



Analysis of Japanese Remedial English Learners' Motivational Trajectories from a Complex Dynamic Systems Theory Perspective

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This study examined how low-level Japanese English learners' motivation changes throughout an English course in which English is taught through reflective teaching practice. In order to investigate students' motivational fluctuation, Complex Dynamic Systems Theory (CDST) was applied. CDST can measure how learners' motivation changes by focusing on the process of change, as opposed to whether learners' motivation changed or not by investigating pre- and post-data, which has been the mainstream approach in motivational research for decades. At the end of each class, a "Weekly Motivational Questionnaire" (WMQ) (Nitta, 2013; Nitta & Asano, 2010) was distributed to 14 participants, and the instructor kept a journal after the class. The materials and techniques used in this class included an American TV drama, games related to the class contents, group/pair work, and the Jigsaw Method (Aronson & Patnoe, 1997). Since the class focused on improving student listening and speaking ability, a TV drama was used as the main teaching material. Trajectory patterns were obtained using the results of the WMQ. Consequently, five motivational patterns were recognized. Through individual analyses, for instance, the importance of repeated use of tasks that are related to students' interests are implied. A motivational developmental sequence is also hypothesized.

Keywords: complex dynamic systems theory, motivation, qualitative research, reflective teaching, remedial education

Introduction

Background

Remedial education refers to education for those who have not acquired the fundamental knowledge needed to continue studying at the university level. This type of education is widely debated and has been required in Japanese colleges since the declining number of young people caused the institutions of higher education to administer various types of admission examinations and, accordingly, to accept an academically broad range of students (The Japan Association for Developmental Education, 2005). As a result, learners who do not even understand junior high school level content and who have little or no motivation to learn have enrolled in universities. Faculty members are concerned with how to handle these students in classrooms. English is one such area of remedial study.

A number of English language teachers and researchers are interested in how students' understanding of English and their motivation toward English itself as well as English classes can be improved so as to tackle the situation. However, the amount of literature dealing with the specific aspects that may influence these factors is still quite limited, and the emphasis is on whether students' attitudes have changed or improved through pedagogical interventions. Thus, the process of how that change occurs is usually

disregarded. There are only a few studies regarding this topic in Japanese university settings (e.g., Nitta, 2013; Nitta & Asano, 2010), and, crucially, there is no survey focusing on the process of remedial students' motivational change. It is assumed that remedial students are the type of students who have been left behind, not only in classrooms but also in studies, which chiefly and traditionally focus on average or higher students. Examining the process of remedial students' motivational fluctuation sheds light on the 'forgotten' data and can give us educational insight into this population of students. Moreover, this might also provide educators with clues or suggestions to teach their classes more efficiently. Hence, it is worth exploring the process of learners' development in remedial classrooms, as this may elucidate their motivational patterns and provide deeper understanding of what type of educational intervention is effective or ineffective for them. In order to inspect the factors stated above, this paper investigates remedial learners' motivational patterns by utilizing the Complex Dynamic Systems Theory, which enables us to investigate the ongoing process and examine how the process occurs.

Though definitions of motivation are vague and differ slightly from researcher to researcher, Ushioda and Dörnyei (2011) clearly define it as "the *direction* and *magnitude* of human behavior, that is: the *choice* of a particular action, the *persistence* with it, and the *effort* expended on it" (p. 4; emphasis in the original). In this paper, the term 'motivation' is based on this definition.

Complex Dynamic Systems Theory

Traditionally, motivational research in SLA, led by Gardner and Lambert in the late 1950s, has regarded students' motivation as static. These previous works have focused on identifying explanatory linear models of motivation (Ushioda & Dörnyei, 2013). In other words, the focal point has been to determine whether motivation has changed or not. However, these conventional methods overlook dynamic aspects and processes of motivational development. Human development does not always follow a linear path, usually tending instead to be rather complicated and non-linear. In order to complement such shortcomings of the methods used in mainstream SLA research and shed light on the ebbs and flows of development, Complex Dynamic Systems Theory was required (Dörnyei, MacIntyre, & Henry, 2015).

Complex Dynamic Systems Theory (CDST) captures what we observe in SLA research as a system. The system can be an individual person, a social group, a culture, or the cognitive or emotional system of a person (MacIntyre, Dörnyei, & Henry, 2015). CDST indicates that the system dynamically changes through interaction or is affected by a variety of elements surrounding it. Therefore, the system is regarded as fluctuating in a nonlinear and unpredictable manner (Larsen-Freeman, 2015).

The concept of timescale and time window is another significant theoretical point of CDST. de Bot (2015) states that timescales refer to the granularity of the development process, and that time windows refer to the period of time studied. For example, "we might look at the phonological development of learners over a period of two years (time window) but measure their performance every week (timescale)" (p. 31). The fluctuation of the system may differ depending on which timescale we use to examine the development. Suppose we look at the development of a system for a year and conduct pre- and post-surveys. In a figure that indicates the pre- and post- differences, the fluctuation would be a linear one. On the other hand, a figure would reveal more subtle and dynamic changes if the development of the same subjects for a one year window were investigated on a week by week timescale. While the former conventional method can only state whether the change occurs or not, the latter is capable of depicting how the change occurs. What subjects were focused on by the researcher for a certain timescale is also a vital aspect because changes vary from individual to individual. Van Dijk, Verspoor, and Lowie (2011) summarize that the data necessary for CDST research is "dense (i.e., collected at many regular measurement points), longitudinal (i.e., collected over a longer period of time), and individual (i.e., for one person at a time and not averaged out)" (p. 62).

Though the system can exhibit a certain amount of variability at the beginning and even fluctuate in an unstable manner, eventually it would likely stabilize into a certain pattern by interacting with internal and external events (Hiver, 2015). 'Attractor state' is a term used to express the stable patterns of a system in

the theory. More importantly, CDST posits that the attractor state is induced by self-organization. 'Organization' means the process in which the system gradually stabilizes because of advancement of the ordering of the system that is based on the accumulation of experience toward a condition, while 'self' indicates that the ordering process occurs autonomously (Nitta, 2016). Hiver (2015) took a first-year class of high school second language learners as an example of a dynamic system in order to comprehend attractor state and self-organizing. He illustrates that "if we see the high school class begin to settle into a pattern of supportive, inclusive and goal-oriented group learning behavior, it is because the system dynamics are self-organizing into this attractor state" (p. 22).

Initial conditions in CDST are accounted for in association with the 'butterfly effect,' the phenomenon whereby a minute localized change in a complex system can have large effects elsewhere. In other words, a small difference or tweak at one point in time of a system may cause a large difference or impact on the eventual outcome (Verspoor, 2015). MacIntyre and Gregersen also state that 'initial conditions' can, therefore, be defined as the state of the various sub-systems at the time one starts measuring (as cited in Verspoor, 2015, p. 38). That means each system has its own unique and variable initial condition depending on the time one begins investigating the system. Verspoor (2015) indicates that in a CDST approach it is important to know whether the sub-systems that are focused on are in a more variable or more stable state at the moment one starts measuring (p. 45).

Previous Studies

Prior research concerning motivational investigation of Japanese university English learners with regard to CDST framework is extremely limited. The following studies focus on researching motivational aspects of L2 learners in Japanese universities through the perspective of CDST.

Nitta and Asano (2010) examined the motivational changes of 164 non-English major first-year Japanese university students from six classes for thirteen weeks using a process model constructed by Dörnyei and Ottó (1998) in which motivation process involves pre-actional (choice motivation), actional (executive motivation), and post-actional stages. Investigation of how students' choice motivation and executive motivation change, different types of trajectories, and discovering the reason for changes in executive motivation in class are conducted by utilizing the Motivational Factors Questionnaire (MFQ) at the beginning and end of the course, and the Weekly Motivational Questionnaire (WMQ), which measures their Enjoyment, Efforts, and Understanding in the classroom, is distributed at the end of each class. Interviews with two or three students from each class on a voluntary basis are also carried out. As a result, the classes with high choice motivation tend to show relatively positive evaluation of their learning at the beginning of the course and vice versa. The authors also suggest that the teaching style, which was a traditional one-way teaching style in this class, could be one of the reasons why the low choice motivation class did not show an upward trend trajectory throughout the course, since such a teaching style does not foster a positive teacher-student relationship. They concluded that while "analyses of the questionnaires provided insights into the general pictures of motivational changes" (p. 48), teacher reflections are significant to explore the underlying reasons for successful and unsuccessful classes, since social and interpersonal factors such as teaching styles or intergroup relations have a significant impact on students' learning in the classroom. The researchers also stated that greater care should be taken in low choice motivation classrooms, and that the didactic method had little effect in terms of motivating them.

While this study deals with Japanese university EFL learners' motivational transition in classrooms, it does not elaborate their academic achievement level and merely states that the goal of the class is to gain basic English knowledge and skills through various learning tasks, which indicates that their academic level might be low but that it is unclear at which level they are. Additionally, he indicates the importance of teacher reflection, but the teaching style adopted in the six classes is the same (p. 46). This suggests that the teaching method is not adjusted to the level of students' motivation; in other words, teacher reflection was not conducted in the beginning of the class or throughout the course.

Nitta (2013) focuses on seven first-year English classes (four classes are from economics majors, two

classes are commerce, and the remaining one is English majors) in a Japanese university to research on their motivational changes. The MFQ was distributed at the beginning of the course to measure students' general motivational orientation and examine what factors influence their initial states. The OMQ (Online Motivation Questionnaire) was administered weekly at the end of every class throughout the year to gauge fluctuations in motivation. Retrospective interviews were also conducted with three or four learners in each class. Individual inquiry of motivational trajectories was conducted solely in the one English major class out of the seven classes. The results showed that Cultural Interest and Instrumentality (practical necessity) seemed to be factors in the organizing of initial states in these classes. The investigation of group-level changes suggested that Enjoyment, Effort, and Understanding "are closely connected and function as collective variables in classes that maintain a good level of motivation, while Enjoyment seems to be separately perceived in less motivated classes" (p. 280). As for individual analysis, three macro-patterns of students' motivational trajectories in this class are proposed. The patterns are 1) instability to stability, 2) stability throughout the year, and 3) stability to instability. These are pointed out by referring to the categorization of their micro-patterns. The study investigates students' motivational orientations or changes at the beginning of and during the classes, but the students' academic level is unclear, and teaching methods or contents are not stated.

The review of previous studies reveals that there is no study in which remedial students are focused on and the teaching methods or contents are described in detail and considered carefully. Hence, the present study examines into remedial students' motivational changes in a Japanese university English class specifying teaching methods adopted and suggests students' motivational patterns referring to the trajectory. In addition, pedagogical implications are made based on the findings.

The Purpose of the Study

Since the investigation of motivational patterns of remedial students in English classes in a Japanese university and indication of pedagogical implications based on the outcome are the goals of this paper, the research questions are the following two points.

- 1) What are the characteristics of the remedial students' motivational trajectories?
- 2) What practical implications can be obtained through the investigation of the motivational trajectories of remedial students?

As for the research question 1, first the motivational trajectory tendency of a remedial class as a whole is briefly examined, and then individual data are chosen according to their macro-patterns to elucidate students' complex motivational states.

Method

Participants

Fourteen first-year students in a private university in the Kansai region participated in the study. Their major had not yet been decided at the time of the research, as it will be chosen during their sophomore year. The class met once a week for 90 minutes and placed third from the bottom out of 10 classes based on Eiken IBA placement test scores. The target of this class is to gain the level of Eiken 3rd grade, which is aimed at Japanese junior high school graduates according to Eiken. This means that students' English level in this class is at Eiken 4th or 5th grade, which is considered equivalent to first- or second-year Japanese junior high school students, or lower A1 level in the Common European Framework of Reference for Languages (CEFR) ("EIKEN Grade," n.d.). All first year students are required to take two mandatory English classes, a Reading/Writing (RW) class and Listening/Speaking (LS) class; the focus of

this study is the LS class.

Instrument

The methodologies used in the CDST field vary. Some of them would be new to researchers and “might even have been used for the first time in the study of SLA motivation” (MacIntyre, Dörnyei, & Henry, 2015). This implies that appropriate methodologies for CDST research are yet to be developed. Because of this situation, this study methodologically replicates studies by Nitta (2013) and Nitta and Asano (2010), in which CDST research for Japanese English learners are systematically conducted.

The Weekly Motivational Questionnaire (WMQ) was used to closely measure students’ motivational changes (Nitta, 2013; Nitta & Asano, 2010). The WMQ was originally developed by Gardner, Masgoret, Tennant, and Mihic (2004) in order to measure changes in students’ state motivation that is referred to motivation that “is aroused at any given time” (Gardner et al, 2004, p. 10) as opposed to the stable motivational tendency. Nitta and Asano (2010) adapted their version from the original and developed the WMQ. Therefore, this questionnaire is suitable to measure students’ motivational changes because of its original intention to measure learners’ state motivation. It consisted of three questions that asked students about the class they took that day: “(1) “How hard you tried to learn?” (2) “How much you understood what you learned?” and (3) “How much you enjoyed the class?” (Nitta & Asano, 2010, p. 41). Although a more detailed questionnaire might be ideal, three items were determined to be appropriate here, given that the students were required to answer the questionnaire every week within a limited time. During the first class, they were told that even if they choose low scale, doing so would not affect their grade. The students were to select the most suitable state for each question from a 6-point scale ranging from ‘strongly agree’ (6) to ‘strongly disagree’ (1). For instance, they simply needed to evaluate how hard they tried during the class time each week in response to ‘how hard you tried to learn.’ In addition to these three questions, an open-ended question space was supplied where students could write their comments concerning the class.

For the purpose of complementing the questionnaire, a teaching journal was kept by the lecturer after each class finished. The content included the teaching contents, time allocation for each activity, students’ reactions to activities, students’ notable attitudes or remarks during the class, both negative and positive, and lecturer’s reflections and thoughts on teaching aspects that needed to be improved in the next class.

Teaching Method and Materials

Reflective Teaching (e.g., Richards & Lockhart, 1994) was adopted in the class in order to improve teaching methods. For example, the instructor flexibly changed activities if learners chose a low grade such as 1, 2, or 3 on the 6-point scale for the three questions in the WMQ or if students seemed to struggle with the tasks. In addition, pop music was played at the end of each class, as the lecturer noticed most of the students in the class enjoyed music in the first quarter of the semester. It was thus decided to let them submit requests for music in the open-ended section of the WMQ, with one request being selected the subsequent week. The WMQ not only functioned as a measurement of students’ motivational fluctuations, but it also played an important role in communication between the learners and the teacher, and it also helped the teacher reflect on the class.

Even if the students’ academic achievement level is not at the appropriate level for a university student, selecting materials that seem to be aimed at junior high school or high school students should be avoided. The contents of teaching material need to be sufficiently interesting to university students and appropriately sophisticated to match young adults’ developmental stage. Considering these aspects, an American TV drama was used as primary teaching material since it has been proven that the usage of English language TV dramas and teaching mainly through communicative activities can improve motivation for unmotivated student (Tanaka, 2009). The present class also adapted many communicative activities by using games that let the learners use grammatical items they learned in the drama. For

instance, information-gap activities, quizzes, and small presentations were utilized.

Procedure

At the end of every class for a year, 3-5 minutes were allocated to answer the WMQ, and the data was analyzed using the classification employed by Nitta (2013). In short, this study was conducted over a one-year time window with a one-week timescale. The WMQ was distributed 18 times, excluding examination and orientation days.

Nitta (2013) defines three dimensions—change, limited change, and stability—based on what range values the data moved across during the period. When the line moved beyond the two ranges, the trajectory was categorized as change, while the line was labeled as limited change when movement stayed within the two ranges. Stability was “when the value did not move or moved mostly only within the one range” (p. 281).

The teaching journal was consulted to add or supplement the explanations of students’ motivational change.

Results and Discussion

Different Types of Trajectories as a Group

Throughout the yearlong course, data were collected from 14 students 18 times, excluding examinations and orientation sessions. The statistics from the WMQ are shown in Table 1. Despite the fact that both the number of students who completed the questionnaire and the number of questionnaire items are small, the Cronbach’s alpha for most of the items exceeded .80. For week 15, however, the Cronbach’s alpha was .45. The result also showed that if the second item, ‘How much you understood what you learned,’ is dropped, the data value for week 15 would be .97. Therefore, it can be said that something that happened in the 15th class session affected their recognition of the word ‘understanding.’ The unique feature of the 15th class session compared to the rest of the other classes is the use of a YouTube video to let students understand a grammatical rule. A YouTube video clip in which the to-infinitive is explained was used. It is possible to say the low value of Cronbach’s alpha indicates that the meaning of ‘understanding’ in the class differed from student to student on that day, because the grammar was taught by a stranger from a video clip. Regarding this aspect, a further study is essential. However, since this study focuses on qualitative analysis, week 15 is not omitted from the subsequent analyses.

TABLE 1
Means, Standard Deviation, and Cronbach’s Alpha for the Questionnaire

Week	<i>M</i>	<i>SD</i>	α	Week	<i>M</i>	<i>SD</i>	α
1	4.93	1.16	.85	10	5.13	0.99	.97
2	4.59	1.10	.94	11	5.31	0.96	.97
3	4.93	1.16	.98	12	5.03	1.40	.98
4	4.92	1.07	.95	13	5.29	0.96	.98
5	5.02	1.12	.97	14	5.27	0.86	.93
6	5.17	1.00	.92	15	5.33	0.97	.45
7	5.12	0.93	.95	16	5.19	0.99	.99
8	5.23	0.97	.97	17	5.15	0.93	.97
9	4.69	1.05	.95	18	5.62	0.72	.99

The 10th week was the last class of the spring semester. Each individual presented unique and varied

trajectories. As explained above, the fluctuations are categorized based on the criteria proposed by Nitta (2013). The motivational macro-patterns of students in this study are shown in Table 2 below, which indicates that stability was the most common state of their motivation, though it consisted of only three students. That outcome is equivalent to the result that was found by Nitta (2013), in that the percentage for stability is the highest (30.8%, consists of eight students) among the states. In total, half of the students showed stability or changed to stability from unstable states such as limited change. The other half transitioned into change or stayed in change throughout the course.

TABLE 2
Motivational Macro-patterns of Students

Patterns	Number of students	%
Stability	3	21.4
Stability-Change	2	14.2
Limited Change	1	7.14
Limited Change-Stability	2	14.2
Limited Change-Change	2	14.2
Change	1	7.14
Change-Stability	2	14.2
Change-Change	1	7.14

Cases of Transition into Stability or Stability

Those who stayed in stability or transitioned into stability were in the high position from the start or gradually moving into a higher position. The examples of these patterns are presented in the figures below. Students' names are all pseudonyms.

In Shun's case, his motivation fluctuated intensely at the beginning of the spring semester; however, it stabilized as the class proceeded. Notably, he started to show some degree of stability beginning in weeks 4 and 5. Although his English level is relatively high within this class, at the 4th grade Eiken level, and he rated 6 for all three questions, he made negative comments during class about the activities employed in week 1 according to the journal. Weeks 2 and 3 show the lowest in his motivational state. In addition, though his trajectory stabilized from around week 4, it declined in weeks 6 and 8.

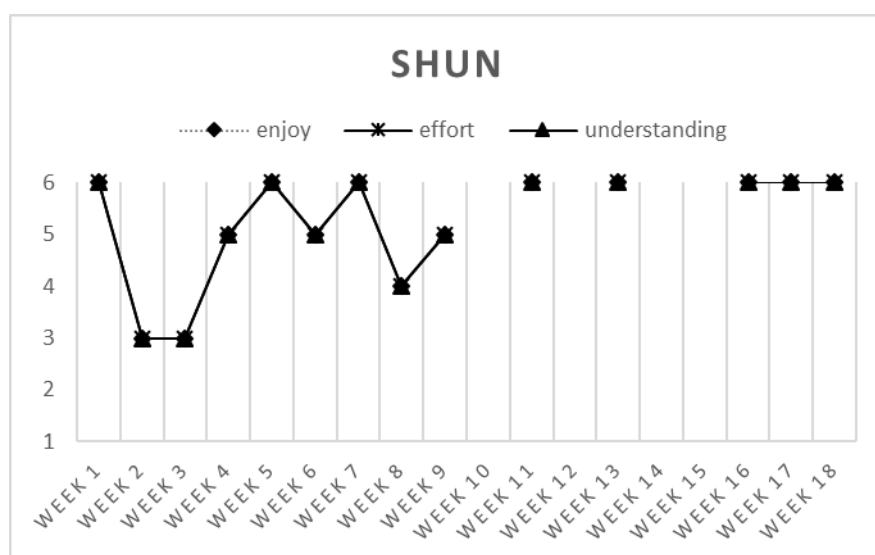


Figure 1. Case of change to stability.

In weeks 2, 3, 6, and 8, where the trajectory declined, the similar class content was that the students needed to give presentations on the target grammar in the class in Japanese or speak up spontaneously to answer the quiz. For instance, presentation of the target grammar in Japanese was employed in week 3. In this class, the Jigsaw method (Aronson & Patnoe, 1997) was applied to help students understand auxiliary verbs. Students were put into several groups of three or four, and each group was assigned one auxiliary verb and a copy of a Japanese explanation of auxiliary verbs from a textbook. Then they studied the usage or meaning of the auxiliary verb. Later, each group explained and taught the rest of the class in Japanese. Week 6 had the same activity, yet the grammatical target was the interrogative. Furthermore, in weeks 2 and 8, students played games to practice sentence patterns that required them to spontaneously answer the questions in front of other students.

Based on the teaching contents explained above, it would be possible to say that Shun was demotivated to perform in front of classmates for the first half of the semester. Yet as his fluctuation shows, he stabilized and gained resilience toward public performance, since his trajectory did not drop when he was required to perform in the class in the latter half of the semester. This change could be attributed to a lot of factors, but his motivational surges in weeks 5 and 7 might have some influence. In week 5, the instructor decided to choose music from the students' requests and play it beginning the following week. In week 7, a song requested by Shun was chosen and played in the class. And according to the journal, in week 6, Shun came to the instructor and communicated with her a few minutes before the class began. He asked her whether he could listen to the music that day or not. This was the first time he tried to communicate voluntarily with the instructor, and this attitudinal change might be triggered by the decision to use music in the class. Clearly, the use of music impacted his motivational state in a positive manner.

The decision to use music students are interested in may be associated with a strategy Dörnyei (2001) stated that is aimed at generating initial motivation. He suggested that it is important to make teaching material relevant for students. We are advised of the following point to actualize this suggestion: "The first step has to involve our *finding out* about the interests, hobbies and needs of our learners" (p. 65). It is highly likely that this strategy worked efficiently for improving Shun's motivation.

Shun attended the class 14 times throughout the year and wrote comments on an open-ended space nine times out of 14 times. The further the class proceeded, the more frequently his entries in the space were seen. His comments were all positive or concerning music he wanted the lecturer to play in the class. During weeks 2, 3, 6, and 8, where his motivation declined, he wrote, 'I understood the class very well' for week 2, nothing for week 3, and titles of song he wanted to listen to in the class for weeks 6 and 8. Despite showing the lowest point in his fluctuation in week 2, he seemed not to have problems understanding the class contents. This contradiction questions the credibility of using a questionnaire or comments students make. As is often said, students might mistakenly choose a scale value on the questionnaire or write comments aimed at pleasing the teacher. They might also try to impress the lecturer to get a better evaluation in spite of being told that their answers do not influence their grades.

Yoko's trajectory shows that at first she fluctuated to some extent. However, she began to stabilize at a high position from around week 5. Both Shun's and Yoko's cases indicated that what they experienced in week 4 or 5 might have had some effect on their acquisition of momentum for motivation.

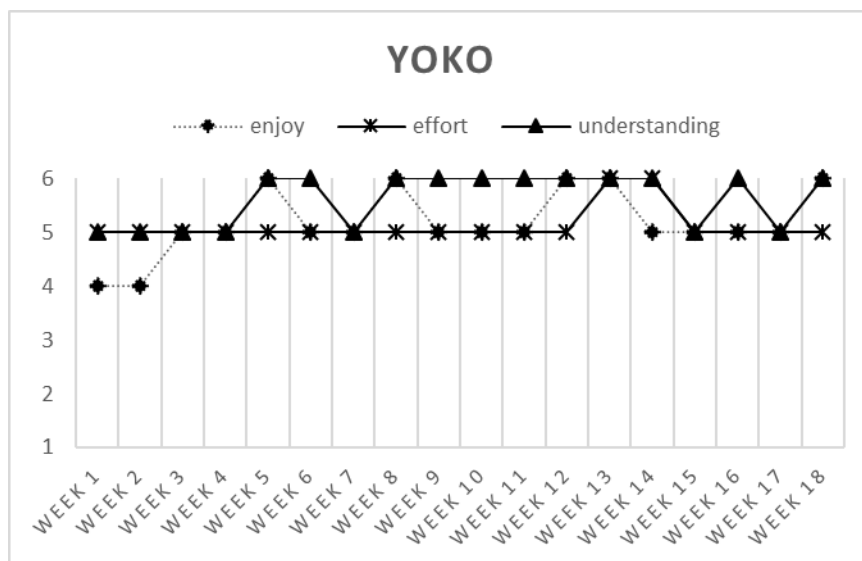


Figure 2. Case of limited change to stability.

According to the teaching journal, the class contents and teaching style of week 4 were similar to that of previous classes. For instance, students learned vocabulary, listened to conversations from carefully selected scenes of a drama and played games related to the grammatical aspect they studied from the drama. Yet, as stated above, there is a clear difference in the week 5 class compared with former classes in that the instructor decided to use music in the class based on the students’ song requests. The reason for Shun’s and Yoko’s surges in motivational momentum in week 5 could be attributed to the strategy to relate the class content to students’ interests, as suggested by Dörnyei (2001).

Yoko used the open-ended space to include comments in 11 of the 18 questionnaires. Her comments were mainly about how well she understood the class, except two entries, which were about music she wanted to listen to. She also wrote concerning the difficulty of the activities for weeks 12 and 14. Despite expressing the difficulty of the tasks in these two weeks, the trajectory shows that her motivation did not decline. As for weeks 12 and 14, the teaching journal says that other students also felt the activities were difficult. Therefore, the instructor reflected and wrote in the journal that she should not focus on teaching grammar too much, but instead increase her use of other activities, such as conversation, songs and games, to improve students’ understanding.

Yoko started to stabilize at a relatively early stage of the semester. Her trajectory shows that her attitude in the class had been favorable throughout the semester and her motivation was not low from the beginning. Additionally, her English level was relatively high, at the 4th grade Eiken level, meaning her academic level was in the middle for this class. These factors might have attributed to her early stabilization and steady continuation at that position even though she sometimes reported difficulty in understanding the class. As Verspoor (2015) stated, “once the sub-system is in an attractor state and gets perturbed, it will probably return to the attractor state, unless counteracted very strongly by some external force” (p. 42). Moreover, the teacher’s reflections about the students’ reactions and improvements for the subsequent classes might have promoted student understanding and served as one of the factors in sustaining Yoko’s motivation.

Cases of Transition into Change or Change

Another half of the students’ trajectories showed transition into change or consistent change throughout the year. The cases of this type are presented in the following figures.

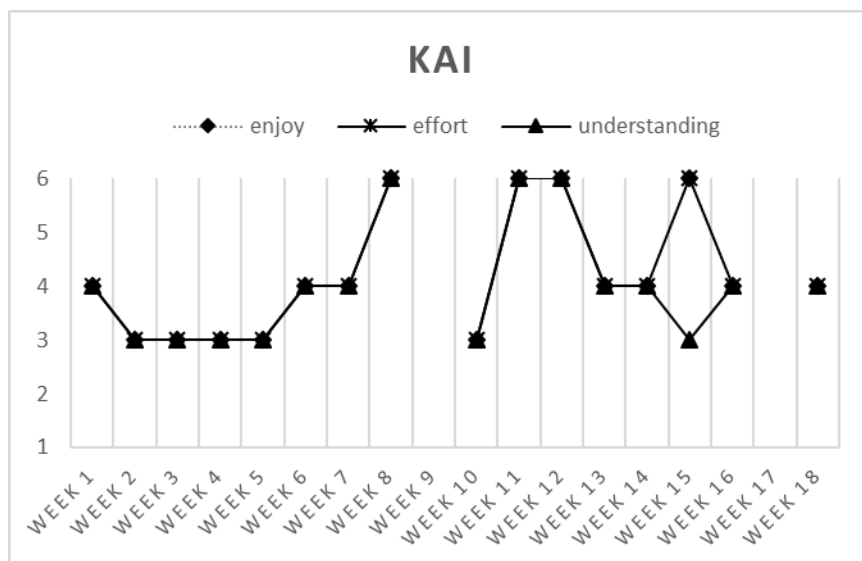


Figure 3. Case of stability to change.

Kai’s English level is not that low within this class; it is at the lower 4th grade Eiken level. His graph shows stability for the first half of the year at a relatively low position. However, his motivation started to fluctuate around week 8 and jumped to the highest in week 8. Although it plummeted in week 10, the momentum of fluctuation continued toward the end of the year.

According to the journal, Kai didn’t seem to follow the class at weeks 4 and 6. Hence, one of the reasons he stayed in a low position is likely the fact that he couldn’t keep up with the class. Nevertheless, he exhibited a surge in week 8. The teaching journal reported that students played a game to check their understanding of sentence patterns, and it gained steam in week 8. As for the classes after week 8, students played games in weeks 12, 13, 15, and 18, and Kai’s motivation reached the highest point in weeks 11, 12, and 15. This suggests that learning through fun activities such as games with other classmates might be particularly motivating for Kai.

Furthermore, Kai didn’t write any comments in the open-ended space except for during weeks 12 and 13. In week 12, he wrote, ‘The class was fun,’ and in week 13 he stated, ‘English is difficult.’ The record of the journal shows that it seems the understanding of drama scripts was particularly difficult for students in week 13, so the difficulty level of the activities was gradually adjusted to a more suitable level toward week 15, as mentioned above. More importantly, the fact that he expressed his comments for the first time in this class is worth noting. In sum, these comments imply that he started to actively take part in the class. The journal also shows that Kai seemed to participate in the class more actively compared to the previous semester.

Verspoor (2015) states that the longer one remains at a certain state (a certain attractor), the deeper the attractor state becomes and the more difficult it is to move out of that particular attractor (p. 40). Based on this theory, the following analysis is possible. Kai’s case indicates that he was in low attractor state at the beginning of the course, yet the attractor was not that deep, which suggests that, while his academic level was low and his initial motivation was weak, he did not have deep-rooted negative feelings or attitude toward English learning. In other words, it is presumed that he might have had anxiety toward learning or the class itself at first, since apparently he had difficulty keeping up with the class. Yet the anxiety might have decreased gradually through communicative tasks, such as the games explained above, or through reflective teaching practices by which the difficulty of the class contents was adjusted according to students’ comments. For these reasons, he could eventually get out of the attractor and moved to much higher phase. However, as the trajectory presents, his motivation was not yet stable at the higher position, and it fluctuated substantially. Therefore, it is important for a learner like Kai to learn in a group with a friendly atmosphere, and it is necessary for teachers to reflect on the pace or difficulty frequently and adjust them as necessitated.

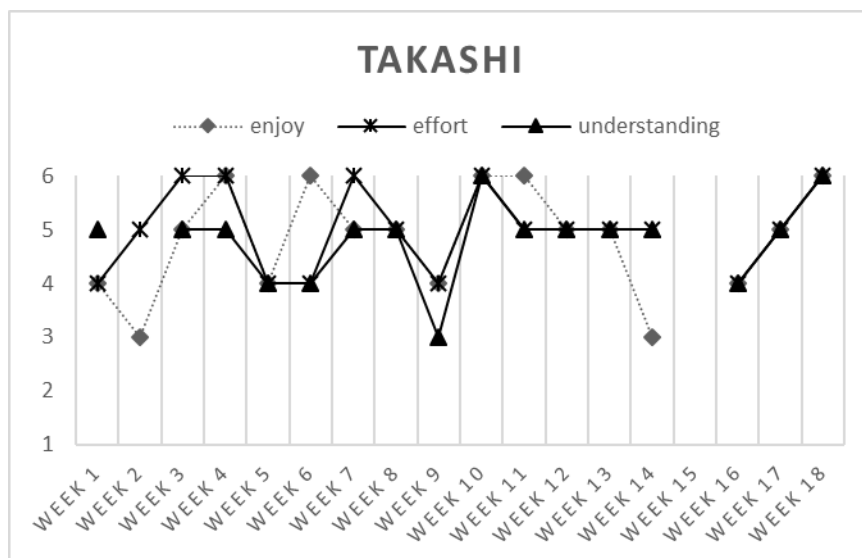


Figure 4. Case of change.

Takashi did not stay in the lower level but remained unstable throughout the course. According to the teaching journal, he sometimes made negative remarks in the class, for instance regarding his psychological distress about being in the class, and he seemed reluctant to participate in the activities until week 5. As his fluctuating motivational trajectory shows, he seemed to have difficulty paying attention and focusing in the class, though his English level is at the higher 4th grade Eiken level. However, his changes toward an active and positive attitude were seen in weeks 6 and 7. In week 6, he came to the lecturer with Shun a few minutes before the class started and told her that he forgot to bring the handouts distributed in the former class. This was the first time he communicated with the lecturer. Takashi and Shun belonged to the same sport club and they always sat next to each other during class, so he might have been influenced by Shun. Moreover, in week 7, he asked the lecturer a question concerning the task that the students were assigned during the class. These subtle attitudinal changes suggested that his mindset toward English class and English learning might have started to reshape into a more positive and active one, since he had often refused to do activities or sometimes had instead done something that was unrelated to the class content.

Although the use of music might be a reason for Takashi's shift, as in Shun's and Yoko's cases, because his change as discussed above was seen right after the lecturer's decision to use music, he never wrote any requests in the open-ended spaces of the questionnaire, and he never seemed to be interested in music. Hence, his behavioral change perceived in weeks 6 and 7 could be ascribed to the influence from his classmates' changes. This is because his motivational ebb and flow are quite unpredictable from the perspective of the teaching contents. Therefore, as one of the factors that could have an effect on his fluctuation, the influence from his friend Shun or other classmates is plausible. As stated earlier, Dörnyei and Ottó (1998) proposed a process model of L2 motivation in which L2 motivation has three phases: a pre-actional phase, an actional phase, and a post-actional phase. Each phase has its motivational influences and action sequences, which are subsequently elicited by the motivational influences. Among the influences on learners' motivation during the actional phase is the influence of learner group (Dörnyei & Ottó, 1998, p. 59). In other words, the influence of peers is considered to be a drive to motivated action. This would be a crucial factor in remedial classrooms because learners who take remedial classes often have negative emotions towards the class or the teachers.

While in week 9 Takashi's motivation dropped and, according to the journal, he fell asleep in class, in week 10, his trajectory jumped to its highest point, with all three items rated 6, and the journal shows he could understand the script very well on that day. Despite uncertainty in his trajectory, gradually he changed in a positive manner, and his ratings of the three motivational items began to be consolidated from around week 12.

Takashi responded in the open-ended space of the questionnaire only in weeks 2 and 13. The response in week 2 was ‘approximately,’ which was incomprehensible, while his comment in week 13 was ‘Today’s class was fun.’ In week 13, an imperative form was taught through the Total Physical Response (TPR) method by using a *sugoroku* sheet, in which students move their own token forward based on the number shown on dice and act out what is written on the board, such as ‘nod five times’ or ‘jump three times.’ Although some of the students commented during this week that the class was difficult, about one third of the students said that this *sugoroku* game for learning the imperative form was enjoyable. Therefore, it is likely that his comment reflects how he felt about the game, and not only his positive comments but also his active participation in this type of game, which requires participants to overcome bashfulness, were a considerable attitudinal change for Takashi, considering his primitive hostile and aloof attitude toward the class and activities. This activity might have been particularly interesting to him and he may have been influenced by other classmates’ enthusiasm toward the game on that day, since, even after week 12, his attitude sometimes turned negative.

Based on what has been written, it can be stated that his motivation became positively susceptible to external stimuli, such as his friend’s reactions to the class, throughout the course.

A Case of a Particularly Difficult Student

The cases examined above are commonly observed in the classroom, and their motivation was at a relatively high or only mildly low position. Their academic achievement level was also not the lowest in this class. In this section, a particularly difficult student in the class is focused on. The following figure shows the case.

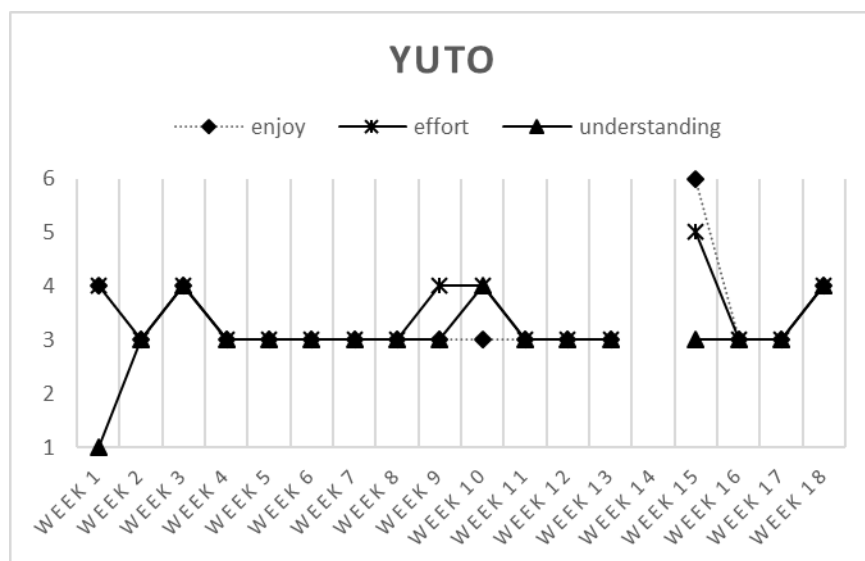


Figure 5. Yuto’s case.

Yuto’s English level was the lowest in this class, and he was at the Eiken 5th grade level. Therefore, he had difficulty understanding or pronouncing Roman letters, which meant he could not pronounce fairly easy words, such as ‘he’ or ‘she.’ When students were instructed to listen to script of the drama and fill in the blanks on a worksheet, a group of words was given to them, and they chose the word they heard from the group. Before they listened to the drama script, they were carefully instructed on how to pronounce the words in the list, as well as the meanings of those words. By doing so, Yuto managed to catch up with the class flow.

Yuto’s fluctuation pattern as a whole is unique. He showed unstable movement at first, then stabilized for a long time at a mildly low level, and then, toward the end of the year, at week 15, he presented a

sudden surge. Then his motivation seemed to return to the previous level. His case can be regarded as 'change to stability to change'.

As Figure 5 presents, Yuto's understanding of English in the class was at 1 at the beginning of the year, which suggests he did not think he could understand the class content at all, although he enjoyed the class and made efforts somehow. According to the records from the teaching journal, for the first four classes, he sometimes strongly refused to take part in classroom activities. For instance, he wouldn't look up the words using a dictionary or smartphone when he was told to search their meanings, and he openly expressed his negative feelings about English and the class. That psychological struggle is reflected in the fluctuation of his motivation during the first three weeks, yet his understanding of the class improved to some extent.

In week 3, all three items rose to 4, and after that Yuto's motivation settled for a stable period at a mildly low position. The teaching method or contents in week 3 might have had some effect on his understanding. On that day, the unique aspect of the teaching that was different from the previous weeks was the Jigsaw method (Aronson & Patnoe, 1997) applied to help students understand auxiliary verbs. Students were put into several groups of three or four, and each group was assigned one auxiliary verb and a copy of a Japanese explanation of the auxiliary verb from a textbook. Then they studied the usage or meaning of the auxiliary verb. Later, each group explained and taught the verb to rest of the class in Japanese. This collaborative way of teaching grammar might have made it easier for him to comprehend the learning materials.

In week 15, the Jigsaw technique was used again to teach to-infinitives and later, the card game 'concentration,' which requires participants to use to-infinitives, was played. According to the teaching journal, in the game, Yuto got the most cards in his group, and the other students also enjoyed themselves very much.

Yuto commented in the open-ended space of a questionnaire for the first time in week 7. He wrote, 'The class was good. Taylor.' Taylor is the name of his favorite female American singer. He wrote her name because the instructor allowed students to write songs or singers' names in the space if they had songs they wanted to listen to in the class. His entry suggests that he started to participate in the class actively and began shedding the bystander stance in the classroom. He wrote comments in week 7 and continued to write them after every class from weeks 9 to 17. Four times, the contents of the comments were 'I enjoyed,' one time 'I think this is a good class,' and one time 'Please choose the music of your choice.' Four times out of his 10 entries, he wrote the names of singers he wanted to listen to in the class.

Based on Yuto's case, it can first be said that his attractor state had been in a low position for a long time, since he started learning English in junior high school. Hence, it was difficult for him to get out of that phase (Verspoor, 2015). This is reflected as a period of stabilization at a low position. However, activities using the Jigsaw method and the use of music in the class might have influenced his understanding of English and, subsequently, led to the attractor state. The sudden rise seen in week 15 could also imply that his low attractor state was gradually changing into a novel and better phase.

Second, as Takashi's case also suggests, Yuto might have been gradually influenced by other students' attitudes. He might have started to feel connected with other classmates as the class proceeded and positively influenced one another, since he seemed to play a central role as an entertaining person when students played games in the class. Though his ability was quite low throughout the course, he might have found a way to enjoy the English class.

Initial Conditions and Behavioral Tendency

Although each case seems to be a fragmentary one, a tendency can be found based on the initial condition of each participant. As stated earlier, the initial condition varies depending on each participant or system in CDST terms, and it is important to know the system's initial condition at the beginning of measurement (Verspoor, 2015). In the present study, four distinctive initial conditions are ascertained. Table 3 below is the summary of each initial condition as well as their English level. The scope that

defines the period of initial condition is arbitrarily determined from week 1 to week 6 by the author, which is considered appropriate since the study is one-year long.

TABLE 3
Initial Condition Patterns of Students

Initial Condition	Name of Student	English Level
Unstable at a higher state	Shun, Yoko	4th grade
Unstable	Takashi	higher 4th grade
Stable at a lower state	Kai	lower 4th grade
Unstable at a lower state	Yuto	5th grade

Premised on the initial condition patterns presented above and the analysis of each case, it can first be said that if the initial condition is unstable at a higher state, discovering what their interests are and ensuring they are reflected in the learning contents could be more effective to stabilize their motivation at a higher state. Secondly, if the initial condition is unstable, the importance of creating a positive class ambience will be critical because those who are at this state may be susceptible to external stimuli, especially influence from peers. Finally, if the initial condition is stable or unstable at a lower state, then, employing enjoyable communicative tasks that promote participation will be effective to help them keep up with the class or decrease anxiety, and ultimately lead them to a better phase of motivation.

Furthermore, from the results of these analyses, a developmental path of remedial students' motivation could be hypothesized. In summary, after experiencing instability or stability at a lower state, represented by Yuto's case for instance, remedial learners could subsequently enter the next stage, represented by the conditions of Takashi in which one is easily influenced by his or her peers or the classroom environment. Thereafter, if the instructions or class contents match one's interests, one's motivation toward learning is stabilized, as shown in Shun's or Yoko's cases. Notably, their proficiency does not influence this motivational sequence, because if it does, Takashi's state needs to be the last one and has to be stabilized at a high state. It requires teachers' patience to get them motivated, as this motivational sequence represents. To understand their motivational phase, selecting an effective approach and teaching reflectively are essential.

Conclusion

One of the purposes of this study is to address the research question "What type of characteristics do the remedial students' motivational trajectories have?" Analysis of the trajectories as a group indicates four different types of macro-patterns: change to stability, limited change to stability, stability to change, and change. Based on the investigation of a particularly difficult student case, the 'change to stability to change' pattern was also obtained.

The second aim of the current study is to examine the question "What practical implications can we obtain through the investigation of the motivational trajectories of remedial students?" Individual cases from each macro-pattern were examined, and the following possibilities that could have influenced students' motivational changes were suggested. For instance, Shun's and Yoko's cases indicate the usage of music or using materials that are related to students' interests could initiate remedial students' motivation, as stated by Dörnyei (2001). As Kai's and Yuto's cases mainly imply, for remedial students it takes time to get used to class activities and the class itself, in spite of the fact that they can socialize easily once they become familiar. This might be attributed partly to their anxiety toward English learning. Therefore, it is necessary for teachers not to stop using games and activities that require students to work in groups, but continuous use of these tasks and consideration about the type of tasks and the timing of the implementation of the tasks are important. Repeated use of such activities might affect not only their motivation, but the other learners who are likely to be influenced by their peers, as chiefly Takashi's case

suggests. While Dörnyei and Ottó (1998) also point out the importance of classmate influence, the favorable influence of peers might be a significant aspect particularly in remedial classrooms, since these students tend to have negative feelings toward the class and teachers. Furthermore, in order to maintain and sustain students' motivation, it is crucial for teachers to reflect on what has been taught and to notice signs of struggle from students, since remedial students easily fall behind. From the analysis of their initial condition, it is hypothesized that they might first experience instability or stability at a lower state, then stability, and finally, garner the attractor state at a high state. The importance of being aware of the motivational sequence and choosing an effective teaching approach according to the motivational phases is suggested.

CDST theorizes that a phenomenon happens because of complex factors surrounding it. As the investigation in this study reveals, remedial students' motivational changes are caused by a multitude of elements, and they are not only influenced but also intertwined with one another in a complicated manner. However, a close look at each phenomenon made it possible to disentangle one part of that mechanism.

Still, the data dealt with in this study are mainly limited to a weekly questionnaire, the author's teaching journal, and classroom observation. For further and future research, for instance, interviewing students based on their weekly questionnaire is required to examine the more dynamic and complex nature of their motivation. Moreover, investigating a larger number of classes as well as comparing learners' state and trait motivational orientation is necessary to generalize the findings. Nitta (2013) also argues that studies utilizing a CDST framework are still limited, so the method of investigation and analysis is not well established. Hence, the analysis and investigation employed in the current study is exploratory. This investigation is also just an outset of remedial students' motivation through the framework of CDST. Therefore, further and repeated examinations are necessary to elucidate a full picture of remedial learners' motivational trajectories based on CDST.

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