when learners experience new stimuli, they must interpret those stimuli, assign meaning, and determine how to best use the information, including how to store that information in notes and/or long-term memory. That process of actively working with the information uses working memory resources. Individuals’ abilities to use working memory expand developmentally as background knowledge can be used to more efficiently to analyze new information (Cowan, Ricker, Clark, Hinrichs, & Glass, 2015).

Coupled with working memory is short-term memory. The *short-term memory* resource is a temporary storage place for new information being used by working memory. Most scholars agree that short-term memory is limited in both capacity (i.e., approximately 5 to 9 pieces of information) and in duration (i.e., about 20 seconds), which means that learners will tend to forget if they do not record the information in notes (or some other method of recording) or actively work to encode the information into long-term memory. Thus, the function of working memory is impacted by substantive limits on short-term memory when learning new information. Having access to background information, including the ability to efficiently organize new information into chunks, can potentially expand the typical limits of short-term memory (Cowan et al., 2015).

As information is processed through short-term and working memory, learners must encode that information into long-term memory. Whereas notetaking can provide an external storage place for information (van der Meer, 2012), learners are typically only able to recall and actively use information when it is stored in long-term memory (see Schweppe & Rummer, 2014). Unlike short-term memory, long-term memory does not appear to have natural limits to how much or how long information can be stored. Long-term memory is thought to be organized into a hierarchical and interrelated system of schema. The ability to access information

in this organized structure of schema relies on connections among them. For example, if a teacher says, “What are the tropes identified by Kenneth Burke in *A Grammar of Motives*?” the student will have certain connections triggered in order to identify the tropes. Forgetfulness happens when connections are too weak to be accessed (e.g., a student cannot remember the definition of a term because the connection from the word to the semantic definition is too weak), or when physical or other anomalies prevent the brain from activating connections. Cowan (1999) suggests that the basic information processing model should be altered to assume that both attention and working memory are simply activated portions of long-term memory – those memory resources are used by the learner to assess and integrate new information by filling in existing schema (assimilation) or by creating entirely new schema (accommodation).

Last, information processing is governed by a controlling system called metacognition. Metacognition is the “ability to control and monitor cognitive processes” (Mayer, 1998, p. 50). As learners actively select and analyze new information using attention, working memory, and long-term memory, *metacognition* is the controlling process that enables each of the discrete steps involved. Thus, students who are high in metacognitive skills are able to quickly identify information (attention), analyze the information in relation to previously learned information (working memory), and then encode that information into long-term memory, either by adapting a previously created schema or by creating new schema.

With this brief explanation of information processing in mind, we now examine ways in which teacher clarity potentially influences learners as they process new material. Because research on teacher clarity will be reviewed later, the present analysis provides only an overview of these potential effects to highlight the possible theoretical connections between clarity and learning. The following narrative explanation is represented in the bottom half of Figure 1.

The previous discussion of information processing made no assumptions about the nature of how a stimulus, or information, is presented to the learner. One could imagine, however, that the relative organization of information could drastically impact the potential for students to select, analyze, and store new information. First, well organized information will likely allow students to select details more easily because endogenous/selective attention is more focused. Because well-organized information will be logically grouped, it could also be easier for students to process the information in short-term and working memory. In essence, well-organized information is more efficient, which can potentially expand bits of information into larger chunks, thereby allowing more total information to be processed within the typical limits of short term memory (5 to 9 bits or chunks). Third, well-organized information can potentially be easier to assess alongside previously learned information, thereby making assimilation or accommodation easier when encoding new information into long-term memory. Finally, teacher clarity might be thought of as the teacher’s attempt at programming metacognition for students. By

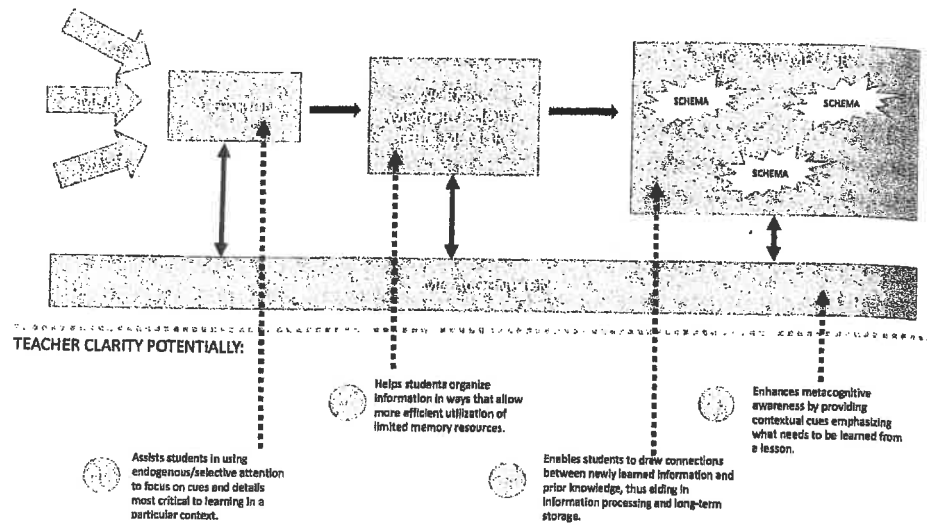


Figure 1: Connections Between Teacher Clarity and Information Processing

organizing information clearly and influencing each of the information processing resources, teachers are effectively helping students build metacognitive awareness surrounding a lesson or content. We will return to these potential effects of teacher clarity later in the chapter as we review several findings related to teacher clarity research.

Whereas information processing theory provides a plausible explanation for how teacher clarity behaviors potentially improve student learning, that strand of theoretical narrative heavily emphasizes cognitive psychology rather than the communicative dimensions of teacher clarity as it is enacted in classroom situations. Communication scholars have developed additional theoretical positions, namely the negotiated meaning perspective, that complement the cognitively-based information processing model.

A communication-based orientation toward learning is apparent in Bruner's (1960/1970) process-oriented view of teaching. Bruner argues that effective instruction occurs when teachers carefully adapt instruction to help students learn principles (or objectives). This adaptation approach is reflected in Civikly (1992) and Simonds' (1997) articles, which argue that clarity occurs through the process of teachers and students negotiating meaning surrounding lessons and other content. Thus, as teachers plan and present information, they are clearer when they monitor students' grasp of the material and adapt instruction to help students better understand important information. Students contribute to this process by asking questions for clarification, answering questions posed by the teachers, and performing on formal and informal assessments of learning. Clear teachers use such interaction to determine whether the presentation of material should be adapted.

The negotiated meaning perspective is complementary to the information processing model. Although not explicitly highlighted in the standard information processing model, students are able to use metacognitive awareness to provide feedback to the teacher. Through the natural dialogue present in most instructional settings, students are able to influence the presentation of stimuli, including meta-communicative clarity cues, to aid in calibrating selective attention and the processing of information in various memory structures. Thus, the combination of information processing and negotiated meaning provides a robust narrative explaining both communicative and cognitive processes in learning situation.

Defining and Measuring Teacher Clarity

After Rosenshine and Furst's (1971) observation that clarity was a promising process-product variable, several scholars undertook the task of conceptually and operationally defining the construct. This was no easy undertaking, as teacher clarity had no uniform definition from which to begin. As explained by Bush, Kennedy, and Cruickshank (1977), "Considering the most commonly used definition of teacher clarity, 'being clear and easy to understand,' the difficulties can be readily appreciated. Not only is the common definition circular but, as stated, clarity cannot be directly observed or easily measured" (p. 53). Before we review attempts at defining the construct, we begin with an analysis of three potential sources of ongoing imprecision surrounding the term.

The first source of potential confusion is the multidimensional nature of teacher clarity. Clarity can be understood at various levels, ranging from an overall impression to a highly specific behavior. For instance, *high-inference* clarity behaviors (e.g., being clear) are often vaguely defined and open to subjectivity because they rely on a general impression of whether the teacher is being clear, confusing, or something between. *Intermediate-inference* behaviors are less vague and can include clarity dimensions such as "organization" and "explanation." The intermediate-inference dimension of "organization" can be observed and understood through *low-inference* teacher behaviors (e.g., clearly previewing the main points of a lecture), which can be objectively quantified. These multidimensional characteristics of teacher clarity necessarily imply that any particular definition, or way of operationalizing the construct, could lack consideration of these various levels.

Second, clarity is both a behavior and an impression. Teachers might intend to enact many different behaviors to make a lesson clearer for students. However, the end result of those behaviors is dependent upon how students perceive the behaviors. A well-intended presentation slide-deck could overwhelm students with too many details; a series of examples intended to illustrate a concept could obscure rather than crystalize; or a carefully planned series of signposts to signify the structure of a presentation could fail to provide necessary details. Put simply,

clarity is like immediacy where the ultimate arbiter is the listener, rather than the sender, with respect to how behaviors are perceived. This distinction between behaviors and perceptions is important, but rarely made explicit in definitions.

Third, clarity is likely not an invariant behavior or perception. Although little research has been done on this point, it is likely that what constitutes clear teaching will vary depending on contextual circumstances. For instance, are there differences in clear teaching when comparing math and science disciplines against the humanities? Do novice learners require a different set of behaviors from the teacher for a lesson to be clear, as compared to highly advance learners? Are behaviors that constitute clear teaching culture-bound? Definitions attempting to provide universal characteristics of teacher clarity are likely fraught with difficulties because these situational factors are not considered.

In summary, it should be unsurprising that no single definition of clarity has emerged as best. What constitutes clear teaching could vary depending on a number of potential situational factors. That said, we offer the following conceptual definition to summarize our general understanding of teacher clarity from the literature: *Teacher clarity is the perception that various low- and intermediate-inference behaviors, enacted by a teacher, assist students in selecting, understanding, and remembering the structure and details of information.* With this definition in mind, the remainder of this section analyzes several attempts by researchers to define and operationalize teacher clarity according to various behaviors enacted by teachers.

The Ohio State Studies

To address imprecision surrounding the meaning of teacher clarity, a research team from Ohio State University completed a large-scale effort to empirically develop a precise operational definition of teacher clarity. The Ohio State research team initially asked over 1,000 students in the Columbus Public School system to highlight the five behaviors performed by their clearest teacher (see Bush et al., 1977). Students' open-ended survey responses were used to create items and scales, which were administered to over 1,500 junior high students in Cleveland to ascertain whether factor structures were present. After examining separate factor analyses for various versions of the scales, two factors were uncovered. The first factor contained items that were relatively general in wording and involved explaining concepts and directions in an "understandable manner and appropriate pace" (Bush et al., 1977, p. 57). Low-inference items associated with the first factor included "Takes time when explaining" and "Gives explanations that the student understands." The second factor contained items that specifically addressed how teachers use examples and illustrations when presenting information. Low-inference items for the second factor included "Gives an example on the board of how to do something" and "Gives students an example and then lets them try to do it."

Kennedy, Cruickshank, Bush, and Myers (1978) attempted to cross-validate the 1977 findings by using a more diverse sample of students from Ohio ($N = 425$), Tennessee ($N = 307$), and Australia ($N = 531$). The study revealed 29 prime discriminators (i.e., items) classified into four dimensions: assesses student learning (e.g., “Tries to find out if we don’t understand and then repeats things”), provides time to think (e.g., “Gives us a chance to think about what’s being taught”), uses examples (e.g., “Works examples and explains them”), and reviews and organizes (e.g., “Prepares us for what we will be doing next”).

Although these instruments did not result in a legacy of use by clarity scholars, this program of research initiated important steps in operationalizing and defining a previously opaque construct by identifying low- and intermediate-inference dimensions of clarity. The Ohio State studies also provided preliminary evidence of a relationship between teacher clarity and student achievement and satisfaction. For instance, Hines, Cruickshank, and Kennedy (1985) studied preservice teachers ($N = 202$) in The Ohio State University College of Education who were engaging in reflexive teaching activities. Results of that study, coupled with canonical correlations reported in the 1977 study, showed that teacher clarity was positively related to both students’ achievement and satisfaction. These findings served as a rationale for continued exploration of the construct.

Experimental Manipulations of Teacher Clarity

In a six-year period (1979 to 1985), Land and Smith published over 15 studies exploring specific linguistic characteristics of teacher clarity. Whereas the Ohio State studies attempted to operationalize clarity as a multidimensional variable, Land and Smith isolated specific, low-inference dimensions of clarity to serve as independent variables in a series of experiments. In addition to using a different research design from the Ohio State group, Land and Smith also took a different conceptual approach. While the Ohio State studies generally attempted to discover what constitutes clear teaching, Land and Smith attempted to understand potential negative outcomes of unclear teaching.

Land and Smith’s research program extensively explored five variables including vagueness terms, mazes, utterances, bluffing, and uncertainty. Teachers often use *vagueness terms* when they do not have a sufficient understanding of the material required for effective communication. Vagueness terms include unclear sets of words that mark a recovery point in a lecture (*bluffing*) or reveal a teacher’s lack of assurance (*uncertainty*). *Mazes* include false starts and the use of redundant words, while *utterances* are vocalized pauses (e.g., “uh,” “ah,” “um”) that detract from a teacher’s verbal fluency. Land and Smith designed a series of investigations that took various approaches to manipulating these variables. In one approach, they isolated individual variables (e.g., word mazes or vagueness terms) and treated them as separate factors in experiments. The “by variable” approach, of which

there were seven studies, produced noteworthy outcomes. Land and Smith (1979) observed an effect size of $r = .31$ in a study that manipulated the use of vagueness terms. In a second approach, which was used in five of the studies, Land clustered variables together into “clear” and “unclear” conditions. For example, Land (1981) combined vagueness terms and mazes and found an effect size similar to the one observed in the study that only examined vagueness terms ($r = .29$).

Land and Smith’s program of research complemented the Ohio State studies in two important ways. First, their use of experimental designs permitted a direct test of causal relationships between low-inference clarity variables and student achievement using videotaped lectures. Second, their research highlighted a cluster of low-inference variables (i.e., clear and unclear language) not prominently revealed in the Ohio State studies. While impressive, their research was not without limitations. Many of the variables identified by Land and Smith appear to conflate with each other. For instance, vagueness terms, mazes, utterances, and uncertainty terms appear to be essentially the same variable. That is, the statement, “This lesson might get you to understand a little more about some things we, ah, usually call number patterns,” could be coded to contain all of the imprecise variables highlighted in their studies. Perhaps this observation is what led Land to cluster these variables in several of the experiments.

Subsequent to the Land and Smith studies, researchers in communication also explored various ways in which teacher clarity can be manipulated in experimental designs. In a series of studies, Titsworth and colleagues (Titsworth, 2001, 2004; Titsworth & Kiewra, 2004) used videotaped lectures about communication theory to test the effects of organizational clarity on students’ notetaking and learning. Organizational clarity involved the use of preview and review statements as well as very explicit signposts as the lecture progressed. For example, in addition to providing an explicit preview of communication theories and topics to be covered in the lecture, the condition with high clarity also included statements like, “The third theory that I will discuss is coordinated management of meaning.” In that example, the numeric signpost, “the third theory,” provided students with explicit indicators of each main point in the lecture so that they could easily follow along while listening. In addition to signposting the main points, the high clarity lecture also provided explicit transitions to highlight the description, terminology, and application example for each of the theories. Conversely, the low clarity lectures in these studies did not include preview and review statements, nor did they include explicit signposts or transition statements.

When comparing learning between the high- and low-clarity lectures, Titsworth (2004) observed that students who viewed lectures with organizational cues ($M = 12.33$) recorded more details in their notes than students who viewed lectures without the cues ($M = 10.14$). Additionally, students’ scores on a 16-point free-response detail test were higher both immediately after a lecture ($M = 5.18$) and one week later ($M = 2.19$) when the lecture contained organizational cues; students

viewing lectures without cues recalled only 3.27 details immediately after the lecture, and 1.46 details one week later (Titsworth, 2001). These results imply that organizational cues not only improve the recall of details, but also help students retain more information over time.

Taking a different approach, Chesebro (2003) created a profile of clear teaching that included multiple dimensions. For his experiment, structural clarity included behaviors such as previewing and reviewing main points, explaining learning objectives, explicitly identifying links among concepts, visually displaying information, providing skeletal outlines, avoiding extraneous topics, avoiding vagueness terms, using appropriate pacing, and providing examples. Stimulus lectures were created where one version enacted all elements of the clear teacher profile, whereas another version did the opposite of those clear teaching behaviors. After watching the lectures, Chesebro observed that students in the low-clarity lectures recalled an average of 1.3 items on a 7-point fill-in-the-blank quiz, whereas students in the high-clarity lecture recalled an average of 4.7 (a 113.3% difference).

As a final example of how clarity has been manipulated in experimental designs, Rodger, Murray, and Cummings (2007) followed a similar approach of using videotaped lectures, one with high clarity and the other with low clarity. The high-clarity version of the lecture included an on-screen outline of information, multiple examples, repetition of difficult material, practical applications, the highlighting of important points, signaled transitions, summaries, and highlights of similarities and differences in definitions and concepts. The low-clarity lecture differed by including filler material (e.g., historical facts), superfluous details, and more technical explanations and definitions. Results of their study showed significant positive effects of teacher clarity on both student learning and motivation, and, as will be discussed later, a significant interaction with anxiety on the motivation dependent variable. The manipulation of clarity in Rodger et al.'s study was generally similar to the multiple behavior approach used by Chesebro as well as Smith and Land. However, the Rodger study potentially conflated clarity with actual differences in content presented to the students. For instance, the use of superfluous details and filler material could have potentially changed the actual content to such a degree that something more than clarity was being manipulated.

Viewed collectively, the various studies integrating clarity into experimental designs illustrate the larger quandary facing all researchers exploring teacher clarity – namely, how to operationalize the construct. In these studies, some researchers operationalized very specific dimensions of clarity, whereas others manipulated multiple aspects simultaneously. Conceptually, neither approach is right or wrong. The more focused approach may provide more discrete explanatory power, but have less external validity because we know from the Ohio State studies that clarity is likely not reduced to a single behavior in real classroom settings. While the manipulation of multiple behaviors simultaneously may be more realistic, findings may be difficult to explain at the behavioral level. Of course, these strengths and

weaknesses are not unique to teacher clarity studies – these advantages/criticisms are likely relevant to many studies in Communication and other social sciences. Nevertheless, researchers attempting to design experiments testing the effects of teacher clarity should carefully weigh these issues against the objectives of their studies and make decisions to operationalize the construct, whether as a single behavior or as a set of behaviors, accordingly.

Scale Development in the Communication Discipline

Similar to the Ohio State team, various communication scholars attempted to develop scales tapping students' perceptions of teacher clarity. For instance, Powell and Harville (1990) developed a 15-item Teacher Clarity Scale (TCS) based on categories of clarity behaviors found in an unpublished manuscript by Book and McCaleb; no example items were provided in their manuscript. Their 15-item scale was factor analyzed, and it was concluded that a one-factor solution was most appropriate.

Using the TCS as a foundation, Sidelinger and McCroskey (1997) revised the instrument and created an expanded 22-item scale that included 10 items from the Powell and Harville (1990) scale and 12 new items; the intent was to include both an oral and written dimension. Although factor analyses showed that the expanded TCS was still one-dimensional, Sidelinger and McCroskey chose to interpret the scale as two-dimensional (written and oral clarity) "for exploratory purposes" (1997, p. 4). Later, in a 1998 study, Chesebro and McCroskey again revised the TCS into a shortened version to be more commensurate in length with other measures. The Teacher Clarity Short Inventory (TCSI) contained 10-items that were found to load on a single factor. Example items included, "My teacher is straightforward in her or his lecture," and "In general, I understand my teacher."

The TCSI became the *de-facto* option for much of the correlational research on clarity conducted in the Communication field. For instance, in using the TCSI, Avtgis (2001) found clarity to be positively associated with students' attributional confidence, and Chesebro and McCroskey (2001) observed that clarity had significant positive relationships with teacher immediacy, student motivation, affect for the instructor and affect for the course, as well as significant negative correlations with state receiver apprehension and perceived learning loss. Faylor, Beebe, Houser, and Mottet (2008) surveyed adult learners in a training context and found that trainer clarity, operationalized through an adapted version of the TCSI, was the only significant predictor of affective learning in a training environment. Finally, Mottet and colleagues (2008) found in a survey of 497 ninth-grade students that perceived teacher clarity was significantly related to perceived teacher immediacy, perceived relevance of information, perceived disconfirmation by the instructor (a negative relationship), use of study strategies, and students' affect toward learning.

The TCS and TCSI appear to flow from the same general tradition as the Ohio State studies in education. However, whereas the Ohio State scales identified intermediate-inference dimensions of clarity, the TCS/TCSI are one-dimensional. Thus, developing explanatory statements for effects poses some challenge for researchers because clarity is defined at its broadest possible level. For instance, Chesebro and McCroskey (2001) observed a significant relationship between clarity and perceived learning; however, because of the broad nature of how clarity was operationalized, their explanation for why this relationship was observed did not go beyond stating that teacher clarity increases “understanding” and results in a “solid grasp of course content” (p. 67). Based on these explanations, the TCI/TCSI might offer no psychometric or conceptual advantage over the Ohio State instrument.

Guided by Civikly’s (1992) treatment of clarity, Simonds (1997) argued for an additional expansion of the construct to incorporate content and process clarity. Content clarity refers to how a teacher explains course material, while process clarity includes all teacher clarity behaviors that do not specifically address content. Advancing a measure of “classroom understanding,” Simonds (1997) argued that a clarity measure should contain items related to content and items of process that address, for example, issues of evaluation, standards for performance, and feedback. Her work resulted in a 20-item, two-dimensional instrument assessing content clarity (e.g., “My instructor is clear when presenting content”) and process clarity (e.g., “Asks if we know what to do and how to do it”). A factor analysis of the scale observed only a single dimension of clarity. Consequently, although the low-inference items on Simonds’ scale are different from those found on the TCI/TCSI, overall interpretation is clouded because of the single, omnibus dimension.

Finally, Titsworth, Novak, Hunt, and Myer (2004) created the Clarity Behaviors Inventory (CBI) to assess the extent to which teachers used written or oral cues to signify either the structure of a lesson/lecture or to stress the importance of particular details. For example, an item assessing a written structural cue was, “Written explanations of how the ideas in the lecture fit together are presented on the chalkboard, overhead, PowerPoint, or in handouts.” An example of an oral importance cue was, “The teacher explains when she/he is presenting something that is important for us to know.” The 12-item scale asked respondents to agree or disagree with the statements using a standard 5-point Likert-type scale. A confirmatory factor analysis of the scale showed that a two-factor measurement model (oral and written clarity cues) fit the data well, but that a second-order, four factor scale (oral structural cues, written structural cues, oral importance cues, and written importance cues) did not.

The unique contribution of the CBI was the delineation between oral and written cues. Subsequent studies by Titsworth and colleagues observed that when teachers are rated higher in use of both oral and written clarity cues, students tend to report greater levels of emotional support from teachers, less emotion work required in the class, and an overall positive emotional valence for the class (Titsworth, Quinlan, & Mazer, 2010). Subsequent studies by the same researchers collapsed the oral and written factors into a one-dimensional measurement model and

observed negative relationships between teacher clarity and negative emotions from students like anger, anxiety, shame, hopelessness, and boredom (Mazer, McKenna-Buchanan, Quinlan, & Titsworth, 2014); positive relationships were observed between teacher clarity and positive emotions like enjoyment, hope, and pride (Titsworth, McKenna, Mazer, & Quinlan, 2013). Like the TCI and TCSI, the CBI offers an option for assessing students' perceptions of how teachers use certain behaviors that could be perceived as clear teaching. The CBI offers a slightly different set of options for researchers wishing to understand differences between *modes* of communicating (i.e., oral or written cues), but does not meaningfully add dimensionality to the way in which clarity is defined or understood.

Recommendations for Conceptualizing Teacher Clarity

Previous sections support two general conclusions surrounding the state of teacher clarity research. First, there exists a lack of precision surrounding the construct. As is apparent in the various approaches to operationalizing teacher clarity, a single term – teacher clarity – is used to represent many different types of behaviors. While this observation could be applied to many high-inference variables, the issue is perhaps more acute for this construct. Teacher clarity, as a term, is useful as a broad, conceptual framework, but may lack utility for discrete predictions and explanations of effects. Second, the apparent positive effects of behaviors constituting aspects of teacher clarity justify continued development of theory and research surrounding the topic. With observed average effect sizes as high as .46 (see Titsworth et al., 2015), aspects of teacher clarity are potentially very important to the teaching and learning process. Further attempts at understanding and taking action on these effects would profit from a language system that promotes clearer differentiation among the various behaviors that potentially constitute clarity.

The intent of this section is to offer such a system. Whereas the term teacher clarity can broadly be understood as students' perceptions of teachers' behaviors that assist in selecting, understanding, and remembering information, there are better, and more descriptive terms that should be used to guide researchers as they isolate and operationalize behaviors. We propose the following terms as potentially better options for bringing precision to our understanding of the construct: pre-instructional clarity, organizational clarity, explanatory clarity, presentation clarity, and adaptive clarity.

Pre-Instructional Clarity

All aspects of teacher clarity assume an element of planning and preparation on the part of the teacher. For instance, a lecture cannot have clear signposts or expla-

nations without the teacher first organizing material into key points and selecting appropriate details to give definition to those points. This process of selecting and organizing information could occur through the creation of lesson plans that establish concrete learning objectives for each class period, methods of instruction for achieving those objectives, and the assessment that will be used to measure learning. Blumberg (2009) argues that there must be an alignment among these decisions, such that the learning objective informs how information is presented and how learning is assessed.

We refer to pre-instructional clarity as *the process through which instructors select and align learning objectives, instructional methods, and assessment*. These decisions are important to the overall clarity of teachers. As noted by Blumberg (2009), “Well stated objectives can improve communication between instructors and students. They [objectives] can make student learning more efficient and reduce student anxiety because they know what the instructor expects of them and what their learning priorities should be” (p. 96). After teachers plan objectives, methods, and assessment, they plan for communicating that information to students through an advance organizer (see Gurlitt, Dummel, Schuster, & Nückles, 2012). Although several aspects of pre-instructional clarity have been explored by researchers in education and psychology, communication scholars have generally not addressed this aspect of clarity, with the possible exception of Chesebro (2003) and Titsworth (2001, 2004) who both included preview statements, a form of advance organizer, in their manipulations of clarity.

Organizational Clarity

Once objectives are set and teachers have planned their message, they must move to execution. Organizational clarity involves *the methods with which teachers use verbal, nonverbal, and visual resources to organize information for students*. Both Sidelinger and McCroskey (1997) and Titsworth et al. (2004) assumed that clarity can be enacted through both written and oral modalities. Likewise, Chesebro’s (2003) profile of the clear teacher manipulated oral and written (i.e., presentation slides) aspects of clarity. The form, either written or oral, used to convey these messages is less important than the function of what needs to be conveyed.

Chesebro’s (2003) clear teacher profile included, among other elements, a preview and review slide that would help students understand the structure of information during the lecture. In addition to those elements, Titsworth (2001) and Titsworth and Kiewra (2004) highlighted spoken organizational cues (i.e., signposts and transitions) as elements of clarity. Collectively, these structuring messages, either oral or written, help students develop organizing frameworks for details and other information. Thus, in the language of information processing, organizational cues create and activate schema to which information can be assimilated (Mayer, 1977).

Explanatory Clarity

Whereas organizational clarity is focused on the structure and interrelationships of information, explanatory clarity refers to *the ways in which instructors expand upon details that give substance to the structure*. When teachers present information, they have a general objective of helping students acquire and use knowledge. Alexander, Schallert, and Hare (1991) observed that knowledge acquisition generally targets three forms: declarative, procedural, and contextual. *Declarative* knowledge is the factual information associated with information. For example, terminology, definitions, historical development, and key research would all constitute declarative knowledge surrounding a particular communication theory. *Procedural* knowledge involves how to use knowledge to perform certain tasks, routines, or processes. For instance, a lecture on Kenneth Burke's Pentad may present definitions of the pentadic elements (declarative knowledge) so that students can use the framework to perform rhetorical criticisms of discursive texts (procedural knowledge). Finally, *conditional* knowledge helps students understand the situations under which the information would be applicable. For a lecture on Burke's Pentad, the teacher may specify that dramatism is particularly appropriate for discourse employing a narrative frame to make a point, persuade others, or inspire.

If declarative, procedural, and conditional knowledge form the substance of a lecture, explanatory clarity involves the ways in which teachers make such knowledge available to students. Clear lectures employ definitions, examples, illustrations, and other information to assist students in schema development. Whereas clear lecturers would systematically select and present such details, unclear lecturers might omit important details, or present details in a confusing manner. For example, Wong, Chu, and Yap (2014) noted that simple definitions can present confusion when they are incomplete, lack precision, are circular, or are not contextualized within a larger knowledge framework. When presenting examples, instructors should adopt a scaffolding approach where examples are first presented to the class and then students apply knowledge to one or more subsequent examples (see Yan & Lavigne, 2014). Moreover, procedural and conditional knowledge are best developed when a sufficient variety of examples are employed so that students have ample opportunities for applying knowledge under different circumstances. Unclear lectures may only present examples, with no opportunity for application, or may present insufficient examples to fully illustrate the concept.

Language Clarity

Language clarity refers to the *syntax, semantics, and fluency used by the instructor to convey information*. Land and Smith identified multiple ways in which teachers can use unclear language that diminishes the potential that students will learn information. As discussed previously, such unclear language could include vague-

ness terms, mazes, utterances, bluffing, and uncertainty (see Land, 1979). In addition, research suggests that a lack of fluency, such as with some international teachers, can contribute to a perception of diminished clarity on the part of students (Fitch & Morgan, 2003).

Although imprecise language can contribute to a lack of clarity, instructors also use language to improve the clarity of a lecture. A significant body of literature has explored the use of text signals, or “discourse markers” that aid readers in understanding expository text (see Sánchez & García, 2009). As an example, a text might use the phrase, “for that reason” to signal to the reader that a conclusion is being presented. Such signals are not directly adaptable to oral discourse. As speculated by Titsworth and Kiewra (2004), similar types of semantic cues are used by teachers during lectures. Although oral discourse is fleeting and does not generally allow the listener to back up and repeat information, such as with reading, similar cues can be used to signal connections, conclusions, structure, and the relative importance of information. For instance, a lecturer might signal importance by stating, “This will be on the quiz.” Such language devices improve clarity and form the building blocks of other clarity behaviors, such as organizational clarity and explanatory clarity.

Adaptive Clarity

The final dimension of teacher clarity, adaptive clarity, includes *the actions of the teacher to assess and respond to students’ needs relative to the precision and fidelity of information exchange*. Adaptive clarity assumes that such precision and fidelity occurs through dialogue where potential sources of ambiguity are reduced. As explained by Eisenberg (1984):

Clarity ... is a relational variable which arises through a combination of source, message, and receiver factors ... In trying to be clear, individuals take into account the possible interpretive contexts which may be brought to bear on the message by the receiver and attempt to narrow the possible interpretations. Clarity, then, is a continuum which reflects the degree to which a source has narrowed the possible interpretations of a message and succeeded in achieving a correspondence between his or her intentions and the interpretation of the receiver. (pp. 229–230)

Thus, as teachers and students interact, they are able to diminish potential sources of ambiguity that could otherwise hamper students’ opportunities for attending to, processing, and storing accurate information.

During typical classroom situations, various avenues exist for such interactivity where possible misinterpretations or lack of understanding could be potentially diminished. In fact, several studies have documented various clarifying tactics that students use, during class, to enhance their understanding of material (Darling, 1989; Kendrick & Darling, 1990; Pearson & West, 1991; West & Pearson, 1994). Dar-

ling, for instance, observed that students check their understanding with teachers and also clarify with teachers on how to proceed with a task when they are unsure. Similarly, Kendrick and Darling observed that students probe teachers for elaboration on concepts as well as for additional examples. West and Pearson analyzed the types of questions students asked across 30 different classes and observed that most questions sought to clarify classroom procedures or points made during a lesson. West and Pearson also observed that such tactics by students tended to elicit clarifying statements from teachers, thus moving toward Eisenberg's (1984) description of the clarity process. The adaptive dimension of clarity is consistent with that of both Bruner (1960/1977) and Civikly (1992), who argue that clear teaching occurs as teachers and students negotiate meaning through communication. This dimension of teacher clarity also embraces Simond's (1997) perspective that clarity has both content (i.e., making factual information more precise) and process (i.e., how to negotiate shared meaning about what is to be accomplished in a learning situation) elements. Adaptive clarity is also consistent with the dialogic perspective adopted by Li, Mazer, and Ju (2011), who explored the use of self-disclosure as a clarity tactic for international teaching assistants. In total, the adaptive clarity dimension explains how teacher clarity potentially functions in relation to students' working memory as they actively process and draw meaning from information.

Future Directions for Clarity Research

Previous sections identified lingering conceptual imprecision surrounding teacher clarity and also presented a possible language system for resolving that confusion. Through that analysis, several key research findings were also highlighted. While there have been meaningful findings related to the importance of teacher clarity, much work remains to be done in understanding the construct and how it contributes to teaching and learning. This final section identifies four general avenues for future scholars to explore.

First, we see a need for scholars to directly address the conceptual confusion surrounding teacher clarity. Most notably, such confusion has clouded the potential insights that theorists, researchers, and practitioners can draw from the corpus of literature available on the topic. The two meta-analyses reported in the Titsworth et al. (2015) article failed to find any subset of homogeneous effects. Stated differently, no matter how various clarity articles were grouped together, there remained a great deal of inconsistency with respect to observed results.

Such lack of homogeneity of findings presents at least two problems for those interested in the topic. First, there is little certainty in how to precisely describe the magnitude of how teacher clarity affects learning. Though it may be reasonable to conclude that there is some positive effect, the size of that effect is not apparent,

which limits our ability to discuss the potential importance of clarity alongside other variables like immediacy, for instance. Second, the lack of homogeneity among subsets of studies diminishes our ability to isolate particular clarity behaviors that have the greatest impact on learning. Because we cannot confidently isolate particular behaviors, drawing practical suggestions for teachers is challenging. For example, the synthesis of clarity studies does not permit a prioritization of particular clarity behaviors that generally have the greatest effect.

Subsequent research should address this problem by utilizing a coherent category of clarity behaviors – the one presented in this manuscript or another defensible system – to isolate and test discrete clarity behaviors. Until such programmatic research is conducted, the likelihood of determining consistent effects will remain small, and the potential utility of teacher clarity research will remain hampered. We view this line of research as the most important to advancing the overall program of research on teacher clarity.

A second avenue for research lies in the generally consistent – though not homogeneous – finding that teacher clarity is positively related to affective learning (i.e., the general attitude or feelings, positive or negative, that students have toward a subject, class, and/or teacher). Researchers exploring teacher clarity have generally observed stronger effects on student affect than on cognitive learning (e.g., Mottet et al., 2008). Information processing theory provides a reasonably robust explanation for the effects of teacher clarity on cognitive learning; however, the explanation for why clarity has such an effect on affective learning is less well developed. While literature does point to a connection between teacher clarity and state receiver apprehension (Chesebro & McCroskey, 2001), connections between teacher clarity and several interrelated constructs such as affect, emotions, and interest needs further development.

There are several communication-related questions that could be probed to better understand the clarity-affect relationship. Using quantitative findings as a documented basis for the relationship, interpretive research designs could potentially illuminate the processes through which this relationship stems. For instance, do students experience the clarity-affect relationship as a linear progression where gradual increases in clarity correspond to gradual increases in positive affect, or is there an “ah-ha” moment where things become clear and positive affect spikes? When clarity and affect are at higher levels, as presumed in the consistently observed positive correlations among the variables, do they remain at that state, or are there peaks and valleys? Does clarity interact with personality characteristics to moderate the relationship? Understanding this question through interviews or diaries could provide valuable information for researchers who wish to define this relationship more precisely. Although these questions could certainly be tested quantitatively, introducing rich descriptions derived from interpretive studies could potentially aid quantitative researchers in refining theory surrounding the relationship.

The third issue requiring further attention is the general topic of context. By context, we assume that various levels of context could potentially influence how clarity is enacted and how it functions in relation to learning. One such level of context involves the cultural norms that surround clarity. Zhang and colleagues (Zhang & Huang, 2008; Zhang & Zhang, 2005) have undertaken cross-cultural research projects exploring the effects of teacher clarity behaviors in varying cultural settings. In a 2008 study, Zhang and Huang tested a structural equation model exploring the connections between teacher clarity, student affect, student motivation, and cognitive learning. Results of their testing revealed no connection between clarity and learning once the other variables were included in the model, suggesting a fully mediated model. This finding runs contrary to other studies as well as accumulated theory. As a result, Zhang and Huang argued that validity testing must be conducted to ascertain whether instruments like the TCSI have cross-cultural applicability. More generally, in-depth research must explore whether the process of learning suggested by information processing theory, and as enacted by teachers' clarity behaviors, has relevance in other cultures.

In addition to the cultural context, pedagogy within specific fields of study may require differing approaches to being clear. For instance, a study exploring teacher clarity in an undergraduate microbiology course for non-majors found that teachers attempted to be clear by making extensive use of simple illustrations and also making connections between course content and students' everyday lives (Marbach-Ad et al., 2010). In another field, political science, Cunningham (2010) suggests that appropriate use of multimedia tools might assist teachers in making contemporary political science theories clear for students. These examples show that teacher-scholars in various fields are attempting to better understand the unique needs of students as they learn field-specific information. As our precision in understanding teacher clarity continues to develop, scholars should continue to explore field-specific applications of clarity and synthesize such information into an inventory of effective clarity approaches among disciplines.

A final example of how context could be further explored is in relation to interactions between the learner and the classroom context itself, and how those interactions potentially influence the clarity-learning relationship. Returning to the Rodger et al. (2007) study, those scholars explored potential interactions between teacher clarity and test anxiety on students' performance on a 26-item test of learning and motivation from a 22-minute lecture. Results of their study showed that, after controlling for students' scores on a pre-assessment of intelligence, teacher clarity resulted in stronger gains in motivation for students with high test anxiety, as compared to students with low test anxiety. Only the main effects of clarity emerged as significant for cognitive learning – students in the high-clarity condition scored better on the exam than did students in the low-clarity condition. The observed interaction on student motivation suggests that clarity has potentially differing effects depending on the student and the class. These student-class inter-

action effects deserve additional exploration. Although this strand of research may not diminish the overall conclusion that clarity has positive effects on learning, additional investigation could potentially help educators understand how to counsel students with differing orientations on how to interact with teachers to increase clarity.

In conclusion, the multi-disciplinary body of literature exploring teacher clarity has developed into a robust body of research. Taken collectively, the intuitive conclusion that clarity is important remains unchanged from the initial studies through the present. Stated simply, students benefit when teachers are clear. As with many research programs, the potential importance of theory and research lies much deeper than the intuitive or obvious. With respect to teacher clarity, much remains to be understood, starting with how to bring precision to defining and operationalizing the construct. As efforts to address this and other remaining questions progress, our ability to blend theory and practice, namely teaching and learning, will be greatly enhanced.

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