Authentic engagement or just “playing school”? 

Simple rules and complex literacy learning for adolescent English learners

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Abstract

Teaching and learning are infinitely complex enterprises, particularly in classrooms where adolescent English learners strive for academic success. This article offers ethnographic accounts in two settings in the United States, both of which involved similar instructional experiences and resources to support literacy learning among high school English learners. We apply principles from complexity science to the analysis of these two ethnographic accounts, each grounded in multiple data sources. The accounts highlight predominant patterns emerging from each setting. The subsequent analysis explores underlying conditions for self-organizing dynamics in these settings: shared identity; shared focus; relevant distinctions or differences; and shared practices. These underlying dynamics varied dramatically in the two settings, generating patterns we label as “playing school” and “authentic engagement.” Each setting manifested behaviors consistent with a short set of “simple rules” for behavior. Implications for future research suggest that a deep understanding of complex adaptive systems, emergent patterns, and implied simple rules can inform the work of teacher action researchers in complex school environments.

Introduction

Teaching and learning are infinitely complex enterprises. No two learners are alike; no two classrooms are alike; and each moment unfolds in potentially surprising ways. Teaching and learning in classrooms of adolescent English learners are particularly complex. These learners navigate many interconnected networks—family members around the world, co-workers, and peers inside and outside of school. Their teachers navigate equally complex networks of standards, instructional resources, and assessments. Unfortunately, typical practices in these classrooms assume a linear connection between teaching and learning. Those simplistic approaches are of limited use to teachers in the midst of these overwhelmingly complex systems where learning emerges in unpredictable ways. In this article, we apply principles from complexity science to the analysis of two ethnographic accounts by one teacher-researcher (one of the co-authors).

Based on an inductive analysis of the data from these teaching-learning systems, we infer that particular patterned actions or “simple rules” emerge from the complex dynamics within each system. We examine the usefulness of human systems dynamics for teachers who strive to support language acquisition and literacy development among immigrant adolescents.

Complex challenges for adolescent ELs and their teachers

Adolescent students in the dynamic process of English acquisition must master content (i.e. math, science, history, literary analysis) and academic language (oral and written forms) in English in a short amount of time. In many states, such as the one where this study takes place, even recent immigrants must pass multiple standardized tests designed for native English-speakers in order to receive a high school diploma. Second language acquisition research inarguably states that it takes years to acquire the academic language needed to perform well on these tests. Yet, these students do not have this time, and they often have teachers who lack the proper training to teach both language and academic content. Students who are learning English might not understand what their teacher is saying, feel out of place in school, or be overwhelmed with all of the new challenges in their lives. Both standards-based reforms and ubiquitous high-stakes tests have made the task of acquiring English and content even more challenging for these adolescent English learners and their teachers, particularly considering the negative influences of high-stakes testing on the curriculum. The need for teachers of adolescent English learners to take action, even in the face of these complex challenges, prompted this study and its use of a conceptual perspective that acknowledges that teaching and learning are complex adaptive systems.

Teaching and learning as complex adaptive systems

As Neilsen, Nicol, and Owuor claim, “learning itself is a complex, dynamic, and emergent phenomenon”, but researchers have not yet come to a consensus about which of the multiple theoretical perspectives on complexity is most useful for teacher-researchers. In this analysis, we have chosen a perspective that focuses on networks of complex adaptive systems (CAS).
We define a CAS as a collection of components or agents (people, groups, ideas) that interact over time so that system-wide patterns emerge. Further, those emergent patterns of the whole subsequently influence the interactions among the parts. That pattern-forming process, applied to teaching, is represented in Figure 1.

Through this process in which patterns of the whole emerge from interactions among the parts, CASs continually adapt to changes within and outside each system. Murray Gell-Mann, a Nobel laureate in physics, further explains this process in reference to living and non-living systems, from the smallest organism to the universe itself:

A complex adaptive system acquires information about its environment and its own interaction with that environment, identifying regularities in that information, condensing those regularities into a kind of ‘schema’ or model, and acting in the real world on the basis of that schema,…the results of the action in the real world feed back to influence the competition among those schemata.

Eoyang and Holladay define these regularities, or patterns, that emerge from complex systems as “similarities, differences, and connections across space and time”. To inquire into the underlying dynamics of these systems and their patterns, researchers can observe and inquire into those similarities, differences, and connections.

Although multiple theorists offer various lists of features of complex adaptive systems, we find the list suggested by Eoyang and Holladay concise and highly relevant to teaching and learning:

1. These systems are open to influence;
2. These systems are diverse across many dimensions (within these differences among the parts or participants within the system, tension builds, and those tensions can generate self-organizing transformation); and
3. These system dynamics involve nonlinear feedback loops with each iteration shaping the subsequent emergence of patterned behaviors, behaviors which are sometimes called “simple rules”.

These three features have several clear implications for both the processes and the outcomes of teaching and learning in schools. First, these dynamics mean that emergent learning patterns are unpredictable and, ultimately, not subject to the teacher’s control. Experienced teachers know that their influence over students is limited. They might exert influence by shifting the underlying conditions, the available resources, the social interactions, etc., but teachers cannot predict nor control what is learned.

Second, the diverse elements and participants within a learning system are interconnected in nonlinear ways, and, therefore, interdependent. For this reason, slight changes can have significant effects over time, which is sometimes called “the butterfly effect”. These underlying interdependencies are not always evident; even teachers who are familiar with learners and the school context can be surprised by what students say and do.

Third, because of this openness and this interdependence, we cannot focus on one system in isolation. Multiple, nested, and overlapping dynamical systems influence emergent learning patterns. In schools, we may point to these multiple systems as individual students’ and teachers’ interactions, classrooms, faculties, campuses, districts, communities, etc., although such a list is, at best, incomplete. The complexity becomes even more evident when we acknowledge that students and teachers engage
in equally complex relationships outside schools, as well—through their families, neighborhoods, soccer teams, faith communities, etc. When we consider linguistic, ethnic, gender, socioeconomic, and racial boundaries, the complexity multiplies exponentially. The potential for unpredictable influences across all these open boundaries clearly accounts for the messy challenges facing teachers of adolescent English learners.

Fourth, as patterned behaviors emerge from the interactions within a system, and as those particular behaviors are amplified and reinforced, they exert considerable influence over the ways in which system participants continue to interact with one another over time. These powerful “simple rules” emerge from the dynamics within the system; they are not introduced by agents outside the system. For example, the class clown makes choices that establish a pattern of behavior that, in some way, is functional for him. The clowning pattern sets up expectations for future behavior. As the pattern is established, it influences how classmates and teachers interact with this student and is likely to encourage similar behaviors in the future. Upon reflection, the clowning student might identify a ‘simple rule’ that brings desired results and take further action reinforce this pattern as a rule like ‘Make people laugh.’

This is an example of one of the many simple rules potentially at work in a classroom system and one of the many patterns that might emerge from a diverse classroom of adolescent learners. Simple rules that frequently emerge in classrooms suggest that such patterned behaviors can either support or interfere with learning goals. Consider the implications of these, for example:

- Take risks because mistakes are essential to learning.
- Set your goals and work hard to achieve them.
- Don’t rock the boat; don’t ask questions.
- Focus primarily on raising your test scores.
- Explore multiple perspectives.

These emergent rules are often implicit or unspoken; teachers and students may follow the expected patterns without even realizing that these influences are at work; simple rules may become evident only after retrospective analysis and reflection. On the other hand, deliberate and explicit dialogue about these emergent simple rules is useful to the extent that teachers and students become increasingly aware of whether and how system patterns support shared learning goals. Through conversation, teachers and students can decide to amplify or reinforce simple rules consistent with their shared goals (and avoid or damp actions that are less useful). In that way, simple rules can be used for planning and for building shared understandings about future work. In this article, we use both retrospective and prospective analysis to explore the influence of simple rules.

What can a teacher do to support learners in such a context? In such a system, the obvious choice is to observe what is happening at the moment, notice the emergent patterns in the system, consider those patterns in the context of what has gone before, interpret what the patterns might mean, infer what simple rules are at work, and generate options for action that may shape those patterns and rules in a generative and adaptive way. Actions would focus on influencing the system toward shared aspirations and goals. Effective teachers do this each moment as they observe learners, assess strengths and needs, and make instructional decisions. Just as important, effective teachers guide students in parallel inquiry cycles integrating observation, interpretation, and action focusing on instructional goals.

Ideally, these inquiry-reflection-action cycles constitute teaching and learning in a CAS. This means that, from a complexity perspective, teachers both: 1) hold a strong commitment to a short set of long-term goals or aspirational learning patterns, and 2) stay flexible in the short term—open to a wide range of options for action that are coherent with those larger patterns. It also means that teachers invite learners into this inquiry process and support their inquiries—framing questions, exploring the evidence, noticing and naming patterns in the evidence, making sense of it all, and choosing the next action. Further, the teacher and students can attempt to notice and name the simple rules at work in their systems, considering whether simple rules operating in the system support shared learning goals.

### Complexity as a conceptual framework for teaching adolescent immigrants

Experienced teachers of adolescent English learners readily recognize that the systems of language, culture, and education in which their students are immersed are interdependent, unpredictable and influential over time; however, typical instructional approaches that focus on initial mastery of basic skills, tasks requiring convergent thinking, and preparation for standardized tests tend to assume that language teaching and learning are closed, mechanical, linear, and predictable. When teachers assume, instead, that learning is a complex and adaptive process, a radically different instructional approach is called for.

In other words, a complexity perspective requires that the teacher set conditions for a generative learning space, notice what
happens, and take action to further influence the productive and adaptive patterns. Awareness, responsiveness, and adaptation are the hallmarks of effective teaching and learning in a CAS. Those are consistent with familiar recommendations to teachers of adolescent immigrants.22,23,24.

In terms of learning outcomes, a wide range of research suggests that teachers of immigrant adolescents want to see patterns of fluency, flexibility, proficiency, and creativity in oral and written language. In their students’ interpersonal interactions, they may want to see patterns of empathy, curiosity, and collaboration.25 Teachers working from this perspective know that they cannot make these patterns appear; they can only set conditions and then be ready to respond in ways that encourage or reinforce the desired patterns.26-20 In other words, teachers can identify simple rules for interactions within their classrooms, simple rules that encourage generative inquiry and responsive, adaptive patterns of action.

At a larger scale, we see that education policy and implementation decisions in U.S. schools have often reinforced a pattern of deficit notions about immigrant students. Institutional practices focus attention on students’ weaknesses, rather than on the rich cultural and linguistic resources they bring.27 This deficit focus is reinforced over time and influences the ways teachers interact with students and their families.

Patterson and Holladay28 suggest that teachers can maximize the potential for particular learning patterns by continually asking and answering the four questions in Table 1—questions which point to underlying similarities, tensions, and connections in the dynamics of the system. Responses to these questions may reveal the simple rules at work in a particular teaching-learning system.

<table>
<thead>
<tr>
<th>Questions for Teaching and Learning</th>
<th>Questions to Set Conditions for Learning</th>
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<tbody>
<tr>
<td>Shared Identities</td>
<td>Who are we in this classroom, in this community of learners?</td>
</tr>
<tr>
<td>Shared Focus</td>
<td>What is our learning intention (goal or target)?</td>
</tr>
<tr>
<td>Relevant Distinctions</td>
<td>What distinctions or differences are relevant to our learning focus?</td>
</tr>
<tr>
<td>Shared Practices</td>
<td>How shall we work together to look for patterns and to influence them?</td>
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The Inquiry

The purpose of this inquiry is to examine data from two teaching-learning systems to identify dominant patterns and to infer what simple rules might have been influential in creating and sustaining those patterns of interaction among the teachers and students. In the spring and summer of 2014, the co-author received grant funding to lead two instructional innovations with immigrant high school students. Although her goals and methods were similar for the two experiences, the contexts and conditions were dramatically different. Not surprisingly, the students’ responses to the innovations were also different. In retrospect, these two cases provided an opportunity to analyze these contexts as complex adaptive systems and to consider the influence of simple rules which may have been influential in each system. Ultimately, the analysis presented here responds to these two questions:

- What were the emergent patterns in the language and actions of students in each system?
- What “simple rules” or patterned behaviors seemed to be operating, either implicitly or explicitly, in each system?

The following descriptions are grounded in our deep respect and appreciation for the hard work and commitment of the teachers in the classrooms where we work. Any implied critique of instruction inherent in this account in no way diminishes our respect for the educators whose work is described here. These are descriptive and analytic accounts, rather than judgments about the efficacy or wisdom of particular instructional decisions.

Data sources and analysis

This project aligns with a methodological approach that has been called ‘ethnographic action research’.29 In both settings, the co-author designed reading and writing experiences with culturally relevant topics and texts to encourage student...
engagement and to serve as exemplars for authentic writing\textsuperscript{24}. The readings included young adult literature, picture books, and poetry. Writing opportunities included composing biographical poetry about themselves, responding to literature, and writing narratives from their lives.

The ethnographic account of the teacher-researcher’s experience in each of these settings is based on a post hoc analysis of the field notes (descriptions of the physical classroom space, student and teacher behaviors, anecdotes from classroom conversations, and personal conversations with students), student writing samples (journal writing, worksheets, graphic organizers, poetry, and essays), and one semi-structured interview with the teacher in Classroom 1. Data from each case were coded to identify the patterns in each instructional context through recursive data analysis\textsuperscript{30}. The post hoc analysis and interpretation yielded a list of emergent patterns in each context. These patterns were clustered into four categories and checked against the evidence. It became clear that the four thematic clusters that came from this analysis were parallel to the four questions about underlying conditions of a CAS: 1) shared identities; 2) shared focus; 3) relevant distinctions; and 4) shared practices (see Table 1). These patterns in each system were then used as the basis for identifying simple rules that may have been operating in Classroom 1 and as evidence about whether the teacher-identified simple rules in Classroom 2 were implemented in a coherent way.

The findings are presented as first-person accounts by the researcher, who was a participant-observer in Classroom 1 and the teacher-researcher in Classroom 2.

The research settings

In the first setting (Classroom 1), an English class, the co-author collaborated with the classroom teacher to make time for reading, writing, and discussions over five weeks at the end of the school year. The co-author facilitated conversations individually and in groups as students read, participated in literature response groups, wrote personal essays and journal entries, and completed art projects based on their reading and writing. The classroom teacher was supportive of these conversations and also responsible for maintaining focus on district and campus expectations and practices in place prior to and after this five-week period.

In the second setting (Classroom 2), the co-author was the sole teacher in a voluntary summer school experience primarily designed to provide opportunities for engagement and the development of fluency in multilingual literacy experiences. She introduced the same literacy experiences as with the first group of students, but without the external expectations or guidelines in Classroom 1.

Classroom 1 description

The co-author entered Classroom 1 as a participant-observer/co-teacher—working alongside the classroom teacher for five weeks during April and May, 2014. This large high school was located in a suburban school district that regularly received commendations for their passing rates on the state tests. On this campus, which served a middle and upper middle class community, class sizes were relatively small, and instructional resources were readily available. The teacher, Ms. Martinez (all names are pseudonyms) was the only English as Second Language (ESL) teacher on campus. She taught five class periods, with four to fourteen English learners in each class. She already had many culturally relevant books on the shelves, and the co-author added even more texts purposefully chosen to connect to the students’ cultures, languages, and experiences while providing an appropriate level of English language complexity. Ms. Martinez enjoyed a caring relationship with her students; in fact, many asked to be placed in her English classes. Twenty-eight of the students were native Spanish-speakers and one spoke Vietnamese. Some students were born in the U.S. and long-term English learners, while other classes were newcomers. The English proficiency level varied by class and even within classes. The goal of these classes was for students to earn credit for English language arts and to prepare for the state-mandated end-of-course exams, administered in English. Passing scores were required for high school graduation, and many of the students were preparing to take the test for the second or third time. The co-author worked with all of these students for a total of 14 class periods during the five weeks of the study.

Classroom 2 description

Classroom 2 was a voluntary summer literacy program so the co-author/teacher-researcher had complete autonomy in terms of instruction and assessment. It was housed on a high school campus located in an urban area about an hour south of the first school. Most students attending this campus lived in poverty, and the school was ‘low-performing’, according to the state accountability system. The program was four weeks long, Monday through Thursday, for five hours a day. All of the participating students lived in apartment complexes near the school and were refugees from Myanmar (Burma) or the Democratic Republic of the Congo in their third, fourth, or fifth year in the U.S. The students spoke Chin, Karen, Tedim, and Swahili as their first languages. They all had at least one year of interrupted formal education and varied levels of first language literacy. Although the context was different from Classroom 1, the instructional plans were similar, as were the students’ English language levels. Another difference in this classroom reflects the teacher researcher’s expanding awareness of this and other classrooms as
CASs. In fact, after her experience in Classroom 1 and before entering Classroom 2, the teacher researcher identified the patterns she wanted to see emerge from the interactions of learners in Classroom 2, and she identified a brief list of simple rules that she held as guiding principles in her planning and in her instructional decisions. These rules will be addressed in more detail below.

**Findings: Patterns and simple rules in each classroom**

My initial goal in both classrooms was to engage the students in authentic reading and writing experiences related to issues and topics that were significant to them. Although the instructional plans were similar, the contexts and conditions were clearly different. The inductive analysis of the student data in Classroom 1 suggested that the patterns and simple rules emerging from this system could be characterized as ‘playing school’—meaning that both the teacher and the students were primarily complying with assignments and routines related to test preparation. After my work in Classroom 1, I sought more information about complex systems and learned more about the emergence of patterned actions that could become influential “simple rules” in the system\(^{20}\). That prompted me to look for the simple rules that might have been operating in Classroom 1 and to frame simple rules for Classroom 2 that might set conditions for more inquiry-based and generative learning patterns. Of course, the contexts and conditions were dramatically different in Classroom 2, but so was my understanding about emergent patterns in the system. With this deepening understanding of complex systems, I inferred from the evidence in Classroom 2 that those patterns and simple rules might be characterized as ‘authentic engagement’—clear evidence of student enthusiasm, as well as increasing fluency, confidence, and proficiency.

**Patterns and simple rules in classroom 1: Playing school**

Toward the end of the school year, I entered this classroom as a participant-observer and a co-teacher working alongside the ESL teacher who was a caring and competent professional. Her classroom provided a safe space for the students. Many choices of culturally relevant, age-appropriate, and appropriately-leveled books were available. Although it would seem that the teacher’s caring attitude and the available resources might set conditions for student engagement, ownership, the data suggest otherwise. Entrenched patterns and expectations overwhelmed our intentions. Despite our best efforts to engage the students, we found it necessary to comply with bureaucratic procedures meant to increase student test scores. The data analysis points to four predominant patterns indicated in Table 1. These patterns suggest that we—the teacher, students, administration, and researcher—were for the most part ‘playing school.’ Table 2 summarizes details from the following account.
Emergence: Complexity and Organization

**Table 2**

<table>
<thead>
<tr>
<th>Questions about Underlying Conditions</th>
<th>Evidence from Classroom 1</th>
<th>Patterns of Behavior and Discourse (inferred from retrospective analysis of evidence)</th>
<th>Simple Rules Inferred from Patterns (guiding both teacher and student actions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shared Identity: Who are we in this classroom, in this community of learners?</strong></td>
<td>Teachers (Ms. Garcia and Author 1 as teacher-researcher) assumed the roles of assigners and graders of students work. Students assumed the role of test takers and producers of artifacts to be graded by the teacher. Teachers and students remained in the roles for the duration of the researcher.</td>
<td>Students and teachers maintain strict role distinction.</td>
<td>Comply with institutional roles and expectations. Work to pass the state test. Focus all efforts on assignments and grades.</td>
</tr>
<tr>
<td><strong>Shared Focus: What is our learning target?</strong></td>
<td>The focus of the teachers and students was for the students to complete assigned work. The focus of the entire school and school district was for the students to pass the state tests required for graduation.</td>
<td>Everyone was focused on the short-term target of completing and grading assignments. The shared long-term goal was to pass the state-mandated test.</td>
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<tr>
<td><strong>Shared Distinctions: What distinctions or differences are relevant to our learning focus?</strong></td>
<td>Roles of teacher and students were distinct and fixed: teachers issued and graded assignments, and students passively completed the assignments and received grades.</td>
<td>The teachers assign tasks and the students must complete the tasks assigned to them in order to remain in good favor with the teachers.</td>
<td></td>
</tr>
<tr>
<td><strong>Shared Practices: How shall we work together toward that learning target? How do we look for patterns? How do we take action to respond to those patterns?</strong></td>
<td>Read independently to answer questions on a worksheet. Take detailed notes and write summaries.</td>
<td>Students must be told what to read and they have to complete an assignment in order to demonstrate they have read.</td>
<td>Students will not read unless that are forced to. Students will not write unless they receive a grade for it.</td>
</tr>
<tr>
<td></td>
<td>Write essays.</td>
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**Classroom 1 Shared Identity — Those who comply with school requirements**

In Classroom 1, a general pattern was that everyone’s identities focused on compliance with the campus, district, state, and federal pressures to prioritize test practice over authentic learning. Ms. Martinez explained how testing drove the curriculum: “We do a lot of expository essays this year and persuasive, because of the test.” She explained how both writing and reading instruction were constrained by district mandates: “The coordinator is trying to have us follow some new curriculum like a
prescribed writing program” and she explained that she must give the students “books you have [to read] for the curriculum.” In general, the required readings were at the same level of difficulty as for native English speakers, including selections from the traditional literary canon commonly included in a college preparatory curriculum—texts that were neither engaging to students nor at an appropriate instructional level.

As in many schools, test preparation dominated instructional time. Ms. Martinez, unable to change the requirements and wanting to do everything she could to help students graduate, explained that test preparation was, unfortunately, necessary. From her perspective, focusing on the test might be the only way to accomplish the near-impossible task of giving newcomer students enough content knowledge, English proficiency, and test preparation to have a chance to pass the English assessments necessary for graduation.

There were also external demands on instructional time. I observed how students were regularly called to the counselor’s office during class. For example, my field notes illustrate that during a five-day period when I was reading a novel with the students, one to two students were called out each day to report to the counselor’s office, missing part of the story. When they came back, we would need to spend time catching them up before continuing with our reading. Because of these interruptions, we did not finish the novel, but I overheard two girls speaking in Spanish about what a beautiful story it was and how they wished they could have finished.

Another illustration of this pattern is evident in what the teacher explained to me about newcomer students. Two students from Mexico were in their first year in the U.S. They were struggling to learn both the English language and the course content, yet, because of the state tests, they had been effectively discouraged from entering school when they first arrived. Ms. Martinez explains:

They moved here last February. The school district tells them, ‘Don’t come to school yet because if you do, you have to take... the test two minutes later.’ And they don’t want them to have to do that. And that would just really mess up all their credits.

Consequently, the brother and sister stayed out of school until the following September, losing four full months of instruction. The 16-year-old brother’s writing illustrates the language learning obstacles he faces to graduate from high school:

When I was young I ever want a car and trucks y ever said to my mom ma I want this car and also a pig was little and I was little and I sed I wish this pig or I with this car because I like a lot the truck and still I want the cars. (Written in student’s journal; retyped by researcher.)

The language gains he needs to make to graduate high school are obvious, making one wonder how staying out of school for four entire months really benefitted him. The district decision was intended to protect the students (and school) from inevitable failure on the test. Essentially, everyone in the system interacted as if their primary accountability was to the larger system, rather than to the students.

**Classroom 1 Shared Focus/Goal — Grades and Test Scores**

Generally, my observations suggest that these adolescent learners participated in required activities only to get a grade, exhibiting little personal engagement. Ms. Martinez felt obligated by the school to score all student work—even free writing, projects, and independent reading—a practice that clearly emphasized grades over authentic engagement.

This emphasis on grades was most evident in the students’ classroom reading practices. Because many English learners struggle with challenging texts, teachers typically read aloud and lead discussions about the reading. In Classroom 1, however, the teacher felt so pressured to grade all the assignments that she seldom had time to read with students. Instead, the students were expected to read silently, and even this silent reading was graded. Students were required to take notes and answer questions about their self-selected reading, which was scheduled during the first ten minutes of each class. However, I noted that students actually did not read during this dedicated time. I often observed them copying a few phrases from the book, talking to others, and playing on their phones.

In an effort to balance my goal of engaging students in relevant reading and writing with the campus-wide requirement that the students write a research report, I worked with Ms. Martinez to develop an assignment for two of her advanced classes. We asked the students to choose age- and English-level appropriate literature about immigration. For multiple weeks, the teacher provided class time for students to explore the topic through novels, picture books, short stories, poetry, and webpages. As a culminating activity, students were to write an essay about an issue they selected related to immigration. The topic was relevant for students; however, to comply with grade level expectations, the students were assigned to write a page of detailed notes for each chapter of the novel they had chosen. Each page of notes took the students one or two class periods to finish, primarily because the task was tedious and the students were easily distracted—visiting with one another and texting friends on their
These students were clearly ‘playing school,’ motivated by the grades, rather than the opportunity to make personal connections with literature they selected about a topic of personal significance to them. Although I had originally wanted to invite these students to read and discuss a number of books and articles during the five weeks I was there, we were never able to finish a class novel, nor did students finish their self-chosen novels. I drew the conclusion that these graded assignments were a major barrier to their authentic engagement in the literature. (Figure 2 illustrates the note pages required for each chapter they read in their self-selected novels.)

**Fig. 2: Example of a Note Page Required for Each Chapter by an Advanced High EL**

**Classroom 1 Relevant Distinctions — Distinct and fixed teacher-student roles.**

Teachers and students in Classroom 1 fulfilled distinct roles in the classroom, and those roles never changed during the time I was present. The teacher was ‘assigner and grader;’ the students were ‘producers of artifacts to receive grades.’ These roles are clearly consistent with the ‘playing school’ theme. While the students were supposed to read silently or write in their journals, Ms. Martinez usually spent class time grading or conducting school business at her computer that was necessary. Her desk was located in the front of the classroom and was often covered in papers to grade. At their desks, students intermittently worked on assignments to be submitted to the teacher (not shared with one another or with audiences outside the classroom) and spent much of the time talking to one another or using their phones. The teacher’s role in this system was clearly the assigner and evaluator—the one with the power to award the necessary course credit. She had little time to engage with students in rich literacy and language-building activities.

Ms. Martinez saw no other options for her role in that classroom. I also felt the same pressure when I was there, understanding how difficult it was to get the students to engage in any literacy activity when they were expected to play the more constrained role of ‘producers of artifacts to be graded.’ The students would do the minimal work to receive a grade from the teacher. These persistent roles over the time I was in the classroom are consistent with the larger theme of ‘playing school.’

**Classroom 1 Shared practices — focusing on grades and test scores**

The teaching and learning efforts in this classroom focused on student mastery of concepts and skills that would ultimately be assessed on the criterion-based, end-of-course test. This focus was grounded in the policy mandates—the state curriculum, test, and high-stakes accountability system—and it was reinforced in the procedures and practices at the district and campus levels. At the classroom level, Ms. Martinez felt constrained by these expectations and framed the students’ experiences
accordingly. I also felt constrained along with her due to outside influences. The attempts to make time for reading and responding to self-selected literature were generally thwarted because of the more powerful expectation that students demonstrate mastery of the finite set of concepts and skills that were to be assessed on the test.

Table 2 synthesizes the evidence, the patterns, and the inferred simple rules in Classroom 1, as described in the previous account.

**Transition from classroom 1 to classroom 2: Revisiting the research on complex adaptive systems**

The ‘playing school’ pattern in Classroom 1 was influential in that system—so influential that my invitations to students to respond to the literature, to ask questions, or to write about their life experiences were not successful, except for a few isolated instances. I left Classroom 1 with a general sense of frustration, because, even with the significant resources available to these students, the dominant patterns were about compliance with the testing regime (‘playing school’) rather than about authentic language and literacy learning. The analysis of the conditions helped me understand how various participants, policies, and practices interacted to generate this pattern of compliance.

In the meantime, I had been studying more about how complex adaptive systems work and about the emergence of system-wide patterns from the interactions among the parts and the agents within the system. I learned that some researchers of complex systems suggest that a short set of simple rules emerges from the system and can influence subsequent interactions. These simple rules, like conventions or rules of language use, are inherent in the system and emerge from the system dynamics. Contrary to the commonplace use of the term, these rules are not regulations imposed from outside the system. I began to think in terms of the patterns that I wanted to see among young readers and writers—inquiry, agency, empathy, authenticity, dialogue, for example, and what simple rules might potentially generate those patterns.

Eoyang suggests that agents in a system can think of ‘simple rules’ retrospectively (‘simple rules’ that might have generated the observed patterns) or prospectively (‘simple rules’ that might generate desired patterns). I began to think about simple rules that might generate patterns that would support student literacy learning, and I formulated a set of simple rules to guide my teaching decisions in my second instructional initiative:

1. *I learn, you learn*: Students must see me as a learner, engaged in discovery, if they are to become learners as well. We need to be a community of learners.
2. *I teach, you teach*: I would regularly tell students that they needed to teach me and others about what they knew. To illustrate, I chose books that reflected their language, culture, countries, and experiences. I would encourage them to share their knowledge through discussions and writing.
3. *I write, you write*. I would write with my students, in my journal and for publication. They would write about themselves, and I would write about my life. They would see me write and listen to me share my writing every day.
4. *I read, you read*. I would read silently while the students read, and I would read aloud books that we selected together as they followed along in their copies. That shared reading would guide our discussions, providing common ground for us to build community, despite our diversities.
5. *I care about you; you care about others (and maybe me, too)*. I would genuinely inquire about their language, culture, country, and life experiences. I would attempt to communicate that I care about them as individuals. I also hoped they would begin to care about each other as they learned about their similarities and differences.

I hoped that this set of explicit rules would help me emphasize that we would not be ‘playing school’ in this second experience. My plan was that the students and I would be reading and writing side-by-side. I wanted as little distinction between the students’ and my roles as possible, learning and teaching one another as appropriate—in what sociocultural theorists call ‘joint productive activity’.

**Classroom 2 Patterns and rules**

Classroom 2 differed in many ways from Classroom 1. I was the only teacher and, because it was a grant-supported summer program, I possessed much more freedom from bureaucratic constraints like grading, mandated readings, and testing than in Classroom 2. Also, the eight students came voluntarily; they received no official course credit. In addition, my simple rules (above) explicitly framed the conditions I was trying to set for the language and literacy learning in that context. I used the simple rules for my own planning, but I did not make them explicit for the students. In retrospect, I probably should have told the
students about them.) Data analysis suggests that learning in Classroom 2 could be characterized as ‘engaged learning.’

Individual students made personal meanings from the texts and communicated their stories in writing. Four patterns of behavior became evident in the analysis: 1) accountability to one another; 2) motivation by curiosity; 3) fluid and shared teacher/student roles; and 4) exploration of emergent possibilities.

Classroom 2 Shared goal/focus — Authentic engagement

The analysis of Classroom 2 data suggests that these eight adolescents—refugees who voluntarily attended four weeks of literacy instruction in the summer—came every day because they were creating supportive relationships with one another and with me. They responded to my invitations to join our community of readers and writers and responded emotionally to the literature we read. For example, in one instance, after I read aloud from a book about a refugee student, one boy in the class told us a story about how his sibling had died due to lack of hospitals in his country. Another boy then told about his younger sibling who had died for similar reasons. Unexpectedly, the students each told the group about a sibling who had died in their home countries. Everyone had something to say in a quiet, pensive, and reverent way—everyone but me, as I learned from their life experiences that were beyond my full understanding. We sat there in silence for a moment after each student had spoken, knowing that they shared in this bond of sadness, and we were now closer as a community of learners.

As I made efforts to say students’ names correctly, learn the meaning of their names, and the difference of given and surnames in their countries from a western perspective, I took the role of learner. I was attempting to get to know each of them as individual readers and writers—not as test-takers. As we began to read and write, I attempted to note their responses and adjust our focus and our conversations in response to them. For example, as we began reading, I asked them if a text interested them, was understandable, and how they related to the content. If they told me the book was boring or too difficult to understand, we did not read it. I asked them what helped them learn, and I tailored instruction as much as possible to be at their instructional level—the place where they could gain the most literacy and English proficiency. I framed much of their reading and writing as a way for them to teach me (and one another) about themselves, their countries, their cultures, and their lived experiences. The prime goal was not to copy definitions, write summaries, or find specific answers. Rather, the goal was to make meaning from the text and communicate those personal meanings to one another. Students spoke passionately about their countries and wrote personal responses to readings that they selected. At the end of the session, one student wrote me a note that contained the following phrase: “You not teach us from the book, you teach us from the heart. I love you.” The evidence supports the claim that we did, in fact, hold ourselves accountable to one another—not to expectations or mandates coming from outside our learning system.

Classroom 2 Shared goal/focus — Curiosity and inquiry

The data analysis also demonstrates that both the students and I were motivated by curiosity, the need to know and to be known by one another. The students engaged in inquiry—in questions about the books we were reading and about how those books connected to students’ life experiences. Through this inquiry, students made significant individual progress in reading and writing. At the beginning of the summer, some students just wrote one sentence in their notebooks during writing time. They had never written much and did not think they were capable of writing any more in English or their first languages. However, by the end of our month together, they were composing compositions about their life experiences, voluntarily sharing their writing with others. For instance, Than wrote only 97 words in his Week 2 essay and 247 words in his essay in Week 4, at the end of the four-week institute. He composed no essay during Week 1 although others did.

The students also wrote personal responses to their reading. For example, I read aloud picture books about their countries, Myanmar and the Democratic Republic of the Congo. These books provided simple text in English, sometimes accompanied by other languages, as well as vivid illustrations that depict day-to-day activities. I was genuinely curious about the corn harvest in African villages and about the paint worn on the faces of Burmese people. In response to reading these books, the students each chose an element of their culture they wanted to explain to all of us. They wrote with purpose, trying to give as much detail as possible, and then searched for pictures on the Internet or brought artifacts to represent their culture with curious peers.

Students also demonstrated curiosity about reading. Instead of assigned readings, students had choices about what they read. I had books from various genres, languages, and levels available for them, and I was committed to finding anything they asked to read. The students often did ask for more books and sometimes even argued over who would get to take a particular book home. They demonstrated agency about their independent choices, as well as our shared readings. When reading a short story together, the students begged me to finish so they would know how the story ended, even though it was time to go home. Six months after the program, one student still called me to tell me about the novels she read and what she wanted to read next. Prior to this program, she had never read a chapter book in any language.

From these multiple reading and writing experiences, we created our own book, an anthology of our writing, entitled Who We Are: By a Group of Readers, Writers, and Dreamers. They read for information and for pleasure, and they wrote for authentic purposes. The students became learners driven by curiosity.
Classroom 2 Relevant distinctions — Fluid and shared roles

The data analysis confirmed that all of us moved in and out of teacher and learner roles. I sat with the students at a large table and participated in every activity they did. Instead of checking my email or grading papers, I wrote in my journal, revised my compositions and published my work alongside theirs in the anthology of our summer writing. I learned about many topics from them, including agriculture, cooking, and other cultural knowledge. For example, when we were writing about elements of our cultures, they worked together to explain to me how to kill, prepare, and cook a chicken. Although the students were from different countries, they all worked together, using multiple languages, pictures, and gestures, to teach me this lesson they were very surprised I did not know.

Students also shifted their roles with one another. As they explained concepts to each other, different students would emerge as leaders. For example, in reading a picture book about the Swahili language and culture, Alise, who was normally very quiet, explained the words to a Burmese student. Although she faced multiple obstacles in her regular classroom, in this summer classroom, she was positioned as the teacher when the class learned about her language and culture. Throughout the summer, it became evident, that although I might have officially been the adult, the teacher, and the only fluent English-speaker, these students possessed funds of knowledge that I did not. They often taught me and one another, as we privileged all knowledge in the classroom and not solely the knowledge I possessed. (Figure 3 illustrates how one student taught me how to make a slingshot and its importance in his country. In addition to the writing, he also explained this orally to me and the class.)

### The Slingshot

A slingshot is important for me and all of my friends that lived with me in the village in Myanmar.

First, we made slingshots from new trees that grow well and used small and big rubber bands. Then, we made a y-shape out of the trees. Next, we put the small rubber band at the end of the two sides and the big one in the middle. After that, I cut the big rubber band and put animal hide on it. Finally, I made pebbles by shaping the dirt in circles and laying them out to dry in the sun. When they got hard and dry, we used them to kill animals such as birds.

This is special because whenever we needed to hunt animals we killed them easily with these special slingshots. Almost all of the people in the village used them. I do not use slingshots in the U.S. anymore because I think that if I hunted maybe the police would give me problems. Or maybe I'm just too lazy to do it.

**Fig. 3: Student Essay about His Knowledge**
The Slingshot by an Intermediate EL.

Classroom 2 Shared practices — Exploration of emergent possibilities.

In Classroom 2, the particular objectives of teaching and learning experiences were not specified. There was no expectation of ‘mastery’. Instead, I emphasized ‘engagement in literacy’ as the primary goal. In general, I invited the learners to consider a variety of readings and to write about their lived experiences. I did not have a clear expectation about what their products would look like. I invited them to read and write, and then I watched and listened to see what the students would create, what questions they might ask, what stories they might want to share. I knew that I could not predict precisely what they would learn. Sometimes I was as surprised as they were at their progress.

Some of those emergent possibilities entailed becoming a support group for those who lost a loved one, exploring the discrimination of various people groups in the students’ countries, and sharing migration journeys. I had not planned or expected for students to share orally or through writing the personal discrimination they had faced in different countries. However, three young women from the Karen people group eagerly wanted to share how their people were oppressed by the Burmese government. They wrote essays about when soldiers came to their villages to kill them and their families and how they escaped. One student chose to share a hero from her people group with the class for her final essay in which she could write about anything she wanted. (See Figure 4.) All three Karen students worked together to share with me and the others why they celebrated Martyr Day on August 12 to remember the life of this Karen hero. This special day of remembrance occurred during the last week of the class and they taught us much about their people’s history and allowed us to remember with them on Martyr Day.

### My Hero: Saw Ba Oo Gyi

Saw Ba Oo Gyi is a Karen hero because he helped Karen people. He is the first and last Karen president. All the Karen people love him. His hear was so good and he loved all people. He was born in 1909 and he died on August 12, 1993 at the age of about 45. Today, August 13, 2014 is the day Saw Ba Oo Gyi died. He had four wives. The first wife was from the Karen people and the second wife was a Thai woman. The third wife was a Thai woman, and she had three children. The fourth wife was a Karen woman, and she had two children. But the second wife has two children. The first one is a boy and the second one is a girl.

We always celebrate him on August 13. We go to the same place and we put his picture on the
Emergence: Complexity and Organization

The school district provided multiple resources, including inviting the teacher-researcher in to encourage engaging and culturally relevant reading and writing experiences. The intention was to expand students' literacies. Notably, the students volunteered to participate in this summer literacy opportunity, which featured opportunities to engage in culturally and personally relevant reading and writing experiences. The intention was to expand students' literacies. Notably, the students volunteered to participate in this summer literacy opportunity, which featured opportunities to engage in culturally and personally relevant reading and writing experiences.

The dynamics in both classrooms exhibit features of complex systems widely cited in the literature. The complex adaptive systems in Classroom 1 and 2 generated dramatically different patterns of behavior. As an agent or participant in the system, I can name those patterns and infer the simple rules that might be generating them. The central goal of this discussion is not to praise or blame—not to judge the comparative benefits for the students, but to offer an analysis that helps explain the complex adaptive dynamics in the two contexts and to explore the usefulness of this conceptual framework for teachers. Classroom 1 was a typical example of ESL classes in comprehensive high schools in the U.S. where highly organized, high-stakes testing regimes are enacted. In that case, the larger policy system set strong conditions for teaching and learning at the local level. Those testing policies and practices constrained interactions among the teachers and students, privileging structured assignments, grades, and test preparation—all intended to help students learn a finite set of concepts and skills. Instruction and assignments were only in English, although native languages were allowed in informal conversation. All these interactions generated patterns that we characterize as 'playing school.'

As teacher researcher in Classroom 2, on the other hand, I had much more autonomy to set conditions for authentic engagement in multiple literacies. Notably, the students volunteered to participate in this summer literacy opportunity, which featured opportunities to engage in culturally and personally relevant reading and writing experiences. The intention was to encourage student engagement in meaning making through reading and writing across multiple genre, modes, and languages. The teacher and learners were inquiring together, with no specific or concrete end in mind, other than engagement in literacy experiences. These conditions generated patterns that we call 'authentic engagement.'

The dynamics in both classrooms exhibit features of complex systems widely cited in the literature. Multiple complex adaptive systems were manifested in both settings. Interactions between and among the teacher and students, as well as their interactions with the instructional assignments and materials, generated patterns of behavior which were reinforced over time. Given the conditions that were set in Classroom 1 (Table 2), patterns of compliance with the testing regime emerged. Ironically, the school district provided multiple resources, including inviting the teacher-researcher in to encourage engaging and culturally relevant reading and writing experiences. The conditions generated patterns that we call 'authentic engagement.'

Table 3 delineates the questions, the evidence, the patterns of action and simple rules related to 'authentic engagement' in Classroom 2.

Table 3

<table>
<thead>
<tr>
<th>Questions about Underlying Conditions</th>
<th>Evidence from Classroom 2</th>
<th>Patterns of Behavior and Discourse (inferred from retrospective analysis of evidence)</th>
<th>Simple Rules Created by Author 1 for Classroom 1 (guiding both teacher and student actions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shared Identity: Who are we in this classroom, in this community of learners?</td>
<td>• The teacher (Author 1) and student engaged in reciprocal and fluid teaching and learning roles.</td>
<td>• The teacher and students both identify as readers and authors.</td>
<td>I learn, you learn. I teach, you teach. I read, you read. I write, you write. I care about you, you care about others.</td>
</tr>
<tr>
<td>Shared Focus: What is our learning target?</td>
<td>• The goal is confidence, fluency, and proficiency, oral and written literacy in multiple languages, English as well as the students' home languages.</td>
<td>• As she learns from her students, the teacher tries to combine in-class experiences with students' background knowledge and experiences outside the classroom.</td>
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</tr>
<tr>
<td>Shared Distinctions: What are the relevant content, texts, and contexts?</td>
<td>• Everyone's stories from personal experiences are shared and valued as relevant texts for classroom learning. The teacher uses her learning to inform instructional and curricular decisions. • Students are able to self-select from a range of texts the teacher has made available based on students interests, cultures, and experiences.</td>
<td>• As she learns from her students, the teacher tries to combine in-class experiences with students' background knowledge and experiences outside the classroom.</td>
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</tr>
<tr>
<td>Shared Practices: How shall we work together toward that learning target? How do we look for patterns? How do we take action to respond to those patterns?</td>
<td>• The teacher models reading for information and for pleasure while inviting the students to join her. • The class regularly has conversations about readings, their personal responses, and connections to the literature. • The teacher and the students write to tell their stories and to communicate personal understandings. • The class uses multiple languages, modes, and genres in order to send and receive meaning.</td>
<td>I read, you read. I write, you write.</td>
<td></td>
</tr>
</tbody>
</table>

Discussion of findings

The complex adaptive systems in Classroom 1 and 2 generated dramatically different patterns of behavior. As an agent or participant in the system, I can name those patterns and infer the simple rules that might be generating them. The central goal of this discussion is not to praise or blame—not to judge the comparative benefits for the students, but to offer an analysis that helps explain the complex adaptive dynamics in the two contexts and to explore the usefulness of this conceptual framework for teachers. Classroom 1 was a typical example of ESL classes in comprehensive high schools in the U.S. where highly organized, high-stakes testing regimes are enacted. In that case, the larger policy system set strong conditions for teaching and learning at the local level. Those testing policies and practices constrained interactions among the teachers and students, privileging structured assignments, grades, and test preparation—all intended to help students learn a finite set of concepts and skills. Instruction and assignments were only in English, although native languages were allowed in informal conversation. All these interactions generated patterns that we characterize as 'playing school.'

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relevant literacy experiences. Those interactions, however, were not strong enough to shift the conditions away from the simple rules, or the teacher’s and students’ compliance with test preparation. In that context, the unstated simple rules were about raising test scores, completing assignments to generate grades, and compliance with inflexible teacher-student roles. The institution and the teacher always had the power—the authority to assign and evaluate.

In Classroom 2, however, the system was not constrained by the testing policies. The teacher-researcher combined her knowledge of language acquisition, literacy development, and instructional options with her growing understanding of complex adaptive systems to set conditions for interactions that created patterns of authentic engagement in literacy. The focus was unequivocally on students’ engagement in shared inquiry, reading, and writing—and on the possibility that unpredicted and unimagined outcomes would emerge. Difference was viewed as an affordance, as students were encouraged to use multiple languages to share what they knew and to learn from others. The teacher learned as much from the students as they learned from her (and from one another.) Her evolving understandings of complex adaptive systems prompted her to develop a set of simple rules to guide her instructional decisions. Those rules clearly set these conditions for shared identity, shared learning targets, shared tasks, and shared practices that created a ‘generative learning space’. In this joint productive activity, all participants engaged within Zones of Proximal Development (ZPD) which emerged through the group interaction. The relatively rapid improvement in students’ writing fluency and clarity is evidence of authentic and generative learning.

Conclusions and implications

Ensuring academic success for adolescent immigrants—including second-generation immigrants, recent immigrants and refugees—is one important complex global challenges facing language and literacy educators. Oppressive policies, research findings, instructional mandates, and ever-evolving student experiences interact to pose dilemmas for teachers who are trying to comply with bureaucratic expectations while also setting conditions for rich and complex language and literacy learning.

This study offers a perspective with potential for helping educators think about these complexities. Both of these classroom contexts manifest the principles of complex adaptive systems, but the underlying dynamics—the identities, learning focus, the relevant distinctions and shared practices—were dramatically different. For that reason, the conditioned actions and responses—the simple rules emerging from each system—were dramatically different.

The implicit rules in Classroom 1 privileged compliance, grading, and English language proficiency as measured by the test; rules (both implicit and explicit) in Classroom 2 privileged authentic purposes and audiences, reciprocity, dialogue, and shared funds of knowledge. This analysis suggests that a focus on the features of complex adaptive systems gives teachers the vocabulary to describe the critical differences between these two classrooms: emerging patterns and simple rules. We suggest that this perspective may provide a lens that helps educators not only name these patterns, but that it also can encourage teachers to take action as agents in the system—to determine what they can (and cannot) influence and to take action to support learners.

Of course, this perspective on teaching and learning as complex adaptive systems is also useful for researchers studying complex teaching and learning environments but poses questions and challenges as well. Additional cases should be examined to further explore other teaching-learning systems and the conditions that have the potential for contributing to positive learning experiences for adolescent immigrants. Stakeholders might address these questions:

- What patterns are deeply entrenched in classroom, campus, and policy systems?
- How do these patterns influence interactions relevant to language and literacy learning?
- How do these patterns combine in emergent rules, expectations, and conditioned actions among agents in the system?
- To what extent are these four questions about self-organizing learning systems useful in other learning contexts?
- What happens when teachers in high-stakes testing environments deliberately implement an alternative set of simple rules?
- Using a complexity lens, can teachers and researchers learn to influence patterns and simple rules to set conditions for more authentic and equitable opportunities for immigrant adolescents in schools?

Ultimately, these findings suggest that this view—that language and literacy patterns emerge from complex system interactions will help teachers 1) set conditions for rich and productive learning, 2) notice and interpret emerging patterns in their students’ learning, and 3) implement simple rules that invite their students into authentic reading, writing, and learning experiences.
That calls for thoughtful, creative, and courageous teaching and learning. Our students deserve no less.

References


10. Author. (2013).


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