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Converging the Curriculum Designer's Intentions into a Foreign Language Classroom

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ABSTRACT

In any educational institutions, designing curricula would be one of the most important processes for educating students with coherence and efficiency. They are also tools for institutions to make their teaching philosophy visible to their students and teachers. This research analyses how a foreign language class was constructed from two different perspectives: 1) how the curriculum shaped the class under study (macro-level analysis); and 2) how the environment formed the class (micro-level analysis). This study can be considered as a sequel to my previous study that looked at differences in on-task behaviour in two compulsory English classes for Japanese undergraduate students, taught in different environments: a regular classroom and a computer room. The result showed that the environmental differences altered their learning behaviour. Leading on from the previous study, this study investigated why there were differences in learning behaviour and how these differences emerged by looking at the teachers and their students' interpretations of the curriculum. The study used a new analytical tool in the field of language education, Actor-Network Theory, for analysing the influence that the human and nonhuman (i.e., computers, syllabus) actors had in between. These actors were mapped to visualise the actions caused by the influence to capture how the course was designed and executed. The maps revealed that the curriculum was altered by the teacher and the students, mainly due to the environment they were in. The paper concludes with some suggestions to improve the relationship between the curriculum and its stakeholders.

Keywords: Actor-Network Theory, Curriculum Design, Japanese Undergraduate Students, Learning Environment.
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1. Introduction

Designing a curriculum may be one of the earliest steps that educators need to go through for implementing a course at any educational institutions. In language teaching, there are three main ways for developing and implementing curricula, each of which has different implications for teaching and

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learning outcomes. According to Richards (2013), there are three different starting points of curriculum development for language teaching, which are input, process, and output, of which curriculum designs he calls *forward*, *central*, and *backward* designs respectively.

In the forward design approach, input, process, and output proceed lineally. Therefore, as in Content-based Instruction and Content and Language Integrated Learning (e.g., Dupuy, 2000; Pessoa, Hendry, Donato, Tucker, & Lee, 2007; Lyster & Ballinger, 2011; Marsh & Martin, 2013), the content of teaching is determined before making decisions on how it is delivered and executed, and how the outcome should be. Central design focuses on the process of teaching itself, therefore, matters related to what content is to be used and outcomes of the process are determined after deciding teaching methods or activities. Some of the examples of this approach are task-based language teaching (e.g., Skehan, 1996; Ellis, 2000, 2003; Bygate, Norris & van den Branden, 2015) and ecological view of classroom (e.g., Kramsch, 2003; Leather and van Dam, 2003; van Lier, 2003, 2004). The backward design evolves around the outcomes of learning. The design process of this research may be initiated by conducting a needs analysis by determining desired outcomes, and then organising the content followed by choosing learning experience that serves to achieve the desired outcome. Although these classifications of designing curricula may seem to point to different teaching theories and tasks, they share one common goal: improvement of the target language (TL) skills. For many language courses, the outline of a curriculum can be determined depending on the chosen textbook. This is because language textbooks can be used as complete course books that often come in a package of input, activities, examples of desired forms output that are often accompanied by a teachers' instruction book or manual, so that instructors are expected to execute what is provided in the package to achieve the objectives delineated in the textbook or the manual. However, a curriculum may only serve as a blueprint of desired learning outcomes so that following a curriculum or a syllabus does not guarantee the actual manifestation of intended outcomes. In real classrooms, for instance, there are many cases reported about learners learning linguistic or paralinguistic knowledge that are not in the curriculum or on the textbook, which is often referred to as incidental learning.

Incidental learning is a well-researched area in the field of language learning and teaching. Many researchers have reported that learners unintentionally picked up linguistic items that are not included in their learning objectives, such as words, descriptions or explanation of things through activities or tasks (Hulstijn, 2012; Nee & Dozier, 2017; Laufer & Rozovski-Roitblat, 2011; Shintani & Ellis, 2014). These accounts of incidental learning reported in academic papers can also be interpreted that there are some factors that curriculum designers and teachers do not have a full grasp of the affordances of their teaching materials, learning settings, or curriculum that determine learners' learning outputs or observable evidence of learning.

Ramachandran's (2006), in fact, reported about how educators (learning material designers) were wrong about how target learners learn. The paper revealed that educators who created children's literacy materials (CD-ROMs containing games, activities, and puzzles) often had wrong assumptions about what works in terms of creating a non-threatening and fun learning tool. In her study, material developers' assumptions for promoting effective learning were compared against children's actual perceptions about the materials. The results obtained from thirty 10 to 12-years old in India indicated that the material developers made incorrect assumptions in multiple issues. For instance, there was no tangible correlation between children liking games and achieving learning objectives. Evaluation, such as tests and quizzes, was thought to be demotivating for young learners but they made the children more alert and active in learning by taking notes and listening to the materials more carefully. With regard to feedback, the initial appreciation of receiving verbal feedback on their performance quickly wore out and children became irritated with the function and reacted less towards symbolic feedback like smiley and thumb-up icons. The educators were also wrong about usability of the CD-ROMs. Instructions provided for programme navigation were not read; instead the children played games and engaged in activities intuitively. Additional learning materials were not viewed unless they were embedded in the main content. Flexible, non-linear navigation capability of the materials designed to minimise boredom was hardly ever used, and most children navigated in a linear manner. Thus, both

research in incidental learning and Ramachandran's study indicate learning processes and outcomes can be unpredictable either in positive or negative ways, which makes it even more challenging to set a curriculum that yields only positive outcomes. This is why the ultimate learning curriculum and learning materials exist and educators have been constructing and analysing myriads of curricula, learning environments, and teaching materials. In a similar vein, the current study also looks at how the curriculum for a compulsory foreign language course for Japanese undergraduate students influenced in shaping two classes taught in two different environments: a traditional classroom and a computer room. The course was designed for regular classrooms; however, there were a small number of teachers who were teaching the same course in computer rooms. According to the literature in incidental learning and Ramachandran's study, there would be a high possibility that different environments can create different learning affordances that may lead to different learning behaviour and outcomes. If so, at what point in the curriculum execution do alterations to the desired course are made? This paper attempts to capture how an English as foreign language (EFL) course was designed by a university language centre, how it was taught by its teachers, and how students behaved under certain environments and circumstances by employing some of the concepts from Actor-Network Theory (ANT), which perceives humans and nonhumans as equally influential in constructing social entities. Due to the rapid advancement of computer and information technology in recent years, language teachers now regularly use computers and mobile devices as tools for teaching their students. ANT would be suitable for analysing hybrid classrooms and courses because of its egalitarian view in treating human and nonhumans. This paper attempts to contribute a new way of analysing learning environments and classroom activities in the field of language education and applied linguistics, since there is only one study that employed ANT as an analytical framework has been published to date by the author of this paper (Ellis, 2012), which is described in the next section.

2. Background

The current research is built on my previous study (Ellis, 2012) about the roles of nonhuman actors in two different educational environments (a traditional classroom and a computer room) for an English as a foreign language (EFL) course at a large private Japanese university. The course was one of the two compulsory EFL courses, designed for second-year undergraduate science and engineering students. The in-class student activities were recorded on videos, which were analysed by using Actor-Network Theory (ANT) by tracing student interactions between humans and nonhumans (e.g., computers, smartphones, textbooks, etc.), in order to identify major nonhuman actors in both environments, and how they influenced student activities in two different classroom settings. The students in this course were required to give a group presentation using PowerPoint slides based on a small-scale research on the topic of their choice. Each class had six to seven groups of 4 to 5 students for the group presentation assignment. The range of their English proficiency level was TOEIC 180 to 350 or CEFR A1 and A2, which can be regarded as very limited users of English. The course was a 15-week course and some of the class time was given to the students to prepare for their presentations, although this was not enough for them to finish their preparation. Therefore, students were expected to use their own time to prepare for this assignment. The presentations given by the students in the both classes were successful, so that they all passed the requirements for earning their credits for the course. The findings of the previous research, however, showed that different learning environments might create very different learning paths between the students in these different classroom settings, despite the fact that the quality of their end products was more or less the same.

The findings of the previous study showed that nonhuman actors that the students engaged in during the class were very different in these two environments; hence their interactional styles were different during the class. The following table (Table 1) shows the main nonhuman actors identified in both learning environments.

Table 1: Main Nonhuman Actors in a Computer Room and a Traditional Classroom

Computer room	Traditional classroom
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Medium of sharing ideas	<ul style="list-style-type: none"> ▪ Computer screen ▪ Handouts ▪ Textbook ▪ Paper (including notebooks) 	<ul style="list-style-type: none"> ▪ Paper ▪ Handouts ▪ Textbook ▪ Laptop computers
Tool for record-keeping/note-taking	<ul style="list-style-type: none"> ▪ Computer (PowerPoint files) ▪ Pens or pencil/paper 	<ul style="list-style-type: none"> ▪ Pens or pencil/paper
Source of information and references	<ul style="list-style-type: none"> ▪ Information on the Internet ▪ Electronic dictionaries ▪ Textbook ▪ Handouts 	<ul style="list-style-type: none"> ▪ Textbook (information gathered outside of the class) ▪ Mobile phones
Equipment for production	<ul style="list-style-type: none"> ▪ Computers ▪ (Additional computers) Laptop computers 	<ul style="list-style-type: none"> ▪ Paper (note-taking)

Note. Adapted from “Actor-Network Theory as an Analytical Tool for Capturing Student Activities in Two Different Class Environments,” by N. T. Ellis, 2012, In C. Conlan (Ed.), *Proceedings of Applied Linguistics Association of Australia Annual Conference 2012*, p. 191.

The students in the computer room were able to access more devices that directly linked to PowerPoint slide production whereas the students in the traditional classroom did not have enough tools to create their slides, which resulted them to spend more time outside the class.

Regarding the students’ in-class communication patterns, the figure below (Figure 1, adapted from Ellis, 2012: 194) shows that traditional classroom may be more suitable for oral communication. This is because the students in the computer room had a greater distance between them as their desks were larger and students could hide behind their computer screens. Some students, for instance, had to move from their seats to join group conversations.

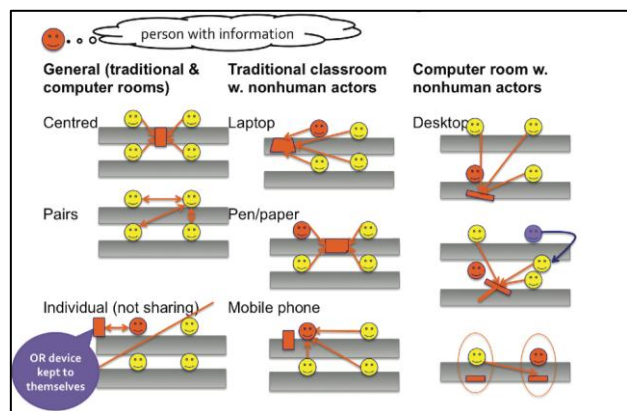


Figure 1: Communication patterns when sharing information
 Note: Adapted from “Actor-Network Theory as an Analytical Tool for Capturing Student Activities in Two Different Class Environments,” by N. T. Ellis, 2012, In C. Conlan (Ed.), *Proceedings of Applied Linguistics Association of Australia Annual Conference 2012*, p. 194.

Distance between students, however, was not the major hindrance for achieving high efficiency of task completion. In the traditional classroom, there were numerous occasions of silence caused by lack of activities. This was due to lack of preparation before coming to the class and they had no useful information to share with their group mates for their presentation. However, when they had something to share with others, they were able to engage in longer interactions than that of the students in the computer room. In the computer room, on the other hand, the students were able to work on their presentations using some relevant information retrieved from the Internet that led to immediate production of their presentation slides. However, in terms of the in-class target language usage, the students were more focused on browsing the Internet or creating slides so that conversations between group mates were infrequent. When they communicated, the means of communication was not how language educators would expect them to communicate with each other. For instance, the students in the computer room often used their computer screens as referents of their ideas so that brief triadic interactions (student-screen-student) were exchanged for expressing their ideas and opinions accompanied by some gestures, such as pointing at their screens. This triadic interaction through a computer screen has also been mentioned in Meskill’s (2005) study that this form of interaction helped children learn English words by looking at what was on the screen. On the contrary, in my previous study, this was one of the causes of nonproduction of oral output.

The findings in the previous study revealed that many nonhuman actors influenced how in-class activities were conducted and, therefore, depending on the class environment, learning paths were very different between the students in these two classes, even they were studying under the same curriculum (i.e., tasks, textbook, assessments, course objectives). This can be interpreted that even if the course was carefully planned out and the learning objectives were made clear by the curriculum designer through a corresponding syllabus or a textbook, the actual stakeholders may alter the process of learning, depending on the environments they are surrounded by. If so, how and when do the alterations to the course occur? Does this mean that the curriculum designer's intentions of learning process and outcomes are changed when the curriculum is actually executed by teachers and their learners? In order to investigate these issues, the current study looks at how a foreign language curriculum was designed by a curriculum designer (macro-level analysis) and how the actual learning and teaching were carried out in two different learning environments: a computer room and a traditional classroom (micro-level analysis). The macro-level analysis aims to capture the structure of the course by looking at what human and nonhuman actors were involved and how they influenced each other. The micro-level analysis, on the other hand, attempts to see how the curriculum designer's (in this study—the educational institution) intentions were interpreted by the teachers and their students, and how the curriculum objectives were executed in the class. The following are the research questions that guided to conduct the current study.

Research Questions:

- 1) What are the intentions of a foreign language curriculum designed for undergraduate science and engineering students that the curriculum designer put forward?
 - i) If there are identifiable intentions, how are they presented in the course materials, such as the textbook, syllabus, and teacher's manual?
- 2) Do the teachers and the students follow the curriculum as the curriculum designer planned?
 - i) If alterations to the original syllabus are made, what are the causes?
 - ii) Are the alterations made because of nonhumans (i.e., nonhumans in the previous study) or humans (i.e., the teachers and students)?

3. Method

In order to investigate the research questions, Actor-Network Theory (ANT) was employed to make the influence or agency that the main actors, both humans and nonhumans, had over each other. Mapping relevant connections made by agencies between each of the actors can generate a visual snapshot of a holistic view of an event or a context. Each actor and a type of agencies were identified and annotated to display what action was induced by connecting with more influential actor. Therefore, to investigate how the curriculum was designed and presented to the users, the teaching and learning materials for the course under study (i.e., the textbook, teacher's manual, and syllabus) were looked at and analysed by using some of the concepts from ANT. Similarly, important human and nonhuman actors (e.g., tasks, assignments, syllabus, etc.) in the class were looked at in terms of power relations to capture how they related to each other in forming a class.

3.1 Actor-network theory

Actor-Network Theory, which is an approach to sociology of science, was mainly developed by Bruno Latour, Michel Callon, and John Law in the 1980s. According to them, the society consists of networks of any material entity of human or nonhuman and agency (capacity to act) of actors that constitutes network. Latour claims that in ANT analysis, humans are not treated any differently from nonhumans, because “without the nonhuman, the humans would not last for a minute (2004: 91).”

One of the key concepts of ANT is ‘translation’ that nonhuman actors may alter human behaviour by their ‘actions’ (Callon, 1986; Latour, 1993, 1996; Law, 1991). In the early years of ANT development, Callon (1986) argued that establishment of network involves four moments of translation:

problematization, interestment, enrollment, and mobilization. These moments explain a sequence of how human-nonhuman entities come together or disconnected because of the influence they have for each other. However, the outcome of the connection is unpredictable and the network may be unstable as a network between entities can be connected or disconnected. For instance, this may be seen in a situation when research data is being collected in a classroom that a researcher initially chooses a video camera to collect data (connection to a video camera) but the students behave differently due to the presence of the camera, so that the researcher later changes the recording device to a less conspicuous recording device like a small audio recorder (disconnection from the video camera and connection to the audio device). Thus, the captured network can be considered the network that existed at a particular point in time so that it does not necessarily represent a permanent network, however, if it does, the network could present itself as a black box. According to ANT, the emergence of a network or *problematization* is described as someone or something establishes itself as an obligatory passage point (OPP), which frames an idea, intermediary or problem and related entities in a way that the OPP becomes the core of the network. One example of *problematization* and OPP in an educational setting could be that a teacher's course guide can function as an OPP because the textbook and assignments need to be aligned with it, and the people who use the guide also comply with what is delineated in the guide. The moment of *interestment* occurs when other entities are attracted or invited to the emerging network, which is followed by a confirmation of the validity of *problematization*, the value of the alliance, and negotiation of their roles in the network. *Enrollment* occurs when the enticed entity actually joins the network. When the alliance of actors in the network became stable enough, it can be mobilised as a stable entity.

As ANT assumes human and nonhuman hybridity in social networks, it has been used to analyse complex social situations, including educational settings (McLean & Hassard, 2004; Fenwick & Edwards, 2012). Latour (1996) for instance, investigated how a transport project failed by analysing interactions between stakeholders of the project, which included nonhuman actors like the technology involved in the network. In relation to ANT in the field of education, an increasing number of studies using the theory, both as an approach to and methodology of research, have been widely published. Fenwick and Edwards (2010) explain how artefacts may relate to each other to form a network of particular learning environment in educational settings as follows:

Everyday things and parts of things—animals, memories, intentions, technologies, bacteria, furniture, chemicals, plants, and so on – are assumed to be capable of exerting force and joining together, changing and being changed by each other. (p. 3)

Drawing from their remarks and Latour's (1996) study, nonhuman actors without physical forms (e.g., technologies, memories, intentions, etc.) can also be regarded as actors. Since ANT claims that nonhumans also have affordances to alter human actions, nonhumans in educational environments may also have strong probabilities of shaping learners' actions, which may directly concern how they learn in the class. Fenwick and Richards (2010) put it:

Pedagogy centres around, and is constantly mediated by, material things. Pedagogical encounters change radically when its things change, for example, when a PowerPoint presentation is used instead of a textbook, or field trip to show how a pumping station works, or when desks and chairs are removed for learning activities to explore democracy or relationships. (p. 5)

Some researchers have been using concepts derived from ANT and devised analytical tools for their research in education. Roth (1996), for instance, conducted a study of diffusion of glue guns in a Grade 4-5 civil engineering classroom. They observed how children built models in a class, by tracing a glue gun introduced by one child that later transformed how other children worked in building models. Children witnessed and learned how the owner of a glue gun increased efficiency and aesthetic in building models so that they gathered around the glue gun that became the centre of knowledge diffusion.

In a higher education setting, Barab, Hay, and Yamagata-Lynch (2001) employed ANT to capture the emergence, evolution, and diffusion of knowledge in project-based astronomy courses at two universities. In the course, students were working on a group project constructing the solar system in a virtual reality. The researchers identified each student's issue at hand (IAH) as nodes of activities and followed them in a timeline to see how each node of IAH emerged by an activity initiator, and if it was participated by other students so that they were able to visually trace the development of each activity and how the project proceeded.

In another educational research, Edwards (2012) analysed curriculum-making for a college Hospitality course and a Home Economics course in a school in Scotland. He documented how the curricula were translated by the teachers and enacted by, which were also translated by their students and enacted upon the teachers' teaching behaviours and other corresponding semiotic factors. The paper provides detailed accounts of how these teachers came to teach in a certain way and how the students behaved in the given settings by illustrating and analysing semiotic tokens (e.g., teacher's previous experience, title of teacher's workbook, space, smell of food) identified in the situations under study. These were further analysed to see how these factors were translated and realised by the teachers in running their courses, which are also being translated by the students. Students, for instance, 'enrolled' the practical work of kitchen, whereas they did not do so with classroom-based sessions, which were 'translated' as a theory of cookery.

The concept of translation is also employed in the current study that it looks particularly at the emergence of network (i.e., problematisation and intressment) to compare the intention of curriculum designer and the behaviours or translation of the teacher and the students. Instead of describing specific accounts as in Edwards's study, this study attempts to map the structure of these networks visually so that a comparison of OPP could be made obvious, and the type of curriculum design may also be revealed.

3.2 Settings

The course chosen for this study was called "Concept Building and Discussion" (CBD), which was a compulsory English as a specific purposes (ESP) course developed for second-year science and engineering students at a large private university in Japan. A total of more than 1,800 students enrolled in this course studying under a unified curriculum and using the same textbook regardless of their English proficiency levels. The school of Science and Engineering had their own English language education centre, which was operating unified ESP courses for first and second year students. All the curricula, including CBD, were designed by the full-time faculty members at this centre, and along with nine full-time teachers, close to 60 part-time teachers were employed to teach these courses. The students were to learn research and study skills required for science and engineers since a large number of the undergraduate students advanced to study for graduate degrees at the same university after graduation. The course under study aimed to equip students with skills to design scientific research, engage in active discussions, deliver effective presentations, and produce academic reports and essays that are perceived important for graduate degrees in Science and Engineering, or in the workplace. The class was 90 minutes in length, which was offered once a week, and the duration of the course was 15 weeks in total. Each class had no more than 30 students and their age ranged from 19 to 21 years of age. The textbook was prepared by the language centre, which was specifically developed and written for science and engineering students by the full-time faculty members of the centre. The two classes chosen for the current study were taught in different environments: a traditional classroom (the course coordinator's class) and a computer room (the author/researcher's class). Both classes were conducted only in English. The target language (TL) proficiency of the students in both classes was perceived as low intermediate at the university, however, comparing their proficiency against some of the global scales, their proficiency may be categorised under just above the beginners' level, as their average TOEIC test score was about 300 (the full mark is 990), which may be translated as CEFR A2, and TOEFL 350-400. The data used for this study was from Weeks 3 to 5. These weeks were chosen for this study because a few different activities were set to be conducted concurrently, so that it was

considered to be suitable to observe if the students followed the prescribed activities on the course materials. Apart from the teacher's manual and the syllabus, the centre provided two versions of itineraries (teachers' and students' versions), which clearly delineated sections of the textbook to be covered, teacher's activities, student's activities, and homework for each week.

According to the syllabus and the itineraries, students were to have a group discussion test in Weeks 3 and 4. While one group is being assessed for the test, other groups needed to: 1) develop a hypothesis and design a survey for their group presentation in Weeks 6 and 7 [Week 3]; 2) gather and organise data, summarise and analyse data, then draw a conclusion [Week 4]. Week 5 was scheduled to be used for preparation for their presentations, such as creating a visual aid and practicing giving a presentation. The students were given a sheet of marking rubrics a few weeks before their presentations, so that they were able to know what they were tested for, and prepare for each marking criterion in advance.

Two video cameras were used for data collection, focusing mainly on two groups of students in each traditional and computer classroom. Pointing video cameras at specific groups can obstruct their group work, therefore, no specific groups were being followed but the groups sitting nearest to the cameras were analysed for more details. The data was sorted to see if students were on-task, and if they were, which task they were on. There was a research assistant (RA) for the computer room, setting up the research equipment, talking observation notes, and sometimes helping students with their tasks. The RA was a fourth-year international student and she did not speak Japanese, however, students felt at ease with her because she was only a couple of years older than the students and easy to talk to. In the traditional setting, on the other hand, there was a teaching assistant (TA) who was also two years senior to the students but was a Japanese national, who spent a significant amount of time in the US so that her English was considered near-native. The TA's roles were to help the teacher with explaining task objectives in Japanese when necessary, demonstrate sample conversations with the teacher, and help the students' understanding of the assigned tasks. The data for the traditional class was collected by the researcher; however, unlike the RA in the computer room, she did not interact with the students nor did she help the students in this class.

3.3 Data analysis

The collected video data was analysed to identify human and nonhuman actors. Most of the actors were identified in the previous study, however, the computer room underwent a major refurbishment since the data was collected for the previous study (one year apart) so that all the desktop computers were replaced by laptop computers so that the bulky screens that hindered the students from having interactions were removed. The desks, however, remained the same but the students could use the extra space on the surface of the desks. The laptops were not mobile as they were fastened to the desks with wire locks. Another difference between the previous computers and the laptops was that the desktop computers had Japanese keyboards but the laptops were equipped with English keyboards so that the students were a little confused with how to type and switch between languages at the beginning.

After major actors in the new settings were defined, intressment between any actors were then looked for, and the directions of agencies (i.e., what influenced what) were determined. Types of agency were also decided and annotated to identify the flow of a network. Obligatory passage points for the language centre, the teachers, and the students were labelled on the corresponding actors to make comparisons to see if their intentions for operating the course or classes were aligned with each other.

4. Findings

This section presents the findings from the data analyses. The figure below (Figure 2) shows the actors, intressment, and agencies that constructed Concept Building and Discussion. Each entity is an actor;

human actors are represented by hexagons, and tapered rectangles are nonhuman actors. The numbers on OPP labels represent priority so that “Teacher OPP 1” was given a higher priority than “Teacher OPP 2.”

The starting point of the construction of CBD was the language centre. The centre recognised needs to create CBD and, therefore, it created the course objectives. The course objectives as an actor were translated as the textbook that the centre wrote and published. The centre appointed a course coordinator to take care of the operational side of the course. The collaboration of course coordinator, the course objectives, and the textbook were translated and created the syllabus and other teaching materials. The textbook provided in-class tasks, while the syllabus set the schedule for units and tasks to be covered every week. The syllabus also made another actor, ‘assignments,’ visible so that it can be used to monitor students’ learning progress, whereas the actor, ‘in-class tasks,’ translated on the textbook was created to prompt and promote students’ learning. Collective “students” as an actor, connects to two actors; ‘task completion’ and ‘assignment outputs’ through the same type of agencies ‘produce/engage in.’ Although it is out of the scope of this analysis the success and the failure of this course could affect the very existence of the language centre. For instance, the successful learning outcome through ‘task completion’ may improve external test scores (e.g., TOEIC) that are translated as learning evidence, which eventually reported back to the university, and the university approves the existence of the language centre and its course. In terms of OPP for the network, Center for English Language Education for Science and Engineering is the only OPP within the area marked as “intressment for course establishment,” however, the larger area in this figure, “intressment for class execution,” had multiple OPPs. Generally, the both teachers prioritised ‘assessments’ (in this case, the discussion test) over ‘in-class tasks,’ which was also administered to the students while they were not taking the discussion test. However, the teachers were busy running the test (scheduled for Weeks 3 and 4) but partially neglected other tasks for these weeks. Therefore, the teachers’ OPPs were ranked as indicated in the figure. Students’ OPPs, on the other hand, were labelled differently. The first priority was given to ‘assignment output’ so that they were all working towards the immediate issue at hand, which was ‘assignment outputs’ (discussion test), then before and after the test they were supposed to do the tasks on the textbook.

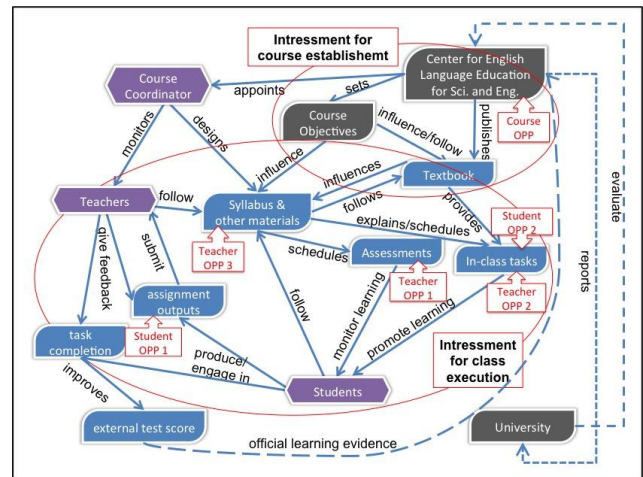


Figure 2: Network of course establishment and class operation

The figures (Figures 3, 4, and 5) below are closer analyses of what actually happened in the class during Weeks 3-5. Figure 3 shows the teachers’ network in their classes.

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As described in the settings (3.2) section, the teachers were to assess group discussions in Weeks 3 and 4. The thick black lines indicate the major agencies on this figure and the dashed lines indicate weak or faint links between the actors. The actor in the black rectangle indicates the end point of the flow of the influence. Although their environments were different, their OPP were the same. There were a few discussion models on the textbook and while the students were having their discussions on deciding hypothesis, designing a survey (Week 3), gathering and organise data, summarising and analysing data, and drawing a

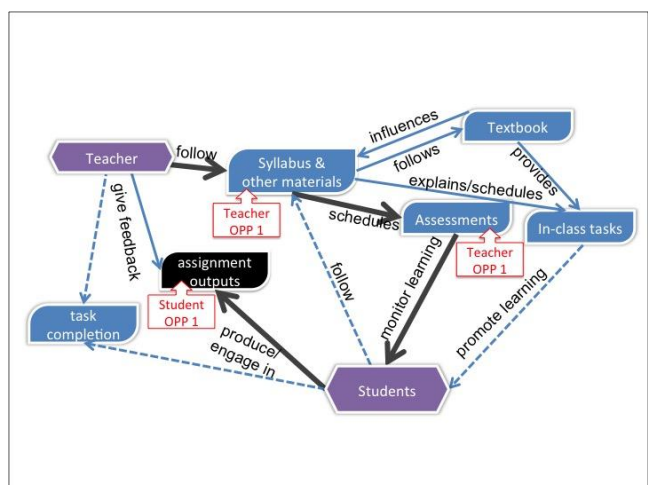


Figure 3: Teachers’ actor-network in their classrooms

conclusion (Week 4), the teachers either walked around and sat with a group of students and started their discussion test (in a traditional classroom), or the teacher in the computer room call a group of students to a specific area in the same room for a discussion test. Meanwhile, all the other students were supposed to carry on with their discussions. Therefore, their in-class tasks and the discussion test were inline with the syllabus and assessed or not, the students needed to engage in their discussions on the topics delineated on the syllabus. However, when the teachers were assessing student discussions, they were not able to guide and monitor other students to be on task. Thus there was a weak alliance between ‘in-class tasks’ and ‘students.’ Another factor that the teachers had the strong alliance with the syllabus could be that if the teachers had not followed the syllabus in Weeks 3 and 4, the students would not have been able to give their presentations in Week 6 and 7 as scheduled, therefore, following the itinerary was critical for running this course. As the two teacher-OPP’s indicate, the syllabus and the assessment (discussion test) were both important from the teachers’ perspective so they accepted them as the primary actors.

Figures 4 and 5 are the networks that the students created in their classrooms. The general network was the same between the students in the computer room and those in the regular classroom. In the computer room, however, the students had a laptop each in front of them, which resulted in forming a slightly different network.

According to the research assistant’s observation notes, the students who were not called for the discussion test, were either watching at the students who were doing the test, or browsing things on the Internet. The students knew that they needed to create a survey and actually distribute it between Week 4 and Week 5 so that they could bring their data to the class and they could analyse it in the Week 5 class. She also mentioned that they were communicating more in Japanese than in English, probably because the teacher was more focused on finishing the discussion test. This indicates that the agency of ‘in-class tasks’ was not strongly affecting the students. There was a new element introduced in the network that the computers were standing in between the students and task completion that there was an alliance with the computers, however, it did not necessarily contribute to the task completion. Therefore, the student OPP here was the assignment outputs (i.e., the discussion test). Most of the students used online surveys that at the beginning of the Week 5 class, for those students who did not collect data collected on the spot by asking their classmates to answer their multiple questions online. This shows that the computers definitely influenced the students’ behaviour that allowed them to alter their itinerary. Therefore, the link between the students and the syllabus was weak.

The figure below (Figure 5) represents the student network in the classroom setting. Compared to the network in the computer room, the figure has more actors and agencies.

The main difference between Figure 4 and 5 is that the role of TA played a pivotal role for students to be engaged in their tasks while some of the students were having a discussion test. The teacher was

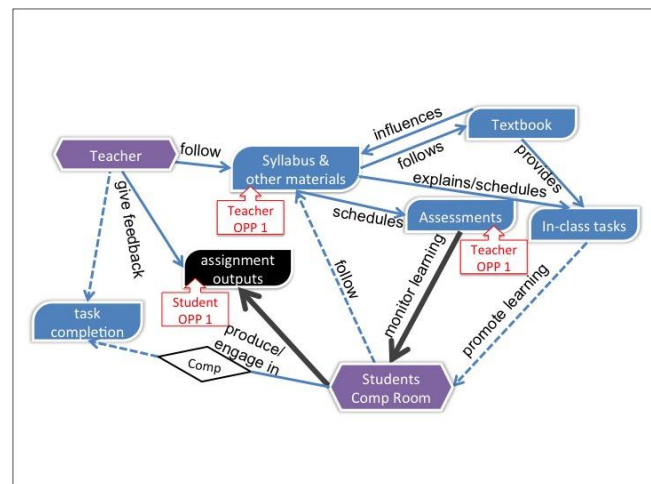


Figure 4: Student actor-network in the computer room

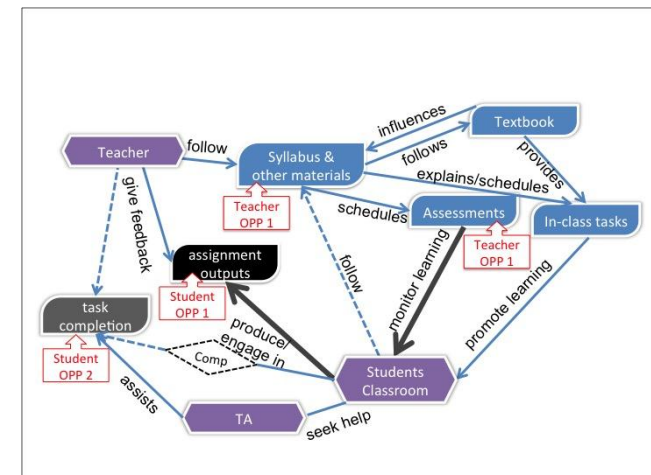


Figure 5: Student actor-network in the traditional classroom

continually assessing the students in Weeks 3 and 4, however, the TA was walking around and making sure that other students completed their discussion tasks. Therefore, the primary OPP for this group of students was assignment outputs but they also completed other tasks with the help of the TA (OPP 2). There was also a link to computers between the students and task completion. This was because some students knew that they were required to give presentations in Weeks 6 and 7 so that they brought their own laptop computers. The TA might have contributed to task completion; this was not a common practice. Only full-time faculty members were allowed to employ TAs and the rest of 60+ part-time teachers did not have any help during the class. Also, even if a full-time teacher hired a TA, they might have used them for different roles, such as, preparing teaching materials rather than using a TA as a tutor in the class. Therefore, without the TA, the shape of the network might have been very different.

5. Discussion

Judging from the materials that the Center for English Language Education for Science and Engineering produced for running Concept Building and Discussion, the curriculum designer took a hybrid designs of criterion-referenced approach and task-based language teaching. This is because they prepared detailed syllabus and itinerary to clearly state what the outcome of learning should be and the teachers assessed their output based on them (backward design) and each units of the textbook that the centre published contained very elaborate discussion samples that the students can follow so that they could learn how to engage in academic discussions (central design) as well as achieve the objectives of the discussion (backward design). The hybrid design of the curriculum signifies the intentions of the curriculum designer that the objectives of the course were to achieve the end products, that is, formulate a hypothesis, design a survey, analyse data, draw a conclusion, and present a study as a presentation, and these are to be achieved through certain processes.

The activities conducted in classrooms maybe fluid and teachers or the curriculum designer are not able to get a full control of what can occur during their classes. On a positive side, incidental learning may occur and learners may pick up extra knowledge or skills, however, the opposite, incidental 'unlearning,' may also be realised. The example of this is that in the computer room, some the students did not go through the prescribed activities while they were not being tested for their discussion skills. The skills or knowledge they were supposed to gain through task processes were never experienced by the students, thus they lost the opportunity to learn that portion of knowledge. Such loss of learning opportunities may occur frequently unless clearly pointed out, the students may not understand the original functions and intentions of the curriculum, especially when they see the end product as the ultimate goal of the task.

The findings indicated the teachers tend to follow the curriculum as much as they could although it seemed that they made efforts not to fall behind the schedule because how the assignments were laid out throughout the course. The course had frequent assignments and once they missed the opportunity to conduct one of the assignments, it was hard to get the course back on track again. Nevertheless, some small alterations to the syllabus or the itinerary may be made due to a number of factors that surround the teachers or the students. The findings showed, for example, that different environments could trigger different activities or different ways of achieving the goal as the account described about the students in the computer room for collecting data. It was also the environment that caused students to work on the computer longer than working on their assigned tasks. This is because without the TA in the regular classroom, the students may have been silent or working on their computers that they brought from home. This was evident in the previous study that the groups of students who did not bring any materials to work on in the traditional classroom, they were not able to work or they used a lot of time on their smartphones for ad hoc Internet research.

It is, however, possible that the curriculum had too many learning components packed into one semester that caused the teachers to focus more on the assignments and the students to produce the output for their assignments, so that the process of learning had less attention. If the goal was to

produce a good discussion between a group of students, then the computer room may not be suited for the purpose, however, if they needed to give a presentation accompanying PowerPoint slides, then the environment can help provide useful tools and reduce the time for the extra work and meeting that need to be scheduled outside the class. This study has exhibited that learning environments are very complex and depending on the situation, environment, or the people who are involved in, the form of learning can be altered expectedly or unexpectedly. The curriculum design is thus a blue print of a course and the teachers may need to be aware of the purpose of each task and assignment, as they would be easily put aside when they are ploughing through their duties and obligations. In order to improve this situation, instead of asking for teacher feedback at the end of the semester, providing regular feedback to the course coordinator may help the centre to understand the kind of issues that teachers and students are dealing with during the semester, and this could be beneficial for implementing a curriculum and materials that are better suited for the teachers as well as their students.

6. Limitations of the study and the further research

The study only used a part of the data collected for 15 weeks and focused on only a few aspects of the classroom activities. It would have given a deeper insight of how actor-networks can emerge, disseminate, and be stabilised or disassembled in the classrooms over the course of the semester, so that it would have made the cause of network emergence clearer, by focusing the type of tasks or assessments. Because of the type of data and ethics issues (i.e., video recording can disturb students' learning), it was not possible to focus on the same group of students for 15 weeks, so that it was not possible to look at the transition of group behaviour over the semester. However, this study showed that these students as a collective actor, behave in a similar manner depending on the issue at hand, as the comparison of student networks in different settings indicated that the presence of TA contributed significantly towards the amount of task engagement. Therefore, it would be interesting to look into student autonomy to see what factors may influence student autonomous learning behaviour.

7. Conclusion

The present study investigated how a foreign language curriculum influenced in shaping two classes in different environments: a regular classroom and a computer room. Although it may be considered unconventional to employ the theory that has not been used in the field of language education, this study has proven that Actor-Network Theory could be useful for analysing modern educational settings. The results showed that the curriculum designer's intentions were bifocal and therefore, it was challenging for the teachers and the students to achieve both goals. The curriculum, however, did not suggest how the discussion test should be conducted, therefore, it would be up to the teachers' interpretation of the assessment how they can incorporate the assessment that the entire class can participate. The curriculum designer also needs to be aware how the learning intentions should be presented and present the way that the teachers and the students can translate them as the designer intended to. In this aspect, designing a curriculum needs to be an on-going task by getting feedback from its stakeholders and make adjustments as they see fit. As on-going curriculum development is desirable, it would benefit both the teachers and the centre to exchange their feedback by opening more channels of communication to ensure regular communication, however, it should not burden the teachers who have already too many issues to juggle with. However, if the centre can provide an accessible arena, such as online message board or survey, for the teachers, who may also work as the actants for their students, the network of intentions may be constructed as the institution has initially planned.

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