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Complex Dynamic Emotions and Willingness to Communicate in the Task-Based Classroom Instructions

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Abstract

This study aimed to investigate the complex dynamic emotions underlying learners' Willingness to Communicate (WtC) in the classroom interaction. Utilizing Dornyei's (2014) Retrodictive Qualitative Modeling (RQM), we embarked with some steps: identifying learners' archetypes, highlighting the dynamic patterns of emotions interacting to other components, and setting up signature dynamics. Eighteen participants studying English participated in two task-based instructions. Of eighteen learners of English department, we took five participants relying on their salient archetypes. We utilized K-means cluster analysis to group the learners' archetypes that was computed by SPSS 20. Additionally, in-depth interview was carried out on the elected participants to get a thick description of the emotional states and other components underpinning L2 WtC. The results reveal twofold: (1) the participants' dynamic patterns of emotions interacting with the classroom environment explicate the variability and fluctuation of learners' WtC, (2) the variety of signature dynamics provided fine-grained components underlying learners' WtC. Furthermore, the implication for further study and pedagogy is elucidated later.

Key words: *complex dynamic systems, emotions, Willingness to Communicate, Retrodictive Qualitative Modeling*

INTRODUCTION

The considerable body of research literature on Willingness to Communicate (WtC) has unraveled the complexity and dynamics of underlying factors that predispose EF/SL learners to initiate communicating in second language. In this vein, L2 learners are conceived to be less proficient unless using language communicatively (Khajavy, Ghoonsoly, Fatemi, & Choi, 2016). WtC then becomes a prominent topic discussed by SLA researchers which is posited as the final step prior to producing language (e.g., L2 speaking), as Peng (2016, p.87) succinctly put in 'WtC is probably the very basic prerequisite for successful mastery of an L2'. As such, L2 Learners need to reach certain

levels of WTC prior to entering into meaningful communication. Pawlak and Mystkowska-Wiertelak (2015, p.2) defined WtC as 'predisposition to initiate or avoid communication with others when given a choice'.

Indeed, L2 learners with high linguistic competence and score in their examination don't guarantee to use language communicatively that eventually hinders their success in English learning (Peng, 2016). Similarly, Gregersen and MacIntyre (2013) claim that even talk active students with an excellent English test prefers to keep silent during classroom discussion. The important thing drawn from this phenomenon is that the sole linguistic competence is not sufficient to foster L2 learners to use their language communicatively. Anchored in Complex Dynamic Systems Theory (CDST), Dornyei and Ryan (2015) put forward three area of mental functioning known as *Trilogy of Mind* – *cognition*, *motivation,* and *affect (*or emotions*)* – as three mental dimensions shaping continous interaction with each other which are not isolated from one another. Swain (2013) asserts that learning another language invokes both cognitive process and emotional one. To Swain, emotions are analogous to 'elephant in the room' in which their presence is realized by everyone despite reflecting an unspoken truth. Thereby, emotions as an integral part of emotion are viewed to provide 'a significant impact on what has happened in the past, what is happening now, and what will happen in the future' (p.195).

Recognizing to the fact of the complexity, variability, and dynamics learners' behaviors, it is conceived to insufficient to get an overarching components underlying those behaviors as in that of straightforward cause-effect relationships (Waninge, Dornyei, & deBot, 2014). Dornyei (2014) criticizes the extant studies which merely tend to investigate the factors affecting learners' behaviors in isolation, rather than as interconnected variables that simultaneously influence those behaviors. Besides, investigating learners' behaviors from local context through ecological perspective is conceived to portray the real picture of L2 learners' behaviors through classroom interaction (VanLier, 2002). As such, recent studies have endeavored to portray moment-by-moment learners' WtC through this perspective that also resonate the shift of L2 WtC from a stable state to more dynamics and situational context (Fadilah, Widiati, Latief, 2019; Kurniawan, Fadilah & Trihastuti, 2018; MacIntyre & Legatto, 2011; Pawlak & Mystkowska-Wiertelak, 2015). Taking an ecological perspective on WtC, these

researchers also projected and documented the dynamics and variability of L2 WtC in which the same learners' WtC may fluctuate and vary under different conditions.

Tied to CDST, MacIntyre and Legatto (2011) pioneered investigating the fluctuations of WtC explicated in moment-by-moment task-based classroom instructions. Such fluctuation views WtC as a complex and dynamic constructs depending on the circumstances of learners' situational context, instead of a stable phenomenon. McIntyre *et al.* reveals that learners' WtC fluctuates dramatically moment-by-moment during certain tasks and is affected by interconnected dynamic factors encompassing lack of topic knowledge, insufficient vocabulary, and language anxiety. In this vein, WtC is conceived as *attractor states* when the systems converge to facilitate communication. By contrast, communication is avoided when the systems perturbed by the detections of lack of linguistic proficiency (e.g., absence of vocabulary items) or emotional state (e.g., threat to self-esteem). Venturing into the same theory, Pawlak & Mystkowska-Wiertelak (2015) unveiled factors affecting the rise and drop of L2 WtC. Those factors encompass topic familiarity, partner's contribution, agreeing and disagreeing with the partners' opinion, difficulty to grasp the partner's argument, interlocutor close-rapport, certain lexical mastery, and planning time. Likewise, Kurniawan *et al.* (2018) investigation of Indonesian learners reveal that WtC is affected by interplay of various factors encompassing situational classroom contexts (e.g., interlocutors, group discussions, corrective feedback), and linguistic factors (e.g., the lack of grammatical competence, an inadequate vocabulary), and positive (e.g., self-confidence, motivation) and negative (e.g., anxiety, shyness) emotions as psychological antecedents of L2 WtC.

Among the aforementioned variables, two psychological factors embracing positive (e.g., communication confidence) and negative (e.g., anxiety) emotions are conceived as the strongest and most consistent predictors affecting L2 WtC (Khajavy *et al.*, 2016; Khajavy, MacIntyre, & Barabadi, 2018; Peng & Woodrow, 2010). In their *Heuristic Model* of L2 WtC, MacIntyre *et al.* (1998) succinctly posited the two emotional states as direct antecedents of L2 WtC. However, the excessive utilization of the two emotions on L2 WtC has overlooked the other important constructs of emotions that play a role in encouraging and discouraging learners' initiation speaking (Khajavy, MacIntyre, & Barabadi, 2018). Furthermore, Khajavy *et al.* (2018) pioneered a triadic-variable effects: positive emotion (e.g., enjoyment) and negative emotion (e.g., anxiety), and classroom

environment on L2 WtC. Utilizing doubly latent multilevel analysis taking 1528 secondary school students in Iran, they reveal that both enjoyment and anxiety contribute a substantial effect on the individual learners' WtC. Interestingly, enjoyment provides a significant effect on both individual learners' and classroom's WtC, while anxiety doesn't provide a substantial effect on classroom's WtC. As such, enjoyment is considered as a predominant factor of WtC which results in learners and classroom level increase, but anxiety only reduces WtC at learners' level. This study implies that it is not necessarily to conceive both emotions as competitive variables affecting L2 WtC, but rather viewing them as inter-complementing constructs by maximizing positive emotions and minimizing negative one on L2 WtC. Additionally, MacIntyre and Dewaele (2014) suggest investigating both constructs is advisable for the absence of one of this construct leads to the difficulty to interpret an overarching finding. Dornyei and Ryan (2015) put forward that overlooking one of the construct leads to 'emotional deficit'. As such, we need to consider the other aspect too.

Dynamic Classroom environment and WtC

Classroom environment constitutes one of the variables strongly affecting L2 WtC (Khajavy *et al.*, 2016; Peng & Woodrow, 2010) by utilizing Structural Equation Modeling (SEM). Peng and Woodrow's (2010) investigation of 579 Chinese learners studying in eight universities reported that the classroom environment (teacher support, student cohesiveness, and task orientation) predict learners' L2 WtC on which communication confidence plays as the most significant predictor. On the other hand, Khajavy *et al.'s* (2016) study on 243 Iranian learners studying English reveal that classroom environment plays as the most predictor on learners' WtC which interrelates with learners' communication confidence, motivation and attitude toward learning English.

Drawing from ecological perspective (micro-system), Peng's (2012) investigation of Chinese learners' unveils that the predisposition of learners' WtC is affected by multiple factors (e.g., learner beliefs, motivation, cognitive factors, linguistic factors, affective factors and classroom environment). Also, Peng's study unravels the interplay between individual and classroom environment that construe socio-cultural functions of learners' WtC. Tied to hierarchical ecosystems (i.e., *micro-*, *meso-*, *exo-*, and *macro-system),* Shirvan and Taherian (2016) investigation of six Iranian's learners provided overarching factors underlying WtC. Employing multiple data analyses (i.e., interview,

classroom observations, and journals), they code the learners' data into each hierarchical ecosystem categories by utilizing MAXQDA software. The study unravels multiple factors affecting learners' WtC. Such factors embrace the levels of micro-system (e.g., learners' belief, motivation, cognition, affection), meso-system (e.g., learners' past learning experiences), exo-system (e.g, school curriculum, language testing procedures), and macro-system (e.g., social, culture).

Positive psychology: Positive and negative emotions

The notion of positive psychology, PosPsy, has lured L2 scholars and researchers and been conceived as potential prominent research discussion in SLA (MacIntyre, 2016), as Oxford (2016, p. 22) puts in "positive psychology examines positive elements and strengths in the human psyche and human experience, not just the problematic, distressing aspects that have often been psychology's stock in trade". In other words, PosPsy entails learners to strive away their difficulties in learning by fostering their strength instead of their weaknesses. For instance, learners encountering positive emotions (e.g., enjoyment) as a strength provides them security and comfort to initiate communicating (Dewaele & MacIntyre, 2014; Khajavy *et al.*, 2018). On the other hand, negative emotions (e.g., anxiety) leads to individuals giving up altogether and dropping out of their language courses (Dewaele & Thirtle, 2009 cited in Dornyei & Ryan, 2015, p.176). Dewaele and MacIntyre's (2014) investigation of 1.746 multilingual learners unveil an interesting finding pertaining to interaction of anxiety and enjoyment. They pinpoint 'Enjoyment and anxiety will cooperate from time to time, enjoyment encouraging playful exploration and anxiety generating focus on the need to take specific action from time to time' (p. 262). Oxford (2018) advocates investigating the mix emotions, instead of searching them in isolation. The ambivalence of positive and negative emotions, for instance, should be seen as complementary one to another, as Frederickson (2001, p.221) put forward 'if negative emotions narrow the momentary thought action and positive emotions broaden this same repertoire, then the positive emotions ought to function as efficient antidotes for the lingering effects of negative emotions'. In other words, positive emotions function to correct or undo the after effect of negative emotions. Frederickson (2001) cited discrete positive emotions (e.g., happiness, curiosity, interest, pleasure, joy) that function to broaden the individual's attention, build toward innovative thoughts and actions, spark emotional well-being, and contribute to resilience. Such emotions function to 'broaden

individual awareness and encourage *innovative, diverse thought, and actions*' (Oxford, 2018, p.373, *italic added*).

Izard's (2011) *basic or first-order* and *complex emotion schemas* emotions provide a convincingly explanation to such an interface. The former is conceived to invoke minimal cognitive process in triggering automatic action. By contrast, the latter signifies the involvement of 'interactions among emotion feelings and higher order cognition – thoughts, strategies, and goals that complement and guide responding to the emotion experience' (p. 372). In this vein, first order emotions (e.g., interest, joy, sadness, fear) emerge without reportable awareness which is conceived to occur in the early development. By contrast, emotion schemas, commonly experienced by adults, invoking the dynamic interaction of emotion and cognition constitute 'a natural outcome of emotion and social cognitive development and their cognitive content typically changes over time' (Izard, 2007, p.266). For instance, MacIntyre and Legato (2011) pinpointed learners' process of retrieving vocabulary from memory and presence of anxiety as interconnected system underlying L2 WtC. They pointed out that communication is hard to come about when learners' process of vocabulary retrieval is perturbed by the threat of language anxiety. By contrast, the communication is likely to occur when the two systems function together to facilitate L2 WtC.

CDST and RQM

SLA scholars and researchers have adopted and adapted complex and dynamic Theory into L2 practices. Such a theory is conceived to unveil the components of a system which are interdependent, interconnected, and dynamics attributed to individuals in the interaction with their environment (e.g., Larsen-Freeman & Cameron, 2008; deBot, Lowie, & Verspoor, 2007; Vespoor, Lowie, and Van-Dick, 2008). As a complex system, on one hand, Larsen-Freeman and Cameron (2008, p.200) argue that 'context' cannot merely be seen as a backdrop. Instead, it is 'a complex system itself connected to other complex systems, and variability in system behavior takes on increased importance", as Dornyei and Ushioda (2011, p. 32) also put in context as "not in static terms but as a developing process, while the relationship between individuals and the context is that of complex dynamic organic systems emerging and evolving over time". Dynamic systems perspective, on the other hand, is formed by embedded subsystems interacting and interconnecting dynamically (Vespoor *et al.*, 2008). They pointed out that complex

dynamic system consists of a number of interacting subsystems, none of which will be completely stable during any length of time.

Given the complex and dynamic systems underpinning language learners' behavior, Larsen-Freeman and Cameroon (2008, p.70) suggest 'complexity thought modeling' tool to cope with them. Dornyei (2014) proposes a novel approach to accommodate such complex and dynamic systems called as 'Retrodictive Qualitative Modeling (RQM)'. One important thing of this approach is working 'backwards' when certain 'outcomes' have been set up, instead of prediction as usual forward-pointing in common research. Dornyei (2014, p. 85) puts in "*retrodiction* is applied by identifying the main emerging system prototypes we can work 'backwards' and pinpoint the principal factors that have led to the specific settled states".

RQM is assumed to locate a large number of learners' types and their dynamic patterns into a small number of categories, 'instead of thinking of 30+ unique cases in a class of 30+ students, thereby confirming the existence of settled *attractor states*' (Chan , Dornyei, & Henry, 2015, p.255, italic added). Dornyei (2014) equated attractor states to the learners' archetypes encompassing various perspectives of variables underlying learners' behaviors. This claim corresponds with Thelen and Smith's (1994) proposal for taking up simultaneously 'collective variables' instead of investigating those variables in isolation. It is perceived that each learners' archetypes is matched with one dynamic pattern called as 'signature dynamics as 'main underlying dynamic patterns' (Dornyei, 2014, p.87). In this vein, signature dynamics constitute the final result in RQM for capturing the dynamic patterns of the system as well as offering observations beyond the specific situations. Also, such dynamics represent self-organization in the system space without any forces to emerge into existence, but rather self-organize as high-order patterns of equilibrium (Larsen-Freeman & Cameron, 2008).

This study

The extant research findings have been posited WtC as dependent variables affected by the interconnected dynamic components embracing cognitive, emotional, and situational independent variables explicated in CDST. Dornyei (2014) suggests integrating such components by construing the learners' salient characteristic i.e., *archetypes* to create profound attractor states i.e., *signature dynamics*. Two notions are taken into considerations. First, the term 'attractors' cannot be equated to or very different

from 'variables' for they are neither attract nor cause as variables do. This term is simply used to describe a possible state of a system. Second, the utilization of CDST perspectives by SLA scholars and researchers has led to the endless variety of possible states emerging along space states, i.e., trajectories. Such states gravitate learners' motivation, engagement, interest, anxiety, and boredom. Taken together, attractor states signify a stable condition in a specific time frame i.e., state spaces or trajectories.

While the literature framework of MacIntyre *et al.'s* (2011) and Pawlak *et al.* (2015) provides an insightful background for this study, the three studies do differ in characteristic. The utilization of Dornyei's (2014) RQM manifests a novel approach unraveling the variability and fluctuations of components underlying WtC construing a unique model of dynamic patterns i.e., signature dynamics. Also, while, Khajavy *et al.'s* (2018) study skews only in two emotional states (i.e., anxiety and enjoyment) by excluding linguistic factors i.e., English proficiency, this study then aims at elaborating the dynamics and emergence of other emotional states (positive and negative emotions) which fluctuate and interact with the other states: cognitive and situational classroom contexts in two task-based activities. Thereby, we endeavor to answer the following research questions

1. How do emotions fluctuate and interact with other components in the system trajectory of willingness to communicate?
2. What dynamic signatures construed in learners' willingness to communicate across their archetypes in the task-based classroom?

METHOD

Research design and Participants

This study took Year 2 of eighteen university learners (ten male and eight female) studying English at a private university in Indonesia. All participants participated in a two-task activity: *Jigsaw-Game* and *problem-solving task activities.* We utilized Dornyei's (2014) RQM approach in carrying out this study. Following Dornyei's three-step procedures, we organized those procedures in a subsequent step. First, we grouped the learners based on their unique types i.e., archetypes. A *K-Means analysis* was utilized to construe those learners' archetypes. Second, we elected five participants to involve in the following interview. The criteria of those participants were based on their unique

types (e.g., low-moderate, weak, perfect) explicating the various types underlying their characteristics (see Table 1). Third, we modeled signature dynamics underlying the participants' emotional states and other components affecting WtC.

Research Instrument

In order for grouping learners into their archetypes, we utilized a set of questionnaires developed by Peng and Woodrow (2010). To sake for the situational context, we modified some utterances to fit the learners' background of their study. A five-point-Likert scale was used to measure learners' motivation, anxiety, and classroom environment explicated in the questionnaire. Additionally, we asked the learners to fill out WtC-Metric developed by Kurniawan *et al.* (2018). The learners were instructed to provide their scores ranging from "0" as *unwillingness to communicate* to "100" as *willingness to communicate* in every 5 minutes of a total 120 minutes of the two task activities. Furthermore, a test of English proficiency taken from the Institutional English Proficiency Test (IEPT) was carried out. Additionally, a set of video-camera was put with the best angle to record the learners' activities in the two tasks.

Data collection and Analysis

The multiple data derived from questionnaire, IEPT, WtC-Metric, and stimulated recall interview were collected and analyzed subsequently. First, the data from questionnaire and IEPT were computed by using *SPSS 20* software. *K-means* cluster analysis was run to cluster the learners into their archetype groups. Given the variability of the raw data, we converted the questionnaire' scores into *z-scores.* We conducted possible computations to get a fit model in clustering the data form questionnaire. From the *iteration history*, two iterations achieved such a good model in which five clusters were construed. The ANOVA table illustrates that the whole variables were statistically significant (*P*-value < 0.05). In other words, the differences of the five clusters were statistically different. The *final cluster* indicated five clusters: Cluster 1 (n=2), Cluster 2 (n=2), Cluster 3 (n=7), Cluster 4 (n=3), and Cluster 5 (n=4). The five participants were elected based on the wide distance of cluster membership from the cluster centre. Those elected participants were then invited for an interview to get more information for a thick description. During the interview, we utilized *negative case analyses* to confirm the participants' archetypes with WtC-Metric and video-record. Eventually, we used the data from the interview as the basis on construing *signature dynamics* as the final step in RQM.

We analyzed the participants' utterances as the basis on possible model of the behaviors e.g., emotions affecting their WtC.

Tabel. Participants' archetypes explicated in Cluster analysis

Participants (Pseudonym)	Archetypes			
	Motivational level	**Anxiety level**	**English proficient level**	**Classroom environment**
Kartono (M)	Less motivated	Less anxious, moderate Confidence	Low proficient, less critical-thinking	Easy to adapt, Work well with other class members
Maya (F)	Unmotivated	very anxious in oral presentation	Weak English proficiency, low critical-thinking	Less adaptation, moody
Munik (F)	High-motivation, creative	Low anxiety, high confidence in classroom presentation	Perfect, high critical-thinking	Easy to adapt, flexible, show empathies
Vian (M)	Low-moderate, influenced mostly by parents	High anxiety	High English proficiency	Easy to adapt, friendly
Debby (F)	Low-motivation	High anxiety	Low English proficiency	Problem in adaptation

FINDING AND DISCUSSION

Figure 1 and 2 illustrate the participants' parameters of WTC as *fixed point attractor states* in every 5 minute-interval of 60 minutes in jigsaw-game and problem solving tasks (Hiver, 2015). This system depicts the vertical and horizontal axes represent WTC-Metric with interval scores from 0 to 100 and 5 minute interval of 60 minutes task-based performances invoking parts of classroom activities, respectively. The *state space* is marked with horizontal lines illustrating the participants' paths or trajectories embracing the dynamic and variability (fluctuation) of *attractor states* i.e., WTC. The possibility of emergent emotional states is depicted as a ball rolling in the state space illustrating metaphorical systems of 'hills' (instability) and 'valleys' (stability) embracing a collection of states settle in. When the ball is on the peak of the hill, it is very unstable which results in perturbation and cause the ball to roll down. This condition is called

repeller states. By contrast, when the ball is on the valley, it is a very stable condition known as *attractor states* (Larsen-Freeman *et al.*, 2008; Thelen & Smith, 1994).

Figure 1. Fluctuation of a five-interval minutes WTC in Jigsaw-Game task

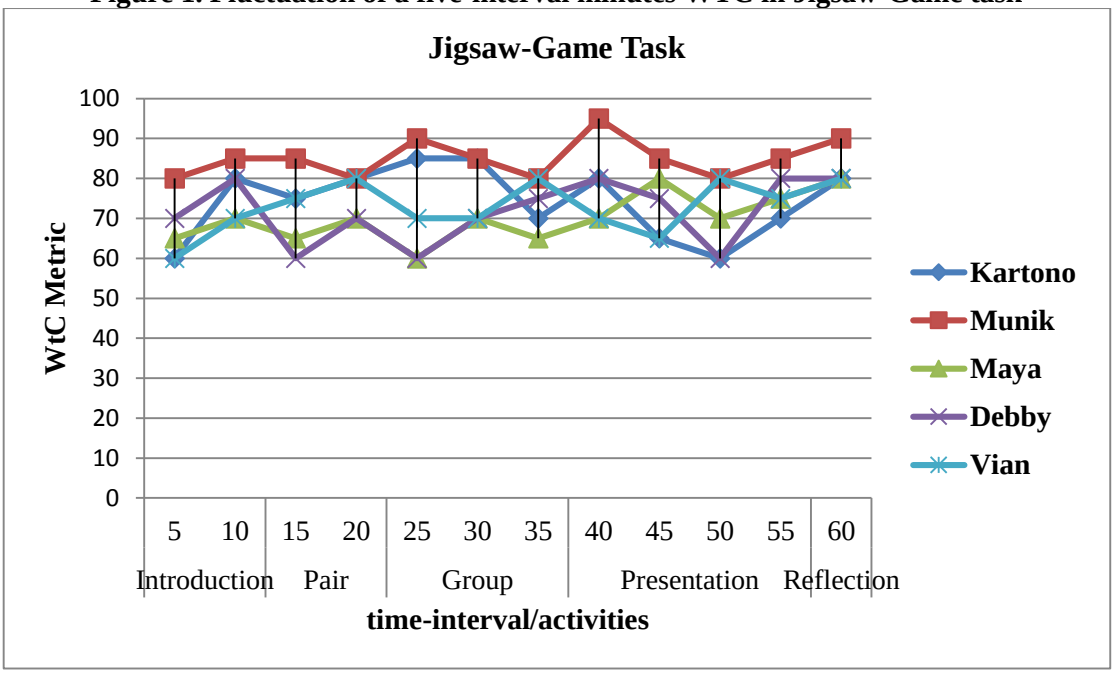
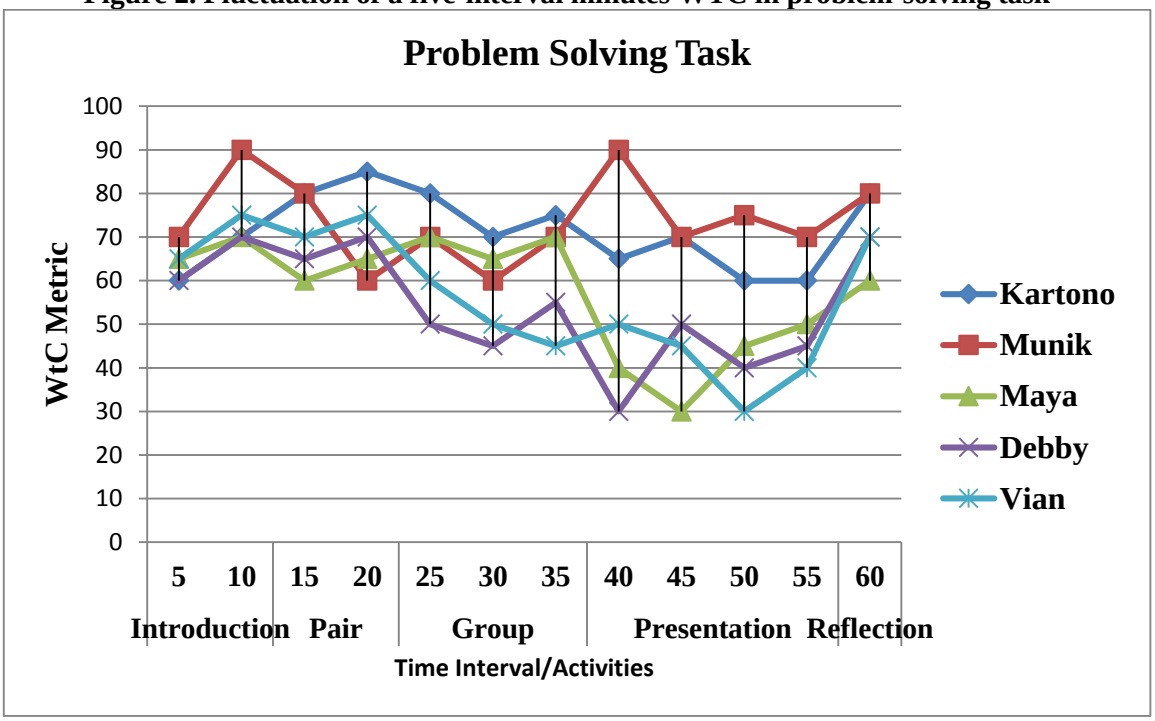


Figure 2. Fluctuation of a five-interval minutes WTC in problem-solving task



The finding reveals a considerable amount of the individual uniformity, dynamic, and variability of the patterns of the five participants' WTC on two task-based activities.

The uniform patterns are found when the participants are asked to scale up their WtC scores in the first ten minutes in which all participants have a uniform steady rise of patterns in the two tasks. The two figures also illustrate that Jigsaw-Game task is more provoking learners' WtC (M=75, SD=8.2) than problem solving task (M= 62, SD=12) of a total average of task activities.

The dynamic and variability of the patterns occur between minutes 10 and 55. Such patterns depict the wide range of interconnected system between and within individuals at the different times known as 'intra-individual variability' of the learners' behavior (VanGeert, 2008). Figure 1 (Jigsaw-Game task) illustrates gradual and stable changes of the patterns reaching 95/100 and touching 60/100 of the points. Here, the changes in one part of activity lead to the changes in other parts of the classroom activities invoking various components which interrelate and interconnect one to another along the system trajectory (Larsen-Freeman *et al.*, 2008). The gradual and stable patterns also explicate the temporally and continually emergent states that indicate there is never an end state for a system.

Interestingly, a considerable variability and fluctuation occurs between minutes 40 and 55 (classroom presentation). The fluctuations emerge as a result of the internal and external resources forced by self-organization and interaction with the environment (VanGeert, 2008). The variability and fluctuation patterns explicated in this study confirms that external resources (e.g., pair and large group discussions, classroom presentation) comes at play forming new forms of system which settle in a particular point of time as *attractor states* i.e, WtC. Such external resources is conceived to *perturb* the system enabling the fluctuation of attractor states leading to self-organization as the development in the system creating a metaphorical hills and valleys phenomena in which the states settle. Here, perturbation should not be merely conceived as inconvenient situations, but as convenient ones leading to the *depth* and *height* of the attractor states (Hiver, 2015). The instruction for a classroom presentation leads to the difference patterns across the learners.

The two metaphorical phenomena (hills and valleys) are clearly depicted in the classroom presentation activity. Munik, for instance, is the only participant who has high predisposition to communicate with the lowest score of WtC touches 70/100 and the highest score of WtC reaches 90/100 when the teacher asks for presenting the topic.

Kartono has moderate-high WtC ranging from 60/100 to 70/100 in this session. This phenomenon explicates the hills (instability) in which repeller states exist. These states tend to avoid the attractor states marked with the valleys (stability) of behaviors (Thelen & Smith, 1994). By contrast, the three participants (Maya, Debby, and Vian) have the lowest average score of WtC touching between 30/100 and 50/100. The lowest scores of the three participants indicate the metaphorical phenomenon of valleys (stable states) that illustrate the existence of attractor states which settle in i.e., WtC. Thelen and Smith argue that the more stable (valley) of states settle in, the more boost of energy required, while the more instable (hill) of the states settle in, the less energy boost needed.

A thumbnail portrait and Signature Dynamics

In justification on the dynamic patterns underlying the five participants' WtC, we confirm and elaborate the participants' information derived from the interview. Those participants are asked to explain their feeling and thought by explaining their particular outcomes i.e., archetypes that are confirmed with their WtC fluctuation and video-record that display their activities. Dornyei (2014) points out that the key issue of RQM is, on the one hand, identifying and construing such dynamic patterns as *signature dynamics* to capture the changes of the patterns explicated in the archetypes, yet on the other hand offering further observations which go beyond those established archetypes. To seek for clarity, we use *Bahasa Indonesia* to make question-answer that is back-translated into English.

Thumbnail portrait

Kartono

He expresses his interest in the task activities albeit his low English proficiency and communication skill. He comments 'I <u>like</u> both task activities for they encourage me to speak, but when I try to speak, I am afraid of making mistake'. This expression explicates two opposite emotional states. On the one hand, he expresses his *enjoyment and interest* in participating more in the task activities. On the other hand, he feels *anxious* to initiate to communicate. The interplay between his anxiety and poor English proficiency results in inhibition on communication (Dornyei & Ryan, 2015; Horwitz, 2001). He further comments 'I need to think for a while. I cannot make it automatic to speak". Despite his inhibiting anxiety, Kartono thinks that his anxiety doesn't necessarily impede his engagement in the classroom discussion. Providing him with longer wait-time to produce

a verbal language seems to facilitate his predisposition to speak. Also, the process to change his declarative into procedural knowledge that lead to language automatization implies a process of thinking to initiate talking (DeKeyser, 2007).

When he was confirmed about his hope to have English competence, he comments 'I am often jealous when one of my friends **can speak English wel**l. To be honest, I want to be like her. But my English is not good'. In regard to his low WtC score explicated in the WtC trajectory, he states 'I am confused with some new vocabularies uttered by my friends and lecturers. It makes me stuck. I usually search through dictionary for the new words or sometimes asking to my friend next to me'. It implies that despite recognizing to his low English proficient level, his easily adaptation to the classroom environmental change seems to contribute his creativity in learning (Dornyei & Ryan, 2015). The interaction among his low English proficiency, his *awe* at his classmate's English competence, and a hope to be a competent learner in English has lead to his perseverance to keep engaging in classroom participation that eventually spawn his creativity to maintain his meaningful engagement (Oxford, 2016).

Maya

During interview, she shares her thoughts and feelings when experiencing the two task activities. She expresses her interest more in jigsaw-game task than problem-solving commenting 'Jigsaw-game is more enjoyable. The game is very interesting, I like it, but in problem solving, I am totally 'blank' and nervous. I don't know at all what to say. Also, my English is poor'. In this case, the lack of topical knowledge, high anxiety, and low English proficiency are the multifaceted factors that leads him to avoid communication (see e.g., Kurniawan *et al.,* 2018; MacIntyre & Legatto, 2011; Peng, 2012). Peng (2012) argues tha such interconnected factors discourage learners to come up with argument in the discussion.

Also, she is enthralled by the lecturer's way to explain a clear explanation to the students regarding the topic to be discussed by commenting 'the lecturer seems to be smart and confident when explaining the lesson. It seems that his energy is transformed for me'. However, he doesn't have bravery to communicate with. To her, discussing the topic is more secure with her classmates. She comments 'I enjoy talking more with my friends than lecturer. I think my friend more understands my weaknesses. But I am not confident to talk with my lecturer'. When confirmed about her silence during almost

classroom discussion, she admits 'I am always worried for being judged by my lecturers and my friends. I know that my English is poor. I prefer silent most of the time'. She further comments 'I try to listen to the others speaking, but, mmm...I really don't understand the meaning. I only remember a few words they speak out'. When the video-record is displayed portraying her silence when invited to give a response to the other's opinion, she comments 'I am down. The lecturer calls on me to answer the question. All my friends stare at me. I am not ready. It makes me like a fool person'. Indeed, the vulnerable to a criticism and judgment leads her to keep silent during the classroom discussion (see e.g., Bosacki, 2005).

Munik

During the two task performances, Munik' WtC patterns are illustrated to be less variation. The initial condition derived from the questionnaires posits her as a perfect type of learner. Such a condition seems to fit her current WtC scores along trajectory. When asked about the topics introduced, she comments 'when the lecturer introduces the topic, I **like** it. I am thinking to rehearse my speaking skill. I am **curious** to get involved in the next discussion'. Also, she admits to occasionally encounter fear of making mistakes on her English. She comments 'sometimes I am not quite sure if my grammar correct or not when speaking, but, I have my teacher who is expected to correct my mistakes. I learn a lot of things from the mistakes I made'. From the comments, it implies that her positive emotions (e.g., interest, curiosity) to engage in the classroom discussion seem to snow her negative emotion (e.g., fear). Frederickson (2001) argue that individual with positive emotions tends to broaden their vision by getting involved in any kind of activities to achieve the vision. Besides, the positive emotions tend to build the individual's thinking and action to cope inconvenient situations invoking negative emotions. As the consequences, the positive emotions function to undo the lingering effects of negative ones. Additionally, when asked pertaining to her ability to encounter the two tasks, she further comments 'I like both tasks very much. I am thinking that I **am able to participate** well in the classroom discussion'. Here, self-efficacy seems to provoke her interest and eagerness to engage in further discussion as one of the variable underpinning L2 WtC (Peng *et al.*, 2010).

Interestingly, when asked to confirm her fluctuations of WtC indicated with low scores, she argues 'I think the topics in the two tasks are interesting and challenging my

engagement, but I don't want to always raise my hand and answer questions, I give a chance the others to speak". She continues commenting 'I am proud of being called on to share my opinion. It seems that I become a model in the class, but I am afraid of being labeled as a person know-it-all, sometimes I keep silent although I know the answer'. Nakane (2006) unveils that learners' low participation in the classroom is by no means of avoiding communication, but rather as 'politeness strategy' to express empathy and provide opportunity to speak for others. When asked about the lecturers in conducting the two tasks, she went on commenting 'I was satisfied with the way of lecturer explains and conducts the discussion, It seems that they enjoy when conducting the class. If the lecturer is enthusiastic in explaining the lesson, I also enjoy to follow the lessons'. Here, the classroom interactions explicated in interlocutor (i.e., lecturer) are two situational components affecting L2 WtC. When the learners feel to enjoy the classroom interactions, they seem to be satisfied and more engaging in the classroom discussion (see e.g., Fadilah, 2018b; Pawlak *et al.*, 2015).

Vian

From the interview, he admits that his parents encourage him to take English major, instead of engineering as his main interest. During his early study, he has endeavored to adapt with English classroom. He states 'Actually I love learning English. I have willingness to study and work abroad, but as an engineer'.

Additionally, when he was asked about his low WtC score in problem-solving task, he responded 'I have made some notes to rebut the other group, but I am not confident enough. I am afraid my argument is not strong enough to rebut the other opinions. So, I prefer to listen to the others speaking. I can learn much also from them. In this task, he seems to frustrate for not getting engaged in this task activity that leads to maintain his silence. However, despite his less engagement in verbal communication, he still expresses another form of engagement 'Bernales (2016) reveals that the silence of learners is not necessarily considered as not participating during classroom discussion. When such a learner takes a part by processing the thought in internalizing information as in Vian's case, it is a form of communication too (i.e., non-verbal communication, see also Fadilah, 2018b).

When asked about the task preference, he share a similar experience that jigsaw-game is more enjoyable than problem-solving. He argued that Jigsaw-game task more

interesting because it did not require a complex-cognitive thought in conjunction of the topic discussed. He comments 'Unlike in jigsaw-game, I have little information about the topic in problem-solving. It makes me not confident then. Besides, it is hard to give and defend opinion in English. If I know the topic well, I may talk a lot (smiling)'. This comment supports Izard's (2007; 2011) complex emotion schemes explicating higher orders thoughts to engage in a task i.e., problem-solving.

Debby

She expresses her feelings and thoughts explicating positive and negative emotions on her WtC in the two-task performances. When asked about the two tasks, she comments ''Jigsaw-Game gives me more fun. Creating some sentences to be guessed by the others give me a large opportunity to practice my speaking, but I less enjoy in Problem-solving task. It is difficult to make argument in English'. She adds her *interest and curiosity* to jigsaw task by commenting 'I enjoy in Jigsaw-Game, when the lecturer introduces the topic, I am very interested in the topic because I understand it. It is interesting to learn our own culture using English'. In addition for the topic, Debby's enjoyment in involving the task activity is also influenced by the interlocutor factor that makes her to be comfortable. She further comments 'the lecturer makes the class enjoys. When the class enjoys, I can join the class comfortably'. Debby's low English proficiency doesn't mean discourage her efforts to initiate speaking. She feels that her 'lack of speed' to share opinion impedes her to communicate as she comments 'I have tried to arrange my sentences in English. But when I want to speak, other student has given their opinion'. Shirvan and Taherian (2016) put forward that when learners' show positive attitude to the task, their WtC increases.

Additionally, her WtC is also affected by the way the teacher corrects her deviant languages (e.g., grammatical errors, word choices). She goes on commenting 'I feel more comfortable when the lecturer corrects my mistakes after speaking than interrupting the corrections in the midst of my speech'. From the corrections, I am mindful of my weaknesses in English'. Her claim supports the previous finding pertaining to providing corrective feedback on learners' deviant utterances on WtC (e.g., Fadilah, 2018a; Shirvan *et al.*, 2016; Tavakoli *et al.*, 2018). For instance, Shirvan *et al.* (2016) unveil that immediate error correction has led to the insecurity and anxiety of learners. By contrast, providing correction after finishing speaking seems to increase the learners' WtC.

Signature Dynamics

Kartono's signature dynamics is featured by the movement between several attractors. His positive emotions (e.g., task/topic interest) lead to his WtC stability during classroom interaction. Although, those positive emotion are snowed by the negative ones (fear of making mistakes) that may be influenced by his low English proficiency, his *awe* on his friend's good English proficiency makes him to be creative and persevered by searching the difficult words through dictionary. On the other hand, Maya's Interest in task leads her to enjoy the task activity (Jigsaw-Game task). Her lack topical knowledge and weak English proficiency have led to her anxiety. Those weaknesses also make her to remain silent (face-saving) in most class activities (e.g., in problem-solving task) for fear of being judged and laughed by the others. Also, such multifaceted weaknesses really impede her participation that results in her avoidance in communication.

Munik's enjoyment, self-efficacy and curiosity of engaging challenging discussion have snowed her negative emotion (fear of making mistakes). This type of a perfect learner explicated in the archetypes and WtC trajectories seem to be in line with signature dynamics. Likewise, her easiness and flexibility to adapt with classroom environment seem to spawn empathy and tolerance to the others. Her awe (satisfaction) of the leadership depicted by the teacher in conducting the discussion has enthralled her passions to get involved in a meaningful engagement. While, Vian's motivational factor influenced by his parents seems to correlate to his low participation in the task activities. Despite his high level of English proficiency, he often encounters anxiety and less confidence to initiate speaking (Fadilah, Widiati, Anugerahwati, 2021). Besides, his expression of enjoyment seems to occur in jigsaw-Game task requiring less use of critical-thinking. By contrast, when experiencing in Problem solving task, his fear of making mistakes, less topical knowledge, and less critical thinking to rebut the other's comments have lead him to a choice, avoiding communication. However, it doesn't encourage him to be creative. He still participates using the other form of communication, non-verbal communication. Debby, on the other hand, illustrates her low type of learner explicated in her archetypes. When experiencing in the two task activities, she expresses her enjoyment, curiosity, and interest in participating the discussion despite her lack of speed to deliver her speech.

CONCLUSION AND IMPLICATION

This paper thus far has provided the considerable evidence of the positive and negative emotional states underlying L2 learners' WtC from ecological perspective i.e., classroom environment. We conceive that those states are not the sole independent variables affecting L2 WtC, but rather the components of a system that interplay and interconnect each other with components e.g., cognition (critical thinking), English proficient level, and classroom environment (e.g., interlocutors, group discussion, classroom presentation) that are simultaneously provoke learners' WtC.

Some teachers may feel to be uncomfortable in the midst of learners' silence that impedes their goal to provoke learners to communicate. This goal becomes a value for prioritizing more verbal skill than the other form of communication i.e., non-verbal (Bosacki, 2005; Fadilah *et al.*, 2019). We also surprised that what the participants experience during classroom interactions is similar to our condition when we were at school. Thereby, we suggest several pedagogical implications to be taken into account. First, the call for endorsing positive emotions (e.g., curiosity, interest, perseverance, enjoyment) in a classroom interaction needs to be echoed by not leaving out the negative emotions (e.g., anxiety, fear). Frederickson (2001) rightly point out that positive emotions broaden the learners' opportunity to build their competence. recognizing to the fact every learners experiences both emotions, the interplay between the two concepts of emotions is strongly recommended by viewing negative emotions as alert to increase the positive ones (Oxford, 2016). Second, recognizing to the complexity, variability, and dynamics of the individuals' classroom WtC, it is necessarily to elaborate more other emotions which are conceived to interact and inter-relate to other elements (e.g., cognition, situational contexts). A teacher needs to utilize an appropriate strategy to cope with such dynamics underpinning WtC. Strategies such as providing wait-time to answer questions, calling on the learners' name, and opening floor-question are reported to provoke L2 WtC. Third, presenting interesting and familiar topics for a task activity are conceived to provoke L2 learners to participate in a 'meaningful engagement' (Zarinnabadi, 2014). Learners tend to get involved in communication when they feel that it is meaningful, but avoid that which they feel is not meaningful (Khajavy *et al.*, 2018; Oxford, 2016). Fourth, due to the variability of the learners' behaviors explicated in their archetype, it is necessarily to

see their 'inner' (e.g., thought) and 'outer' (e.g., speech) voices (Bosacki, 2005). In other words, silence for some learners doesn't mean they're less participation in the classroom, but rather they process their thought prior to come up verbal communication. It is a valid communication too (Bernales, 2016).

In sum, this study has limitations that need to be explored for further research. First, we only use two-task activities to unravel the emotional states affecting L2 WtC. Further study may utilize more task activities to unveil overarching factors of other emotions on WtC. Second, longitudinal study with qualitative approach is required to unravel the complexity and dynamics of factors underpinning L2 WtC. Furthermore, viewing such complex and dynamic factors from the other ecological perspectives (e.g., macro-, exo-, meso system) may provide fine-grained elements provoking L2 WtC.

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