

Nonlinear Dynamic Motivation-oriented Taxonomy of L2 Strategies based on Complex Dynamics Systems Theory

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Abstract

The need for a revisited framework of strategies in keeping with the nonlinear dynamic nature of motivational factors in L2 teaching led to the introduction of a taxonomy of nonlinear dynamic motivation-based strategies (NDMSs). This psycho-socio-cultural template suggests discovering dynamic motivational factors at individual level and integrating them into multiple parallel groups within a learner group instead of creating them which is a traditionally established function of motivational strategies to impose superficial cohesion on a learner group without catering for chaotic, emergent and dynamic individual motivational factors. Given the heterogeneity, dynamicity, and nonlinearity of the motivational factors at individual level, the first implication of the study is that NDMSs have the potential to activate identified motivational factors toward an adaptive and autonomous L2 motivation state regardless of their homogeneity or heterogeneity. Secondly, NDMSs have the potential to enable teachers to recruit the learning energy (i.e. motivation) from every member of the group via a dynamic and nonlinear set of motivational strategies instead of imposing a preset set of motivational strategies to all members of the group to elicit/facilitate/encourage equal performance from a motivationally heterogeneous learner group under the pretext of generating a cohesive learner group.

Keywords: *L2 motivation, nonlinear dynamic motivation-based strategies (NDMSs), complex dynamics systems theory (CDST)*

Introduction

Since a dynamic range of factors (Dornyei, 2009; Ushioda, 2014) are nonlinearly at work in a language learner (Larsen-Freeman & Cameron, 2008), which differ from one learner to another (de Bot, Lowie, & Verspoor, 2011), it would be unwise to expect a static behavior from every member of the learner group or to adopt a uniform motivational strategy to motivate them within a linear process. To address the dynamicity and nonlinearity of L2 motivation, L2 teaching needs a taxonomy of strategies to facilitate motivation of every member of the learner group. While L2

motivation has been approached from a variety of aspects either at general or local level, it lacks a sharp and rich focus on nonlinear dynamic motivation (Bahari, 2019a; Cheng & Dornyei, 2007; Dornyei & Ryan, 2015). Accordingly, there is a lack of an applicable taxonomy of motivational strategies in keeping with nonlinear dynamic nature of motivational factors to assist teachers in dealing with nonlinearity and dynamicity of motivational factors at individual level rather than group level. Based on complex dynamic systems theories and the complexity of the interactive factors at individual level (Herdina & Jessner, 2002;

Jessner, 2006, 2008), applying a single motivational strategy for all learner group cannot be helpful and each learner should be motivated individually with respect to the identified overall identity. Nonlinearity of motivation reflects the unpredictability of motivation state among diverse learner types in terms of the appropriate motivational strategy. Under nonlinearity, no predictable and automatic cause-effect relations exist and no causal connections can be made between triggering events and outcomes (Byrne & Callaghan, 2014). Studies confirm the nonlinearity of second language learning and that learning comes in spurts (Hohenberger & Peltzer-Karpf, 2009) without actual coordination (Davis & Sumara, 2006).

Since learners' linguistic and nonlinguistic systems openly and adaptively interact with other subsystems (Larsen-Freeman, 2015), it is essential to face this unpredictable and variable situation with proportional nonlinear dynamic motivational strategies (NDMSs; see Bahari, 2019a) to enhance L2 motivation. The central plank of the article is the focus on motivational factors at individual level as a response to the current call of research on intra-individual complexity (Serafini, 2017). The emphasis on individual level for identifying motivational factors for nonlinear integration is in keeping with dynamic systems theories which describe the interaction of internal and external factors with respect to motivation as a longitudinal element (Dornyei, 2009). This should not be confused with the *ideal L2 self* which reportedly (Csizér & Dörnyei, 2005; Kormos & Csizér, 2008; Ryan, 2009; Serafini, 2013) has more potential than integrativeness to capture relationships between second language learning and motivational factors. Accordingly, the taxonomy of motivation introduces NDMSs to facilitate identifying motivational factors at individual level instead of preset motivation strategies applied to the whole learner group while expecting the same output. Given the individuality and independence of motivational factors (Dörnyei, 2010; Segalowitz & Trofimovich, 2012) and nonlinearity and dynamicity of individual differences (Dornyei, Henry, & Muir, 2016; Dornyei, MacIntyre, & Henry, 2015; Ushioda & Dörnyei, 2012), it is necessary to address these

factors dynamically and nonlinearly. The proposed taxonomic template facilitates identifying and integrating motivational factors at individual level and supplies the teacher with a wide range of NDMSs proportional to the identified motivational identity. These NDMSs have the potential to create a learner-friendly motivational environment without imposing a single motivational strategy for all learner group regardless of the dynamicity and nonlinearity of L2 motivation. This environment caters for all dynamic and nonlinear motivational factors at individual level while attending to concepts of self-organization, emergence and nonlinearity (van Geert, 2011) by benefiting from the interrelated nature of the factors (Ford, 1992) instead of adopting cliché static motivational strategies (e.g. award, praise, penalty etc.) to create motivation at group level.

The Need to Revisit Motivational Strategies

Studies on human motivation have developed several taxonomic structures (Chulef et al., 2001; Grouzet, et al., 2005; Schwartz & Bilsky, 1987; Schwartz, et al., 2012) and accordingly L2 motivation studies have produced different models including Dornyei's (2001) Motivational Strategies and Zimmerman's (2013) motivational regulation strategies which despite their contributions to L2 motivation, have failed to include the concept of nonlinearity and dynamicity of motivational factors in arranging their models. Given the general approval of the significance of Dornyei's Motivational Strategies (Gao et al., 2003; Li, 2009; Ma, 2005) the current study discusses some of its deficient aspects with respect to nonlinearity and dynamicity. Dornyei's (2001) *Motivational Strategies in the Language Classroom* introduces four motivational aspects which in essence represent ways to create motivation as if motivation is a solid and static concept out there which does not exist and some strategies need to be applied to be created, generated, maintained or encouraged regardless of nonlinearity and dynamicity of motivational factors in L2 teaching.

The other deficiency of this categorization is that no strategy is suggested to discover latent motivational factors in L2 learner which can be recruited as a tool to enhance language learning. In addition to the lack of strategies to identify learner's motivational factor there is no suggestion concerning the way dynamicity and nonlinearity of learner's motivational factors should be handled. To address this deficiency, a process-oriented model was presented (Dornyei & Otto, 1998; Dornyei, 2001) which took a dynamic view of motivation in a linear process which ranged from preactional stage to actional and postactional stages. Regardless of the actual context of L2 classroom where a variety of factors are at work to influence learning and teaching, the main deficiency of this process-oriented model is ignoring the nonlinear nature of motivational factors (Dornyei, MacIntyre, & Henry, 2015; Dornyei, Henry, & Muir, 2016; Ushioda & Dörnyei, 2012) and lining up motivational functions and influences without considering their multilateral interactions in an actual context of L2 classroom.

Another aspect of Dornyei's taxonomy which contrasts the nonlinearity and dynamicity is its call for creating a cohesive learner group to create a strong 'we' feeling which leads to mutual support (Ehrman & Dornyei, 1998); however, given the dynamic nature of motivational factors, experiencing such an optimal situation with truly cohesive motivational factors is quite rare if not impossible. Grouping students based on a particular motivational factor observed in one or a few of the learners cannot be generalized and attributed as the cohesive motivational feature. In other words, without motivation diagnosis, motivation compatibility, and motivation integration in advance, we cannot merely group students with nonlinear dynamic motivational factors under the label of cohesive learner group. The term 'group' contradicts the concept of cohesion based on nonlinearity and dynamicity. This should not be interpreted as a negative point but rather as a positive and actual reflection of an actual learning context. We cannot expect a cohesive learner group with all members acting with static commitment to complete a task within a second language learning classroom while

believing in the nonlinearity and dynamicity of the motivational factors in second language learning. Eliciting cohesive behaviors by means of motivational strategies from a learning group should not be confused with discovering latent motivational factors at individual level with respect to nonlinearity and dynamicity which influence second language learning. NDMSs move from individual to group at any stage or step of the revisited taxonomy trying to identify the motivational factors, test their compatibility, and integrate them which neither means learner examination in isolation (Triplett, 1898) nor creating group cohesion (Ehrman & Dornyei, 1998) but rather recruiting group dynamics (Lewin, 1951) based on the learner's self-concept (Csiz'er & Magid, 2014) which needs to be discovered and directed rather than merely created/generated. Therefore, the proposed framework sets out to capture the multiplicity of factors involved, their nonlinear impact, and their dynamic nature. What makes the proposed taxonomy a better approach for us to understand L2 motivation is the inclusion of dynamicity and nonlinearity of L2 motivation in different strategies from psychosocio-cultural angles. Ignoring the nonlinearity and dynamicity of motivational factors among L2 learners is like expecting/forcing all members of a football team to strike a goal regardless of their positions/capabilities which reflect and represent their actual individual motivational factors.

Theoretical Foundation

To provide a dynamically oriented taxonomic structure (Hiver & Al-Hoorie, 2016) NDMSs basically draw on complex dynamic systems theory (de Bot, Lowie, & Verspoor, 2007; Dornyei, MacIntyre, et al., 2014; Dörnyei, Ibrahim, & Muir, 2016; Hiver & Al-Hoorie, 2016; Larsen-Freeman & Cameron, 2008; Thompson & Vasquez, 2015; Thompson, 2017; Serafini, 2017). These strategies are arranged to discover motivational surges at individual level based on the reported influence of motivational operations on the behavior of the individual (Lechago, Carr, Grow, Love, & Almason, 2010; Rosales & Rehfeldt, 2007; Wallace, Iwata, & Hanley, 2006). NDMSs address the nonlinearity and heterogeneity of the learner's behavior instead

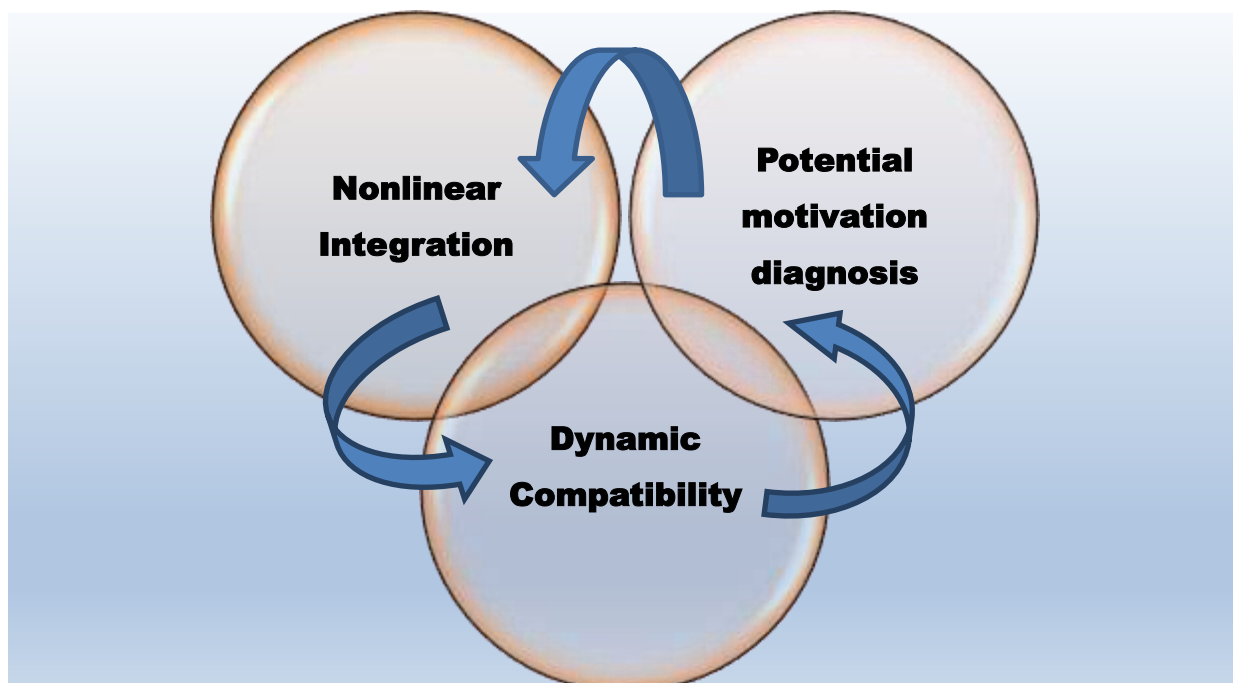
of imposing preset motivational strategies regardless of the individual differences. By mentioning/discussing/reinforcing individual motivational factors, NDMSs facilitate recruiting all components of the motivational superstructure from identified motivational currents described as goal-oriented surges to other intense motivational experiences (Dornyei, Henry, et al., 2015). Given the nonlinearity and dynamicity of motivation at individual level, it needs to be identified in the members of the learning group. In the proposed model, this is done by mentioning/discussing/reinforcing psychosocio-cultural strategies which enable the teacher to come up with a diverse set of dynamic-nonlinear motivational strategies. Following that, the identified motivational factors are examined for compatibility. The main point is that this process is not obsessed by the concept of creating/generating motivation at any cost and instead of eliciting motivational behavior (which is sometimes fake and pretended behavior) from the members of the learner group to form a single

cohesive group with a single static motivational feature, NDMSs facilitate approaching learners and discovering their dynamic motivational factors from psychosocio-cultural angles.

NDMSs in Practice

NDMSs are applied at three stages: pre-motivational stage, motivational stage, and post-motivational stage. The first stage consists of steps in the order displayed in figure 1 starting by potential motivation diagnosis and ending by nonlinear integration. Drawing on nonlinearity and dynamicity, even the proposed hierarchy allows a dynamic order which means there is no need to complete all steps in a linear process and the order can change dynamically into a nonlinear process based on the discovered motivational factors at individual level among the members of the learner group.

Figure 1. Pre-motivational stage of applying NDMSs.



To identify the motivational disposition of L2 learners, the studies suggest the focus on the

learners' Motivational Self System (Csizer & Lukacs, 2010; Dornyei, 2005, 2009; Lamb,

2012; Thompson & Erdil-Moody, 2016) and its variations in future studies (Csiz'er & Magid, 2014; Dornyei & Chan, 2013; You, Dornyei, & Csiz'er, 2016) as an important factor in energizing and motivating learning behavior. In diagnosing the motivational factors, we need to identify tedious and boring experiences of the past as well as the attractive and enjoyable experiences of the learners (Dornyei, Ibrahim, & Muir, 2015), dynamic interactions of the learners with the societal context with respect to *the anti-ought-to self* (Alharbi, 2017; Huensch & Thompson, 2017; Lanvers, 2016; Liu & Thompson, 2018; Thompson & Liu, 2018; Thompson & Vasquez, 2015; Thompson, 2017) based on Reactance Theory (Brehm, 1966; Brehm & Brehm, 1981), the *ideal L2 self* (Henry, Davydenko, & Dörnyei, 2015; Waninge, Dörnyei, & de Bot, 2014) as a dynamic variable which is influenced by continual cognitive-motivational functioning (Dörnyei, 2010; Dörnyei & Ryan, 2015; Larsen-Freeman, 2015). This step is to make sure that previously discovered motivational factors are dynamically compatible in terms of motivational intensity, motivational imagery and motivational behavior (You & Chan, 2015) with respect to gender differences (Henry & Cliffordson, 2013; You, Dörnyei, et al., 2016) that can act together/along each other towards a nonlinear dynamic uniformity. Dynamic compatibility of the NDMSs should not be confused with 'cohesive group' which has been used in the literature. While the former is an attempt to find out the rate of compatibility among motivational strategies in order to sort and categorize them under multiple dynamic motivational strategies, the latter is an attempt to group the learners under a single group which is labeled as 'cohesive group' regardless of the nonlinear and dynamic nature of the motivational factor in each and every member of the learning group. The goal is to nonlinearly integrate the previously discovered motivational factors at individual level without trying to form/find a cohesive group. This step draws on group dynamics (Lewin, 1951) and the interplay between individual features, the learning environment, future L2 self-guides, motivational behavior, motivational imagery/visualization, and learning styles (Al-Shehri, 2009; Dornyei & Chan, 2013; Kim, 2009; Kim & Kim, 2011). This needs to be done by highlighting the discovered attractions at

individual level and integrating them in consensus with dynamic motivational factors among the members towards a nonlinear dynamic uniformity rather than a static goal.

Motivational Stage of Applying NDMSs

The NDMSs are categorized into three constructs (cultural, social, and psychological) and each construct consists of several strategies at individual level (see Tables 1,2,3). NDMSs are psycho-socio-cultural-oriented strategies adopted from previous studies (Boekaerts & Corno, 2005; Eccles et al., 1998; Maehr, 1984; Sansone & Thoman, 2005; Schwinger, Steinmayr, & Spinath, 2009; Sivan, 1986; Wentzel, 1999; Zimmerman & Kitsantas, 2005) based on their efficiency to enhance L2 motivation. These strategies have reportedly self-regulatory potential on the part of the learner (Zimmerman, 2013) along with homogeneously/heterogeneously identified motivational factors on the part of the teacher. NDMSs can sustain the ongoing efforts of the learners towards an adaptive motivation (Wolters, 2003) by exercising the appropriate motivational strategy. The use of learner-friendly NDMSs prevents reactance and oppositional behavior against the imposed inappropriate motivational strategy on the part of the learner (Bahari, 2018a). The proposed NDMSs can reportedly affect learners' cognitive engagement (Schwinger et al., 2009; Wolters & Benzon, 2013) as well as interest-enhancement.

Psychological Strategies (PSs)

Psychological strategies are nonlinearly and dynamically strategized to enhance learner engagement, classroom engagement, and autonomous learning (Legutke & Thomas, 2013). These strategies are recruited and arranged based on the previous studies to create positive changes in learners' attitudes and motivation (Kim & Choi, 2006) to lower anxiety in classroom learning (Kim, 2005) and to engender self-efficacy among L2 learners (Cheng, Lam, & Chan, 2008) in keeping with nonlinear dynamic L2 motivation. The proposed PSs based on previous studies (Katz et al., 2014; Onatsu-Arvolommi et al., 2002) have the potential to enhance self-regulation by identifying and tracking dynamic

motivational factors at individual level to organize the learning process toward an adaptive type of motivation (e.g. autonomous motivation). Accordingly, the learner is encouraged to unlock the potential of psychological factors by having a goal-specific imagery (Larmer et al., 2015) along with self-efficacy as a significant psychological factor (Rubio, 2014; Mills, 2014; Schunk & Pajares, 2005) in line with his/her nonlinear dynamic motivational factors. Given the strong correlation between L2 motivation and language anxiety (Cha & Kim, 2013), this level

proposes learning-teaching readjustment by assigning a psychologically-well-informed teacher for psychological needs and concerns of the learners.

The following tables show the psycho-socio-cultural strategies with their theoretical bases at individual level which are applied either by mentioning/discussing/reinforcing by the teacher:

Table 1. Psychological strategies

Psychological Strategies		
Theoretical basis	Concept	Strategy
Self-efficacy theory (Bandura, 1997)	One's capabilities	Teachers are suggested to take the following steps to strategize and contextualize every step: First, Mention/Discuss/Reinforce dynamic, nonlinear, and motivating psychological issues at individual level Second, Encourage/Facilitate/Scaffold exchanging and introducing psychologically motivating factors at group level For example, to contextualize the concept of One's capabilities , students' sense of self-efficacy is strengthened via mastery experiences which is strategized according to the above steps.
	Others' capabilities	
	self-monitoring strategies	
	self-regulating strategies	
	self-evaluation strategies	
	spatiotemporal complexity of language	
	self-regulated language learning	
Attribution theory (Weiner, 1992)	the causes of previous success and failure	
	Goal-orientation	
	Hopefulness	
	Agentic persistence	
	Purposefulness	
	Zone of proximal development	
Self-worth theory (Covington, 1998)	Motivational behavior	
	Face-saving behavior	
	Goal-setting	
	Motivational factors	
	Intrinsic and extrinsic motivation	
Snyder's hope theory (2002)	Desire and expectation	
	Ambition	
	Positive emotions	
	Demoralization	
	Incompetency	
	Despair	
	Helplessness	

Social Strategies (SSs)

Social strategies enable L2 learners to use L2 for sociolinguistic goals (e.g. expression/comprehension of social emotions, social

thoughts, and social activities in keeping with other studies (e.g., Joe, Hiver, & Al-Hoorie, 2017). This is done via project-based learning in the classroom setting with intensified motivation (Stoller, 2006) in accord with

nonlinearity and dynamicity of L2 motivation with respect to sociolinguistic goals. To this end, experiential learning and interaction (Legutke & Thomas, 2013) in a collaborative effort and performance (Beckett & Slater, 2005) is encouraged. This is to master language, content, and skill via individual and group activities with respect to learning process (Larmer, Mergendoller, & Boss, 2015) and nonlinearity and dynamicity of motivation (Bahari, 2018b). This also provides learners with nonlinear dynamic motivation (Bahari, 2019b) while directing the learning process in

a dynamic way (Kaldi, Filippatou, & Govaris, 2011) and considering the need to produce tangible products on the part of learners (Markham, Larmer, & Ravitz, 2003) with enhanced sense of self-fulfillment (Schmidt, Loyens, van Gog, & Paas, 2007). This level enables learners to share their experiences and understandings as well as to construct meaning by assigning a socially-well-informed teacher to cater for social needs and concerns of the learners.

Table 2. Social Strategies

Social Strategies		
Theoretical basis	Concept	Strategy
Social motivation theory (Wentzel, 1999)	Social goal	Teachers are suggested to take the following steps to strategize and contextualize every step: First, Mention/Discuss/Reinforce dynamic, nonlinear, and motivating social issues at individual level Second, Encourage/Facilitate/Scaffold exchanging and introducing socially motivating factors at group level For example, to contextualize the concept of Social goal , students' social goal is strengthened via setting some goals which is strategized according to the above steps.
	Social conformity	
	Social autonomy	
	Social self-concept	
	Social responsibility	
	Social relationship	
	Social resource/position equity	
	Social safety	
	Social mastery	
	Social management	
	Social superiority	
	Social self-determination	
	Self-assertive social relationship	
Goal orientation theory (Ames, 1992)	Social self-acceptance	
	Social mores	
	Social affiliation	
	Community feeling	
	Social recognition	
	Well-being	
	Self-actualization	
	Appearance	
	Social events	
	Social activities	
	Social relationship goals	
	Social goals	
	Nonlinearity in time and space	
	Social supremacy	
	Social values	
Theory of social motivation (Weiner, 1994)	Social appropriateness	
	Social morality	
	Social behavior	
	Social competence	
	Social efficacy	

	Social outcomes
Theory of planned behavior (Ajzen, 1988; Eagly & Chaiken, 1993)	Social pressure
	Perceived behavior
	Self-regulatory skills

Cultural Strategies (CSs)

Cultural strategies require teachers to mediate in a joint activity with learners while trying to understand the learners' cultural orientation, cultural attitudes, sources of difficulty, and appropriate types of mediation with respect to nonlinear dynamic motivational factors on the part of learners at individual level (Bahari, 2018c). This construct

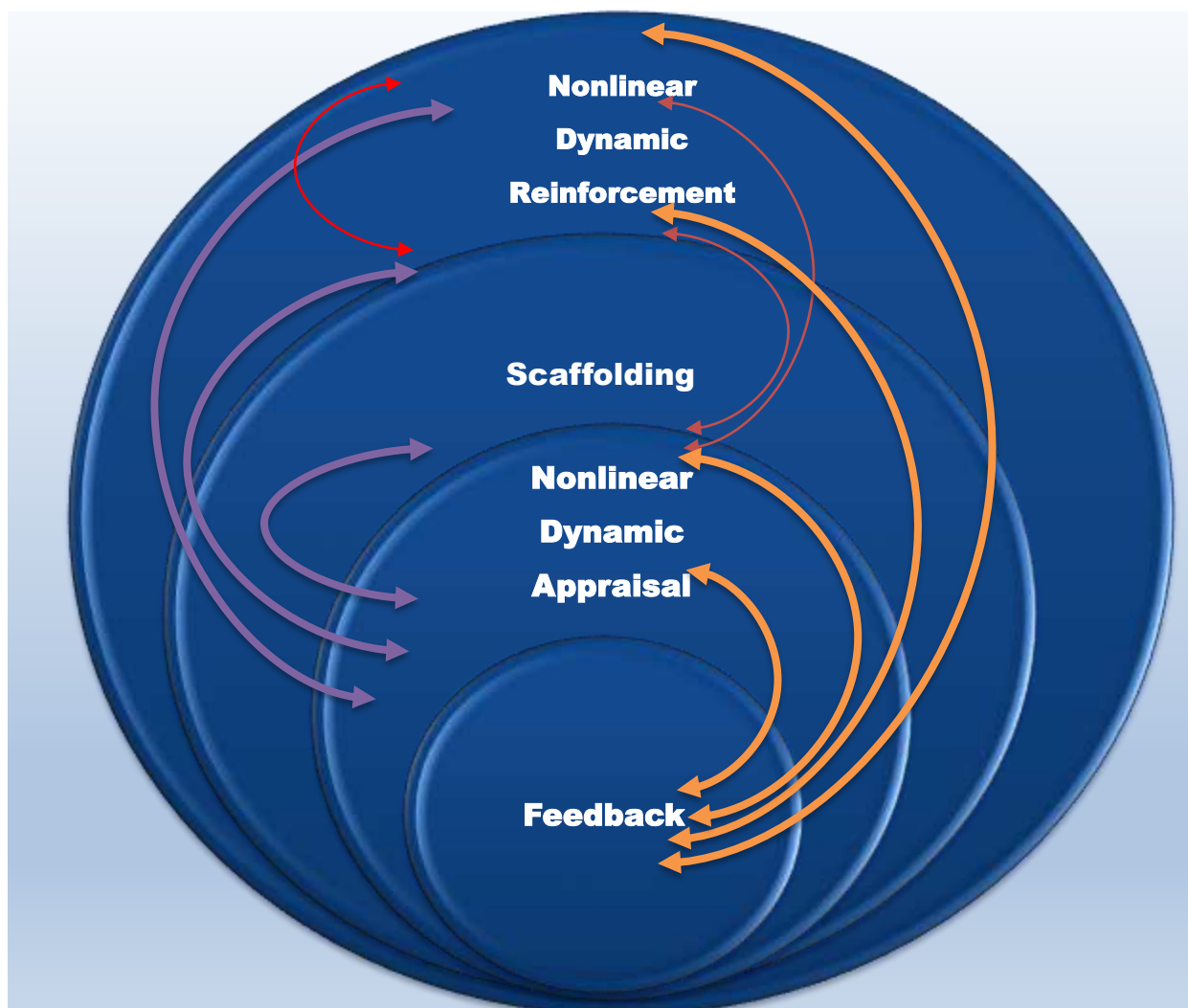
proposes learning-teaching readjustment by assigning a culturally-well-informed teacher for cultural needs and concerns of the learners instead of a culturally-prejudiced teacher who preaches anti-cultural views. Mentioning/discussing/reinforcing identified cultural strategies creates a mutual understanding between learners with diverse cultural values.

Table 3. Cultural strategies

Cultural Strategies		
Theoretical basis	Concept	Strategy
Young's (1994) motivation models	Cultural events	Teachers are suggested to take the following steps to strategize and contextualize every step: First, Mention/Discuss/Reinforce dynamic, nonlinear, and motivating cultural issues at individual level Second, Encourage/Facilitate/Scaffold exchanging and introducing culturally motivating factors at group level For example, to contextualize the concept of Cultural events , students' motivating cultural event is strengthened via describing the cultural event which is strategized according to the above steps.
	Cultural activities	
	L2 culture	
	State of motivation	
	Additive bilingualism	
Gardner's (1985) orientation theory	Sacred text	
	engagement in culture-related activities	
	Culture of learning a foreign language	
	Culture of the speakers of a foreign language	
	Cultural values of the foreign language	
Maslow's (1970) hierarchy of need	Cultural diversity	
	Cultural exploration	
	Cultural secrets	
	Cultural contradictions	
	Cultural clashes	
	Cultural supremacy	

Post-motivational stage of applying NDMSs provides a nonlinear dynamic picture of the steps which should be taken (as far as

nonlinearity and dynamicity allows us) to reach the final goal of motivating L2 learners.

Figure 2. Post-motivational stage of applying NDMs.

The identified motivational factors need to be nonlinearly and dynamically addressed to provide L2 learners with required feedback with respect to identified goals, tendencies, preferences, desirability, etc. Individual learner differences need to be considered while giving feedback (Dörnyei, 2010) which is the focal point of the current study from identifying the motivational factors to the nonlinear dynamic motivational reinforcement. To this end, NDMs-based instructions for teachers (see table 4) provide a number of instructions to provide feedback in an integrative psycho-socio-cultural approach. Nonlinear dynamic appraisal aims at processing and organizing identified motivational factors in parallel groups (e.g. psychological motivational factors and social motivational factors) towards multiple

dynamic L2 teaching-learning goals (e.g. writing goals for some and speaking goals for some others). As the second step, nonlinear dynamic appraisal serves to activate action control strategies to facilitate the execution process (Dörnyei & Tseng, 2009). Drawing on sociocultural theory (Lantolf, 2000; Swain, 1997), scaffolding within NDMs encourages language construction through collaborative dialogue which is assisted (Basturkmen, Loewen, & Ellis 2002) and orchestrated by a motivational teacher by creating motivating interactions including triadic interaction (Van Lier, 2002) as an optimal setting to integrate previously processed motivational factors by scaffolding and preparing them for reinforcement. Nonlinear dynamic reinforcement aims at conscious announcement of the identified, appraised,

scaffolded, and feedbacked motivational factors at individual level. The conscious expression of nonlinear dynamic motivational factors at individual level not only reinforces this power in the learner but also creates a sense of self-recognition which is highly significant under the taxonomy of NDMSs, where it is discovered and included in L2 teaching-learning.

Pedagogical Guidelines

Pre-Motivational Stage: Mentioning Identified Motivational Factor

At this stage, teachers are suggested to try different psycho-socio-cultural strategies (see tables 1,2,3) for every member of the learning group and identify the motivational identity and related motivational factors in every student. To this end, teachers are suggested to mention/discuss/reinforce dynamic, nonlinear, and motivating psycho-socio-cultural issues at individual level. Following that teachers are suggested to encourage/facilitate/scaffold exchanging and introducing psycho-socio-cultural motivating factors at group level. To contextualize the introduced concepts, students' psycho-socio-cultural motivating factors need to be addressed according to the suggested steps. Accordingly, teachers are suggested to begin with an elicitation rather than reformulation (Lyster, 2004) and engage learners in multi-tasking to give 'voice' to the learners' experience (Levy, 2015). This provides the learner with a chance to increase self-efficacy among the learner group, which can be reinforced by encouraging the use of communicative strategies to manage learning problems (Nakatani & Goh, 2007). Accordingly, encourage communicative responses with adaptation, interpretation, paraphrasing and addition of new information rather than meaningful responses. To this end, a single linguistic feature should be addressed at a time (Ellis, 2009) to facilitate learning and to avoid unmanageable cognitive load. Accordingly, engage learners in strategic planning to internalize L2 structure (Seifoori & Vahidi, 2012). Plan pre-listening activities to activate learners' script and get to know learners' motivational features. PSs are arranged to encourage metacognitive

strategies to build meaning (Graham, 2006). To facilitate comprehension process, encourage learners to overcome the compulsion to translate (Liu, 2003) and avoid applying L1 segmentation procedures to the rhythmically different target language (Cutler, 2001). Encourage natural target language reproduction rather than echoing, imitating or slavish mimicry (Kim, 2011). Encourage the use of language skills instruction strategy to improve skills proficiency (Harris, 2007). To increase input in naturalistic settings (Flege, 2009), encourage learners to pay attention to pause-bounded units to facilitate listening comprehension rather than syntactic cues (Harley, 2000). Encourage learners to selectively work on linguistic features which are related to comprehensibility rather than linguistic nativelikeness (Saito, 2015). To enhance in-field learning encourage information exchange via location-based learning systems (Burston, 2014) and encourage making questions that require evaluation and reaction rather than recall of details.

Motivational Stage: Discussing Identified Motivational Factor

At this stage, teachers are suggested to discuss the identified motivational factors with other members of the learner group to increase their knowledge about different motivational identities in the classroom with respect to the strategies suggested above (see tables 1, 2, 3). Teachers are suggested to approach the cultural contexts and the learning needs of learners (Lopes-Murphy, 2012) to engage them at second language learning by mentioning/discussing/reinforcing the identified motivational factors.

To avoid demotivation, we need to avoid disparaging social and cultural values, which can make students feel disfranchised (Kana'iaupuni, Ledward, & Jensen, 2010). To develop self-efficacy, encourage second language learners to inhabit an identity of a fluent speaker by imitating body movements (McCafferty, 2008) and encourage global comprehension rather than partial comprehension. Since the goal is to process the speech rather than retrieve the information from the long-term memory, visualize and

enact pronunciation phenomena by the use of instructional gestures (Smotrova, 2017). Promote new ways of thinking which necessarily involve both forms of mediation operating in tandem. Encourage experiential learning and interaction (Legutke & Thomas, 2013) by mentioning/discussing/reinforcing the identified motivational identity via psycho-socio-cultural motivational strategies. Accordingly, develop ideal selves along with ought-to selves among learners based on the positive relationship between them and the desire to improve pronunciation in a foreign language (Huensch & Thompson, 2017). Keep encouraging students to see learning as an enjoyable process (Zhang, et al., 2016) and mention/discuss/reinforce the identified motivational identity via psycho-socio-cultural motivational strategies. Individual learner differences need to be considered while giving feedback (Dörnyei, 2010). Include social and cultural factors to make learning an important and meaningful task for learners (Gay, 2010).

Post-Motivational Stage: Reinforcing Identified Motivational Factor

At this stage, teachers are suggested to reinforce different identified motivational factors for every member of the learning group and benefit from the enhanced motivation for L2 teaching via the suggested strategies (see tables 1, 2, 3).

To reinforce autonomous motivation, encourage participation in communicative activities and remove scaffolding in line with real-life listening experience (Field, 2007). Encourage communicative responses with adaptation, interpretation, paraphrasing and addition of new information rather than meaningful responses. Appreciate cultural differences and promote the motivation and agency of individual learners in the classroom context (Ushioda, 2013). Provide learners with opportunities to manage their emotions, thought processes, and actions (e.g., Joe, Hiver, & Al-Hoorie, 2017); and encourage imitation so that learners can use the imitated content for their own communicative purposes (Smotrova, 2017). Accordingly, develop agency by reinforcing belief in one's competence (Mercer, 2015); encourage learner autonomy by developing agency (Benson,

2007) and develop strategy knowledge to facilitate learning management (Ryan & Irie, 2014). Inform learners that accent is a normal characteristic of L2 speech production (Abrahamsson & Hyltenstam, 2009) which should not act as a demotivating factor, and encourage learners' control over learning management to ensure a learner-friendly instruction (Mercer, 2015). Accordingly, conduct in-depth language counselling to facilitate learner autonomy, strategies and goal (O'Reilly, 2012). To enhance in-field learning encourage information exchange via location-based learning systems (Burston, 2014), and encourage producing modified comprehensible output via interactional strategies (Pica, 2002). To reinforce the identified motivational factors, encourage the use of interactional strategies to facilitate meaning negotiation (Swain, 1995). Encourage hopeful thinking among the learners to change the present attitudes to shape positive thinking (Oxford, 2017) and encourage strategic competence to enhance hope among learners (Oxford, 2017). To encourage motivational learning develop growth mindsets among the learners (Dweck, 2006) and improve teacher-learner alliance to nullify hopelessness (Ehrman, 1998). Encourage interactive systems as subcategories of complex systems at different levels (Larsen-Freeman, 2017) as well as goal-directedness towards authentic complexity of learning (Oxford, 2017), and finally, encourage learner self-regulation over motivation (Panadero & Alonso-Tapia, 2014) by exercising different types of proposed NDMSs.

The proposed taxonomy tried to address the nonlinearity and dynamicity of L2 motivation from three perspectives. At social level, social cognitive theories (Boo, Dörnyei & Ryan, 2015) were adapted to integrate learners' purposeful relational activity with their ongoing participation in social practices which vary from one learner to another. At psychological level, problem-based L2 motivation and students-oriented learning were emphasized to mediate learner's psychological functioning rather than mere scaffolding (Lantolf & Thorne, 2006) with respect to the nonlinearity and dynamicity of L2 motivation. Accordingly, at cultural level, with a focus on Vygotskian socio-cultural

theory along with mediated learning experience, mediated learning experience was provided to meet the needs of learners from different cultural backgrounds (Feuerstein et al., 2010) along with social environment to enable learners to formulate relationships between the perceived facts (Feuerstein et al., 1997). The previous studies have approached second language learning and motivation either with respect to strategies (Dornyei & Ryan, 2015; Griffiths, 2013; Oxford, 2017; Quoidbach, Mikolajczak, & Gross, 2015; Schunk & Zimmerman, 2012) or as a static factor (Moskovsky et al., 2016) or a learner-context interaction subject (Thompson & Vasquez, 2015; Thompson & Erdil-Moody, 2016) or introducing influential factors (Lyubomirsky & Layous, 2013; Sheldon, Boehm, & Lyubomirsky's, 2013; Rusk & Waters, 2015). Despite approaching the nonlinear dynamic nature of L2 motivation (Ushioda & Dörnyei, 2012) they have not integrated this critical feature of L2 motivation in a single learning model or a taxonomy of L2 learning strategies. The advantages of the proposed NDMSs lie in several revisited aspects of motivational strategies which are used to either solely overemphasize self-regulated organization without assigning an actual facilitative role for L2 teachers or ignore the highly significant concepts of nonlinearity and dynamicity which possess the potential to metamorphose traditionally established L2 teaching-learning and assessment to a large extent. In contrast to the cybernetic model of the self-regulation of behavior suggesting the hierarchical organization of goals where lower goals are less frequently functional compared to higher goals guiding more related behavior (Carver & Scheier, 1998), NDMSs suggest nonlinear-dynamic organization of motivational factors to ensure unlocking the potential of all motives regardless of their position in any proposed categorization. Taxonomic structures drive studies both at theoretical level and practical level (Digman, 1997; Goldberg, 1981). Accordingly, the taxonomy of NDMSs ensure enhanced motivation at individual level and integrated multiple homogeneous/heterogeneous clusters of energizing motives (Fiske, 2004; Fiske, 2008) towards dynamic and emergent goals with the least rate of learning anxiety.

Conclusion

Drawing on the complex dynamic systems theory as a variation of Complexity Theory, the present study presented NDMSs as a revisited taxonomy for second language teaching. The proposed strategies have the potential to be used for classroom setting and CALL setting as well as other teaching purposes beyond language teaching. The proposed strategies keep identified motivational factors at individual level in motion to create a motivation-oriented L2 teaching-learning context. Accordingly, NDMSs provide a truly learner-friendly L2 teaching via a new template of strategies to cater for learners' emergent and dynamic motivational identity without trying to shape them based on a preset used-for-all strategy. It is against the dynamicity of motivational identity to expect all members of a learner group to show equal output or assess them based on a preset used-for-all strategy. It is also against nonlinearity of motivational factors to apply static linear strategies and expect a truly diversely motivated learner group where all motivational identities are democratically mentioned/discussed/reinforced. Despite the apparent chaotic state of NDMSs, they have the potential to meet dynamic motivational needs of L2 learners by producing a nonlinearly-dynamically motivated learner, nonlinearly-dynamically motivating teacher, and nonlinearly-dynamically motivational classroom.

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