

**THE 'COMPLEXITY TURN'
IN APPLIED LINGUISTICS
IMPLICATIONS FOR INSTRUCTED SLA**

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SIMPLE GIFTS, a Shaker Song

Simple Gifts

Joseph Brackett, Jr., 1848



'Tis the gift to be simple,
'tis the gift to be free
'Tis the gift to come down
where we ought to be,
And when we find ourselves
in the place just right,
'Twill be in the valley
of love and delight.

When **true simplicity** is gained,
To bow and to bend we shan't be ashamed,
To turn, turn will be our delight,
Till by turning, turning we come 'round right.

Used by Aaron Copland for Martha Graham's ballet *Appalachian Spring*, 1944

THE MANY 'TURNS' OF APPLIED LINGUISTICS

- ❖ **The social turn**
- ❖ **The cognitivist turn**
- ❖ **The multilingual turn**
- ❖ **The (research) methodological turn**
- ❖ **The chaos/complexity turn** (hence complexity theory = CT)
 - **No 'true simplicity,' but ever greater complexity**
 - **Profound re-evaluation of long-standing assumptions in applied linguistics**
 - **in instructed SLA (ISLA) in terms of**
 - **Conceptualization, research, and educational practice**

Potential Benefits

❖ **but also profound challenges if CT is to INFORM ISLA in a way that can affect**

- ✓ **Teaching and learning practices in real educational settings**
- ✓ **Learning outcomes**
- ✓ **The ability of the ISLA field to be ethically responsive and responsible in a world that makes ever greater demands on individuals and societies with regard to multilingual and multicultural abilities**

OUTLINE OF TALK

❖ Present key descriptors of CT

- Central influence of the work of Diane Larsen-Freeman 1997–present
- Many arguments taken from the natural sciences

❖ Identify challenges for CT in an educational context

❖ Propose an educationally viable construct within a complexity theory framework

- Curriculum as a ‘simplex system’ within the complex social reality of education

OUTLINE OF TALK (ctd.)

- ❖ **Exemplify the potential of curricular thinking for insight into ISLA and into CT-for-ISLA in three interrelated areas**
 - **Systems orientation:** focus on local/micro interaction, task, and agency
 - **Emergence, change, and long-term development:** CAF
 - **The relational nature of development:** reconsidering approaches to research and pedagogical practices

- ❖ **Consider potential benefits of a complexity theory-inspired curricular approach for ISLA**

KEY DESCRIPTORS ASSOCIATED WITH A CT APPROACH

❖ Complexity theory as a meta-theory

- Complexity theory is transdisciplinary in informing many different disciplines and in the Hallidayan sense of introducing new cross-cutting themes into scholarly thinking (Halliday & Burns, 2006). It should be understood as a metatheory. As a metatheory it defines the nature of the object and the methodology that is to be employed to investigate the object; it informs object theories, which in turn have specific foci, in our case having to do with the nature of language and its development. CT has the power to stimulate our thinking in new directions and to teach us new lessons.

(Larsen-Freeman, 2017, p. 38, emphasis added)

- ❖ **Considerable effort devoted to exploring research methodologies that are appropriate to CT**
- ❖ **Lack of an object theory, that is, a social-semiotic, meaning-oriented theory of language whose ontological and epistemological assumptions are themselves aligned with complex systems thinking**
- ❖ **BOTH are necessary for informing work in applied linguistics, and particularly for helping us to address key issues in ISLA, not only to help us understand “how the real world of the classroom operates” (Larsen-Freeman, 2016, p. 389) but how learning occurs across the extended expanse of an instructional program**

❖ **Some prominent descriptors of language and language development** (Larsen-Freeman, 1997)

- **Dynamic**
- **Complex**
- **Nonlinear**
- **Chaotic**
- **Unpredictable**
- **Sensitive to initial conditions**
- **Open**
- **Self-organizing**
- **Feedback-sensitive**
- **Adaptive**

❖ **'Positive' elaboration in many publications**

Larsen-Freeman, 1997–2017

- **The centrality of emergence**
- **The pervasive reality of dynamic change within systems**
- **The uncertainty surrounding change**
- **The challenge of distinguishing a system from its environment, establishing boundaries for systems – and looking beyond them**
- **The reality of system instability, that is, the diversity of the components of the system**
- **The instability and multi-componential quality of systems is an environment that is conducive to change and growth, choice and creativity, agency, and identity**
- **The nonduality of many phenomena – rather: their complementarity AND their potential paradox**

❖ **'Negative' concerns** (e.g., Larsen-Freeman, 2017)

▪ GENERAL

- **Against reductionism that seeks to understand phenomena by taking them apart into separate components**
 - 'Separatist' aspect of reductionism
 - Simple linear causality as a consequence of reductionism
 - Assumption of determinism
 - Lack of interrelationships in systems

▪ ISLA-SPECIFIC (Larsen-Freeman, 2014)

- **The 'interlanguage' construct**
- **A teleological view of language and development toward a known endpoint, the native speaker**
- **The idealized monolingual speaker**

❖ Overall challenge

How are we to resolve their [social systems'] indeterminacy?

How are we to draw boundaries around the object of concern when everything is connected to everything else?

How are we to undertake the research enterprise in a way that honors the wholeness without becoming away in holism?

Is it truly possible to generate replicable findings?

Further, given context dependence, is it possible to generalize our findings beyond a given study?

(Larsen-Freeman, 2017, p. 23)

✓ **“Development: It’s about time”** (Elman, 2008)

CHALLENGES FOR COMPLEXITY THEORY IN AN EDUCATIONAL CONTEXT

❖ Extensive discussion in the philosophy of education

- Potential “fundamental mismatch between complexity and educational enterprise as in essence complexity is descriptive whereas education is normative or goal-oriented ... complexity merely describes whereas education aims to make a difference.”

Kuhn, 2008, pp., 178–179

- “What do the following mean for the philosophy of education: emergence and self-organization; connectedness; order without control; diversity and redundancy; unpredictability and non-linearity; co-evolution; communication and feedback; open, complex, adaptive systems, and distributed control?”

Morrison, 2008, p. 19

❖ **A Decalogue of objections** (Morrison, 2008)

- **Compromised utility for planning because of emphasis on effects; what about accountability?**
- **Silent on values**
- **Potential for relativism**
- **Questionable 'value added'**
- **Disregarding the contributions of positivist approaches**
- **Unwarranted assumptions about people's willingness to live with an unpredictable environment**
- **Undertheorizes power relationships**
- **Blurring of responsibilities because of unknowable outcomes**
- **Favoring competition over humanity**
- **Question of what constitutes a 'system' despite the centrality of the construct**

❖ Possible responses

Particularly strong engagement in teacher education

(Cochran-Smith et al., 2014)

- Rejecting the notions of causality that are integral to positivism is not the same as rejection the possibility of causal explanations that are not linear and not reductionist. (p. 19)
- Possibility of finding “more complex and contingent notions of agency and responsibility that depend on deep understanding of the local ... linked to larger understanding of processes and outcomes at various systems levels that are widely variable but not inexplicable. (p. 21)
- Realizing that our knowledge about systems cannot be objective in the old sense and will never be exhaustive is not a call for resignation. Rather it is a call for action imbued with an attitude of modesty that is careful not to overstate its claims and yet acknowledges that “we are *constituted* through our decisions and actions.” (Preiser & Cilliers, 2010, p. 270)

❖ Possible responses (2)

- **Finding a scientific ontology that shapes complexity theory into a framework suitable for complex social systems, including education**
 - More differentiated specification of the construct 'system'
 - Tackling the issue of system boundaries – no escape into an unspecified 'context'
 - Treatment of causation in complexity theory, agency, and structure, along with ethics and values
 - Exploration of suitable research methodologies for the complex social world, which address how evidence is assembled, analyzed, interpreted, and translated into responsible action.
 - Acknowledging the political nature of complexity theory in the social world

TOWARD AN EDUCATIONALLY VIABLE CONSTRUCT WITHIN A CT FRAMEWORK: **THE POTENTIAL OF CURRICULUM**

❖ **Preface: Two Interrelated Claims**

- ❑ **Parallel epistemologies (and ontologies) between the dominant research paradigm**
 - With its interest in prediction and control
- and dominant representations of teaching as research-derived ‘methods’**
 - With their underlying simple cause-and-effect notions of the efficacy of ‘instructional interventions’

□ Increasing breakdown of those assumptions in both domains – or, at least, awareness of their considerable limitations

○ *in research*

recourse to unspecified ‘contextual factors’

at times spurious justification for “further research”

ritual incantations about the need for longitudinal studies

meta-analyses

call for tightened research methodologies

replication studies

○ *in teaching*

post-methods condition

highly contextualized decision-making that does not follow

‘methodological dictums’

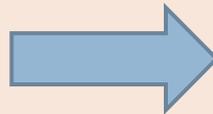
emphasis on teacher cognition, identity

❖ **Reconsidering the prominent role of ‘instructional interventions’ for understanding ISLA—in research and practice—that assume a simple linearity of cause-and-effect relationships in research design and teaching**

✓ **“Development: It’s about time”**

From a pedagogy

- In the here and now
- Of and for the moment
- Realized in contextualized choices
- In the particularities of classrooms



To an educationally valid construct that recognizes the interrelated aspects of time, place, and system across an extended time span
A subsystem within the complex system of education

❖ Curriculum as an educationally viable 'simplex system' within a complexity theory framework

Van Geert & Steenbeek, 2014

For agents, participating in a complex system such as education, it is important that they can reduce the epistemic complexity of the system, in order to allow them to understand the system, to accomplish their goals and to evaluate the results of their activities. We argue that understanding, accomplishing and evaluating requires the creation of simplex systems, which are praxis-based forms of representing complexity” (p. 22, emphasis added)

Simplex systems understood as an embedded complex dynamic system:

“a connected whole of beliefs, representations, values, emotions, habits, practices and material tools that serves as a simplifying representation of the overarching complex system in which a person participates and that organizes the participants’ actions. (p. 23, original emphasis)

Why?

- Curriculum as a way of foregrounding two indispensable qualities of social reality, structure and flexible agency
- Pedagogy as too fine grained to provide a suitable conceptual environment for what stakeholders need to know about instructed language learning and its development
- Suitability for institutional actors (e.g., programs) and real actors (e.g., teachers, researchers, policy makers)
- Provides conceptual boundaries that facilitate inquiry, analysis, rich forms of understanding

□ And what kind?

Lawrence Stenhouse, 1975

“A curriculum is an attempt to communicate the essential principles and features of an educational proposal in such a form that it is open to critical scrutiny and capable of effective translation into practice . . . A curriculum is first imagined as a possibility, then the subject of experiment. It involves both content and method, and in its widest application takes account of the problem of implementation in the institutions of the mainstream educational system.” (pp. 4, 5)

CURRICULAR THINKING AND CT-FOR-ISLA

❖ **THREE** (all too) **BRIEF EXAMPLES**

- **A systems orientation:**
e.g., in a collaborative task
- **Emergence, change, and long-term development**
e.g., the complexity of what constitutes learning/development
- **The relational, contingent, non-linear nature of development:**
CAF/syntactic development as contingent on instruction

Question: What does a CT perspective contribute?

EXAMPLE I: A systems orientation

Syliva Kunitz. Collaborative attention work on gender agreement in Italian as a foreign language, *Modern Language Journal* (Supplement 2018); special issue on “learnables” and “teachables”

The Study

- A study addressing the cognitive constructs of incidental focus on form, noticing, and attention, focused on accurate gender assignment in L2 Italian

Theoretically: CA perspective

- Respecifying the cognitive constructs of focus on form, noticing, and attention in social terms “by describing the learner-initiated, collaborative achievement of joint attention on linguistic form during planning time

Analytically/Interpretively

- Task-as-workplan vs. task-as activity
- Difference between teacher’s intentions with a task and students’ interpretation

- Larger issue, as captured by Cronbach (1975, p. 120, 121, 125):

It is not even faintly surprising that we get contradictory conclusions from experiments taking only two or three factors into account

We need to reflect on what it means to establish empirical generalization in a world in which most effects are interactive ...

Instead of making generalization the ruling consideration in our research, I suggest that we reverse our priorities. An observer collecting data in one particular situation is in a position to appraise a practice or proposition in that setting, observing effects in context. In trying to describe and account for what happened, he will give attention to whatever variables were controlled, but he will give equally careful attention to uncontrolled conditions.

- Or, expressed in CT terms

“Complexity theory inclines us to extreme caution in relation to our explanations, and similarly to the degree of control that we have over the complex social technology of schooling.

Research cannot deliver the kinds of clear and simplistic lines between evidence and practice or policy that is being demanded.

The complexity of the social reality that is being researched and the explanatory frameworks within which new explanations are generated mean that these are invariably fragile and open to layers of interpretation and reinterpretation.”

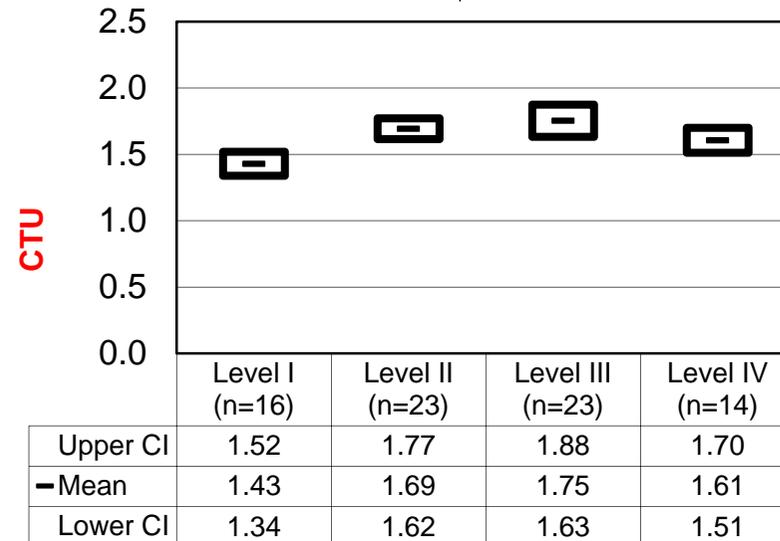
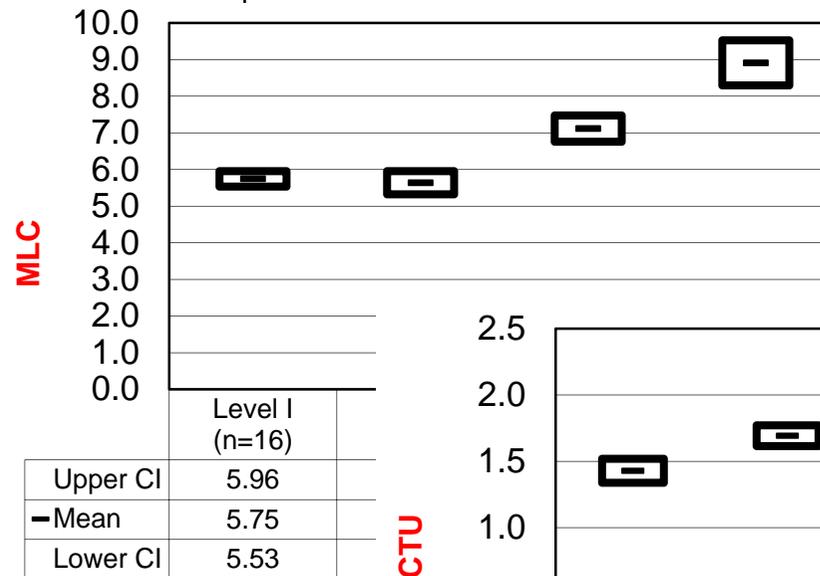
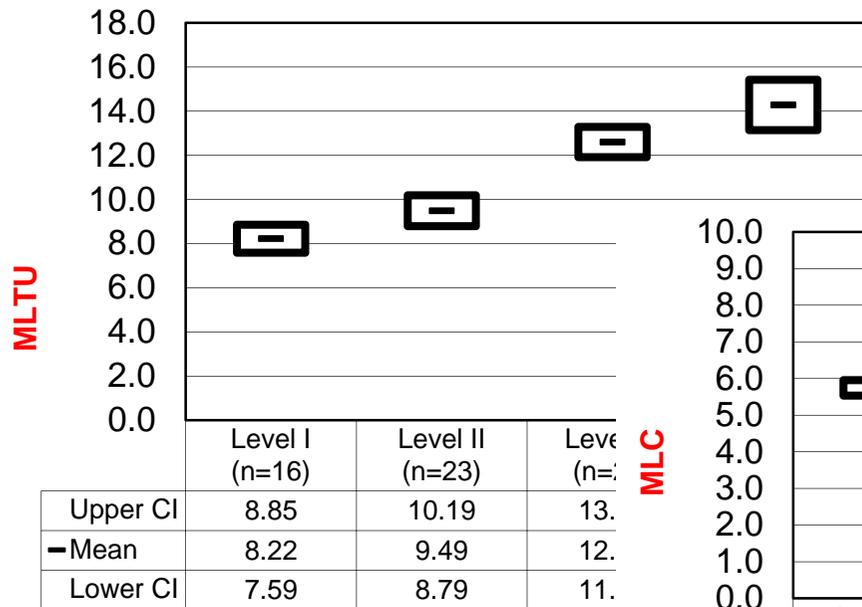
Radford 2006, p. 148

EXAMPLE 2: Emergence, change, and long-term development

A vignette from my own teaching experience: “Lily”

- Sophisticated academic writing by a very aware and reflective writer
- Task: critique of the film adaptation of a novel
 - Pedagogical approach throughout the entire curriculum: literacy and meaning focus; extensive text mining/modeling/semantic fields/collocations
- Trigger for emergence, change, restructuring:
 - Further enhance facility with **phrasal elaboration**, involving pre- and post-nominal modifications in descriptive texts that increased the likelihood of equational sentences (predicate nominatives) and passive constructions
 - Incorporate **particles** with very subtle meanings for author stance, appraisal ('well', 'just,' 'really,' 'anyway' – *eben, nun, doch, ja*): textual 'authenticity'
- Uncovers the limitations of a long-held 'rule of practice' regarding **case relationships in German sentences: Nominatives** at beginning of sentences ... followed by '**other cases**' in an extended, evolving sentence: prominence of semantic relationship of actor–action on objects at early instructional stages
- Explicit reference by Lily to her **entire learner history in the program** with regard to seeking patterns and structure in order to **have her own voice as a writer**

EXAMPLE 3: The relational, contingent, nonlinear nature of development. Longitudinal data across at least three curricular levels (Syntactic development: MLTU, MLC, C/TU)



- ❖ How can we interpret these findings?
- ❖ They are interpretable only by relating them directly to the curriculum from which the data were obtained
 - Its writing tasks across the four adjacent curricular levels represent three extended overlapping genres
 - Narrative genres, Levels I-III
 - Explaining genres, Levels III and IV
 - Genres in the arguing family (exposition, discussion, textual interpretation), Levels IV and V: academic and institutional contexts
- ❖ **Each of these macro genres families tends to be realized by certain major syntactic preferences or typicalities**
- ❖ **It is their genre-appropriate realization in students' writing that points to ability levels that are characteristic of academic forms of literacy**

POTENTIAL BENEFITS OF A CT-INSPIRED CURRICULAR APPROACH

- From a theoretical perspective**
- On the research-empirical side**
- With regard to teaching**
- From a language educational policy-perspective**

From a theoretical perspective

- **Locates the complex realities of instructed learning within a dynamic system environment**
- **At the same time, acknowledges the need to make educational decision-making tractable, understandable, and manageable**
- **Provides a way of rejecting inappropriate levels of control and predictability by facilitating critical inquiry into “real needs of real educators to do real educational good in real program contexts”, rather than being focused on “(a) theoretical concerns and (b) epistemological-methodological affinities” that result in “discrete and decontextualized ... very ‘small’ truths,” a characteristic of most research (Norris, 2015)**



- **Presents a proposal for a trajectory of development that does not follow a needs–end regime**
- **Focuses on emergence and change, rather than one-time mastery by placing development into an appropriately expansive conceptual and educationally viable framework**
- **Helps to reject inappropriate dichotomies (process/product; learning/use; competence/performance)**
- **Creates an imaginative horizon for facilitating the attainment of advanced ability levels**
- **Rejects deficitary notions of adult multilingualism by providing evidence taken from educational eco-systems**

On the research–empirical side

- **Offers a principled environment for investigating central questions regarding teaching and learning**
e.g., time and timing, pace and pacing, interrelationship of different factors; their significance/marginal status
- **Enables principled longitudinal research**
- **Helps to identify program environments when noteworthy changes are likely to occur**
Reduces purely opportunistic research engagements that are unlikely to advance our knowledge about instructed learning
- **Facilitates interpretable results, rather than relying on statistical effect sizes**
- **Helps gather evidence for what instructed learners can do when they are provided with a coherent learning context**

With regard to teaching

- **Creates a framework for program's educators for principled, contextualized decision-making**
- **Gives those decisions value and validity beyond the moment**
- **Fosters creativity and accountability**
 - Avoids undue emphasis on best practices
 - Repositions the meaning of 'quality teaching.' No demand for daily 'star performance'!
 - Strengthens the ability to push back on inappropriate assessment regimes that are focused on accuracy of form
 - Encourages our ability to imagine what learners can actually do
- **Enables language teachers to reassert the humanistic value of their work and their own humanity as educators**

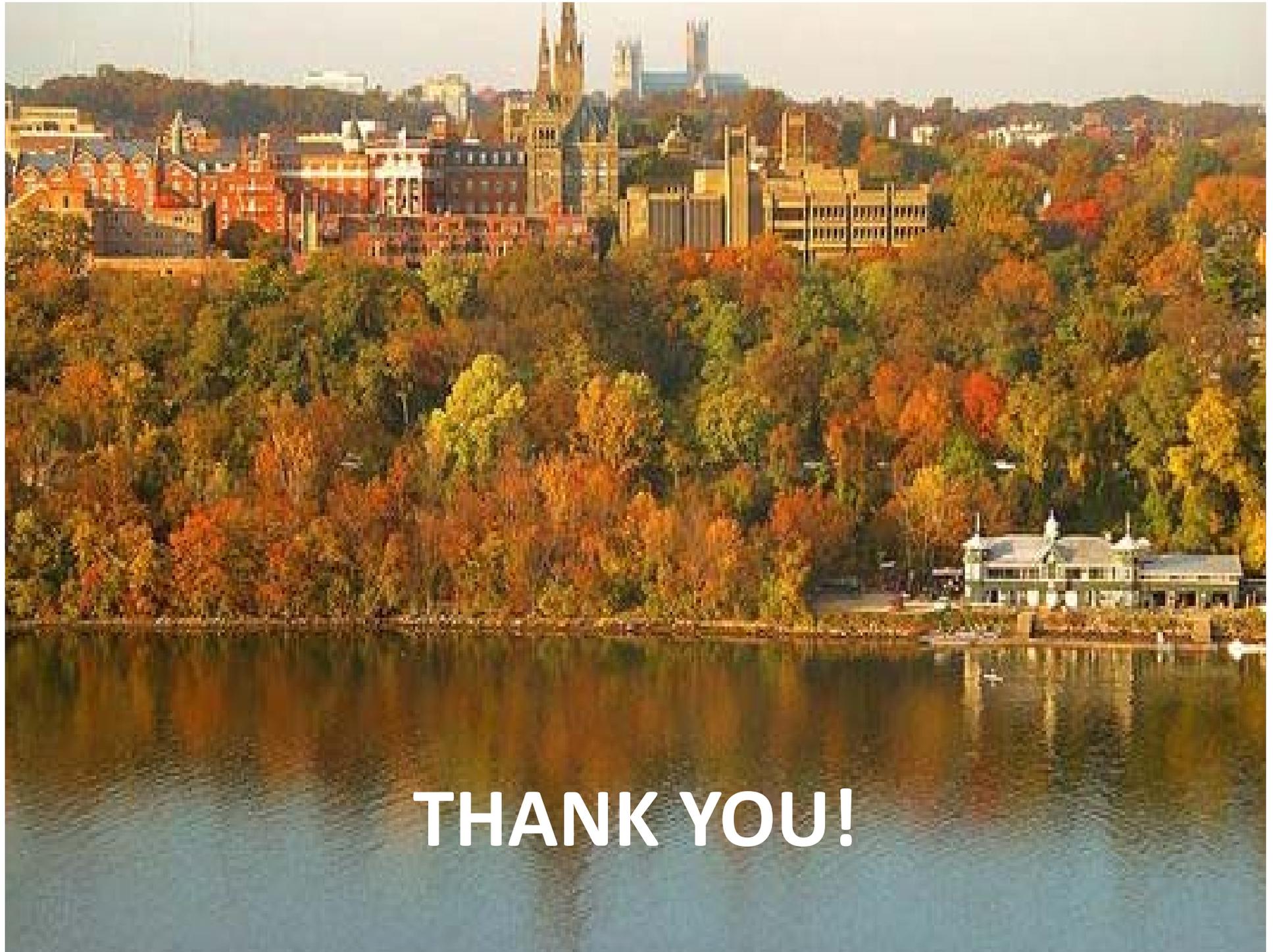
From a language educational-policy perspective

- **Enables a concurrent emic and etic approach**
- **Provides a ‘simplex system’ for observing, describing, evaluating, assessing and influencing learner development**
- **Helps establish realistic time scales for language learning and development**
- **Provides a basis for program development, program evaluation, program enhancement**
- **Facilitates valued forms of assessment for valued learning outcomes ... and washback into the program**
 - **What works, how does it work, what doesn’t work and why: focuses on interrelationships rather than single causes.**
- **Supports program accountability that is not subject to simple cause-and-effect and predictability and control notions**

... to conclude

- ✓ **Accountability requires that we take responsibility for the story we commit ourselves to telling. We must make public the rationale for choosing that story as opposed to alternative narratives. This requires that we first deliberate with our colleagues and stakeholders about the goals we set, the missions of our schools, and the elaborated conceptions of our purposes.**

- ✓ **The current quest for accountability creates a precious opportunity for educators to tell the full range of stories about learning and teaching. Counting and recounting can only be pursued together.**
- ✓ **Counting without narrative is meaningless. Narrative without counting is suspicious. We now have an opportunity to employ the many indicators of learning that we can count for the most important stories we have to tell.**



THANK YOU!