Applied ELT: A Paradigm Justifying Complex Adaptive System of Language Teaching?

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Abstract
In an endeavor to reflect on the advent of Applied ELT paradigm pioneered by Pishghadam (2011) in the area of second language education, this article delves into the unexplored nature of this emerging paradigm via a contemporary complexity-driven voice. The crux of the argument addressed in this article suggests that Applied ELT is a pragmatic manifestation of complex adaptive system of language teaching. To set the grounds expressly for such enquiry, firstly it draws on both premises and axioms associated with complexity theory and its existing literature in the circle of second language research. It then tracks down the evolutionary course of the new developed paradigm of Applied ELT within the realm of second language education and also elaborates the cornerstone and manifold tenets of this paradigm sufficiently. Finally, the article attempts to critically elucidate and rationalize the recent emergence of Applied ELT paradigm through the lens of complexity theory. To broaden our thinking and understanding about the potential and multi-directional influence of ELT field, the article ends by calling for a reshaped educational direction for ELT position in second language education.

Key words: ELT, Applied ELT paradigm, chaos/complexity theory, complex adaptive system

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1. Introducing Chaos/Complexity Theory in Second Language Education

In the prolegomenon of chaos/complexity theory, it should be noted that generally what makes so insightful for scientists is attributable to its ways of unfolding the mystery of what appears to be pure randomness. As such, it gives a new perspective demonstrating the existence of deeper explanation for the multi-faceted world in which we live. In this approach, the questions related to natural systems that have been discarded because of appearing to be unsolvable have begun to be answered.

By definition, complex systems are composed of multiple agents that interact with and adapt to one another and the environment while co-evolving and self-organizing without any central control (Kauffman, 1993, 1995). Also, a complex system may itself be a complex system, which attains energy from its environment to self-organize/reorganize itself (Larsen-Freeman, 2002; Mercer, 2011). Another related notion in this regard is complex adaptive systems which consist of multiple variables that are constantly in interaction. In other words, they comprise “multiple agents dynamically interacting in fluctuating and combinatory ways” (Rogers et al., 2005, p. 3). As each variable “affects all the other variables contained in the system and thus also affects itself” (Van Geert, 1994, p. 50). The dynamic interaction of the interdependent variables in the system hammers out an inherent potential for instability and also, inevitably, change over time. Also any change is done via adaptation, which is evolutionary in its orientation.

Concerning the dichotomy of chaos and complexity in applied linguistics, researchers usually do not draw a distinction between chaos and complexity referring to them as chaos/complexity (see Larsen-Freeman, 1997; Larsen-Freeman & Cameron 2008a). As Mallows (2002) remarks, "chaos is understood in an interestingly paradoxical way as order without predictability. We cannot predict individual moments in the life of a system, but the end results of its seemingly random movement are discernable order" (p. 3).

According to Larsen-Freeman (1997), chaos/complexity scientists have identified a number of describing features for a complex system. The main features of these complex systems are known to be “dynamic, nonlinear, chaotic, unpredictable, sensitive to initial conditions, open, self-organizing, feedback sensitive and adaptive” (p. 142). To clarify the characteristics of chaos in this theory, McAndrew (1997) also assigns three features to this concept: "a) chaos is characterized by a sensitive dependence on initial conditions or what has become known as the butterfly effect; b) chaotic system is aperiodic or never undergoes a regular repetition of values: no repeat system; c) strange attractors (attract and repel)" (p. 39).

Drawing on the prevailing emergence of complexity paradigm in some social sciences, there seems to be a relatively recent line of research acknowledging the multidimensional aspects of non-linearity and complexity sustaining in SLA and SLT (Cameron, 1999; De Bot, Lowie & Verspoor, 2005; Hadidi Tamjrid, 2008; Hodge, 2003; Larsen-Freeman, 1997; 2007; Larsen-Freeman & Cameron, 2008b). However, Larsen-Freeman (1997) was the first SLA researcher who pointed out the emergence of complexity paradigm in SLA and ushered in groundbreaking directions in thinking about language learning processes. Larsen-Freeman (2002) argues that the chaos/complexity theory advocates a social
participation view of SLA without excluding the psycholinguistic perspective. In holding learner and context as inseparable, this theory views language learner and complex teaching context as unpredictably co-evolving and co-adaptive dynamic (sub) systems nested within other interacting complex systems. Likewise, the learner agency is empowered and the learner creativity is entirely respected in complexity perspectives. In this way, learners are not any more restricted to roles as language learners who make errors but are language user who innovate (Larsen-Freeman, 2012a).

Concerning second language pedagogy, a number of researchers have also contended that classroom practices can be manifested in a relatively predictable manner as far as only linear teaching methods are involved. That is, when unforeseen and unidentified factors have an unpredictable impact, the classrooms and the participants in them are in a state of flux and thus linear cause and effect descriptions cannot comprehensively account for the pedagogical constraints and ecological challenges observed in ELT contexts (see Burns & Knox, 2011; Finch, 2001; Hodge, 2003; Mahmooodzadeh, 2012a; Tudor, 2001).

In this sense, the ‘organic’ entity of language learning acquisition system is not a temporal and seems to be always in flux and dynamic relative stability, never reaches static equilibrium, although it undergoes a kind of anarchy called the edge of chaos (see Waldrop, 1993 for further characteristics of the edge of chaos) in which maximum learning can occur. In fact, these periods are considered as phases of maximum creativity where the systems operate between order and chaos/ randomness and attempt to bring them into a special kind of balance via the emergence of new attractors (strange attractors). Attractors refer to “states or particular modes of behaviors, which the system prefers” (Larsen-Freeman & Cameron, 2008a, p. 49). In this respect, dynamic systems move through space/time, following a path called an attractor, i.e., the state or pattern that a dynamic system is attracted to (Mercer, 2012). Furthermore, although the cycle of an attractor repeats, it does not follow the same path or overlaps with any other cycle. As such, the addition of a strange attractor enables the system to keep an underlying order while still self-organizing in an infinite number of ways (Larsen-Freeman, 1997; 2002).

What is common to all strange attractors, however, is that they have fractal shape such like “a geometric figure that is self-similar at different levels of scale” (Larsen-Freeman, 1997, p.145). As a case in this point, an example can be the tree; notwithstanding the different shapes of trees, we can easily distinguish a tree from other objects (Hadid Tamjid, 2008). Furthermore, while being a non-reductionist view reaching for holism, it should be noted that chaos and/or complexity is erratic and nonlinear in that the effect is not proportional to the cause; a minor change can cause a great change in the whole system leading to the creation of butterfly effect (Alemi, Daftarifard, & Patrut, 2012).

However, a few critics of the complex view of language learning (see, for instance, Benson & Hunter, 1993) have purported that since learning is so stochastic, chaotic, and unpredictable; teaching cannot be sufficiently sustained and must therefore be of no avail. In response to this fallacious assumption, Harshbarger (2007) argues that complex system behaviors, not in the least, are random and unfathomable. In the light of such idea, Harshbarger (2007) considers the natural phenomenon of hurricane as a metaphorical
example to explain this issue. He states that "a hurricane is a complex system that can’t be
directly controlled, but contextual influences such as prevailing winds and temperature
differentials over land and water produce tendencies that guide these storms to move and
develop in roughly predictable ways" (p. 12). In defense of the complexity paradigm in the
area of language teaching methodology, he also asserts that the complexity perspective is
not inimical to any method or approach.

2. ELT Applied in "Applied ELT": A Change of Scope
Pishghadam’s seminal paper (2011) on the changing scope of ELT has virtually brought to
light winds of change in thinking about second foreign language studies and has probably
casted ELT domain to regain a well-timed momentum for a reconceptualization of its own
educational nature. Given the fact that ELT has been studied as a branch of applied
linguistics thus far, Pishghadam (2011) claims that it is perhaps time to reopen the agenda
of applied linguistics and ELT. In this regard, he maintains that “ELT has grown in
maturity over years, establishing an independent identity for itself. It does not play second
fiddle to applied linguistics any more” (p. 9). Thus, he introduced a new notion of Applied
ELT in hopes of breathing new life into the field of English language teaching and learning
via a reflection on the changing wave of priority seen in the educational scope of ELT
classes.
A key tenet of Applied ELT is that today ELT holds an autonomous status or tendency to
contribute to rather than be contributed by other disciplines such as psychology and
sociology, granting it a more life-centered precedence (Pishghadam, 2011). In actuality,
the inclusion of learners’ other characteristics such as motivation, emotional abilities,
thinking styles, and values in language teaching programs does not cause a problem, nor a
stumbling block for language teaching and learning, but this may act as a real strength
instead (Pishghadam, Zabii, & Norouz Kermanshahi, 2012). In a similar vein of
argument, inspired by the life-giving attribute of Applied ELT, Ghahari (2012) discusses
that in addition to different aspects of people’s lives including their ways of thinking,
innate abilities, emotions, attitudes, creativity, intuition reason, other values such as
compassion, harmony, generosity, and kindness may be optimistically pre-planned to be
enriched in ELT classes. Until now few studies, however, have been carried out to espouse
and operationalize the applicability and efficacy of this new educational perspective. For
instance, the field of psychology has yielded some interesting and useful implications from
ELT in order to reinforce some psychological traits of learners such as emotional
intelligence (Hosseini, Pishghadam, & Navari, 2010), critical thinking abilities (see, e.g.
Halvorsen, 2005; Ishikawa, Sasaki, & Yamamoto, 2007; Pishghadam, 2008; Rear, 2010),
and their national/home and cultural identities (e.g. Pishghadam & Saboori, 2011).
In the light of this new-fledgling paradigm, however, language teachers need to adopt a
new creative and dynamic role to come to grips with possible challenges; they are thus
expected to become educational language teachers, that is, experts who try “to improve
other domains of knowledge which, directly or indirectly, affect learners’ idiosyncratic
lives” (Pishghadam, Zabii, & Norouz Kermanshahi, 2012, p. 895). In this sense, Pishghadam, Zabii, and Norouz Kermanshahi (2012) have recently argued that language
teachers need to expand their knowledge of other disciplines to perceive the psychological, emotional, social, economic, religious, moral states and needs of their learners, and reflective teaching is not enough for them and does not suffice to optimize second language pedagogy:

Language teachers should not be limited to but should be empowered to move beyond, reflective language teaching towards gaining the relevant and sufficient caliber required for extending their professional identities by taking into account and trying to improve other domains of knowledge which, directly or indirectly affect learners’ idiosyncratic lives. (p. 895)

In a similar line of argument, Pishghadam (2011) proposed a pertinent and equally important notion, called life syllabus which is subsumed in Applied ELT paradigm. Based on life syllabus, for a language course to be as efficient as possible, it should “incorporate the issues of concern in learners’ life into the ELT curriculum, highlighting these aspects as well as the enhancement of learners’ language proficiency” (Pishghadam, Zabihi, and Norouz Kermanshahi, 2012, p. 895).

In a later extension of the theory of Applied ELT, Pishghadam and Zabihi (2013) have introduced English for Life Purposes (ELP) as a new concept in English language teaching. They argue that the focus of teaching English as a second/foreign language has shifted again from considering learners’ specific needs in study or work situations, as was seen in ESP classes, to enhancing their life qualities by offering a diversity of subjects for discussion which can enable the learners to compare their home culture with other cultures and project their unique identities. It not only mitigates the learners’ anxiety, depression or other negative aspects of life but it would also enable the teachers to enhance the learners’ emotional, intellectual, and motivational abilities while teaching them a second/foreign language. According to Pishghadam (2011), the focus has shifted away from a language syllabus (i.e. language-and-life classes) towards life syllabus (i.e. life-and-language classes) wherein language hinges on the policy of education for life and is thus at the service of enhancing life qualities in the classroom.

In addition, Pishghadam and Zabihi, (2012) call attention to the new and expanding functions and also the added roles with which ELT practitioners should come to terms. They contend that language teachers should give the top priority to learners’ life issues and then to teach the desired language. But it does not at all mean that language learning should be marginalized in English language classes. It merely suggests that “language learning should not be considered the end product of ELT classes” (p. 23). In doing so, as discussed by Pishghadam & Naji (2012), ELT can be a constructive discipline to help periphery countries (i.e. the oppressed) reduce dependency on center countries (i.e. the oppressor) and have a voice in the age of globalization where English language plays a significant role (as cited in Ghahar, 2012).

In addition, Pishghadam (2011) has likewise proceeded to claim that Applied ELT can contribute to the revival of local/home cultures and identities. So, efforts en route for characterizing this novel paradigm might be considered as an optimal reaction to linguistic/cultural imperialism (Phillipson, 1992) or communicative imperialism.
(Phillipson, 2009 for a synopsis) leading to **enculturation** of learners as opposed to the vexing notion of **cultural hegemony** (see, e.g. Canagarajah, 1999; Crystal, 1997; Pennycook, 1998; Phillipson, 1992, 2009 for a comprehensive discussion on the issue). Therefore, Applied ELT seems to promote L2 learner enculturation instead of simply preventing L2 learner deculturation in ELP contexts. In general, it can be implied that prevention can be the best remedy in this particular case. In other words, as Pishghadam and Naji (2012) stress that

> Awareness of linguistic imperialism helps us to turn ELT into the benefit of our own local context. If teachers are cognizant of the potential threats of linguistic imperialism, they can prevent deculturation of learners. Localizing ELT material in favor of one’s native culture can be a good solution not only in thwarting the cultural imperialism brought about by ELT, but also in enculturing students. (p. 48)

In the same vein, Pishghadam and Naji (2012) discuss that ELP textbooks should be “culturally authenticated” (see Sifakis & Sougari, 2003) not linguistically. In line with the idea of “World Englishes” (Kachru, 1982), and in contrast with the notion of ‘native speakerism’ (see Holliday, 2005; 2006 for further details), by incorporating the local culture and texts written in English based on local materials, Applied ELT allows learners to speak with any accent they are more comfortable with, as long as it is comprehensible. Using the learners’ mother tongue can also be used in case of necessity. Overall, Pishghadam and Naji (2012) conclude that

> Certainly, we cannot isolate ourselves from the global village or deny the important role of English in today’s world. What we can do is turn ELT into our own service. This will be a great step in reducing dependency on center countries and having a voice in the globalized field of ELT. (p. 49)

As mentioned earlier, Pishghadam (2011) believes that having gained an independent status, ELT is now ready to be applied to other fields of knowledge. In essence, notwithstanding the ascribed field-related autonomy, it should be likewise noted that ELT is not disaffiliated with or entirely disentangled from Applied Linguistics and is still recognized within this scientific field of study. The aim is merely to make researchers of other disciplines revisit the magnitude of ELT, trying to employ its findings in their studies. In this sense, granted that applied dimension of ELT has almost received short shrift from L2 researchers, more promising enterprise, then perhaps, is to disengage ELT from the superordinate mainstream of applied linguistics and take a step towards empowering ELT to stand independently rather than aligned with Applied Linguistics.

Earlier, Schmitt (2002) has echoed that ELT teachers should not be solely consumers of the findings of other disciplines. By the same token, today through some endeavors embracing the findings of other fields of study, the mainstay of ELT in Applied ELT paradigm is more directed at the practical level in the sense that it privileges an independent producer agent rather than a dependent consumer agent. In what the near future holds for ELT in the 21st century, ELT can be notably in the service of other disciplines in order not only to enrich them directly but also to step up efforts to develop
its own educational sphere of influence in this way. In this sense, as compared with the contributing disciplines in applied linguistics field which helps ELT mushroom, ELT itself should not also fall behind, being deprived of any educational grounds for a reciprocal tillage. Furthermore, the disciplines at issue not only can benefit a rather small share of this mutual exploit but ‘a lion’s share’ because today Applied ELT brings to bear on many of our educational concerns.

In this case, the researcher truly approves of such initiative enterprises because as Tracy (2003) discusses, if what we are doing is not moving us towards our goals, then it is perhaps moving us away from our goals. So, in what follows, the author devotes the remainder of the article to exploring and touching on Applied ELT paradigm from within the complexity theory to come up with some new insights.

3. The Crux of the Matter

To start with, it should be born in mind that “any system, whose configuration is capable of changing with time, is known as a dynamic system” (Baranger, 2002, p. 7). Therefore, ELT is not an exception in this case. As stated above, it may be perhaps safe to acknowledge that Applied Linguistics and the new proposed Applied ELT are not mutually exclusive whereas, both can be equally contributory fields. Now, it begs pondering if the phenomenon at issue can be a natural case of complexity paradigm triggered and engendered by its emergent complex adaptive system. In what follows, attempt will be done to highlight the accountability force of complexity theory in L2 research and to explain how complexity theory can particularly account for the argument in question.

Earlier, applied linguists studying complex dynamic systems related to complexity theory have offered helpful ways of thinking about applied linguistic matters (Larsen-Freeman, 1997; Larsen-Freeman & Cameron, 2008a; see also De Bot, Lowie, & Verspoor, 2007; Ellis & Larsen-Freeman, 2006). For instance, according to Larsen-Freeman (2012b), complexity perspectives on pedagogy can reflect many humanistic principles, as they allow us to work with, embrace, and value individual diversity, human relationships, contextual sensitivity, and the quality of life in the classroom for all the participants (see also Mercer, 2013). From these complexity perspectives, certain methodological principles are also important to be considered here:

1. To be ecologically valid, including context as part of the system(s) under investigation; 2. To honor the complexity by avoiding reductionism, and to avoid premature idealization by including any and all factors that might influence a system; 3. To think in terms of dynamic processes and changing relationships among variables, by considering self-organization, feedback, and emergence as central; 4. To take a complexity view of reciprocal causality, rather than invoking simple, proximate cause–effect links; 5. To overcome dualistic thinking, such as acquisition versus use or performance versus competence, and to think in terms of co-adaptation, soft assembly, and so forth; 6. To rethink units of analysis, identifying collective variables (those variables that characterize the interaction among multiple elements in a
system, or among multiple systems, over time); 7. To avoid conflating levels and timescales, yet seek linkages across levels and timescales, and include thinking heterochronically; and 8. To consider variability as central, and investigate both stability and variability in order to understand the developing system. (Larsen-Freeman & Cameron, 2008b, p. 206)

Given the afore-mentioned principles within complex adaptive system, thus “it is unproductive to isolate individual variables as a way of describing a system. Rather, the trajectory of complex adaptive systems can be best mapped by the description of emergent patterns of behaviors” (Burns & Knox, 2011, p. 7). However, the current paper, in particular, focuses on the influence of second language instruction which, as Larsen-Freeman (1997 cited in Hadidi Tamjid, 2008) argues, is one of the themes that can be illuminated further by probing chaos/complexity theory along with some other issues such as mechanisms of acquisition, definition of learning, the instability and stability of interlanguage, and differential success. Further, Mercer (2013) has quite recently argued that an implicit understanding of the complexity inherent in the language learning-teaching processes can be witnessed in many of the recent developments in applied linguistics such as appropriate methodology, postmethod pedagogy, exploratory practice, learner-centeredness, reflective practice.

Now turning back to the alternative course of correspondence between the two fields of Applied Linguistics and ELT, where the reverse route opposed to the norm has been suggested, culminating into a new paradigm called “Applied ELT” (Pishghadam, 2011), the researcher will engage in pursuit of searching out the whys and wherefores of such shift of paradigm in L2 research through the lens of complexity paradigm. Additionally, in terms of defining ‘paradigm’, the researcher basically subscribe to the idea advocated by Van Lier (1997) that a paradigm “need not be seen as Kuhn’s ‘closed box’, but can profitably be construed as an open system, or ecology” (p. 95).

To account for such change of thinking patterns, complexity theory generally sets forth that while there may be periods of relative stability, there will also be times when the system becomes disturbed by the appearance of new influences, which thrust the system to prefer new undertakings in various unpredictable directions (Burns & Knox, 2011). So, in second language area two related fields of applied linguistics and ELT likewise have probably maintained to endure for such change of rationalities. In this sense, it can be seen that ELT domain has increasingly been enriched to the point that it can now export its educational insights and influence to other disciplines. By imparting such knowledge, ELT has moved towards some favorable expansion that can gradually change into a new developing field such as Applied ELT. As such, in a metaphorical analogy, the prior image of ELT encapsulated within applied linguistics might be considered as a single scion transplanted within the cultivated ‘field’ of Applied Linguistics, but its novel image in future may be more like a multi-rooted banyan tree (a metaphor earlier used by Larsen-Freeman, 2011) with ever-growing limbs branching out around its trunk and gradually taking on more and more land of the science ‘field’ in this way.
Granted the fact that language development is a complex, adaptive system in which its stability only becomes possible through dynamic and constant change and adaptation (Larsen-Freeman, 2012b). ELT seems to have remolded its educational construct due to its growing sphere of influence permeating and spreading through some other disciplines such as psychology, sociology so as to adapt real-time contextually-oriented processing and thus reach the dynamic stability of its system. In principle, this assumption seems to have led to the development of a recent paradigm called Applied ELT in second language education. This "micro-paradigm" existing within the "macro- paradigm" of complexity might perhaps move towards creating a new attractor state in second language education system very soon. In this sense, L2 complex adaptive system will be more likely to prefer and be attracted to this altered state when it comes to English language teaching; however, this argument still cannot be voiced firmly. In fact, in what the future holds, certainly further studies are needed to justify and thus welcome this complexity-driven shift of state in ELT domain.

On the other hand, closely related to this complexity-driven argument, is the derivatives of disciplinary knowledge in which disciplinarity, multidisciplinary, interdisciplinarity and transdisciplinarity are considered like “four arrows shot from but a single bow: knowledge” (Niculescu, 1999, p. 3). Given these disciplinary variations drawn heavily from Larsen-Freeman (2012b), the author shortly brings into focus their force and importance in the developmental course of ELT in second language education.

In hindsight, the twentieth century was marked as the golden age of disciplines, each born with its own theories and methods (see Halliday, 1991). With the emergence of multiple disciplines, disciplines became hermetic by the virtue of “the principle of disjunction” (see Morin, 2007). But, disciplinary movement heading for high internal growth of knowledge generated by a field can gain only limited worth for its outside influence (Klein, 1998). However, progressively researchers came to understand that disciplinary knowledge is always partial and interim and disciplines are not as self-contained as they perceived in nature (Widdowson, 2005). In case of second language area, researcher have also embraced the idea and merged several disciplines to come up with a new hybrid discipline called Applied Linguistics with a particular focus on practical aspects of language use. Drawing upon research in psychology, sociology, anthropology, and cognitive science, applied linguistics develops and enriches its own theoretical models. Thus, following the rejection of the principle of disjunction, the boundaries enclosing disciplines have been removed, allowing the fields meet each other through adopting a multidisciplinary approach instead of merely a disciplinary approach. However, this approach still suffers from one unmitigated drawback, that “the contribution of disciplines is additive with no interaction among them resulting in little or no subsequent modification of views among the contributory disciplines” (Larsen-Freeman, 2012b, p. 2).

In a similar fashion, another derivative of disciplinary knowledge came into vogue named crossdisciplinary approach which moves across discipline boundaries, merging two disciplines together to gain more educational strength. Examples of this approach can be sociolinguistics, psycholinguistics, and neurolinguistics. However, the major shortcoming
with this approach is that even though both disciplines keep their identity and integrity, one of the two disciplines tends to rule over, so that any adaptation done might be biased (Widdowson, 2005). For example, Fishman (1972) has discussed that the field of sociolinguistics has failed to take into account sufficiently the ideas from sociology. Likewise, in neurolinguistics field, recently Mahmooodzadeh (2012b, 2012c) has stressed the inconsequential practical contribution of neuroscience to linguistics for well over a decade.

Given the problems associated with the two variations of disciplinary knowledge at issue, another variation, namely interdisciplinary knowledge came to light which has been widely acknowledged and ascribed to the Applied Linguistics field. Within this approach, unlike multidisciplinary approach, disciplines are seen both as additive and interactive (Kramsch, 2000). But, for Widdowson (2005) interdisciplinary is not yet possible for Applied Linguistics because no interaction of disciplines will leave those disciplines intact and thus disciplines can influence each other. On the other hand, as Larsen-Freeman (2012b) maintains, one clear problem with this altered approach envisaged for Applied Linguistics is that “aside from linguistics, there has been little discussion of the nature of the relationship among the disciplines that inform it, other than to acknowledge their contribution to theoretical aspects” (p. 3).

However, to resolve the above dilemma, one solution might be to distance with discipline-based concepts in so far as moving towards thematic knowledge through the transdisciplinary approach (Halliday, 2001; Larsen-Freeman, 2012b). In principle, as Nicolescu (1999) argues, while multidisciplinary or interdisciplinary inquiry may focus on the contribution of disciplines to an inquiry, transdisciplinary inquiry tends to focus on the inquiry or issue itself. While not a new discipline or a new superdiscipline, transdisciplinary is yet nourished by disciplinary research; in turn, disciplinary research is clarified by transdisciplinary knowledge in a new, fertile way. In this sense, disciplinary and transdisciplinary research are not antagonistic but complementary. According to Ortega (2013, p. 3), the goal of transdisciplinarity is "to generate a theoretical unity of knowledge beyond any one of the disciplines or perspectives involved". In fact, transdisciplinarity is globally open and creative and it is a way of self-transformation oriented towards knowledge of the self, indicating the unity of knowledge. This new theme of knowledge, supported greatly by complexity theory, is clearly materialized in Applied Linguistics now (Larsen-Freeman, 2012b).

Interestingly, Ortega (2013) recently has cast a glance at the increasing disciplinary progress made in SLA field over the last 15 years and has optimistically signaled the potential of SLA contributing knowledge for its neighboring fields by discussing the transdisciplinary relevance of SLA. In general, transdisciplinary relevance is about SLA research communities being able to ask themselves what SLA can do for the other language sciences. In fact, SLA researchers have been very good at asking what the other language sciences can do for SLA. However, as the field enters the 21st century, it is time now to ask what SLA can do for the other language sciences. In effect, SLA can also avail itself, being placed outside the confines of the field and contributes to overall knowledge.
about the human capacity for language. In particular, he contends that "reframing and embracing the study of L2 acquisition as the study of late bi/multilingualism would help SLA research communities to generate knowledge that contributes to overarching research goals in the study of language ontogeny." (p. 17).

In case of ELT, the researcher similarly assumes that through some transdisciplinary endeavors, ELT and its affiliated disciplines under the umbrella rubric of Applied Linguistics seem to have co-adapted through constant interaction while reversing the orthodox direction of their reciprocal causality to come up with a new emergent strange attractor. That is, in Applied ELT paradigm (Pishghadam, 2011), the route of the involved agents is not one-sided like applied linguistics and therefore, disciplines such as psychology, cognitive science, and sociology might be enriched by ELT as well (to study the influences, see for example, Hosseini, Pishghadam, & Navari, 2010; Pishghadam, 2008; Pishghadam & Naji, 2012; Pishghadam & Saboori, 2011). Therefore, as Brown (1991) argues, generally English teachers have a mission of helping everyone in the world communicate with each other to solve the global problem. This is certainly because of the global status of the English language (see also Maley, 1992). For example, Nkmetisama (2011) has called for integration of environmental education in language teaching in Cameroon which entails teachers' eco-applied linguistic awareness in this regard. He maintains that EFL/ESL teaching should not only be limited to the improvement of learners’ language proficiency but also to enable them develop critical thinking strategies that can be particularly useful in environmental sustainability. So, English language teaching profession can also be used in promoting environmentally friendly behaviors among citizens.

Following the above argument within the complexity framework, as Larsen-Freeman (2012a: 305) says, "while a system’s potential might be constrained by its history, it is not fully determined by it. Innovation emerges in open systems". Hence, it seems that special attention needs to be given to the possibility of freedom within the fields of science because emerging innovations may occur like Applied ELT that is consonant with what proponents of complexity theories issue in SLA area. As such, Applied ELT, a reshaped form of ELT, might be considered as emergent, dynamic, and co-adapting educational subsystem nested within the sweeping complex system of education.

From complexity perspectives, the development of this field can be a natural and aperiodic reacting phenomenon which has not been built into any one element or agent, but rather has arisen and grown from their constant interactions over time. One major complexity-driven pattern witnessed in this field is related to its "logic of freedom" which allows the system to develop and expand itself along "alternative trajectories" (Osberg, 2007, p.10). Therefore, the researcher believes that the learner agency and autonomy can be highly respected only when the activity circle of the field (ELT) is not fixed, pregiven, closed-ended, and restricted. Indeed, providing such promising avenue for language learners might also enable them more, as Larsen-Freeman says (2012a, 2013), to emancipate and thus actively transform their linguistic world, instead of merely conforming to it or exporting their learning through intact transfer.
4. Conclusion
In this article, attempt has been made to suggest that the emerging "micro-paradigm" of Applied ELT can be seen as a tangible manifestation of the creative "macro-paradigm" of complexity which affords its dynamic stability through resourceful and unpredictable changes, adapting and self-organizing/reorganizing in order to transform its elements into new forms of activity. By the virtue of self-extrication, ELT in the Applied ELT paradigm, indeed, has virtually sought to move towards autonomy and should not be seen as solely a contributed field, but a contributing field itself. Today, it may be perhaps safe to acknowledge that Applied Linguistics and the Applied ELT are not mutually exclusive whereas, both can be equally contributory fields. All in all, it seems that Applied ELT might breathe further complex life into the system of L2 development and thus might serve as good evidence to justify and support the emergence and influence of complexity trends in second language education.

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