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Implications for Language Learning and Teaching of "Psychological Comfort" in Relation to Complexity Theory

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ABSTRACT

A sound theoretical framework for language teaching should be one that helps teachers and learners to be comfortable in their roles: enabling them to think clearly by seeing simplicity in complexity, to be effective and self-aware, and to enjoy their work. The conditions for the elaboration of such a framework appear to be emerging, with scholars talking about how the notion of "complexity" is paradigmatically remapping applied linguistics. This paper describes the practical ramifications of the holistic or "integrational" thinking that underlies the new theoretical approach, and points to its potential helpfulness for curriculum designers, practitioners and learners. One reason for the notorious gap between theory and practice is that for roughly the past forty years the field of applied linguistics has been dominated by ever-increasing momentum in the direction of specialization, with sub-fields constantly being split into further sub-fields. Referring to work on complexity theory, SLA, psychology, autonomy and general educational theory, the main features of complexity and its applicability to the practical concerns of language teaching are outlined. It is argued that no individual teacher can hope to grasp all the complex realities of the language learning / teaching situation, let alone know what learners should be learning at a given moment. Rather, teachers can function best as "managers" of learning by knowing how to accept and be "comfortable" with their limitations, all the while supported by database infrastructure with multidimensional materials easily on hand. Holistic, complex or dynamic theoretical thinking has the potential to help practitioners to free themselves of practical and psychological burdens, and to provide them with new practical possibilities. The partnering of "psychological comfort" with a multidimensional approach to materials design enables us to transcend the unidimensional, linear and additive mindset that has until now been dominating materials design, teaching praxis and language learning research.

Keywords: Complexity theory, curriculum, holistic education, language teaching, learner corpus, materials design

Introduction

The recognition that both Complexity Theory (CT) and the general notion of complexity — with a small 'c'— can help us to better understand language learning has been heralded as representing a paradigm shift in applied linguistics (de Bot 2015, Kindle Location 3156), with Larsen-Freeman putting it cautiously as "in some ways, for some scholars, I think it is fair to say that the paradigm has shifted" (Larsen-Freeman 2017, pp. 27). So far, the discussion has primarily been among theorist/researchers attempting to articulate, from a very much evolving understanding of complexity and its application to language learning, an agenda for research. The focus has been distinctly less on teaching itself. Larsen-Freeman, whose name is most associated with CT in applied linguistics, has dubbed CT a "metatheory," (Larsen-Freeman, 2017) meaning, in simple terms, that it offers a number of abstract principles that can help us to organize the way

we theorize about language learning. With a deserved reputation for wide-ranging scholarship scholarship and sharp insight, she cheerfully acknowledges that her ideas about CT remain "inchoate" (Larsen-Freeman 2017, p.28). However, despite the acknowledged distance between CT and praxis, Larsen-Freeman has identified a number of general ways in which abstract principles of complexity have practical implications for language teaching (Larsen-Freeman 2017), and the most salient of these are briefly discussed in the section below on materials and curriculum design.

Theoretical discussions of any kind can appear irrelevant to practitioners, beyond their reach or intimidating. CT risks appearing even more so, given that the ways it has figured in the literature of applied linguistics are particularly abstract, terminology-heavy and not settled. Fanselow, a canny and experienced teacher educator who in the 1980s and 90s was a prominent figure in language teaching, in Japan and internationally, is dismissive of the usefulness of a theory-driven approach to teacher development. He emphasizes in the following the need for teachers to learn experientially, by looking at what they actually do, rather than through trying to enact abstract conceptualizations:

Scaffolding, brainstorming, icebreakers, communicative activities, comprehension— these terms mean totally different things to different people. I think using jargon and general terms to make claims is detrimental to teacher awareness and development. Instead ... I focus on analyzing what students and teachers actually do. (Fanselow 2018, Kindle Locations 377-381)

With the discussion of CT employing far more abstruse concepts than those mentioned by Fanselow, how on Earth can it be suggested, as this paper is going to suggest, that the growing interest in and embrace of CT among applied linguists is good news for practitioners? One part of the answer is that the more complex we understand language teaching and learning processes to be, the more obvious it is that there is no place for prescriptive authority or dogma. An awareness of complexity — bearing in mind that the complexity of language itself is increased exponentially by the messiness or "complexity" of any teaching situation — entails an acceptance of that uncertainty is inevitable. It is therefore perfectly all right for teachers not to "know." And the need to accept uncertainty is one crucial way in which CT and the psychological comfort of learners and teachers intersect. So it will be argued in this paper that while CT does not imply specific directions for how to teach, it does help us to see that the territory we are in — which is complex — is best managed based on the development of human qualities: particularly non-judgmental awareness and trust in the learning process for learners and teachers.

In my own professional thinking the discovery of the relevance and helpfulness of CT has emerged from a core determination to try to ensure that I, my colleagues, and the learners I work with, have an experience that makes us feel good about ourselves and about our collaboration. In other words, I have in my praxis, consistently prioritized intuition, observation, reflection — and an overall feeling of "comfort" — over theoretical trends, advocacy and prescriptions. It has been with some relief to find in CT support for helping me to situate my work in the field of applied linguistics. As I show in Mark (2007), my interests since first beginning to teach in a university in 1985 crossed several of the boundaries internal to and beyond applied linguistics and TESOL: autonomy, curriculum design, learner-centred instruction, humanistic language teaching, learner corpus development, holistic global education, global issues and broad educational philosophy. I think it is fair to say that the professional culture has been generally more welcoming of specialization than of interdisciplinarity and holistic or integrational thinking. It has thus been refreshing to be able to see in CT a movement that is synthesizing knowledge across boundaries rather than creating new areas of specialization.

While the emergence of CT in applied linguistics as a whole has been from the world of theorist-researchers, my interest in complexity has grown naturally out of practical experience. Such being the case, it seems reasonable to hope that this paper can offer inklings of a fresh perspective to the ongoing discussion of CT (and complexity with a small 'c,') in language teaching. Despite the impression we may have from the very theoretical character of the discussions thus far of complexity in applied linguistics, we can expect this: as interest develops in complexity, and as the theoretical thinking matures and it becomes easier to relate issues of practical teaching to concepts of complexity, there will be a very positive and synthesizing impact. We are used to thinking of theory leading practice. Complexity invites us to see the two as mutually informing and transforming the other.

Aspects of the Paradigm Shift: Beyond Communicative Methodology

Let me begin this section with an anecdote from my own experience. Stories can be easily grasped and remembered, and different meanings can be discovered in them over the course of time. They can also help to humanize abstract thought by encapsulating it in concrete terms. This particular memory, trivial in itself, is one of many professional encounters over the past thirty or more years that I see as "kernel" memories: personal experiences that have helped me to explore ideas and understand principles related to my work. I wrote about this particular incident in a recent paper, recounting that, when I was in my first teaching job at a university in Japan, around 1986, I went to hear a lecture on "The Communicative Approach" by Dr. Keith Johnson. I had a chance to speak with him after the talk, and asked him a question that concerned me. This is how I wrote about the anecdote:

I asked Dr. Johnson how he felt about my feeling that, by studying the methodology of language teaching, we seem to end up as I had, not trusting our own intuition sufficiently as a tool for responding with appropriate flexibility to students within an overall coherent "system" or methodological approach. He seemed very thoughtful for a moment, and then responded that *he thought that the single most important task for teacher training was to develop in prospective teachers the ability to trust their intuition, to think for themselves and to flexibly apply their methodological understanding.* When I asked him why he had not made this point in his talk on "The Communicative Approach" he said, "That's not what I was asked to talk about." (Mark, 2017a)

I am astonished now that it was possible for Johnson to compartmentalize in this way the concerns of methodology and the needs of teachers. I think it is fair to say, however, that such compartmentalization was perfectly normal or "mainstream" at the time. As such, the anecdote should in no way be seen as a criticism of Johnson himself, especially since, as I mentioned in the paper, I had found his work helpful in a number of ways. The point I wish to make here was that the mainstream methodological thinking about language learning and teaching of that era reduced language learning and teaching primarily to the language, while personal and interpersonal aspects of the process were of peripheral interest.

Moreover, language was seen as something static that could be dissected for packaging (in the communicative paradigm as a functional tool) so that it could be taught. Communicative language teaching itself was seen in its day as a major new force. It told us we should see language learning as the acquisition of a tool, and in so doing was moving language teaching from an emphasis on an analytical and descriptive structural knowledge of the language to a greater emphasis on context and on language in use. Concepts that figured prominently in the methodology of the communicative approach were "meaningfulness", "intention" (what are you

trying to do with the language) and "choice" (knowing your linguistic options in a given situation).

Meaningful communication was seen primarily as the transfer of information, hence the central importance in methodological thinking of the concept of "information gap." Drawing on the authority of the theoretical linguist John Lyons, Johnson writes about meaningfulness in his book on communicative methodology, referring to Lyons' discussion of the formulaic expression, "How do you do," used in meeting someone for the first time. Are such expressions "meaningful" when entirely expected in a given situation?

"if the hearer knows in advance that the speaker will inevitably produce a particular utterance in a particular context, then it is obvious that the utterance will give him no information when it occurs; no 'communication' will take place." (Lyons, 1968, p. 413, quoted in Johnson 1982, p.151)

Almost forty years later this sense of "meaningfulness" can be seen as an example of reductionist thinking that underpinned and constrained communicative methodological writing. It does not serve teachers well, for two reasons. One is that learners and teachers bring to each learning situation, through their individual personalities, past experiences, perceptions, hopes, fears, abilities and so on, in other words all kinds of meanings that can carry far more weight for them than the degree of information transfer that may be inherent in any given language learning task. The other is that every instance of meaningful communication, in whatever context, is unique.

Putting aside the whole-person aspects — which are the immediate aspects of complexity that teachers interact with — and just looking for at language learning itself, we see the difference between the "information processing" approach and a complexity-informed approach very well expressed here by de Bot:

In the models presented earlier, and in the information processing approach in general the assumption is that language processing is the manipulation of invariant entities (words, phonemes, syntactic patterns). In a dynamic approach this invariance is highly problematic because every use of a word, expression or construction will have an impact on the way it is represented in the brain. (de Bot, 2015, pp. 92-93).

Seeing the processes of language learning themselves as an interconnected system represents a paradigmatic change. The further fusion of this understanding with an acceptance of the importance of learners and teachers as whole ("complex") human beings could perhaps be simply expressed in this way: when person A communicates about anything with person B, it is not simply a matter of information transfer. In some sense, A is always changed by B, and B by A. This dynamic nature of communication can be seen in terms of the language learner's internal system being "changed" in de Bot's sense above. It can also be seen in terms of people changing each other in the teaching / learning process. We are therefore thinking of communication not only as being "dynamic" but also "multi-dimensional." Complexity implies constant interaction and flux on multiple levels, which are here being simplified as the linguistic and personal dimensions.

Another level that concerns us, and was mentioned above, is the relationship between theory and practice. How are they interacting with and changing each other? The relative trivialization of contextual variables in favour of a primary focus on language itself as static rather than dynamic is not the only noteworthy aspect of the mindset of communicative methodology as we saw it in the 1980s an 1990s (and perhaps later). Also worthy of note is the implied assumption

that it is acceptable for arguments to do with language teaching methodology to be based primarily on theory (in this case linguistic). If theory is not equally informed by careful attention to people and to lived experience, such a habit will implicitly and inevitably privilege theory over practice and the theorist over the practitioner. We are discouraged, in an ecosystem that supports this thinking, from trusting the authority of our own experience, from feeling "comfortable" in the senses discussed below, or at least from presenting our experience in a way that challenges or questions mainstream thought. Despite the increasing recognition of the importance of practitioner research (Allwright, 2005, Allwright & Hanks, 2009), we are not yet out of this mindset: as the above quote from Fanselow implies, theoretical constructs remain distant from the experience of most teachers.

Complexity and My Own Professional Experience

Background

I work in a large and prestigious Japanese university, one which could be called the epitome of mainstream mass education in this country. In this context I have worked on linking learner corpus research with materials design (Mark, 1997, 1998a, 2001, 2002, 2003a, 2003b) and on innovative form-focused techniques as infrastructure for a multi-dimensional curriculum (Mark, 2014, 2015, 2017b). The latter have emphasized the need to minimize teacher workload, ways to facilitate less teacher control and intervention, and the importance of relating learning to experience while nurturing learner responsibility and participation. The overarching research question that concerns me is, "How can teachers and learners in a mass education system thrive as individuals?"

Figure 1 is a conceptual map of the most prominent dimensions of the language teaching situation as they have "emerged" (a term associated with complexity that is discussed below) in my work. It shows the intersection of multiple dualities or dichotomies in present experience. In

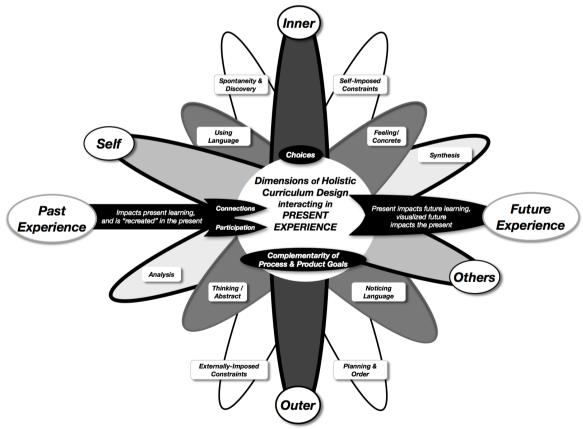


Figure 1. Multiple Dimensions of Experience Intersecting in the Present 10th International Conference on Language, Innovation, Culture and Education 29th & 30th June, 2018

the discussion of complexity that follows I will refer to *Figure 1* as a kind of language teaching "curriculum map" of complexity, and also relate it to my own situation. It offers an educational perspective on complexity and CT. As a map it does not offer actual directions. In my experience, such a map can help me rather to see where I am in my work and to see choices before me that may not be obvious without the map.

Figure 1 implicitly reflects, in the way it depicts intersecting dichotomies, what Morin calls the "dialogic" principle (2008, pp. 49-50).

... order and disorder can be conceived in dialogic terms. Order and disorder are two enemies: one abolishes the other, but at the same time, in certain cases, they collaborate and produce organization and complexity. (Morin, 2008, P. 49)

Morin identifies this as one of three principles can "help us to think of complexity." His choice of the word "helpful," even after being translated from French, is significant. Understanding complexity is to enter into a holistic mode of thinking about phenomena and problems. It does not come from mastery of a discrete concept.

An Understanding of Complexity Born of Teaching Experience

Some general comments about complexity need to be made at the outset. First, the nature of complexity is difficult to articulate, and scholars who write about it theoretically invariably have make use of metaphors. For example, the so-called "butterfly effect" is often cited to illustrate how, in a complex system, which is by nature made up of multiple and interrelated elements, a very small change can bring about unpredictable large consequences. The butterfly metaphor came into the vocabulary of complexity from the insight of an MIT meteorology professor, Edward Lorenz. (Emphasis has been added.)

The idea came to be known as the "butterfly effect" after Lorenz suggested that the flap of a butterfly's wings might ultimately cause a tornado. And the butterfly effect, also known as "sensitive dependence on initial conditions," has a profound corollary: forecasting the future can be nearly impossible. The computer model was based on 12 variables, representing things like temperature and wind speed, whose values could be depicted on graphs as lines rising and falling over time. On this day, Lorenz was repeating a simulation he'd run earlier—but he had rounded off one variable from .506127 to .506. To his surprise, that tiny alteration drastically transformed the whole pattern his program produced, over two months of simulated weather. The unexpected result led Lorenz to a powerful insight about the way nature works: small changes can have large consequences. (Dizikes, 2011)

The characteristics of complexity are not amenable to understanding by simple reference to a list, because the nature of complexity itself is interconnectivity on multiple dimensions, and a list is a linear presentation of discrete items. Any category that appears on a list of the characteristics of complexity is going to be interrelated to and overlap with, in some sense, all of the other categories. For example, when we say that there are no direct causes and effects in complex systems and present this as a distinctive characteristic of such systems, we are paradoxically going to find ourselves, as we are doing here, talking about butterfly wings "causing" a tornado; and in so doing we find that that this concept cannot be understood without also understanding interconnectivity. And when we talk about points of interconnection in a system interacting and changing each other, we are going to find ourselves doing so in terms of the very linear cause and effect which we have understood, through our awareness of complexity, to be illusory. The old paradox, "Which came first, the chicken or the egg?" comes to mind when talking about

complexity itself, and complex thinking requires that one be "comfortable" with paradoxes and, as mentioned above, with uncertainty.

At the centre of *Figure 1* is "Present Experience," the quality of which we can grasp intuitively, holistically and impressionistically: it is what we think of in everyday terms as "atmosphere." In Morin's words,

Since teaching is inherently to do with relationships, what we call the atmosphere of a class — the quality of the relations between teacher and pupils — has a considerable impact on people's difficulties. We can take as a given that if the mood of a class is good, the learning that is taking place will also be good. (Morin 2012, p. 264, translated by Kevin Mark)

Morin's words can also, of course, be related to two of the most fundamental dichotomies or dimensions in *Figure* 1: the Self versus Others and the Inner versus Outer dimensions.

The dynamic intersection of self and others on inner and outer levels is a very basic conceptual device in philosophy, and is at the heart of Dewey's general educational philosophy (Dewey, 1938). He wrote about the need to see present learning as a dynamic interaction between a person's past experiences, what is going in the present, and the impact it will have on future learning. Will the present be "educative" in the sense of increasing in the learner the momentum and disposition to learn, or will it be "miseducative," disinclining the learner to engage with the subject at hand? Dewey saw "educative" experience as making use of the learner's past experience in present learning. This is represented in *Figure 1* by the words "Participation" and "Connections." "Participation" in this sense might be, for example, helping a learner to connect a concept with something they are very familiar with in everyday life. Thus, for example, participation in this sense might be represented by a learner relating a discussion of war to a recollection of a personal quarrel or misunderstanding. While this might also be considered a connection, the latter term seems more appropriate to language learning. For example, a learner might discover that two words not previously perceived as related in fact share the same etymological root. It can also be expressed in Larsen-Freeman's more general point about linguistic experience:

A person's history of interactions with diverse interlocutors builds up collections of experiences that contribute to the language, cognitive, affective, and ideological resources that are available to be drawn on. (Larsen-Freeman 2017, p. 27)

With the words "cognitive" and "affective," the above quotation also highlights the importance of the "Thinking / Abstract — Feeling / Concrete" duality in *Figure 1*.

Morin (2007) shows how time (and implicitly experience) can be conceived of in a more complex sense than Dewey's formulation, as in *Figure 2*.

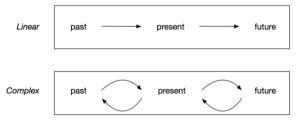


Figure 2. Linear and complex time (Morin 2007, Kindle Location 204)

While Dewey's perspective on experience is dynamic and therefore in a sense "complex," Morin's depiction of time suggests a nonlinear way of thinking about it, with the present not only being created by the past and leading to the future: here the present is also impacting the past, and the future is impacting the present. In linguistic terms we could express in terms, for example, of

a learner having a moment of realization in the present that makes it possible to see previous encounters of the language in a fresh way (see the discussion below focusing on *Figure 5*). The future, in linguistic terms, can be seen interacting with the present in terms of short-term and long-term goals — for example preparing for a presentation or examination, or for a future career.

A multidimensional dynamic perspective also offers possibilities for the enrichment of content in language learning. Even a linguistically simple story can offer richer affective and intellectual perspectives than we are accustomed to associating with language learning materials. A student of mine told me recently about how, in junior high school, he unintentionally alienated a friend by happily showing to him all the good grades he was getting on tests. Eventually he sensed something was wrong, and asked his friend, "Don't you like me?" to which his friend said, "No, I don't." Very much to his regret, they were never friends again. I commented that perhaps if he had framed the question differently the result might have been different. He had framed the question so that the friend only saw two ways of answering: yes or no. My student seemed intrigued by this fresh way of looking at an experience that has been affecting his relations with others for years; and I realized that it was a simple example of Morin's principle of the present and past mutually creating each other.

The concept of "Choice" is also central in *Figure 1*. It is of fundamental importance, if "educative" learning is to take place, that the educational environment not be coercive. Learners are responsible for their own learning and, the more they perceive themselves to be acting freely, the better able they are to become aware of attitudes, assumptions and prejudices that may be impeding, from within themselves, further development.

One aspect of instruction that is often ignored is the potentially educative or miseducative impact of the teaching processes themselves. This is represented at the centre of *Figure 1* by the words, "Complementarity of Product and Process Goals." In this regard I will mention here a story from Mark (2017). When I was preparing for 'O Level GCE' history in the UK, I had a teacher with a reputation for being very good at achieving the "product" goal of getting students through the exam. But his stated goal of wanting to see us think maturely and independently was thoroughly undermined by the processes by which he taught us: mainly having us write down his dictated notes in each class, and then grilling us with questions in an excruciatingly stressful way.

The "Noticing Language versus Using Language" dimension of *Figure 1* is a one that covers the long-familiar and important dichotomies in language teaching of accuracy and fluency, form and communication, form and content, dichotomies that are of central importance and potentially very much in the foreground of practitioners' awareness.

It has long been apparent to me that the learners that I work with generally love spontaneity in the classroom, but at the same time they have for years been in a highly structured and usually competitive and pressured educational environment. Thus, while spontaneity can seem liberating to these learners at times, it can also cause them to feel they are missing something. I became aware of this dynamic in my first university job in Japan. The style of teaching I engaged in was "fun" and creative. One of the projects, for example, involved collaborating with the students in making a film, using the department's hitherto almost unused film and editing equipment. This was a style that contrasted starkly with that of the (Japanese) head of the department, about whom students complained to me on numerous occasions. His classes made them stressed, they said, while they "enjoyed" my classes. But I found myself thinking about this in a "dialogic" way when one girl wrote in a diary assignment that while everyone complained about this professor, he was "the only one who makes us feel that we are really university students." The experience caused me to reflect. Perhaps this girl and others were not as "comfortable" with my teaching as I had assumed. How, I wondered, could contrasting teaching styles be reconciled and fused in a way that allows for teachers and students to feel they are collaborating and not working in opposition to each other?" This question relates most directly to the "Self-Others" and "Planning & OrderSpontaneity & Discovery" dimensions of *Figure 1*. It overlaps with but is distinct from the "Externally versus Self-Imposed Constraints" dimension, which can be helpful primarily as a tool for thinking about "outer" aspects of autonomy: institutional and other constraints, such as prescribed textbooks and examinations or issues of control in the classroom.

So far, in discussing the "dialogic" principle, we have identified interconnectedness, multidimensionality, interaction and nonlinearity as key aspects of complexity in relation to language learning and teaching. Morin's second principle for approaching complexity, what he calls "organizational recursion," is a characteristic of complex systems that he describes in this way:

A recursive process is a process where the products and the effects are at the same time causes and producers of what produces them. (Morin, 2008, P. 49)

I am going to illustrate this aspect of complexity in my own experience in ways that are speculative, based on my own sense of the larger socio-cultural aspects of the "system" in which I have been working since 1985. The assertions about language teaching policy in Japan are not accorded here the detailed critical examination that they deserve. Rather, they are presented here primarily to show how we can apply the systems concept of "looping" to our professional working environment on many different levels. Figures 3 and 4 attempt to show how feedback loops can figure side by side as well as be embedded within each other in complex systems. *Figure 3* takes as the "starting point" (a paradoxical but necessary metaphor when talking about this kind of circularity) the fact

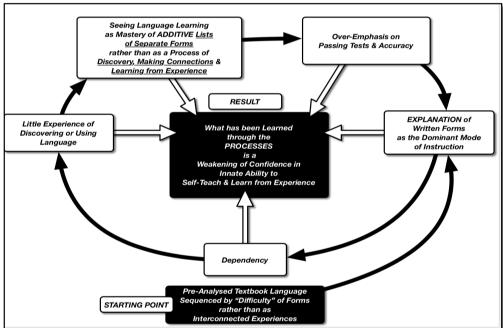


Figure 3. Creating Dependency Through High School English Textbooks in Japan

that Japanese learners in public schools are taught with textbooks that organize instruction in a very linear and additive way. They are based on grammatical structures and vocabulary that are sequenced by "level of difficulty," with the publishers forbidden by the Ministry of Education to allow items to be included that do not correspond to the Ministry's prescription of the year at which each item should be taught. Bear in mind that many different loops could be generated from this starting point. For example, one could look at the way in which the presentation of language primarily through the written form creates a loop that reinforces a perception of the "difficulty" of listening. I have chosen here, by way of illustration, to assert that the determination to prioritize carefully sequenced discrete items of instruction over the need to nurture curiosity and to have an

interesting experience "discovering" language for themselves (cf. the "Planning & Order - Spontaneity & Discovery" dimension of *Figure 1*) results in the dominant mode of instruction being "explanation." If we can accept that assertion at least as worthy of exploration, then visualizing a loop such as this can help us to consider the possibility that a loop has been set in motion that reinforces learner dependency.

Figure 4 looks at the same phenomenon of Ministry-approved textbooks for public schools, but at a larger level in the system, where we can see a number of interrelated and embedded loops. The grey arrows in Figure 4 represent movement toward significant English proficiency by larger portions of the population, while the black arrows show a reinforcement of the tendency for Japanese people to find English "difficult."

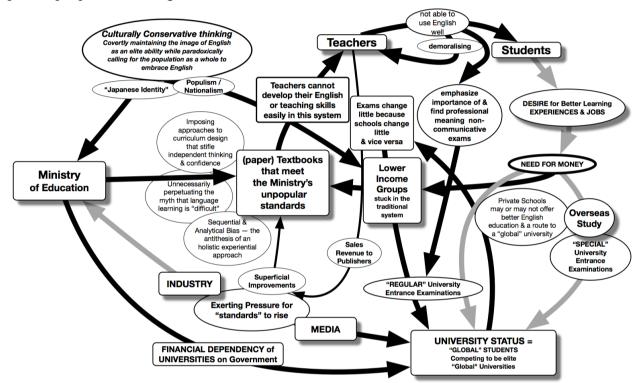


Figure 4. The High School English Textbook System in Japan

MEXT is perceived in Japanese society as an elite institution, and the system of loops related to English teaching and learning in Japan, as presented here, suggests that the processes engendered and perpetuated by MEXT are strengthening the association in the Japanese psyche of English ability with elites. A further argument implicit in the diagram is that less affluent portions of the population are left vulnerable to populist manipulation.

Figure 4 can also be looked at in terms of the relationship between education and globalization identified by Robinson (2009)

France wants to stay French, for example, and Japan wants to stay Japanese. Cultural identities are always evolving, but education is one of the ways in which communities try to control the rate of change. This is why there's always such heat generated around the content of education. (Robinson 2009, p.235)

An important component of Robinson's argument is the idea that in this global era (for "global" substitute "complex") we are trying to solve problems by doing more of what we have always done instead of finding new ways to think about the problems.

The mistake that many policymakers make is to believe that in education the best way to face the future is by improving what they did in the past. (Robinson 2009, p.235)

English textbooks in Japan have undergone only superficial changes over the past forty years or more, continuing to present to learners a dry and distorted dissection of the language. Industry, the media and government leaders call for the need, if Japanese society is to remain competitive, to be able to use English, but the textbooks and examinations at the heart of English language teaching in Japan are given the least attention.

These issues cannot be explored in depth here, of course, so the point being made in relation to complexity is that a complex systems approach to language learning and teaching, even on a societal level, allows us to explore a problem — in this case Japanese high school textbooks —in ways that provide insights that a more static and linear approach would not.

Morin's third principle for understanding complexity is what he calls the "holographic" principle. (2008, p.50). By citing Pascal's idea that the whole cannot be conceived without conceiving the parts, and that the parts cannot be conceived without conceiving the whole, he shows that this crucial element of complex-systemic thinking is not a new idea. And it has long been clear to me that the concept of wholes within wholes is of central importance in language learning and instruction. It is at the heart of the extensive and ongoing discussion of the importance of "lexical phrases" (Nattinger & DeCarrico, 1992), "chunking" in general (e.g. Peters, 1993) and the whole concept of a lexical approach (Davis& Kryszewska, 2012) (Lewis, 1993 & 1997)(Swan, 2006).

Expressed in *Figure 1* by the "Analysis versus Synthesis" dimension, this is also related to the concepts of emergence and self-organisation that are associated with complexity. Spolsky's insight into the relationship between analysis and synthesis (Spolsky 1989) is expressed in terms that are reflected in *Figure 5*, which illustrates the concepts of both emergence and self-organisation:

As linguistic knowledge is analysed into its constituent parts, it becomes available for recombination; this creative use may be enriched with unanalysed language (Spolsky, 1989).

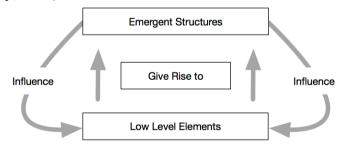


Figure 5. The "Emergence" of Wholes — adapted from Cohen et al (2017)

These emergent structures themselves restructure the whole knowledge system of which they are a part. As Kramsch puts it, referring to a learner's entire L2 knowledge system:

Language learning is neither cumulative nor additive: when you add one piece, the rest changes and the whole thing needs to be resignified and restructured (Kramsch, 2012).

Psychological Comfort, the "Inner Game" and Flow

The notion of feeling "comfortable" is an everyday, non-technical term, and I see it as useful to refer to "psychological comfort" as a holistic way of characterizing the kind of attitudes that can help individuals to thrive in a complex environment. The word has a wide range of positive associations without suggesting any ideological bias or academic agenda. It is thus both positive and neutral at the same time. While people will inevitably give it their own particular meanings, it feels like a "comfortable" fit for labeling the kind of mentality that can embrace complexity and help to create and sustain a vibrant learning atmosphere.

Human beings are individual complex systems in themselves and, given the complexities of language learning, it should be of no surprise that the investigation of motivation should look to complexity for insights (Sampson, 2016). It is surprising, however, to see in a recent work on positive psychology in SLA (Macintyre, 2016), no attempt to make links with complexity, despite the dynamic integrational thinking which has inspired the book. These words from their introduction are worth considering here (emphasis added):

As individuals, we can influence our environments, we have agency and exercise it at times by extending a hand to others. We can cause perturbations in our surroundings, sending ripples from the slightest action that might expand to create waves from even the smallest of actions. It is this *interaction of context and individual, their complete symbiosis with the potential for human agency* that so captures how we feel about socially situated views of human psychology in language practice. (Macintyre et al., 2016)

Why, I wondered when I read this, did the authors not relate their sentiment regarding the "slightest action" to the concept, associated with complexity, of the butterfly effect? I don't know the answer, but the general direction of treating learners as whole human beings who can develop themselves as people in the language learning situation and create with others a positive atmosphere is both consonant with complexity and very much to be welcomed. The words I have italicized, however, suggest something that is crucial in understanding the way we impact our environment as human beings: the power of awareness. But this has not, to my knowledge, been much talked about in relation to language teaching.

Tim Gallwey's work on the "inner game," which is rooted in his experiences as a tennis coach, has been very influential in team development and coaching in the corporate world. He writes (Gallwey, 2000) about how a team of AT&T telephone operators were able to reduce stress and become more engaged with their work simply by becoming more aware, focusing their attention on an aspect of the situation that until now their training had ignored as irrelevant. Some of them volunteered to take part in an experiment that involved them rating a scale of one to ten qualities they observed in the customers voices, such as "warmth," "friendliness," or "irritation." Another part of the exercise involved practicing using different voices of their own. The telephone calls became fun for the operators taking part in this exercise, and Gallwey writes of the positive effect in these terms:

How did this exercise reduce stress? Much stress came from irritated customers. But the operators found that when they were trying to listen closely to the customer to determine whether he was at a seven or eight irritation level, they didn't take the irritation to heart. The nonjudgmental awareness took the threat out of the irritated voice and elicited a wider range of positive responses. (Gallwey 2000, pp. 38-39)

The concept of nonjudgmental awareness is at the heart of Gallwey's "inner game," the three fundamental elements of which are presented in *Figure 6*. In order to relate Gallwey's ideas to the discussion above I have added the categories "Inner" and "Outer", as well as the labels

"Acceptance," "Attitudes," "Goals," "Self-Organization" and "Emergence." Gallwey's original diagram (Gallwey 2000, p. 48) shows only "Awareness," "Choice" and "Trust."

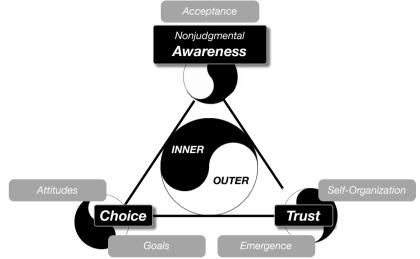


Figure 6 Awareness, Choice and Trust (adapted from Gallwey, 2000 p.48)

All three are to do with the focus of attention. Our difficulty is that we are easily paralyzed by giving attention to a doubting or fearing "Self 1," while we have the possibility of connecting with a "Self 2" that is characterized by concentrated absorption in the present, a "flow" in the sense with which Csikszentmihalyi has written extensively (e.g. Csikszentmihalyi, 1997). Gallwey writes that when our attention is fully engaged in the present, "self-interference is neutralized. In the fullness of focus, there is no room for Self 1's fears or doubts" (Gallwey 2000, p.44). While awareness, choice and trust interact with each other to enable a state of flow, it is trust that is difficult to achieve. It is a matter of trusting our natural Self 2 to know how to integrate all that we need to learn:

Trust in Self 2—Perhaps the most difficult thing about this new learning process was that both the coach and the student had to learn to trust the natural learning process. For me as coach, this meant I had to stop my conditioned response to make a corrective comment each time I saw a fault in the student's swing. For the student it meant not depending on technical instructions to improve his strokes. We had to trust that as our awareness increased, effective learning and change would take place. (Gallwey, 2000 p.12)

It is important to understand, in this discussion, that to access Self 2 is to access something that is already present within us. It is not a matter of adding something new to our knowledge. So how can a language teaching curriculum take account of it? The answer is simply to try to anticipate and remove from the language learning conditions as many elements as possible that are likely to contribute to a focus on Self 1.

The everyday meanings associated with the word "comfort" can help us in this regard. A search in one of the many huge corpora in Sketch Engine yields, with its "Word Sketch" function, a list of words that collocate with "comfortable" by means of the conjunction "and." The list in *Table* 1 shows the word "safe" to be by far the most common collocate, with 14,246 examples. Words that seem particularly likely to be useful in characterizing "comfort" for our purpose are shown in underlined bold italics, while italicized bold words in small case will figure peripherally. The word "safe" is very much prominent, and can be taken in this discussion as synonymous with "secure." Together these two words represent roughly one third of all the collocates combined. Among these peripheral associations, for example, the word "easy" suggests the need to think

about task difficulty and ensure that it contains just the right level of challenge. As Csikszentmihalyi says, "Flow tends to occur when a person's skills are fully involved in overcoming a challenge that is just about manageable. (Csikszentmihalyi, 1997, p. 30). The word "durable" suggests the need for an approach to learning activities that can be sustained over time.

Table 1

Adjectives joined by "and" with "comfortable"					
<u>SAFE</u>	14,246	warm	5,029		
clean	5,028	easy	4,341		
spacious	3,936	modern	3,488		
<u>CONFIDENT</u>	3,170	convenient	3,166		
familiar	3,013	stylish	2,814		
<u>SECURE</u>	2,811	soft	2,600		
<u>HAPPY</u>	2,328	quiet	1,959		
cool	1,708	pleasant	1,653		
relaxing	1,633	durable	1,630		
(Data generated from English Web 2015 Corpus https://the.sketchengine.co.uk/)					

Data generated from English Web 2015 Corpus https://the.sketchengine.co.uk/)

If "psychological" comfort can be expressed primarily in feeling safe, secure, confident and happy, then perhaps a feeling of psychological comfort can be thought of in relation to developing a mindsets in learners and teachers that reflects the following:

- 1. you feel the challenges before you are doable but not overwhelming:
- 2. the tasks you are engaged in fit in well with your own goals:
- 3. you do not see others as competitors, except in game-like situations; your sense of success and self-satisfaction are not related to or dependent on the weaknesses or failures of others;
- 4. you feel able to ask for help:
- 5. you feel free to help others to succeed:
- 6. you sense that your uniqueness is a welcome part of the environment;
- 7. you are able to accept yourself as you are now, regardless of how you wish to change;
- 8. you feel that you have the power to concentrate on what you are doing;
- 9. you feel that you can be honest in communicating with others, knowing how to give and receive feedback in a non-judgmental way and not feeling that you have something to hide;
- 10. you realize that there are no outer "shoulds" to defend yourself from all the judgments that really matter are coming from within yourself.

Implicit in all of the above principles is the notion of "trust" in one's own self, understood in terms of Gallwey's flowing, nonjudgmental Self 2 as opposed to the self-critical and doubting Self 1. It is proposed here that the development of nonjudgmental awareness needs to be cultivated in the learning processes themselves, which therefore brings us to the next question: what are the implications for this of materials and curriculum design?

Materials & Curriculum Design, Complexity and Psychological Comfort

The following gives a very impressionistic and incomplete account of some of the ways that I have been exploring materials design that embodies the principles of complexity and psychological comfort. These can be summarized as, for the sake of simplicity, with the following notions: Holism, Multidimensionality, Interconnectedness, Meaningfulness and nonjudgmental Awareness

Most teachers are no doubt going to be working with linear, additive textbooks for some time into the future. I am very mindful, after working for so long in the Japanese system, that there are no quick fixes. Rather, I see my own work as a search for exemplars that can help teachers and learners who feel "comfortable" doing so to gradually educate themselves through experiences with materials and techniques that help them to feel comfortable, and in so doing enjoy what they are doing more. For teachers a large part of this involves gradually stepping out of the role of explaining and testing, and for learners this involves becoming more independent and self-aware. It should be emphasized too that the following is not a catalogue or a how-to list. It is simply a hastily drawn sketch of a few of the many possibilities of a complexity-informed approach.

Some Basic Principles for Language Learning

For a number of years I have been following my intuitions and experience — as opposed to theory — in developing a wide range of form-focused language study techniques that support a holistic, humanistic approach to teaching. When I started writing about them (e.g. Mark, 2014, 2015, 2017a, 2017b) I came to realize that the materials reflected three distinctions that Larsen-Freeman has singled out, from her work on CT, as particularly relevant to language teaching (Larsen-Freeman, 2015):

- 1. Iteration v. Repetition;
- 2. Affordance v. Input;
- 3. Teaching Language v. Teaching Learners

The third distinction has been covered in much of the discussion already. CT is holistic and therefore has to take account of learners as people. It seems fair to say that any methodology that associates itself with CT will essentially be humanistic because of that association. Items 1 and 2, however, require some elaboration here. By distinguishing iteration from repetition, Larsen-Freeman is basically saying that iteration is "meaningful" repetition. In making the distinction she is acknowledging a need for language teaching materials and techniques to be designed so as to provide many and varied opportunities for learners to encounter and notice particular forms. How, in other words, can learners have

"multiple opportunities to notice and practice forms without their feeling that they are being mindlessly drilled? (Mark, 2017a)

The affordance-input distinction reflects an understanding that we never know what learners are going to learn in a given activity. Instruction is not a linear process of providing information and knowledge that learners simply take in. What we can do is make sure that abundant opportunities are present in the learning activities for learners to repeatedly take notice of forms that are likely to be helpful to them.

A "Database Mentality"

We do not know the connections learners are going to make as they work with materials that we provide them with, but we do have the possibility, from whatever classroom experience or textbook page we find ourselves on, of linking to a range of related language practice and tasks of varying length and levels of challenge. This idea is not new, of course, with many publishers

providing "supplementary" materials. A database of materials and activities is still treated as ancillary, though, and it is still largely publisher-provided. One important possibility that is usually overlooked is the possibility of rapid development of new materials by teachers and students in the course of instruction. Another is the richness of variety that a database-supported approach potentially offers. *Figure 7* outlines a database approach that combines different types of content production, including the use of learner-produced content of different kinds.

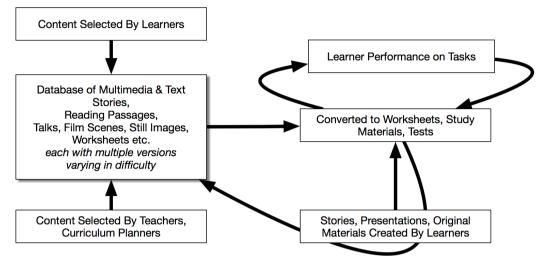


Figure 7. Database-Supported Multidimensional Curriculum and Materials Development

Multidimensionality: an example of learner corpus development.

To give a sense of how learner-generated materials can be used as a portion of the content in a curriculum, the example of a student diary assignment is given here. The purpose, is to introduce the concept of rapid and dynamic materials development, and to give an impression of what software designed for the purpose might be able to do. It is also introducing, as a separate possibility, the notion of learner corpus research being incorporated into the teaching / learning processes. There can thus be "multi-dimensionality" in these senses:

- 1. making systematic use of learner experience for worksheets and study materials
- 2. intertwining research and instruction
- 3. the ongoing development of a database of materials.

The example given here is of a student's writing that has been rewritten in two versions, a "Basic" version with minimal corrections and an "Advanced" version providing a more native-like version. While these rewritten versions serve as study materials, they are also added to a three-way parallel learner corpus, which itself can be used to generate worksheets. A learner or teacher might tap into this corpus, to generate, for example (not illustrated here) a worksheet based on sentences where the learners have not used phrases containing the word "being" but the target or "advanced" rewritten versions does. This concept of developing, as part of the process of instruction, a parallel learner corpus consisting of rewritten learner language (and sometimes corresponding L1 versions) figured in my learner corpus work that began over 20 years ago (Mark 1997, 1998a, 1998b, 2001, 2002, 2003a, 2003b) and which I now see as one component of a multidimensional system of instruction and materials development. It relates to the upper right two boxes of *Figure 7*.

Appendix 1 shows the feedback exactly as the student in question sees it. Once the rewritten versions have been entered into the database, a script in the database gives the student a score based on the similarity of the learner writing to the basic rewritten version (a maximum of 1 for

each line or sentence). While it is obviously not practical in most situations for all learner writing to be rewritten, it can be very stimulating to students to have just a small part of their writing processed in this way and shared as pair work with peers. With the speaking fluency practice in particular, where the first two letters have been removed from words of four letters or more, students work in pairs, with the partner referring to the full version and giving prompts when necessary to the student who is reading aloud.

A variety of other types of worksheet, based on the study of film and other materials are reported on in Mark (2017b). This particular example is given because it is assumed that readers are less likely to be aware of how learner-created materials can be used for teaching than they are of the use of, say, scenes from films. It also illustrates one way of conducting research in the process of teaching.

Cultivating a non-judgmental mindset: a self-study awareness tool.

The most powerful agent for cultivating nonjudgmental awareness is almost always going to be the teacher's own ability to approach teaching and language learning in a nonjudgmental way. However, there are tasks and tools that can help to do this. I have developed a number of dictation materials and accompanying worksheets, for example, that are based on stories and spontaneous exchanges with students that have in some way helped us to become more self-aware. One such example is the story, mentioned above, about the student who lost his friend in junior high school.

Here, however, I only offer as an example, a simple tool that can help learners to go beyond a self-judgmental mindset. *Figure 8* is a self-scoring task which has nothing to do with the notion of correctness, and whatever "score" is given in self-assessment simply gives information, not a judgement. The data from one student using the tool illustrated in *Figure 8* is given in Appendix 2. The student's task is to "score" themselves with a letter from the word "studying" based on the three dimensions in *Figure 8*.

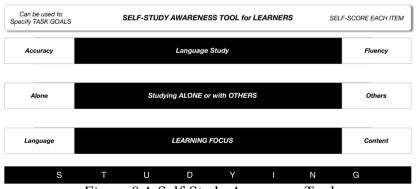


Figure 8 A Self-Study Awareness Tool

Conclusion

This paper has offered an overview of complexity with a small 'c' and of Complexity Theory as it currently stands in relation to language learning and teaching. While discussions of CT have been almost entirely on a theoretical level, the perspective here comes from someone who has discovered the relevance and applicability of CT through reflection on longstanding praxis and innovative development. It therefore hopes to offer a fresh perspective to the discussion of CT. In its embrace of the "messiness" of real-life language learning and instruction and in its acknowledgement of the importance individuals play in the process, CT can be seen as consonant

with and supportive of humanistic practice, including recent interest in Positive Psychology in relation to language teaching. "Psychological comfort" was introduced as a broad and non-technical concept that emphasizes the importance of nonjudgmental awareness and trust in oneself in dealing with complex realities and a multidimensional approach to curriculum and materials design. The implications of the discussion for curriculum and materials design were very briefly touched on, with examples that sought to evoke, however incompletely and inadequately, a sense of what a nonlinear and multidimensional approach might look like in practice, with teachers functioning much more as facilitators or managers than as sources of control and dispensers of knowledge.

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Appendix 1

Feedback to a student's diary assignment converted into a worksheet

Original

When I was watching TV news, the news told about "Polyamory". The phrase is combined poly which means multiple and amory which means love in English. I thought I was interested in this topic because its idea is different from that of Japan. In another word, it is difference of a culture. Although I don't support that idea, I think Japanese people will have to accept the diversity.

Basic (Minimal) Rewrite

When I was watching the TV news, there was an item about "polyamory." The word is is a combination of "poly," which means multiple, and "amor," which means love in English. I was interested in this topic because it is not an idea that is common in Japan. In other words, it shows a cultural difference. Although I don't support this idea, I think Japanese people will have to accept diversity.

Advanced Rewrite

An item on the news today about something called "polyamory" caught my attention. The word is a combination of the Greek root "poly," which means multiple, and the Latin root "amor," meaning love. This is not a topic that we think about in Japan, so I found it interesting. It seems to me that it is a reflection of cultural differences. Although I don't personally feel positive about this concept, I think that Japanese people are going to have to become more accepting of diversity.

Writing or Speaking Practice 1
An item on the ne_ today ab something cal " poly " cau my atte T_ word is a
combi of t Greek ro " po," which me multiple, and t Latin ro " am," meaning lo
Th is n a to that we think ab in Japan, so I fo it inter It seems to me th it is a
refle of cult differences. Although I don't perso feel posi about th concept, I th
that Japa people a going to have to become mo accepting of diversity.
Writing or Speaking Practice Worksheet 2
An it on t news to about some called "polyamory" caught my attention. The wo is a
combination of the Gr root "poly," wh means mult, a the La root "amor," mea love.
This is not a topic th we th about in Japan, so I found it interesting. It se to me that it is a reflection
of cultural diffe Alth I do _'_ personally fe positive ab this con, I think th Japanese
peo are go to ha_ to bec more acce of dive
Speaking Fluency Practice
An _em on the _ws _day _out _mething _lled _olyamory" _ught my _tention. The _rd is a
mbination of the eek ot oly," ich ans Itiple, and the tin ot mor," aning ve. is
is not apicat weinkout in Japan, so Iund itteresting. Items to meat it is aflection
of Itural fferences. though I n't rsonally el sitive out is ncept, I ink at panese
ople areing tove tocomerecepting ofversity.

Look carefully at the differences between your original writing and the rewritten versions. The score is based only on the gap between your original writing and the Basic Rewrite. The maximum score is 1. The purpose of the Advanced Rewrite is to show you new ways of expressing what you are trying to say in your writing.

Original: When I was watching TV news, the news told about "Polyamory".

- When I was watching the TV news, there was an item about "polyamory." (.74)
- An item on the news today about something called "polyamory" caught my attention. (Adv)

Original: The phrase is combined poly which means multiple and amory which means love in English.

- The word is is a combination of "poly," which means multiple, and "amor," which means love in English. (.75)
- The word is a combination of the Greek root "poly," which means multiple, and the Latin root "amor," meaning love. (Adv)

Original: I thought I was interested in this topic because its idea is different from that of Japan.

- I was interested in this topic because it is not an idea that is common in Japan. (.79)
- This is not a topic that we think about in Japan, so I found it interesting. (Adv)

Original: In another word, it is difference of a culture.

- In other words, it shows a cultural difference. (.67)
- It seems to me that it is a reflection of cultural differences. (Adv)

Original: Although I don't support that idea,

- Although I don't support this idea, (.83)
- Although I don't personally feel positive about this concept, (Adv)

Original: I think Japanese people will have to accept the diversity.

- I think Japanese people will have to accept diversity. (.95)
 - I think that Japanese people are going to have to become more accepting of diversity. (Adv)

Appendix 2

★outside of class

• I spent 30 minutes working the crosswords of chapter 2.

Language study: D-Y Alone or with others: S Learning focus: T

I like this task. I did not feel that it is homework!!:D

I thought this of Japanese is also difficult so it was too and more.

I want to do it from now.

• I spent 55 minutes working Gerd Erasmus 1 and 2.

Language study: D-Y Alone or with others: S Learning focus: D-Y

I will take TOEIC on June 24th. So I wanted to do listening.

It was difficult to listen detailed words. Starting it, I was going to do 1-3 all blanks. But time was over than I expected.

I was regret. I want to challenge 3 next time.

• I spent 10 minutes working text page of chapter 3.

Language study: N Alone or with others: S Learning focus: N

I did it when I had little time. I was able to use good time.

In this week, I took a temporary license on Wednesday. I was not able to study at home. I did all tasks at school while not taking class.

So I did not speak text...

I can pass a temporary license! so next time I will do it.