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The Dynamics of Autobiographical Memory

The Revised Listening Concepts Inventory (LCI-R): Assessing Individual Conceptual Differences in the Conceptualization of Listening

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ABSTRACT

Although research at the crossroads of communication and social cognition recognizes the importance of thought to the reception of message, has not systematically addressed how thought during listening affects message reception. The present study sought to develop and provide evidence that LCI-R provides a measure to assess conceptual differences in the construction of listening. The revised conceptualizations of the LCI-R are incorporated into a listening process that recognizes the role of listening and the role of message reception. The results of the revised LCI-R will be presented for both the listening and message reception processes to the degree and the role of LCI-R in the construction of listening processes.
Influence on action. Of particular interest to scholars studying at the crossroads of communication and social cognition are the ways in which individual cognitive structures shape the processes of speaking and listening (Rkosos-Ewoldsen & Monahan, 2007). Unfortunately, while there is a long history of attention afforded to the influence of cognition on message production, very little research has attended to similar influences on listening. Although recognized for more than a decade (Berger, 1998, 2005a; Bodie, 2011; Roskos-Ewoldsen, 2010), little more than lamenting has been accomplished (see Bodie, 2010). This has led to a rather ironic state of affairs: though we applaud ourselves regarding how much we know about the ways in which individuals produce the messages that they do on particular occasions with particular people, our ability to predict and explain the extent processes involved in how the listener is attending to and processing that message content is depressing.

Certainly there exists a rather robust body of scholarly research highlighting a number of individual differences in social information processing or “cognitive style” (Stuedfeld & Tetlock, 2003). Although this research has made considerable contributions to understanding how and why people make the judgments and decisions they do, it generally lacks a sustained focus on the role of cognition within interpersonal interactions (Bodie, Worthington, Imhof, & Cooper, 2008; Imhof, 2010). Instead, research, especially that conducted in cognitive and social psychology, tends to focus on information processing or message reception with simple tasks such as word recognition or recall (Wyer & Adaval, 2003). Other research utilizes text-based material with the assumption that “listening and reading are . . . identical twins” (Imhof, 2010, p. 115). Such research and the cognitive styles on which it focuses may fail to extrapolate to more interactive settings. Indeed, results from various modalities of information processing cannot be applied, mutatis mutandis, to other modalities as results from various studies show modality specific effects on comprehension, understanding, and other processing outcomes (for review see Petersen, Fox, Posner, Mintum, & Raichle, 2004).

In addition, research with a focus on “socially connected actors” has systematically failed to specify the cognitive structures and processes that underlie when, how, and why processes such as “mutual-influence” are possible (see Greene & Graves, 2007; Greene & Herbers, 2011). The term most widely used to refer to how individuals process information in interactions with others is listening (Goss, 1982a, 1982b, 1996). Listening research is conducted by scholars across the academic landscape (see Wolvin, 2010) who recognize that people make “conscious choices” about to whom, what, and when to listen (Barker & Watson, 2000, p. 70). Just as cognitive styles impact the way judgments and decisions are made, individual listening frameworks should have an impact on the way that information is processed within the context of interactions with others (Imhof, 2010; Imhof & Janusik, 2006; Watson, Barker, & Weaver, 1995). Given the importance of listening to a range of outcomes (Bodie & Fitch-Hauser, 2010), it is vastly important to uncover the ways in which people conceptualize listening and how these conceptualizations can inform our understanding of how listening works.

Preliminary work striving toward this goal was recently published by Imhof and Janusik (2006). Their multidimensional measure of individual listening conceptualizations asks respondents to indicate the degree to which a series of activities are similar to listening. These activities cluster around four individual propensities to define listening as: (a) organizing information (listening is primarily an ability to organize information); (b) relationship building (listening is about “bonding” and “caring” to maintain and establish close relationships); (c) learning and integrating information (listening is the ability to interpret, analyze, and understand information); or (d) a critical endeavor (listening is a critical exercise useful when “arguing”). These individual concepts of listening form distinct belief systems about the roles and functions of this communicative activity.

This initial work by Imhof and Janusik is important for several reasons. If our cognitive and behavioral manifestations of listening are bounded by our conceptualizations of what it means to listen, it is vitally important to discover the many concepts that people hold about listening. Discovery of underlying listening concepts can help to further research into the connection between listening cognitions and listening behavior as well as help develop general theories of the listening process (Bodie, 2009; Bodie et al., 2008; Janusik, 2007).

Although their scale provides an important advancement in our ability to test how conceptualizations about listening influence interactions, there are two notable limitations to the Imhof and Janusik study that the present set of studies attempts to address. First, the scale was inductively derived using an exploratory approach (i.e., principal components analysis) without a concerted cross-validation effort. Thus, the particular items comprising the LCI as well as the four underlying constructs they purport to measure may be merely an artifact of the sample investigated and the data analytic strategy employed. Study 1 takes the next logical step in the development of the LCI and attempts to validate the factor structure in an independent sample. Study 2 extends this analysis by addressing a second limitation, namely the lack of evidence for multi-group invariance. As explained by Byrne (2010), “the central concern is whether or not components of the measurement model . . . are equivalent (i.e., invariant) across particular groups of interest” (p. 197). Of course, there are arguably many “groups of interest” when it comes to exploring the impact of listening constructs on listening behavior; thus, Study 2 can be thought of as an initial exploration into the measurement invariance of the LCI.

Finally, this article addresses the lack of validity evidence offered for the originally developed LCI. In particular, Imhof and Janusik (2006) claim that listening constructs are both “prevailing and situationally activated” (p. 81). Thus, Study 3 investigates the temporal stability of the LCI and its relationship to empirically valid and theoretically meaningful individual differences in listening.
and cognitive style. Study 4 then attempts to provide preliminary evidence for the claim that individuals can activate different conceptualizations of listening based on the particulars of the listening situation. In sum, this article concerns itself with providing validity evidence for a scale that is useful in investigating the influence listening conceptualization on the listening process.

STUDY 1

The Listening Concepts Inventory (LCI) was developed to measure underlying dimensions of how individuals conceptualize listening (Imhof & Janusik, 2006). In their study, respondents—undergraduate students in the United States and Germany—were asked to indicate the degree to which a series of 65 activities, drawn from the extant scholarly literature, are similar to listening. Thirty-three of these activities were retained after a principle components analysis as related to one of four individual propensities to define listening. Imhof and Janusik (2006) claim that organizing information, relationship building, learning and integrating information, and critical listening are distinct belief systems about the roles and functions of listening. Although the theoretical and practical utility of “an instrument that allows one to describe and diagnose the structure of individual listening concepts” (Imhof & Janusik, 2006, p. 92) is undeniable, the LCI is still embryonic. Indeed, now that the LCI has been developed, it is important to validate the factor structure using a theory-driven method with data collected from an independent sample. Consequently, this first study explicitly tests the hypothesis that the LCI is best represented by a four-factor structure using confirmatory factor analytic methods.

As with all other models tested in this article, commonly used fit indexes and comparison thresholds were used to evaluate the original LCI model fit: the comparative fit index (CFI) above .90, the standardized root mean square residual (SRMR) below .10, and the root mean square error of approximation (RMSEA) below .08. In addition, the standardized residual covariance matrix was inspected for values over two in absolute value. When models are compared, decline in model fit is determined by comparing the relative decline in CFI and RMSEA as increase in chi-square is overly restrictive. Specifics related to these statistics and usage recommendations can be found elsewhere (e.g., Byrne, 2010; Hoyle, 2000; Hu & Bentler, 1999; Kline, 2005; Raykov & Marcoulides, 2006).

Method

Participants

A total of 346 (154 males, 191 females) undergraduate students attending a large university in the southeastern United States were the participants for Study 1. Students ranged from 17 to 57 years of age ($M = 20.31, SD = 2.92$); represented the Freshman ($n = 105$), Sophomore ($n = 102$), Junior ($n = 56$), and Senior ($n = 78$) classes; and primarily reported their ethnicity as Caucasian ($n = 285$).

Procedures

Participants were recruited through an online reservation system where a variety of studies were posted that students could complete for course research or extra credit. Participants completed the 23-item LCI in a 20-station computer lab, and item responses were recorded on a 5-point scale that had participants indicate the degree to which each listed activity was: 1 = not at all similar, 2 = somewhat related, 3 = rather similar, 4 = almost identical, or 5 = identical to listening. All procedures were approved by the appropriate Institutional Review Board.

Results

Preliminary Analyses

Prior to fitting the measurement model, data were inspected for adherence to statistical assumptions (Tabachnick & Fidell, 2007). Twenty cases were deleted because they constituted status as a multivariate outlier (Mahalanobis Distance > 59.70).

LCI Model Fit

The theoretical model presented in Imhof and Janusik (2006) suggests four latent factors, each with between 7 and 11 items representing that construct. Inspection of fit statistics indicated poor fit, $\chi^2 (489) = 1199.42, p < .001$, CFI = .89, RMSEA = .07, CI90% = .07, .07; 18 standardized residual covariances were above 2.58 in absolute value. There were also several parameter estimates that, although statistically significant, were low (i.e., $\lambda < .50$). In addition, modification indices indicated some items were representing more than one latent construct, and there were several correlated error terms (Gerbing & Anderson, 1984).

Based on deleting (a) low loading items, (b) items representing more than one latent construct, and (c) items whose error component systematically varied with other error components, a final model was fit that included fifteen items and four latent constructs that were allowed to freely vary. This model replicated the data covariance matrix accurately, $\chi^2 (84) = 175.85, p < .001$, CFI = .94, RM = .057, RMSEA = .058, CI90% = .046, .07, and all factor loadings were adequate (see Table 1). Moreover, all residual covariances were below .10 and

1All participants who were under the age of 18 were required to obtain parental or guardian consent to participate as required by the appropriate Institutional Review Board.
Table 2. Zero-Order Correlations among LCI-R Constructs, Studies 1-3

<table>
<thead>
<tr>
<th>Factor</th>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information acquisition</td>
<td>610</td>
<td>791</td>
<td>610</td>
</tr>
<tr>
<td>Relationship building</td>
<td>759</td>
<td>691</td>
<td>759</td>
</tr>
<tr>
<td>Learning</td>
<td>696</td>
<td>790</td>
<td>696</td>
</tr>
<tr>
<td>Critical</td>
<td>599</td>
<td>792</td>
<td>599</td>
</tr>
</tbody>
</table>

Notes: All values are statistically significant at p < .001. The first estimate is from Study 1, the second estimate is from Study 2, and the third is from Study 3.

all standardized residual covariances were below two in absolute value. Table 1 presents the internal consistency estimates.2 Table 2 provides the estimated correlations between the latest constructs. Correlations between the new subscales and the original ones were all high (82 < r < 92; rcorr = .88) indicating that some items were deleted, the integrity of the scale was not compromised.

To inspect the distribution of the different listening concepts, a tertile split was conducted for each concept. Using this criterion, 52 out of the 326 students (16%) scored in the upper tertile of one concept and in the lower tertile of the other three; 23 students (7.1%) scored in the lower tertile of all four concepts; and 104 students (31.9%) scored in the upper tertile on all four concepts. The majority of students endorsed two (16.0%) or three (29.1%) concepts.

Discussion

Study 1 sought to replicate the factor structure of the original LCI with an independent sample of participants. This goal was not achieved; however, a revised version of the scale was advanced. The Revised Listening Concepts Inventory (LCI-R) consists of 15 items that constitute four ways in which listening.

2The formula for the point estimation of scale reliability when error variances are not correlated is

$$p_{rel} = \frac{\sum \omega^2 - \sum \delta_{ij}}{\sum \omega^2 + \sum \delta_{ij}}$$

where $\sum \omega^2$ is the squared sum of unstandardized regression weights and $\sum \delta_{ij}$ is the sum of unstandardized measurement error variances (Raykov, 2004). Since the assumption of equitability was met, $\hat{r}^2 = 190.05$, CIT = .55, RMR = .367, RMSEA = .055, CI 090% = .044.667, Cronbach's alpha for each scale is equivalent.

3Information acquisition: 4.063.25; Relationship building: 3.332.67; Learning: 4.253.50; Critical: 3.003.23.
is conceptualized—information acquisition, relationship building, learning, and critical. Judging by the bivariate correlations (see Table 2) and the classification of participants by tertile split of their concept scores, it appears that people are likely to hold at least one listening construct and many likely hold more than one listening construct in their cognitive system.

STUDY 2

Study 2 had two primary purposes: first, to replicate the scale across an independent sample drawn from a different population; and second, to test for measurement invariance. The strategy for the first purpose was similar to that presented for Study 1. For the second purpose, the equivalence of the LCI-R was tested using the multiple-groups analysis within AMOS (see Byrne, 2010). Even if the LCI-R is adequately specified in the U.S. healthcare worker sample, this does not “guarantee the equivalence of item measurements and underlying theoretical structure [across the two groups]” (Byrne, 2010, p. 205). Several levels of model invariance exist, including configural invariance (same factor structure holds across groups), metric invariance (factor loadings are equal across groups), scalar invariance (loadings and intercepts are equal across groups), and strict measurement invariance (loadings, intercepts, and item error variances are equal across groups) (Little, 1997). Since this study was primarily interested in the generalizability of measurement (an issue of construct validity), configural and metric measurement invariance are of primary importance (Byrne, 2010). The test for configural invariance involves testing model parameters for each group simultaneously. After this baseline model (the configural model) is assessed, the following parameters are iteratively fixed to test for higher order equivalency:

1. factor loadings (measurement weights);
2. covariance of the factors (structural covariances); and
3. error variance (measurement residuals).

Although disagreements are present in the extant literature, many would agree that showing equivalence at the level of the factor loadings is sufficient for claims of metric invariance (Vandenberg & Lance, 2000).

Methods
Participants and Procedures

The sample consisted of 153 female and 35 male, primarily Caucasian healthcare workers who were recruited by e-mail invitations to all 350 employees of a multisite medical center in the midwest. Participants ranged in age from 22 to 56.

Results

Preliminary Analyses

Prior to running the measurement model, data were inspected for adherence to statistical assumptions. Inspection of data normality showed all items were in range and had one mode; tests for univariate and multivariate outliers did not reveal abnormal cases. Missing data, which constituted less than 5% of all data, was replaced using mean imputation (Tabachnick & Fidell, 2007).

LCI-R Model Fit

The LCI-R model produced good fit, $\chi^2 (84) = 207.40, p < .001$, CFI = .93, SRMR = .08, RMSEA = .08, CI 90% = .07, .10; no standardized residual covariances were above 2 in absolute value. In addition, comparing this model with several one, two, and three factor models showed that the data best represent a four-factor structure (results available upon request). Correlations between the new subscales and the original ones were all high ($r_s > .90$). Even more dramatic than Study 1, only two participants endorsed only one listening concept; the majority (61.1%) endorsed two or three concepts, and 26.3% endorsed all four; 11.6% of the sample did not endorse any concept.

Measurement Invariance

Table 3 presents the fit statistics for all models reported below. The configural model produced adequate fit statistics indicating the LCI-R is well-fitting across the two samples. In addition, relative to the configural model, models constraining measurement weights and structural covariances did not produce meaningful decrements in fit. The model constraining the measurement residuals, however, showed a significant decline in fit. These results suggest that the LCI-R exhibits metric invariance across these two groups providing evidence of its construct validity.

Discussion

Study 2 sought to validate the factor structure of the LCI-R with an independent sample of participants that also constituted a separate population. Results showed that the LCI-R fit the data well with a convenience sample of U.S. healthcare workers and that the model was invariant at the level of measurement weights and structural covariances when compared with a convenience sample of U.S. undergraduates; thus, the factor structure of the scale is not entirely dependent on the population in which data is collected. Of course, providing evidence of measurement equivalence is an ongoing project and should be explored in a range of populations (e.g., cross-cultural invariance) (Vandenberg & Lance, 2000). Moreover, results mirrored those from Study 1 with respect to the classification of
Table 3. Model Fit Statistics for Measurement Invariance Analyses, Studies 2-4

<table>
<thead>
<tr>
<th>Model</th>
<th>Configural</th>
<th>Weak Invariance</th>
<th>Strong Invariance</th>
<th>Measurement covariances</th>
<th>Structural means model</th>
<th>Strict Invariance of Measurement residuals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\chi^2$ (60) = 405.41</td>
<td>$\chi^2$ (69) = 416.41</td>
<td>$\chi^2$ (90) = 490.17</td>
<td>$\chi^2$ (99) = 500.92</td>
<td>$\chi^2$ (169) = 449.93</td>
<td>$\chi^2$ (232) = 515.68</td>
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<td></td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
<td>$p &lt; .001$</td>
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<tr>
<td></td>
<td>RMSEA = .04, .06</td>
<td>RMSEA = .04, .06</td>
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<td></td>
<td>(CI 90%) = .03, .06</td>
<td>(CI 90%) = .03, .06</td>
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<td>(CI 90%) = .03, .06</td>
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<tr>
<td></td>
<td>CFI = .93</td>
<td>CFI = .91</td>
<td>CFI = .90</td>
<td>CFI = .89</td>
<td>CFI = .89</td>
<td>CFI = .88</td>
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<tr>
<td></td>
<td>SRMR = .05</td>
<td>SRMR = .04</td>
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<td></td>
<td>U.S. undergraduates—healthcare workers (Study 2)</td>
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</table>

Studies 1 and 2 suggest that a 15-item scale reliably captures at least four concepts about listening that U.S. adults hold in their cognitive system. But are these concepts conceptually distinct from other cognitive styles as well as other putative individual differences in how people tend to listen? And do these constructs correlate in theoretically meaningful ways to other elements of individual cognition? To the extent that listening conceptualizations are associated in theoretically meaningful ways to other cognitive constructs, we can ascertain the breed of cognitive style captured by the scale. Study 3 was conducted in order to provide evidence of nomological validity for the LCI-R. In addition, this study was designed to assess the temporal stability of the scale and its relationship to aspects of individual temperament to assess the extent to which listening concepts can be conceptualized as a stable, individual-level trait.

The Relationships among Listening Concepts and Other Listening Styles

Given the attention paid to listening as an information processing construct (Bodie et al., 2008; Fitch-Hauser, 1984; Fitch-Hauser & Hughes, 1988; Goss, 1982b; Imhof, 2010; Janusik, 2005, 2007), it is not surprising that various other concepts have been forwarded to explain how people view listening. This study investigated three of the more popular in the extant literature, namely listening styles, domain-specific listening competency, and active listening.

Listening Styles

Listening styles are “attitudes, beliefs, and predispositions about the how, where, when, who, and what of the information reception and encoding process” (Watson et al., 1995, p. 2). That is, listening styles are listening responses that individuals habitually orient toward especially in novel situations (Imhof, 2004). The most current theoretical model describes four styles (Bodie & Worthington, 2010; Bodie, Worthington, Gearhart, & Denham, 2010), the first two of which—relational and analytic—describe more open-minded and other-oriented orientations toward listening. Specifically, individuals who score high on items reflecting a relational orientation report listening primarily for emotional information and to understand how others feel, whereas the analytic listening style describes a tendency to withhold judgments about others’ ideas and consider all sides of an issue before forming a response. Based on these descriptions it seems plausible to
predict that the relationship building subscale of the LCI-R will be positively associated with these two orientations (H1). Given that relationships among information acquisition, learning, and critical as measured by the LCI-R and relational and analytic listening as measured by the LSP-R are less conceptually clear, those relationships were investigated as a research question (RQ1).

The other two orientations—task and critical—describe more “socially callous” (Weaver, 1998) styles. Specifically, task-oriented listening refers to an orientation toward viewing listening as a simple transaction and a general tendency to become frustrated when speakers deviate from the purpose of conversation, whereas items comprising critical listening focus on an individual’s natural tendency to focus on inconsistencies and errors when others speak. In terms of nomological validity, the conceptualizations of listening as information acquisition and learning should each be positively associated with viewing listening primarily as a transaction, something that is supposed to be structured and to have a general purpose of exchanging information (H2a). Conversely, relationship building should be negatively associated with task-oriented listening as the definition of listening embedded within that concept includes notions of connecting with others, perhaps regardless of the content of the interaction (H2b); relationship building should also negatively covary with items comprising the critical orientation scale (H3). Given that relationships among information acquisition, learning, and critical concepts as measured by the LCI-R and critical listening as measured by the LSP-R are less conceptually clear, those relationships were investigated as a research question (RQ2).

**Listening Competency**

Wolvin and Coakley (1993) developed a hierarchical listening taxonomy that contains five goals that frame what listeners bring to a given communicative interaction. At the first level, individuals listen for discrimination or to distinguish among various environmental stimuli including verbal and nonverbal cues of their interlocutor. The second level, comprehension, “extends the listener to an understanding of the message . . . through careful concentration and systematic retention and recall of the information” (Ford, Wolvin, & Chung, 2000, p. 4). As discriminative listening is the “foundation for the other types of listening” there is reason to suspect that each listening concept will be positively related to this competency (H4). Likewise, since listeners comprehend information in a variety of settings, it is likely that each of the concepts is positively related to this competency (H5).

Those positive correlations may, however, reflect differential abilities to discriminate and/or comprehend in various contexts. The remaining three listening goals in the Wolvin and Coakley typology refer to specific types of listening that are enacted in particular situations but that assume the lower order discrimination and comprehension processes are active. Therapeutic listening is the ability to respond appropriately during interactions when others are distressed, whereas critical listening is the ability to critically examine and evaluate the content of a speaker’s message after his or her perspective has been considered. Finally, appreciative listening is listening for enjoyment.

Both the information acquisition and learning concepts appear oriented around a tendency to see listening as a tool that allows for the storage and later retrieval of information, whereas the critical competency refers to a tendency to see listening as a strategy to evaluate others in conversation. Conversely, relationship building reflects an other-orientation, a conceptualization that listening is primarily about bonding. Thus, the relationships among the listening constructs information acquisition, learning, and critical and these three contextually-based competencies should be opposite of those among relationship building and the competencies. Specifically, the former group should exhibit a negative association with therapeutic and appreciative listening and a positive association with critical listening (H6a), whereas relationship building should exhibit a positive association with therapeutic and appreciative but negative with critical listening (H6b).

**Active Listening**

The final listening variable investigated is an individual’s attitude toward active listening. Drawing from the work of Carl Rogers, Mishina, Kubota, and Nagata (2000) define an individual’s attitude toward active listening as a genuine attempt to understand and accept the other individual. Whereas relationship building should be positively associated with such an attitude, the other three concepts should correlate negatively (H7).

**The Relationships among Listening Concepts and Other Cognitive Styles**

Since listening is at least partially a cognitive process, it should also be related to other, established cognitive styles. Two of the most basic are the desire to analyze and evaluate social information (Suedfeld, 2000). Need for Cognition (NFC; Cacioppo & Petty, 1982) and Need to Evaluate (NTE; Jarvis & Petty, 1996) reflect the tendencies to engage in and generally enjoy systematic thinking (NFC) and spontaneously and regularly evaluate objects and experiences as good or bad (NTE). In over 100 studies, results consistently show that individuals high in NFC exert more cognitive effort and persist longer in that effort on a range of tasks (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Although positively correlated with NFC (r = .35; Jarvis & Petty, 1996; r = .28; Tormala & Petty, 2001), NTE is a distinct cognitive predisposition reflecting a chronic tendency to engage in evaluation of most aspects of one’s environment; people high in NTE can do so with much thought or little thought (Bizer, Krosnick, Petty, Rucker, & Wheeler, 2000). In general, the attitudes of those high in NTE
are accessed more frequently, and they express opinions more readily than do those low in NTE.

A concept similar to the general disposition to enjoy and engage in effortful processing is found in Cognitive Experiential Self-Theory (CEST) (Epstein, 1991). Although CEST is a broad theory of personality and thus includes several assumptions and principles, the one that most readily concerns this study is that "people process information by two independent, interactive conceptual systems, a preconscious 'experiential system' and a conscious 'rational system'" (Epstein, 2003, p. 159). Thus, CEST proposes two primary thinking styles, a more rational style (analogous to NFC) that is described as effortful and logical and a more experiential style that involves more intuitive and emotional processing of information (Epstein, Pacini, Denes-Raj, & Heier, 1996). Compared to their less rational counterparts, highly rational individuals are more likely to engage in effortful and task-oriented thinking and to extend cognitive effort on logical reasoning and problem solving. These styles are assumed to be "stable, enduring predispositions that prompt individuals to heed and process information in different ways" (Berger, 2007, p. 217), and research has shown individual differences in thinking style influence a range of message processing tasks (Berger, 2005b, 2007; Feng & Lee, 2010).

To the extent that viewing listening as an information acquisition, learning, or critical task predisposes individuals to be more effortful in their processing and viewing listening as primarily relationship building predisposes more emotionally-oriented processing, the former group should be positively associated with NFC and rational thinking and the latter with NTE and experiential processing (H8). Alternatively, listening constructs are conceptualized as habitual ways of attending to others. As explained by Epstein (1991), the experiential system is a 'more natural' system...has a stronger biological component...and has a longer evolutionary history" (p. 121). Consequently, an alternative hypothesis is that each listening construct will be associated positively with the experiential system and that no relationship is expected with the rational system (H9).

The Temporal Stability of the LCI-R

As indicated by the discussion of cognitive styles, individuals are predisposed to think about elements of their social environments in specific ways and to prefer certain ways of making decisions; thus, these styles can be thought of as trait-like or personality constructs. Thus, relationships among the listening constructs and these styles provide some evidence of their stability. To further investigate the ability of the LCI-R to capture relatively stable thinking about listening, we also investigated its temporal stability and its relationship to fundamental components of personality. To the extent that conceptualizations of listening are stable over time, they are likely habitual ways of thinking about and, subsequently, enacting listening (RQ3).

In addition, temperaments are biologically-based dispositions; thus, relationships between them and other trait-like constructs suggest the latter are relatively stable and immutable. Investigating the association between temperament and conceptualizations of listening offers another test of the extent to which individual listening constructs are static or potentially dynamic. Though several theories of temperament exist, this study investigates three temperament characteristics, namely extraversion/introversion, psychoticism/socialization, and neuroticism/stability (Eysenck, 1990). Extraversion (E) refers to a chronic state of under-arousal which manifests itself in sociable behavior and an affiliative self-concept. In contrast, psychoticism (N) is characterized by a relatively low activation threshold which manifests itself in negative affect and a negative self-concept. The final temperament dimension, psychoticism (P), is characterized by aggression, deviation from societal norms, and a heightened sense of self and independence.

Only two studies to date have investigated relationships among temperament and orientations toward listening. The first was reported by Weaver et al. (1996) who found Es preferred a relationally-oriented style, Ns more prone to concern themselves and others with time constraints when listening, and Ps embracing a socially callous listening style. Villaume and Bodie (2007) reported similar associations using continuous (as opposed to categorical) measures of both temperament and listening orientations. Their analysis suggested that extraversion operates to orient and focus listeners on their interaction with others, whereas low levels of psychoticism helps listeners avoid the social callousness and self-focus that would impede sensitivity to others. Similarly, low neuroticism avoids the crippling social anxiety of anticipating negative reactions to self that also would impede a realistic sensitivity to others. Thus, it seems plausible to predict that relationship building will be positively associated with extraversion and negatively associated with both psychoticism and neuroticism (H10). The relationships among the other three listening constructs and temperament cannot be reliably predicted from this or other prior work so is investigated in a research question (RQ3).

Finally, given the attention afforded to the relationship between listening and empathy in the extant literature (for review see Bodie, in press), the association between the LCI-R and empathy is explored. Empathy is thought to be at least partially based in temperament and refers to relatively stable predispositions to feel and view from the perspective of others (Eisenberg, 2000). In this study, we investigated the relationship between the four listening constructs and two distinct aspects of empathy, namely empathic concern (EC) and perspective taking (PT). EC refers to the tendency to feel concerned for others, particularly those being treated unfairly, whereas PT refers to an ability to see things from another's point of view (Stiff, Dillard, Somera, Kim, & Sleight, 1988). Because defining listening as a relationship building activity explicitly acknowledges the role of listening in helping and comforting, this orientation should be positively
associated with both empathy concepts (H11). The relationships among EC and PT and the other constructs are, however, less conceptually clear; thus, a research question is posed (RQ5).

Methods

Participants and Procedures

Data were collected at two time periods using an online survey software system, though all sessions were run in a computer laboratory that accommodated between 5 and 25 participants per session. Participants who signed up for and completed the initial survey were allowed to take the second between 14 and 45 days after \( (M = 18.93 \text{ days}) \). Two hundred and sixty-seven participants completed the first survey, and 228 completed the second. In the full dataset, there were 150 female and 77 male (28 missing) participants who reported an average age of 20.43 \( (SD = 2.51) \) and primarily Caucasian \( (n = 179) \) ethnicity.\(^4\) In addition to the LCI-R, measures of listening style, cognitive style, temperament, and empathy were also employed. Table 4 presents all descriptive statistics and estimates of reliability.

Listening Styles

The Revised Listening Styles Profile (LSP-R) was used to operationalize listening style (Bodie et al., 2010). Using 24 items that loaded on one of four orientations—relational (e.g., “When listening to others, it is important to understand the feelings of the speaker”), analytic (e.g., “I wait until all the facts are presented before forming judgments and opinions”), task (e.g., “I am impatient with people who ramble on during conversations”), and critical (“When listening to others, I focus on inconsistencies and/or what’s being said”)—participants are asked to respond using 7-point Likert scales. The scale was administered at both time points; measurement invariance and temporal stability are reported elsewhere (Bodie et al., 2010). Four subscales were calculated by averaging across time. Higher numbers indicate higher reported levels of a given style.

Listening Competencies

The Self-Perceived Listening Competence scale (SPLC; Ford et al., 2000) was administered at each time point to assess individual ratings of their proficiency at discriminative (e.g., “I can interpret correctly persons’ facial expressions”), comprehensive (e.g., “I correctly recall information a few minutes after I hear it”), therapeutic (e.g., “I listen patiently to persons who are upset”), appreciative (e.g., “I enjoy listening to others”), and critical (e.g., “I carefully assess information as it is being shared with me”) listening. Each subscale has four items, each of which is assessed on a 5-point Likert scale. After removing two items with low \( (\lambda < .50) \) standardized regression weights (“I can recognize when persons are not telling the truth” [Discriminative]; “I express opinions that differ from what I have heard others express” [Critical]), fit statistics were adequate at Time 1, \( \chi^2 (125) = 290.20, p < .001, \text{CFI} = .91, \text{SRMR} = .05, \text{RMSEA} = .07 \) (CI 90% = .06, .08), and Time 2, \( \chi^2 (125) = 334.28, p < .001, \text{CFI} = .88, \text{SRMR} = .07, \text{RMSEA} = .08 \) (CI 90% = .07, .09). The configurational model was the only one supported, \( \chi^2 (250) = 624.48, p < .001, \text{CFI} = .90, \text{SRMR} = .05, \text{RMSEA} = .05 \) (CI 90% = .05, .06). Five subscales were subsequently computed for each time by averaging scores across the remaining items; higher scores mean higher perceived levels of a given competency. A total scale was also computed by averaging across survey administrations.\(^5\)

Active Listening

The 13 items (4-point scale: disagree, rather disagree, rather agree, agree) developed by Mishima et al. (2000) to measure person-centered attitude were administered at time one as the operationalization of active listening attitude. These items (e.g., “I tend to persist in my opinion”; “I tend to deny the opinion of others”) all reflect negative listening attitudes, so they were reverse scored prior to data analysis. After correlating the error terms associated with one item (“I see him/her from a critical viewpoint”) to two other items (“I tend to persist in my opinion; I tend to talk in a directive and persuasive way”), the model adequately explained the data covariance matrix, \( \chi^2 (63) = 110.82, p < .001, \text{CFI} = .90, \text{SRMR} = .05, \text{RMSEA} = .06 \) (CI 90% = .04, .07). Thus, the 13 items were averaged with higher scores indicating a more positive attitude toward active listening.

Need for Cognition (NFC)

NFC was assessed during time one using the 18-item scale developed by Cacioppo, Petty, and Kao (1984), \( \chi^2 (135) = 241.26, p < .001, \text{CFI} = .90, \text{SRMR} = .05, \text{RMSEA} = .05 (.04, .06) \). The 18 items were averaged with higher scores indicating higher NFC.

\(^4\)Proportionally, the demographic characteristics of participants completing both surveys were similar to those of participants only completing time one. Due to a computer glitch, personality data for 35 participants was not recorded; thus, analyses concerning the EPQ-R will be limited to these data.

\(^5\)Even though the measurement weights were not invariant across time, differences in correlations among the SPLC scale and the LCI-R as a function of time were investigated. Results did not differ appreciably; thus, the relative stability of the scale and its construct validity are left for future research.
Table 4. Descriptive Statistics, Reliability Estimates, and Zero-Order Correlations for All Variables, Study 3

<table>
<thead>
<tr>
<th>Construct</th>
<th>M (SD)</th>
<th>α</th>
<th>r</th>
<th></th>
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<th></th>
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<td>T1</td>
<td>T2</td>
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<td>T2</td>
<td>IA</td>
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<td>Learn</td>
<td>Critical</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Relational</td>
<td>5.34 (.84)</td>
<td>5.27 (.89)</td>
<td>.82</td>
<td>.86</td>
<td>.06</td>
<td>.18**</td>
<td>.09</td>
<td>.04</td>
</tr>
<tr>
<td>Analytical</td>
<td>4.89 (1.12)</td>
<td>4.76 (1.04)</td>
<td>.91</td>
<td>.91</td>
<td>-.05</td>
<td>.23***</td>
<td>-.07</td>
<td>.004</td>
</tr>
<tr>
<td>Task</td>
<td>5.07 (1.22)</td>
<td>5.02 (1.21)</td>
<td>.88</td>
<td>.89</td>
<td>.15*</td>
<td>-.04</td>
<td>.13*</td>
<td>-.06</td>
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<tr>
<td>Critical</td>
<td>5.01 (1.03)</td>
<td>4.92 (1.00)</td>
<td>.86</td>
<td>.85</td>
<td>.12†</td>
<td>-.03</td>
<td>.11†</td>
<td>.12†</td>
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<td>Listening competencies</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discriminative</td>
<td>3.92 (.56)</td>
<td>3.88 (.60)</td>
<td>.67</td>
<td>.76</td>
<td>.26***</td>
<td>.20**</td>
<td>.25***</td>
<td>.18*</td>
</tr>
<tr>
<td>Comprehensive</td>
<td>3.97 (.60)</td>
<td>3.91 (.57)</td>
<td>.73</td>
<td>.68</td>
<td>.27***</td>
<td>.24***</td>
<td>.25***</td>
<td>.21**</td>
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<tr>
<td>Therapeutic</td>
<td>4.10 (.62)</td>
<td>4.06 (.63)</td>
<td>.80</td>
<td>.80</td>
<td>.23***</td>
<td>.21**</td>
<td>.21**</td>
<td>.17**</td>
</tr>
<tr>
<td>Appreciative</td>
<td>3.99 (.66)</td>
<td>3.94 (.64)</td>
<td>.84</td>
<td>.81</td>
<td>.05</td>
<td>.14*</td>
<td>.08</td>
<td>.08</td>
</tr>
<tr>
<td>Critical</td>
<td>3.87 (.56)</td>
<td>3.87 (.54)</td>
<td>.68</td>
<td>.67</td>
<td>.17**</td>
<td>.18**</td>
<td>.18**</td>
<td>.18**</td>
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<tr>
<td>Active listening</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>2.32 (.41)</td>
<td>—</td>
<td>.77</td>
<td>—</td>
<td>-.16*</td>
<td>.09</td>
<td>-.18**</td>
<td>-.15*</td>
</tr>
<tr>
<td>NFC</td>
<td>3.31 (.65)</td>
<td>—</td>
<td>.89</td>
<td>—</td>
<td>-.11†</td>
<td>.02</td>
<td>-.05</td>
<td>-.03</td>
</tr>
<tr>
<td>NTE</td>
<td>3.19 (.77)</td>
<td>—</td>
<td>.86</td>
<td>—</td>
<td>.05</td>
<td>.19**</td>
<td>.11†</td>
<td>.11†</td>
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<tr>
<td>REI</td>
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<td></td>
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<tr>
<td>Overall rational</td>
<td>—</td>
<td>3.41 (.50)</td>
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<td>.86</td>
<td>.02</td>
<td>.03</td>
<td>.06</td>
<td>-.07</td>
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<tr>
<td>Ability</td>
<td>—</td>
<td>3.55 (.57)</td>
<td>—</td>
<td>.81</td>
<td>.09</td>
<td>.03</td>
<td>.09</td>
<td>-.04</td>
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<tr>
<td>Engagement</td>
<td>—</td>
<td>3.27 (.52)</td>
<td>—</td>
<td>.72</td>
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<td>.02</td>
<td>.001</td>
<td>-.10</td>
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<tr>
<td>Overall experiential</td>
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<td>.86</td>
<td>.24***</td>
<td>.10</td>
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<td>.09</td>
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<tr>
<td>Ability</td>
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<td>.06</td>
</tr>
<tr>
<td>Engagement</td>
<td>—</td>
<td>3.37 (.52)</td>
<td>—</td>
<td>.80</td>
<td>.18**</td>
<td>.09</td>
<td>.13*</td>
<td>.08</td>
</tr>
<tr>
<td>Temperament</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>—</td>
<td>2.72 (.65)</td>
<td>—</td>
<td>.90</td>
<td>.30***</td>
<td>.19**</td>
<td>.28***</td>
<td>.19**</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>—</td>
<td>1.86 (.72)</td>
<td>—</td>
<td>.69</td>
<td>.07</td>
<td>.09</td>
<td>.06</td>
<td>.16*</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>—</td>
<td>3.18 (.46)</td>
<td>—</td>
<td>.66</td>
<td>-.04</td>
<td>-.14*</td>
<td>-.01</td>
<td>.02</td>
</tr>
<tr>
<td>Empathy</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathic concern</td>
<td>3.91 (.66)</td>
<td>—</td>
<td>.72</td>
<td>—</td>
<td>-.08</td>
<td>.002</td>
<td>-.04</td>
<td>-.02</td>
</tr>
<tr>
<td>Perspective taking</td>
<td>3.65 (.76)</td>
<td>—</td>
<td>.74</td>
<td>—</td>
<td>-.14*</td>
<td>.05</td>
<td>-.14*</td>
<td>-.02</td>
</tr>
</tbody>
</table>

Notes: REI = Rational-Experiential Inventory; IA = Information Acquisition; RB = Relationship Building; Learn = Learning; Critical = Critical. 
†p < .10; *p < .05; **p < .01; ***p < .001.
Need to Evaluate (NTE)

The 16-item NTE scale developed by Jarvis and Petty (1996) was administered at time one. After removing five items with low standardized regression weights ($\lambda < .50$), the final model was deemed acceptable, $\chi^2 (44) = 123.97$, $p < .001$, CFI = .90, SRMR = .10, RMSEA = .08 (.07, .10). The 11 items were averaged with higher scores indicating higher NTE.

Rational-Experiential Processing

The long form of the Rational-Experiential Inventory (REI) (Pacini & Epstein, 1999) was administered at time two. The 40-item scale consists of 4 subscales with 10 items each, measuring both ability and engagement in each of the two information processing styles. The first subscale assesses the extent to which individuals feel competent in logical reasoning and problem solving (e.g., “I am much better at figuring out things logically than most people”), whereas the second subscale measures the degree to which individuals prefer rational modes of thinking (e.g., “I enjoy intellectual challenges”). The third subscale indexes individuals’ self-reported ability in experiential thinking (e.g., “Using my ‘gut feelings’ usually works well for me in figuring out problems in my life”), whereas the final subscale taps the degree to which individuals favor experiential thinking (e.g., “I like to rely on my intuitive impressions”).

Although some fit statistics indicated the second-order model could be improved, $\chi^2 (735) = 1729.15$, $p < .001$, CFI = .72, there was relatively little overall error, SRMR = .09; approximation error was within suggested limits, RMSEA = .07 (.06, .08); and no standardized residuals were above two in absolute value. Given the extensive use of the full scale in past research and the adequate internal consistency estimates, four subscales and two overall scores were computed using all items. Higher scores indicate higher ability and/or engagement within the relevant processing mode.

Personality

Subscales for extraversion, psychoticism, and neuroticism were drawn from the short form version of the Eysenck Personality Questionnaire (EPQ-R) (Eysenck, Eysenck, & Barrett, 1985) and administered at time two. A 5-point scale bounded by Not-at-All and Always was used based on recent recommendations that ordinal scaling improves the psychometric properties over dichotomous scaling (e.g., Muriz, Garcia-Cueto, & Lozano, 2005; Sato, 2005). Consistent with past work, the measurement model produced poor fit, $\chi^2 (591) = 1354.04$, $p < .001$, CFI = .72, SRMR = .10, RMSEA = .08 (.07, .08), which was localized to the P scale (e.g., Aluja, Garcia, & Garcia, 2003). Given the extensive use of the scale and adequate internal consistency estimates, individuals were given a score on each of the three dimensions by averaging responses to items on each scale. Higher numbers are interpreted as higher levels of that temperament construct.

Empathy

Empathic concern (EC) and perspective taking (PT) were each measured using six items (5-point Likert) (Stiff et al., 1988). After removing one item from the EC scale (“When I see someone being taken advantage of, I feel kind of protective toward them”) and two items from the PT scale (“If I'm sure I'm right about something, I don't waste much time listening to other people's arguments”; “I sometimes find it difficult to see things from other person's point of view”), the model was adequate, $\chi^2 (26) = 67.91$, $p < .001$, CFI = .91, SRMR = .06, RMSEA = .08 (.05, .10). The EC and PT scales were created by averaging five and four items respectively with higher numbers indicating higher EC and PT. These scales were moderately correlated, $r = .46$, $p < .001$.

Results

LCI-R Model Fit

The covariance of the 15 LCI-R items was adequately explained by the hypothesized model at time one, $\chi^2 (84) = 173.53$, $p < .001$, CFI = .95, SRMR = .05, RMSEA = .06 (.04, .07), and time two, $\chi^2 (84) = 225.59$, $p < .001$, CFI = .93, SRMR = .05, RMSEA = .08 (.06, .09). Table 1 includes all standardized factor loadings for individual items and scale reliabilities for each model. In addition, support was found for configural, metric, scalar, and strict measurement invariance (see Table 3) indicating the LCI-R is equivalent across the two times. This provides substantive warrant to create subscales by averaging across items for each time and overall scores by averaging across time. Increasing scores are interpreted as an individual viewing listening in a manner more consistent with a given construct.

Validity Evidence

In testing the hypotheses and research questions posed to examine the nomological validity of the LCI-R, two strategies were taken. First, zero-order correlations were computed (see Table 3). For correlations between variables measured at both survey administrations (LSP-R and listening competency), the composite variable was reported. Second, the multivariate (canonical) correlations for the set of listening constructs as measured by the LCI-R and the set of dimensions, cognitive styles, temperament, and empathy constructs were computed and are displayed in Table 5.

Zero-Order Correlations

H1-3 and RQ1-2 concerned the relationships among the four conceptualizations of listening and four orientations toward receiving information as measured by the LSP-R. Support was found for H1, specifying a positive correlation between
Table 5. Canonical Correlations and Standardized Canonical Coefficients between Listening Constructs, Listening Styles, Cognitive Styles, Temperament Dimensions, and Empathy, and Their Corresponding Canonical Variates, Study 3

<table>
<thead>
<tr>
<th>Canonical variate - Listening styles</th>
<th>Canonical variate - Cognitive styles</th>
<th>Canonical variate - Personality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable set</strong></td>
<td><strong>Correlation</strong></td>
<td><strong>Coefficient</strong></td>
</tr>
<tr>
<td>LCI-R Set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>-.97</td>
<td>-.07</td>
</tr>
<tr>
<td>RB</td>
<td>-.71</td>
<td>-.07</td>
</tr>
<tr>
<td>Learn</td>
<td>-.90</td>
<td>-.20</td>
</tr>
<tr>
<td>Critical</td>
<td>-.72</td>
<td>-.16</td>
</tr>
</tbody>
</table>

**Listening styles set**

Relational - .48 -.33
Analytical - .31 -.16
Task - -.30 -.07
Critical (LSP) - .42 -.11
Discriminative - .63 -.26
Comprehension - .58 -.49
Appreciative - -.11 .67
Critical (SPLC) - .56 .09
Therapeutic - .49 .40
Listening attitude - .40 -.39

**Cognitive styles set**

Rational ability -.50 .67
Rational engagement -.03 .11
Experiential ability -.79 -.70
Experiential engagement -.37 .11
NFC .16 .57
NTE -.29 -.23

**Personality set**

Extraversion -.81 1.01
Neuroticism .24 .55
Psychoticism -.07 -.01
EC -.13 .35
PT -.11 -.04

**Notes:** Correlations and standardized canonical coefficients are reported from the MANOVA output.
critically related to orientations toward listening with information acquisition and learning primarily associated with viewing listening as a basic transaction and relationship building associated with viewing listening as a way to discover the feelings and emotions of others in a non-judgmental fashion. In addition, although each construct was related to discriminative, comprehensive, therapeutic, and critical listening competencies, only relationship building was related to appreciative listening. Since appreciative listening is the only dimension along which the various concepts differ at the bivariate level, it appears that viewing listening as any of these or any combination of these concepts results in a perception as oneself as a competent listener; however, viewing listening as relationship building is more likely to lead to the enjoyment of listening, particularly to the point of view of others.

This interpretation seems plausible in light of the canonical correlation analysis that showed multivariate associations between the entire set of LCI-R constructs all but the appreciative competency variable in the set of listening style variables. A subsequent analysis correlating the number of constructs an individual endorsed with each of the competency variables seemed to support this interpretation. Of course, the listening competency scale used in this study is a measure of self-perceived competency in each of the areas. Consequently, these results may be the product of social desirability, or they may be inflated for some other extraneous reason; indeed, past research shows that undergraduates tend to rate their competence in listening higher than other communication-based competencies (Ford & Wolvin, 1993; Ford et al., 2000). Thus, future research should explore the degree to which listening concepts can predict actual listening behavior and whether that behavior is rated as more or less competent by both interlocutors and independent judges. Nevertheless, this suggests preliminary evidence that viewing listening in multiple ways may enhance one's competence.

With regard to cognitive style, the primary bivariate relationships were between IA and L listening conceptualizations and experiential processing ability and engagement. Though the correlation for the RB style in the canonical correlation was above the cut-off threshold, it was nearly 2.5 times less than the correlation for IA and two times less than the correlation for L. Thus, it appears that viewing listening as a tool for the acquisition of information and for learning, and to a lesser extent for building relationships, may operate rather tacitly. Critical listening, on the other hand, does not appear to operate in this fashion. Perhaps this is evidence that some listening constructs are more basic and, thus, used with more frequency in otherwise dissimilar situations than others. Finding evidence to support this interpretation would also seem to further the contention that holding multiple constructs lead to more competent listening and, perhaps, more rational processing if the situation demands so. For instance, perhaps most people hold conceptualizations of listening as information acquisition and/or learning but only highly competent individuals are also able to see listening as a critical endeavor (or as a relationship building activity). Such speculation should be tested in future research.

The pattern found in the canonical correlation for cognitive style is also representative of the significant amount of conceptual space shared by the IA and L constructs. Not only was the correlation between these constructs high in this study (r = .82; see Table 2), but the pattern of bivariate correlations for each was nearly identical. The only difference between the two constructs was that IA was marginally and negatively associated with NFC, whereas L was marginally and positively associated with NTE. Thus, future research should explore the degree to which these two constructs covary and the individuals in whom or situations across which this covariation is higher (or lower).

The second purpose of Study 3 was to test the temporal stability of the scale and investigate if that stability could be attributed to associations with underlying personality dispositions. This purpose was accomplished by investigating the longitudinal invariance of the scale and computing stability coefficients for each subscale and by computing correlations between each subscale and temperament as well as empathic tendencies. The stability coefficients ranged from .68 to .88, suggesting a high degree of temporal stability of listening constructs. This stability was not, however, associated with underlying personality traits. Although zero-order correlations indicated that (a) IA and L conceptualizations were each negatively related to perspective taking (b) RB was negatively related to psychotism, and (c) C was positively relate to neuroticism, the canonical correlation analysis only revealed a multivariate association with extraversion. This may be due, in part, to the fact that each listening construct had a significant bivariate correlation with extraversion leading this personality trait to capture all relevant variation among the LCI-R set. Thus, a post-hoc canonical correlation was run that excluded extraversion from the personality set. This analysis failed to return a significant canonical correlation. Thus, the most conservative interpretation is that although the LCI-R is temporally stable, it is not linked to temperamental qualities of the individual. Instead, it is more accurate to describe this stability in terms of the relative stability of thinking and decision making captured by the listening and cognitive style variables. Future research should continue to investigate the relative stability of the LCI-R and how such stability can be incorporated into a coherent theoretical framework (e.g., Epstein’s CEST).

STUDY 4

Results from Study 3 seem to indicate that conceptualizations of listening are relatively stable dispositions conceptually linked to other, temporally stable cognitive styles. Research on cognitive styles, however, also finds that cognitive dispositions are expressed differentially based on other factors such as the judgment task and situational constraints (Suedfeld, 2000). That is, individuals are predisposed to think about elements of their social environments in specific
ways and to prefer certain ways of processing social information; however, these predispositions are not "expressed uniformly, regardless of other factors . . . both endogenous predilections (cognitive styles) and situational influences on thinking" are important influences on how people make judgments and decisions (Suedfeld & Tetlock, 2003, p. 286). Consequently, Study 4 was designed to investigate the degree to which conceptualizations of listening vary as a function of the situation to which listeners are exposed. In this study, participants were asked to imagine four situations designed to elicit one primary conceptualization of listening (see Appendix). After exposure to a single situation, participants were asked to respond to the LCI-R with respect to how they conceptualized listening in that situation; the other situations followed in a similar manner. The degree to which there are variations in listening conceptualizations as a function of the situation is an indication of situational influences on how listening is defined and assumedly carried out.

Method

Participants

Undergraduate students \( (N = 386; 252 \text{ female}, 128 \text{ male}, 6 \text{ unreported gender}) \) reported an average age of 20.22 \( (SD = 1.93) \) and were primarily Caucasian/White \( (n = 312) \). Fifteen out of 17 university schools or colleges were part of the sample.

Procedures

Participants signed up through an online system to fulfill a class research participation requirement and were then directed to an external survey. This online survey was one of several that students could complete to fulfill their course requirement. Participant names were recorded to ensure that individuals did not complete the survey more than once. In compliance with IRB regulations, names were removed from the dataset prior to analysis.

The online survey first asked participants for their informed consent by presenting a standard description of the study. Then, the survey system displayed, in a random order, one of four hypothetical situations (see Appendix). After each situation participants responded to a modified version of the 15-item LCI-R \( (.55 < \alpha < .81; M = .70) \).

Results and Discussion

Prior to comparing listening conceptualizations across the various situations, a measurement model was fit for the LCI-R in each situation. Across situations, the overall model did not fit the data well (CFIs < .90, SRMR > .10). In each of these models, three items (Drawing Conclusions, Awareness, and Understanding) were not good indicators of their respective latent constructs \( (\lambda < .40) \). After removing these items, model fit was acceptable for each situation (CFIs > .90, SRMR < .08). More importantly, the configural model was deemed appropriate (see Table 3). In addition, the LCI-R (with three items removed) was invariant at the level of factor loadings suggesting that constructs have equivalent meaning across the situations. Scalar invariance was not, however, supported.

Analyses of scalar invariance using data gathered from separate groups tests for the equivalence of measurement intercepts (Byrne, 2010; Kline, 2005). When the groups under question represent, for instance, different populations (e.g., cultures), strong invariance is desired primarily to provide statistical evidence that there is no error or bias in the interpretation of individual items allowing for quantitative (as opposed to potentially qualitative) differences in mean values to be readily interpreted. As Little (1997) states (in the context of cross-cultural research), "if sociocultural influences differentially and strongly affect the specific components of indicators (e.g., an item is poorly translated or a facet of it is perceived differently), non-equivalence would emerge" (p. 56). Since participants in this study responded to the LCI-R items under four qualitatively different conditions, scalar invariance is unlikely to hold. Indeed, evidence of non-equivalence suggests that the nature of listening conceptualizations change as a function of the situation. Thus, finding evidence of non-equivalence for measurement intercepts across the four situations seems to be a "meaningful analytic outcome" (Little, 1997, p. 56) in this case.

Table 6 presents the latent means and standard errors along with the latent variable variances for the four listening constructs in each of the four situations. Looking at the means for the LCI-R constructs across the situation rows provides evidence that, as expected, (a) the upset friend situation primarily elicited the relationship building construct, (b) the debate activity situation primarily elicited the critical construct, and (c) the cell phone situation primarily elicited the information acquisition construct; the fact that information acquisition and learning means were statistically similar in the large lecture situation suggests that this situation did not elicit the primary listening construct intended. Perhaps in this situation, one vastly familiar to this sample of undergraduate participants, listening as information acquisition and learning as learning are quite similar. Indeed, the correlations presented in Table 7 seem to suggest IA and L are highly correlated providing support for a contention made in the discussion of Study 3 about shared salience of these two conceptualizations. Of course, IA and L were only moderately correlated in the cell phone situation suggesting that they are not always highly salient as a dyad. The various factors that influence associations among these conceptualizations should be the focus of future research.

In addition to primary listening conceptualizations elicited, the upset friend, debate activity, and cell phone situations also seemed to elicit secondary and tertiary conceptualizations. For example, when asked to imagine listening to an upset friend talk about a recent relational breakup, participants seemed also to find learning and to a lesser extent information acquisition at least somewhat related to
Table 6. Latent Means, Standard Errors, and Latent Variable Variances for LCI-R Constructs Across Four Situations, Study 4

<table>
<thead>
<tr>
<th>Situation</th>
<th>IA</th>
<th></th>
<th>RB</th>
<th></th>
<th>Learn</th>
<th></th>
<th>Critical</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SE)</td>
<td>Variance</td>
<td>M (SE)</td>
<td>Variance</td>
<td>M (SE)</td>
<td>Variance</td>
<td>M (SD)</td>
<td>Variance</td>
</tr>
<tr>
<td>Large lecture</td>
<td>3.25\textsuperscript{a1} (.05)</td>
<td>.67</td>
<td>1.05\textsuperscript{a2} (.06)</td>
<td>.59</td>
<td>3.26\textsuperscript{a1} (.26)</td>
<td>.56</td>
<td>.55\textsuperscript{a3} (.10)</td>
<td>.67</td>
</tr>
<tr>
<td>Upset friend</td>
<td>2.09\textsuperscript{b1} (.06)</td>
<td>1.02</td>
<td>3.29\textsuperscript{b2} (.05)</td>
<td>.50</td>
<td>2.73\textsuperscript{b3} (.25)</td>
<td>.63</td>
<td>.79\textsuperscript{b4} (.13)</td>
<td>.53</td>
</tr>
<tr>
<td>Debate activity</td>
<td>2.79\textsuperscript{c1} (.08)</td>
<td>.72</td>
<td>1.31\textsuperscript{c2} (.06)</td>
<td>.65</td>
<td>2.06\textsuperscript{c3} (.26)</td>
<td>.44</td>
<td>4.09\textsuperscript{c4} (.43)</td>
<td>.83</td>
</tr>
<tr>
<td>Cell phone</td>
<td>3.45\textsuperscript{d1} (.05)</td>
<td>.61</td>
<td>2.94\textsuperscript{d2} (.06)</td>
<td>.58</td>
<td>2.94\textsuperscript{d2} (.31)</td>
<td>.67</td>
<td>.71\textsuperscript{d3} (.12)</td>
<td>.50</td>
</tr>
</tbody>
</table>

Notes: Latent means and standard errors estimated within SEM framework. Latent means with different letter subscripts are significantly different (p < .001) within columns. Latent means with different number subscripts are significantly different (p < .001) across rows.

Listening. Thus, it appears that although one primary activity is the most similar in meaning, the primary task in listening is to attend to the relationship between the two activities. The pattern of secondary (and perhaps tertiary) constructs that are elicited by the listening task is not significantly different from those elicited by the primary task. However, the fact that individuals hold domain-specific conceptions of particular situations relative to the secondary task is consistent with findings from other researchers who have used similar methods.

<table>
<thead>
<tr>
<th>Situation</th>
<th>1. IA</th>
<th>2. RB</th>
<th>3. Learning</th>
<th>4. Critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phone</td>
<td>1. IA</td>
<td>2. RB</td>
<td>3. Learning</td>
<td>4. Critical</td>
</tr>
<tr>
<td>Comforting a friend</td>
<td>1. IA</td>
<td>2. RB</td>
<td>3. Learning</td>
<td>4. Critical</td>
</tr>
</tbody>
</table>

Table 7. Latent Variable Correlations for Each Situation, Study 4

<table>
<thead>
<tr>
<th>1. IA</th>
<th>2. RB</th>
<th>3. Learning</th>
<th>4. Critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>.45***</td>
<td>-26**</td>
<td>-26**</td>
<td>-26**</td>
</tr>
<tr>
<td>-.68**</td>
<td>.49***</td>
<td>-33***</td>
<td>-33***</td>
</tr>
<tr>
<td>.37***</td>
<td>.42***</td>
<td>-14***</td>
<td>-14***</td>
</tr>
<tr>
<td>.40***</td>
<td>.37***</td>
<td>-.17**</td>
<td>-.17**</td>
</tr>
<tr>
<td>.02</td>
<td>.01</td>
<td>.02</td>
<td>.02</td>
</tr>
</tbody>
</table>
Although RB was not highly salient in the large lecture or debate activity situations, it seems at least moderately relevant in the cell phone situation. Since this latter situation involved helping a friend, perhaps it is the presence of close others that helps increase the salience of this construct. Indeed, the scenarios, although having face validity, are not completely free of confounding aspects. For instance, the cell phone situation is different from the lecture situation in more than one relevant way (e.g., private versus public domain, personal versus formal relationship). Such a limitation notwithstanding, these results provide fertile ground for future work on situational determinants of listening in unique ways.

**GENERAL DISCUSSION**

Across the academic landscape, scholars who incorporate social cognitive principles in their research make use of a similar assumption: how we think influences how we act (and perhaps vice versa). Communication scholars have tested this assumption with respect to a variety of interesting areas including, but not limited to, how subjective theories of people influence the production of messages (see Burleson, 2007), how subjective theories of communication influence how others operate (Koerner, 2007), how relational schema influence relational maintenance and other behaviors (Honeycutt & Cantrill, 2001), how attributions of another’s behavior in ongoing conversation influences its trajectory (e.g., Berger, 1975; Burleson, 1986), and the role of shared cognition in groups (Roloff & Van Swol, 2007). Surprisingly, analogous exploration into the influence and outcomes of subjective theories of listening has lagged significantly behind (Berger, 1998; Bodie, 2010, 2011). One reason for the lacuna in the extant literature is the lack of a valid scale to measure the various conceptualizations of listening individuals can hold in their cognitive system. The purpose of this article was to provide validity evidence for such a scale.

Developed by Imhof and Janusik (2006), the Listening Concepts Inventory (LCI) measures four distinct listening conceptualizations—information acquisition, learning, relationships building, and critical. Though Study 1 found the original four factor, 33-item model did not approximate the data covariance matrix well, a revised version of the scale containing 15 items was acceptable and was cross-validated with an independent sample representing a distinct population (Study 2). Validity evidence for this revised version of the LCI was gathered in a third study. Unique patterns of correlations among the four LCI-R constructs and various listening styles, competencies, attitudes, cognitive styles, and personality traits suggest that individual listening conceptualizations are related to theoretically meaningful and previously validated constructs. Moreover, evidence was found for moderate temporal stability of the scale, though this stability did not seem largely related to underlying temperament or empathic tendencies. Instead, it seems more plausible that this temporal stability is related to information processing dispositions and, in particular, with information processing that is more intuitive. This finding implies that the operation of listening constructs may be automatic as opposed to consciously controlled, though this is speculation in need of empirical confirmation.

Finally, in Study 4, it was shown that listening conceptualizations varied across four hypothetical situations. Though future research needs to explore the specific environmental stimuli that call forth particular conceptualizations of listening, this preliminary evidence is encouraging insofar as it suggests that listening conceptualizations are potential causal mechanisms through which elements of the environment influence behaviors and other outcomes. Results from Study 4 suggest that conceptualizations of listening are not fully static, and that they are differentially elicited by elements of situations likely familiar to these putative listeners. Indeed, taken together, these four studies provide evidence that listening concepts are both “prevailing and situationally activated” (Imhof & Janusik, 2006, p. 81) even if the degree of relative stability within and across various situations should stand future research scrutiny.

Other lines of research might explore the consequences of maintaining specific listening constructs in one’s cognitive system and/or employing more than one construct in a variety of settings. Evidence from all studies suggest that most individuals hold more than one listening construct and subsequently employ more than one construct when faced with a particular situation. Within a variety of theoretical frameworks lies the assumption that competent listeners are able to pick from several strategies and use them when appropriate; indeed, this claim is laden in most discussion of what makes a good listener (Goss, 1982a; Wolvin & Coskley, 1993, 1994) yet has gone largely untested. Of course, holding multiple listening constructs active may not always be helpful or advantageous. For example, seeing listening as similar to information acquisition in situations that truly do not call for the gathering or storing of information (e.g., when a parent or partner is saying hurtful things) may have negative consequences to individual and relational well-being. The specific competency ramifications of showing variability in endorsing particular listening concepts across specific situations should be the focus of future research, and outlining when and why particular listening concepts are helpful should be the focus of future theory building efforts.

Indeed, investigating the role of listening conceptualizations in the listening process stands to advance theory building efforts in many ways. As noted above, to fully understand the listening process, it is important to identify underlying concepts and perceptions that individuals hold about listening. These conceptualizations likely lead individuals to attend to and process particular aspects of messages and, in turn, lead to systematic variation in the enactment of listening behaviors and to varied outcomes. The various ways in which listening concepts affect various aspects of the listening process should be grounds for a strong set of research programs aimed at uncovering an important yet missing part of the literature on communication and social cognition.
APPENDIX
Situations Used for Study 4

1. Information Acquisition

You are sitting at home when your phone rings. It is a good friend of yours who tells you that s/he is having car trouble. While your friend is giving you directions to come pick him/her up, their cell phone indicates the battery will die soon. Your friend tells you they have limited time to talk.

2. Relationship Building

You are at home on a Tuesday evening when a long-time friend calls. This friend was just dumped by a long-time dating partner whom they thought was “the one.” Your friend begins to explain the situation and becomes quite nostalgic, telling several old stories.

3. Learning

You are in a college class that is mainly taught through lectures by a professor. The class consists of 250 people, and the professor rarely encourages questions from students during class. Of course, since it is such a large class and attendance is not always 100%, the tests are heavily focused on lecture material. As you found out on the first exam, the test questions are more than simple “information regurgitation” and are, instead, aimed at testing whether you learned and can apply the material.

4. Critical

In a small class, you have been assigned to a group for a short in-class activity. For the activity, each group is supposed to come up with a way to persuade classmates to accept a particular position on a controversial topic. At the end of class, the instructor has told the groups that they will debate each other. In the debate, you will be responsible not only for an opening argument but also for providing counter arguments to the main points brought up by your opponent.

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