

Note: This is a draft version of a book chapter originally published in King, J. (Ed.) (2016), *The dynamic interplay between context and the language learner*. Basingstoke: Palgrave Macmillan, pp. 194-224. Please reference the original source in any citations.

Language learning in context: complex dynamic systems and the role of mixed methods research

Viewing second language learning in the classroom as a complex dynamic system, operating over multiple, interconnected, timescales and levels, has profound implications for the way we approach the business of language research (Larsen-Freeman & Cameron 2008). This chapter describes the results of a 10-month classroom-based study, carried out at a Japanese university, from a complexity perspective and explores the extent to which the mixed methods approach adopted in the investigation ‘suits the multi-level analysis of complex issues’ (Dörnyei, 2009, p. 109).

Introduction

Complex systems

Recent approaches to discourse analysis, such as Multimodal Discourse Analysis (e.g. Jewitt, 2011; O’Halloran, 2011), and Mediated Discourse Analysis (e.g. Bhatia, Flowerdew & Jones, 2008; Scollon, 2001), are increasingly seeing discourse as a complex interaction between text, social context and different semiotic modes, a view which is highly compatible with a complex dynamic systems perspective on language. For example, all social action can be seen as occurring at a ‘nexus’ of:

1. The ‘interaction order’ (the social roles and relationships in a situation);
2. The ‘discourses in place’ (including both discourse in the surroundings like signs and public broadcast announcements and those introduced by participants as speech, writing or other forms of communication);
3. The ‘historical body’ (the storehouse of discourse sedimented in the history and memory of the individual and manifested in ‘habitual’ practices: ways of speaking, of making bodily movements, and of generally living in the world).

(Scollon & Scollon, 2004; cited in Jones, 2008)

Larsen-Freeman & Cameron (2008, p. 41) suggest that modelling of any complex dynamic system begins with identifying all of the different components in play, the timescales and levels of social organization at which they operate, the relationships between the components, and how the components and their relationships change over time. From this perspective, the dynamics of discourse can be represented as shown in Figure 1.

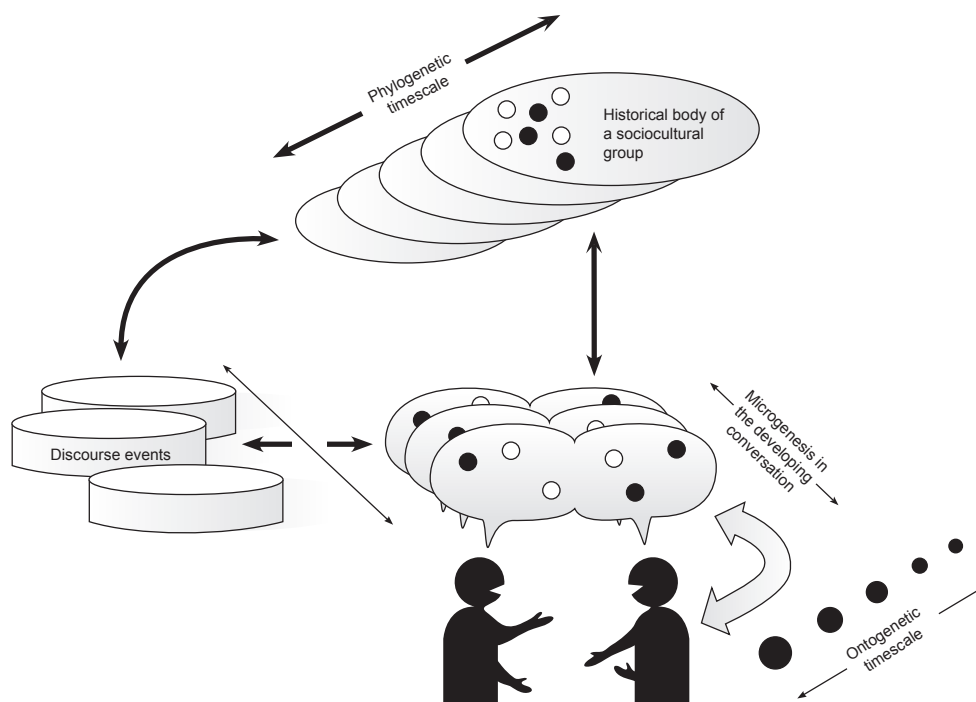
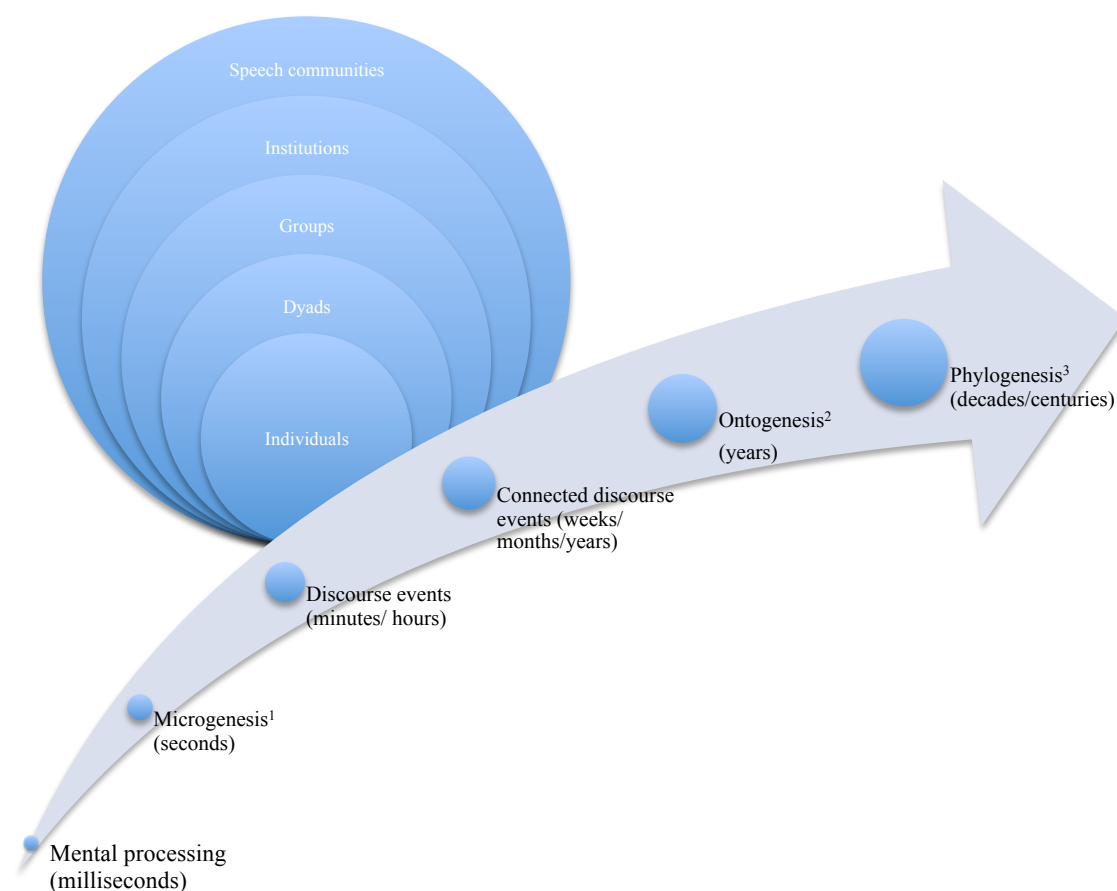


Figure 1: A complex systems perspective on discourse (adapted from Larsen-Freeman & Cameron 2008) © Iven Gilmore: <http://imbiss.dk/>

Similarly to principles guiding Mediated Discourse Analysis (Scollon, 2001), the moment of action at the site of engagement is taken to be the central process. In this case, the action (depicted as a series of speech bubbles) is a conversation, seen to be developing microgenetically with the active language or other semiotic resources (such as still or moving images, writing, gestures, and so on (Kress, 2010)) deployed at any instant shown in the diagram as shaded dots inside the speech bubbles.

The mediated action of the conversation takes place in a ‘nexus of practice’ (Scollon, 2001, p. 4) that connects it to different timescales and levels of social organization. The interlocutors participating in the conversation have their own ontogenetic histories (represented as receding shaded circles), which both shape and are shaped by the ongoing talk. The completed conversation becomes a single ‘discourse event’ which can form part of a series of interconnected events (shown as cylinders in the diagram), built up over a period of weeks, months or years. At a higher level of social organization, both the individuals and the discourse events they participate in form part of the ‘historical body’ - ‘the storehouse of discourse sedimented in the history and memory of the individual and manifested in ‘habitual’ practices: ways of speaking, of making bodily movements, and of generally living in the world’ (Scollon & Scollon, 2004, as cited in Jones, 2008, p. 245) - associated with a particular sociocultural group. These groups themselves change and evolve over longer, phylogenetic time scales, as depicted by the series of elliptical circles at the top of Figure 1. Discourse can therefore be seen as operating over multiple contexts, involving both extending time scales and different levels of a social system:

DISCOURSE



¹ Microgenesis refers to ‘the structural development of a cognition (idea, percept, act) through qualitatively different stages [...] from the inception of the cognition to its final representation in consciousness or actualization (expression) in behavior.’ (Hanlon & Brown, 1989, p. 3).

² Ontogenesis describes the development of an organism within its own lifetime.

³ Phylogenesis describes the development, or evolution, of a particular group of organisms (in this case a sociocultural group).

Figure 2: Discourse extends across different contexts, timescales and levels of society

Language learning as a complex dynamic system

Language learning in the classroom context has long been recognized as a complex dynamic system, even though in earlier days it was not discussed within the framework of complexity theory we now see evolving. van Lier (1988, p. 8), for example, had this to say on the subject over 25 years ago:

At some point all these factors [setting, content, interaction, participants, method] must be taken into account, for all are relevant, many are related, and as yet we know little about their potential contribution to L2 language development. [...] It is clear that, unless we are to oversimplify dangerously what goes on in classrooms, we must look at it from different angles, describe accurately and painstakingly, relate without generalizing too soon, and above all not lose track of the global view, the multifaceted nature of classroom work.

Despite exhortations such as this, the majority of research carried out into language learning to date has, unfortunately, failed to capture the better part of this complexity. Historically, there has been a tendency for researchers to either ignore classroom interaction altogether or to see it as some kind of irrelevant ‘noise’ occurring between input and output (Nunan, 1996). When classroom research *is* undertaken, there is often a bias towards collecting data that is visible or easy to measure (Allwright & Bailey, 1991; Johnson, 1995). This is a pattern that seems to hold true across the field of social sciences more generally, with Bryman (2006), for example, reporting that structured/semi-structured interviews and questionnaires within a cross-sectional design predominated in the 232 social science articles he examined. More difficult choices – involving longitudinal studies of subjects over extended timeframes or observation, recording, transcription and analysis of genuine classroom interaction (rather than merely *reported* behaviour) to strengthen ecological validity – are often avoided. When the research endeavour itself is seen as part of a complex system, the reasons for this seem clear; under pressure to ‘publish or perish’, academics understandably try to maximize their research output while minimizing the time or costs involved. This can often lead to poor quality, redundant, unimaginative or inconsequential research work, as well as other ethically dubious transgressions during the publication process (Bauerlein et al., 2010; Miller, Taylor & Bedeian, 2011; Neill, 2008).

A complex systems perspective on language learning rejects ‘quick fix’ methodological choices and demands a greater commitment of time and effort from researchers:

- i) Developing the necessary expertise in quantitative *and* qualitative procedures in order to capture and interpret data from different levels and timescales of the system;
- ii) Collecting less accessible data, regardless of the difficulties imposed, if it can provide additional insights into the system;
- iii) Collecting *more* data than has typically been the case in classroom research, with multiple triangulation.

Inevitably, there will always be limits to how much can be achieved in any one investigation, so informed choices will need to be made in terms of what is selected as data and where the line between breadth and depth is drawn (Larsen-Freeman & Cameron, 2008). However, a complex dynamic approach to language learning offers researchers the chance to provide a more nuanced, richer account of exactly what goes on in ‘the crucible of the classroom’ (Allwright & Bailey, 1991).

Mixed methods & their relationship to complexity theory

Greene et al. (1989, p. 259), in a meta-analysis of 57 empirical studies, identify five possible purposes for mixed methods designs:

- (i) *Triangulation*: aims to increase the validity of results by seeking convergence, corroboration or correspondence between different methods.
- (ii) *Complementarity*: aims to increase the interpretability, meaningfulness, and validity of results by exploiting one method to elaborate, enhance, illustrate or clarify another.

- (iii) *Development*: aims to increase validity by using the results from one method to develop or inform another.
- (iv) *Initiation*: aims to increase the breadth or depth of results by analyzing them from different perspectives and identifying paradoxes or contradictions.
- (v) *Expansion*: aims to increase the scope of inquiry through the use of multiple methods.

They go on to point out, however, that few of the investigations evaluated in their study successfully manage to integrate quantitative and qualitative data in the final stages of analysis, and question the value of mixing paradigms:

Our own thinking to date suggests that the notion of mixing paradigms is problematic for designs with triangulation or complementarity purposes, acceptable but still problematic for designs with a development or expansion intent, and actively encouraged for designs with an initiation intent. (Greene et al., 1989, p. 271)

Debates over whether methodologies with contradictory ontological or epistemological assumptions (such as post-positivism and constructivism) are compatible lie at the heart of comments such as these (e.g. Guba & Lincoln, 1994, 2005; Smith & Heshusius, 1986), and were prevalent in the ‘paradigm wars’ documented in the literature throughout the 1970s and 1980s, although they had died down somewhat by the late 1990s, by which time most researchers ‘had become bored with philosophical discussions and were more interested in getting on with the task of doing their research’ (Smith, 1996, p. 162-3).

Today, mixed methods researchers do not seem overly concerned with the ontological or epistemological issues, although, in theory, three possible positions can be adopted: (i) the a-paradigmatic stance, which side-steps the paradigm debates altogether; (ii) the multiple paradigm stance, which allows researchers to draw on more than one paradigm concurrently in their work; and, (iii) the single paradigm stance, which takes the view that qualitative and quantitative methodologies can be encompassed in a unifying paradigm (Hall, 2013; Teddlie & Tashakkori, 2003). Here, I follow the single paradigm stance of *pragmatism*, which rejects being held hostage to the ‘forced choice dichotomy’ and instead focuses on ‘solving practical problems in the “real world”’ (Feilzer, 2010, p. 8). It is the position that seems to me to be most in harmony with a complex systems perspective because of its ability to tap into different levels of a system and its openness to the selection of whichever methodology best fits the research question to hand – a fact that has not escaped the attention of a number of researchers, who explicitly or implicitly make this connection:

Pragmatic researchers [...] are more able to combine empirical precision with descriptive precision [...] Also, armed with a bi-focal lens (i.e. both quantitative and qualitative data), rather than with a single lens, pragmatic researchers are able to *zoom in* to microscopic detail or to *zoom out* to indefinite scope [...] As such, pragmatic researchers have the opportunity to combine the macro and micro levels of a research issue.’ (Onwuegbuzie & Leech, 2005, p. 383)

In theory, then, a mixed methods approach would seem to offer us a way to more effectively capture the various components populating a complex dynamic system, and to explore their relationships across different contexts, timescales or layers. Bryman (2007), however, notes at least nine potential barriers to effective integration:

- (i) *Audience expectations*: researchers often feel that they have to privilege either the quantitative or qualitative data in their reports for their target readership.
- (ii) *Researcher preferences*: researchers themselves often prefer certain methodologies, either because they are more familiar with, or place greater faith in them.
- (iii) *Research design*: initial design decisions can impose a particular structure on the investigation which then limits the role that quantitative or qualitative data can play.
- (iv) *Research timelines*: the pace at which research is carried out, analyzed, or written up can vary with quantitative or qualitative data, putting them out of synch.
- (v) *Interdisciplinarity issues*: bringing together specialists from different disciplines in a research project can raise its own unique problems (e.g. Austin, Park & Goble, 2008).
- (vi) *Research findings*: integration may be discouraged where either the quantitative or qualitative aspects prove more interesting or publishable.
- (vii) *Bridging ontological divides*: refers to the difficulties in marrying data with different epistemological or ontological roots.
- (viii) *Publication issues*: methodological bias by publishers can limit the number of potential outlets for mixed methods research. In addition, reporting on both types of data, and efforts to reconcile findings, can result in papers that exceed the word limits for many journals.
- (ix) *Paucity of exemplars*: a lack of exemplary models of mixed methods research makes it difficult to draw on best practice.

For the remainder of this chapter, I will explore the results of a 10-month classroom-based study, carried out at a Japanese university, investigating the development of students' communicative competence with authentic materials. Aspects of this work have already been reported on in the literature (Gilmore, 2007a/b, 2009, 2011), so my aim here is not to discuss the results in any detail, but rather to retrospectively evaluate the investigation from a complex dynamic systems perspective. I will therefore limit my discussion to addressing three key questions:

- (i) To what extent did the mixed methods approach adopted in the study facilitate investigation of the various contexts of language learning in the classroom, with its interacting components, layers, and timescales?
- (ii) To what extent was integration of qualitative and quantitative aspects of the investigation achieved and what were the principle barriers to greater integration?
- (iii) In what ways could the study have better embraced a complex dynamic systems perspective on language learning in the classroom?

The study

A mixed methods approach was considered most appropriate for this classroom-based research project because it attempted to measure changes in a complex construct (communicative competence), composed of multiple, interacting sub-components (linguistic, pragmalinguistic, sociopragmatic, strategic and discourse competences),

emerging across multiple layers of a complex learning context (a language classroom) over an extended period of time. It was essentially a concurrent (QUAN + QUAL) research design, which is seen as useful for tapping in to the different micro/macro levels or dynamic processes that characterize longitudinal studies (Dörnyei, 2007, p. 77). However, in reality it was more complicated than this since, at some stages in the research, the design became more sequential, with quantitative data informing qualitative decisions (QUAN → QUAL) or qualitative data informing quantitative decisions (QUAL → QUAN).

Quantitative aspects of the investigation

A two group pre/post-test design was used to explore the effects of authentic versus textbook input on learners' development of communicative competence. Quantitative approaches tend to be 'theory testing' and here it was hypothesized that the richer input provided by authentic materials, combined with appropriate awareness-raising and practice activities, would allow a wider range of discourse features to be 'noticed' (Batstone, 1996; Schmidt, 1990) by the learners and lead to enhanced development of their overall communicative competence. As mentioned earlier, in mixed methods studies, initial design decisions can impose a certain structure on an investigation, which then limits the role of quantitative or qualitative data. This was the case here since it was necessary to try to control the many extraneous variables in the trial in order to establish a causal link between the independent variable (the type of classroom input) and the dependent variable (students' communicative competence). In this sense, it was a QUAN-driven study, with the QUAL aspects 'fitting around' the rigid design demanded by the psychometric measures. Of course, a genuine dynamic systems approach (which was not adopted here) would abandon attempts to isolate particular variables or look for linear causal links, assuming that any observable changes are due to the total environmental context rather than any specific stimuli. However, DST does try to identify attractors or repellers shaping a system (e.g. de Bot, Lowie & Verspoor, 2007) and this mirrors the search for causality in more traditional research methodologies.

By necessity, a 'quasi-experimental' design was adopted for the investigation since it was not possible to randomly assign the 92 participants involved in the trial to the experimental or control groups. Students had already been placed into one of four classes, based on their TOEFL scores (as shown below), which meant that there were some small proficiency differences between the two groups.

Class	TOEFL Range
1	567-520
2	520-503
3	520-503
4	503-493

Table 1: TOEFL ranges within each class

This 'nonequivalent group design' is very common in educational research and can pose a threat to a study's internal validity. However, it is possible, as was done here, to statistically control for these differences using analysis of covariance

(ANCOVA), which removes the influence of the pre-test scores (called the covariate) before performing a normal analysis of variance on the corrected scores (e.g. Pallant, 2005).

The control group (classes 2 and 4) received input from two textbooks commonly used in Japanese universities, while the experimental group (classes 1 and 3) received input from authentic materials, designed to allow students to notice features of the discourse which could help them develop some aspect of their communicative competence. The hypothesis was tested with a batch of eight pre/post-course measures, designed to tap into different aspects of learners' communicative competence or language skills: i) a listening test; ii) a pronunciation test; iii) a 'C'-Test (e.g. Eckes & Grotjahn, 2006); iv) a grammar test; v) a vocabulary test; vi) a discourse completion task (DCT); vii) an IELTS oral interview; and viii) a student-student role-play.

A one-way between-groups analysis of covariance (ANCOVA) suggested strongly that, after statistically controlling for differences in proficiency levels between participants, learners receiving the experimental treatment (authentic input) developed their communicative competence to a greater degree than those receiving the control treatment (contrived input). This was explained by arguing that the authentic materials, with their associated tasks and activities, provided richer input for learners to work with in the classroom, which, in turn, allowed them to notice and then acquire a wider variety of linguistic, pragmatic, strategic, and discourse features (Gilmore, 2011). From a complex systems perspective, the independent variables used in the study (input and task design characteristics) can be seen as *control parameters*, affecting the trajectory of the system and moving it into new areas of its state space (Larsen-Freeman & Cameron, 2008).

The use of inferential statistics in the study pools the data from individual participants and provides a macro-perspective, represented at the level of 'sociocultural groups' in Figure 1. The statistically significant results, with moderate to large effect sizes for many of the communicative competence measures in the trial, allow us to generalize out from the study group to the larger population and to argue for the likely benefits of authentic materials over ontogenetic or phylogenetic timescales, during the years students spend studying English in school or university. In terms of complexity theory, the results of the quantitative analysis suggest that, in a classroom context, the characteristics of language learning materials or tasks can act as powerful attractors, exerting a force on the system and moving learners' L2 acquisition in new and partially predictable directions.

Qualitative aspects of the investigation

The qualitative aspects of the investigation included data from learner diaries, case-study interviews, and transcripts of recorded classroom interaction, which allow us to focus in at the level of the individual, and microgenetic or ontogenetic timescales, represented in Figure 1. Qualitative methods have greater descriptive power and can highlight the variability that exists in a system; information that is typically 'averaged away' when statistical methods are applied, but which can be highly significant:

‘The difference among learners is not ‘noise’, but rather a natural part of dynamically emergent behavior assembled by the individuals with different orientations, grounded in social relationships with other people, and in keeping with historical contingency [...] To honor this, we need to look at the ‘messy little details’ that make up the ‘here and now’ of real time.’ (Larsen-Freeman & Cameron, 2008, p. 158/9)

Learner diaries

Diary studies can provide a valuable introspective tool in the classroom context (Krishnan & Hoon, 2002; Nunan, 1992). They are defined by Bailey (1990, p. 215) as ‘a first-person account of a language learning or teaching experience, documented through regular, candid entries in a personal journal and then analyzed for recurring patterns or salient events’. In this investigation, following Bailey (1990), a five-step procedure was followed, where:

- i. A full account of the diarists’ personal learning history was taken
- ii. Diarists were encouraged to be as candid as possible in their entries
- iii. The initial database of entries was revised for public consumption
- iv. Patterns and significant events in the entries were identified
- v. The data was interpreted and discussed

A number of researchers have reported on the difficulties associated with this form of data collection, including poor quality entries lacking detail, and low compliance rates (e.g. Carroll, 1994; Halbach, 2000). In this study, however, the compliance rate was relatively high (84.2%), although the final diaries varied quite dramatically in quantity (from two to fifty pages) and quality (from extremely brief summaries, commenting on only the content of classes, to detailed and thoughtful notes on the materials and activities). The two diary extracts below (both from students in the experimental treatment group) illustrate differences in the quality and usefulness of responses received:

YS:

Nov. 30th (Mon) As usual. Everyone was talking excitedly.

Dec. 1st (Wed) I had a stomachache, so I didn’t concentrate on the work.

Dec. 6th (Mon) Nothing especially. But I lost my paper. It’s very kind of you to give us sub-paper.

Dec. 13th (Mon) I don’t remember.

RM:

9.29.04 Today, we first checked our homework. According to the sheet, English conversation is a bit like playing tennis. It was interesting to know that I have to be competitive in English conversation. I agree that most Japanese people are likely to wait till a turn to talk comes to them. So I thought I have to try to be more active in the conversation when I speak English. After that, we learnt more about how to develop the conversation. I realized that native English speakers are really good at expanding the answers. As for me, I’m not good at it so I think I should try to find an interesting subject in the conversation and expand it. The last thing we did was to talk on a certain topic. Alex put us into a group. First I talked to T on holidays. I tried to expand the answer and asked as many questions as I could. J gave us a feedback on the conversation and he told me it was really natural so I was really happy.

This unfortunate reality imposes an unavoidable bias in the study since the ‘significant events’ recorded tend to represent the views of the more motivated, or vocal and opinionated, members of the class. YS, whose terse diary entries are shown above, was an exceptionally introverted student who, despite encouragement, did not

respond well to any of the communicative activities offered up in class. His voice was therefore largely lost from the investigation as his rebellion against the classroom activities largely manifested itself in silence and withdrawal (see also King, 2011, 2013). The majority of participants in the study, however, did not need much persuasion to write diary entries, indeed many of them seemed to find relief in this outlet for their thoughts and feelings since the Japanese classroom often imposes what Lebra (1987, p. 347) terms the restraint of ‘social discretion’ on its members: ‘silence considered necessary or desirable in order to gain social acceptance or to avoid social penalty’. This is something often noted by teachers in Japan:

‘When I privately asked students whom I had come to know why they would “pretend not to know,” why they would not answer in class, or would refuse to say anything, they usually said that they “were afraid of making mistakes,” “were afraid of instructors,” “thinking too hard,” “I’m too nervous,” “I feel tense.” ’ (McVeigh, 2002, p. 99)

Students frequently surprised me with their candid feedback in the diaries, since often there had been no overt expression of enjoyment or frustration in the class itself. Their facial expressions provided no clue as to the success or failure of the activities – beneath the calm exteriors however, deep emotions were obviously present and the written mode provided a non-threatening way to express these feelings.

Learners’ diary entries, as shown below in Table 2, were categorized into 4 main types of recurring issue:

- A. Comments relating to aspects of the input or activities learners noticed in the classroom (components of the communicative competence model or language skills)
- B. Comments relating to the learning environment (the teacher, other learners, tension in the classroom, external concerns)
- C. Comments relating to aspects of the lessons learners found motivating or de-motivating
- D. Comments relating to the pre- and post-course communicative competence tests or testing procedures.

Recurring issues	Experimental group (number of comments)	Control group (number of comments)
A. Noticing		
1. Linguistic competence	15	55
2. Pragmalinguistic competence	25	2
3. Sociopragmatic competence	60	7
4. Strategic competence	20	1
5. Discourse competence	34	0
6. Listening	25	16
7. Speaking	5	10
8. Reading	1	0

B. Learning environment		
1. The teacher	5	5
2. Other learners	10	8
3. Tension in the classroom	8	23
4. External concerns	4	13
C. Motivated/de-motivated by...?		
1. Motivating materials & activities	73	82
2. De-motivating materials & activities	15	26
D. Pre- & post-course tests	16	10
Total number of comments	316	258
Estimated number of words	15,880	8,670

Table 2 Summary of types of recurring issues found in learners' diaries

The patterns indicated in the recurring issues broadly follow those that would be expected from the different types of treatment the two groups received. The control group tended to notice features relating to linguistic competence (grammar, vocabulary or pronunciation), reflecting the bias of the textbook materials towards this kind of information. The experimental group, on the other hand, noticed a much wider range of features, reflecting both the richer input that the authentic materials provided and the focus of the tasks designed to go with them. In terms of the 'four skills', the majority of the comments centred on listening and speaking skills development since these were the main focus in the input provided to both groups. A significant number of comments in students' diaries focused on the learning environment within the classroom and the relationships of learners with each other and the teacher. These highlight the critical role that the social context can have on learning – something that is particularly interesting since it is a moderating variable rarely mentioned in quantitative research reports. Another common theme represented in the diaries relates to materials and activities students either liked or disliked, which provided some evidence of the level of success of the two treatment conditions. The number of positive comments was similar for both groups but there were around twice as many negative comments in the control group, suggesting higher levels of overall dissatisfaction. This was supported by feedback from the only two participants in the trial who switched from the control group to the experimental group, KM and YN (and were therefore excluded from the quantitative analysis):

KM: Honestly I thought your class [control group] was boring in first semester because the class was mainly text activity. I thought "this is communicative English III so I don't want to study the same way as high school or communicative English I and II". I considered the class as easy class. Once I think so,

it is difficult to keep high motivation to improve English skill in the class. I wanted more challenging and enjoyable class. In second semester (sic), my mind was dramatically changed. Your class I were based on discussion and video activity without textbooks. This was really enjoyable and challenging.

YN: Class I [experimental group] and II [control group] are very different. Class I is more positive.

The final category in table 2 shows learners' comments on the pre- and post-course tests and these suggested that students felt under considerable pressure whilst taking (at least some of) the tests. Overall, although the total number of comments was similar for the two groups, the experimental group wrote almost twice as much in their diaries entries and, again, this supported the view that they were more motivated and engaged with the learning experience.

The more quantitative treatment of the diary studies outlined above provides a useful overview of the data and also allows a degree of triangulation with the statistical results. However, the real value of this method of data collection lies in its ability to contextualize and personalize the learning experiences of the participants, thereby allowing space in the research to consider the *emic* ('insider') perspectives of the students as well as the *etic* ('outsider') perspectives of the researcher/teacher. The student diaries were extremely rich and provided some surprising insights into learners' attitudes and feelings, although the situatedness of the data means that it has most relevance at a local level and is probably of more interest to educationalists working within a Japanese or Asian context. Space limitations here prohibit a detailed discussion of this aspect of the investigation, but I will briefly outline examples from the four main types of recurring issue identified.

Noticing

The authentic materials used with the experimental group often facilitated a shift in focus from linguistic to pragmatic features in the classroom. Pragmalinguistic issues were often noticed and mentioned by students in their diaries, for example, these comments on register or opening and closing down conversation:

SN: Did I tell you about my part-time job? I have worked at Ito-Yokado as a clerk of customer-service. Sometimes foreign people come to ask something to me. I can somehow catch what they say, and try to respond in a polite way, for of course they are customers. Then I freeze. How should I say? Is it ok and polite to say such a such? Of course in the end, I can manage it but some worries won't leave me. Now that I know some politer ways, they will be of some help.

TK: Today, we learnt how to close a conversation. For example, "Well... I've got to go", "OK then, thank you for your help!" and so on. Actually, I was surprised that there were so many ending clauses. Now I know them, so I want to use them when I talk with foreigners!

These examples are interesting because they illustrate a problem very specific to Japanese learners. As Loveday (1982) points out, Japanese tends to be quite codified and rigid, in terms of what language is appropriate for a given context. English, in comparison, tends to prefer more varied and individualised responses, illustrating a 'need for a more personalized reaction' from interlocutors (Loveday, 1982, p. 7). This is likely to be the source of SN's hesitancy in dealing with English speaking customers: he seems to be searching for that one, appropriate speech act and worries whether or not he has got it right, seemingly unaware of the fact that any of a

range of responses would do just as well. It is also likely to be the source of TK's (and others') surprise at the range of possible closings in English conversation. The realization of this 'pragmalinguistic freedom' in the English language might very well relieve Japanese learners of some of the tension they feel in L2 communication, as well as leading to increased fluency as they self-monitor less.

Learning environment

Many comments, from the diaries of both experimental and control groups, related to the social dynamics at work within the classroom. These highlight the critical role that relationships (both teacher-student and student-student) have on learning, and are all the more important because they are often ignored by researchers and teachers alike (Dörnyei & Csizér, 1998). Just as the context of learning shapes learners' L2 development so the learners themselves shape the context. In fact, from a complex systems perspective, the learners are as much a part of the context as the physical environment, the materials or the teacher – there is a dynamic interplay between them all, resulting, to some extent, in unpredictable outcomes for any lesson.

The teacher's personality and teaching style were clearly important considerations for some learners:

NN: I was a little nervous before you came to the class, but when I saw you, I felt relaxed because you were smiling. I enjoyed your first lesson and I like the peaceful atmosphere of your teaching, so I'd like you to keep it through this year.

SF: Hi Alex! Nice to meet you! Before class, I wondered if you were grim teacher. But you looked cheerful!! So I was relieved.

Other comments illustrate the powerful effects that learners' relationships with each other can have on learning in the classroom:

NK: Today we continued to talk about job. My partner was H. She is a new friend! It is nice to have a conversation with someone I've never talk in classes.

MK: Today, especially I could enjoy this role-play because my partners are very nice. When partners are bad this kind of activities become torture itself.

In this respect, the learners' goals in the classroom can be seen as quite distinct from the teacher's and tend to be more socially than linguistically oriented.

Many comments from both groups also suggested high levels of tension in the class, and the frequency of words such as 'tense', 'nervous', 'afraid' and 'embarrassing' were noticeable. This is something that I believe teachers in Japan tend to be largely unaware of, because these feelings are generally hidden from public scrutiny. The diaries seemed to provide students with an outlet for their worries, which were most often associated with one of three general themes; 'making mistakes', 'feeling inferior' or 'fitting in':

MT: We see the scenario and checked the words. There was a lot of words that I'm not sure that the meaning is correct. It was embarrassing that I ask the meaning of a word that is easy and I should know, but it is not useful for me if I didn't ask.

KN: Today, I was very nervous and worried about my speaking skill. While I could speak when talking with my friends, I couldn't in the class. A friend beside me spoke so fluently, so I was very depressed, envied him and accused myself of confidenceness [lack of self-confidence].

In some ways, these factors are outside the control of the teacher and depend on the personalities that make-up any particular class. However, with a better idea of the social dynamics at work within the class (for example by close monitoring of learners' interactions with each other or feedback through diaries) teachers can take measures to alleviate these tensions. Greater attention by teachers to the learning atmosphere and group dynamics in the classroom is likely to pay off in terms of improved learning outcomes.

Motivating aspects

The experimental group appeared highly motivated by the 'real world' aspect of authentic materials they were exposed to in class and how it could be usefully applied in their own lives:

RI: All of the materials you gave me was practical. Sometimes I check them to remember how I should say something in formal situation, etc... My listening and speaking skills could be improved in your lesson. Before participating in your class, my English was terrible! It was very Japanese English and quite unnatural. However, I really think that now I can speak English more naturally than before thanks to your lessons. You taught me how I should speak English for native English. It was very hard but quite useful for me. I like your teaching! Your lessons are unique, interesting and active!

Many student comments also displayed great enthusiasm for the use of authentic input for its own sake. Movies and songs were particularly appreciated and there are glimpses of their powerful emotional effects in the diaries:

SN: Still on "Fawlty Towers": today we could watch the video with subtitles, so that I could catch every joke! Last class I caught most of them, but sometimes they, especially Basil, spoke too quick, for me to understand. However, every time I missed them, audiences in TV laughed! How frustrating! There must be something funny!

RI: I really felt that your class is very fun. The lesson of "Tom's Diner" was interesting. I could learn where I should put stresses or how to take rhythms while I enjoyed myself. I had hummed the song of Tom's Diner after finishing the class.

Comments such as these resonate with stimulus appraisal models of language learning (Scherer, 1984; Schumann, 1997), which see input as being appraised by learners along five criteria:

- i. Novelty: input has novel or unexpected patterns;
- ii. Pleasantness: pleasant events encourage engagement & unpleasant events encourage avoidance;
- iii. Goal/need significance: relevance of input to students' goals or needs;
- iv. Coping mechanisms: ability of students to cope with learning events or to avoid and change outcomes;
- v. Self or social image: compatibility of learning events with social or cultural norms.

Positive appraisals on these criteria are thought to encourage greater cognitive effort and engagement with input, leading to more learning, while negative appraisals result in avoidance and, therefore, less learning. While both treatment groups in the investigation evaluated their classes positively for the most part, I believe that the

authentic materials were better able to satisfy the appraisal criteria of novelty, pleasantness and goal/need significance and that this resulted in higher overall levels of satisfaction, increased engagement with the input and, consequently, more learning taking place within the experimental group.

Communicative competence tests

The Japanese education system is strongly oriented towards test taking, and the participants in the study frequently commented on the proficiency tests used to assess changes in communicative competence. The speaking tests (IELTS interviews, role-plays and discourse completion tasks), in particular, caused high levels of stress, and there were noticeable attempts to cheat as a coping mechanism:

RM: I was very shy when I was taking speaking test today!! Because everybody was behind me and they could hear my speaking. I don't have self-confidence yet, so I was afraid what they were thinking. Almost all students in class 1 can speak so fluently. That's why I was nervous. I thought I could do better if I did it in another room, not in front of everyone. A girl in class 1, who doesn't take speaking test yet, said to me that she was able to listen the questions and she was thinking the answers a little, so when she take the test, she would prepare some answers. My turn was first, so I thought it's not fair!!
ES: Role-playing test was also terrible today. I and my partner's conversation was not active. Actually, my partner had asked me what topics should we talk about yesterday. However, our plan made no sense.

In this sense, the qualitative data helped to inform quantitative decisions (QUAL → QUAN), since measures were taken to prevent students preparing in advance for the tests.

A complex dynamic systems perspective should pay attention to both individual variation within a system and each participant's ontogenetic development over time. However, in this particular study not enough time was spent analyzing the data from this frame of reference. The diary studies provided a potential way to explore this level of the system in more detail and were therefore underexploited here.

Case-studies

The case studies were designed to explore six learners' reactions to the experimental and control treatments in more detail, using their Personal Learning Histories or diaries as 'jumping off points' in face-to-face interviews. Three learners were selected from each group, representing high, medium or low proficiency students, based on their scores in the pre-course communicative competence tests – a further example of sequential design, with quantitative data informing qualitative decisions (QUAN → QUAL).

The case study interviews gave a sense of the wide range of proficiency levels within the control and experimental groups, despite similar TOEFL scores (used as the basis for streaming students in this particular university). This suggests that the TOEFL test is providing a rather crude measure of learners' true communicative competence. Two of the case-study students, MY and YK from the experimental group, clearly illustrate the wide variations in proficiency. MY was a 'returnee' who

had spent over five years living in Canada as a child and had native-like fluency and pronunciation, although, as she said, she lacked vocabulary:

MY: And vocabulary, I don't think I have much vocabulary because like in Canada I was very small so. When I take tests, you know in the last parts there's like long stories and most of the hard vocabularies I can't really understand so I think I have to work on that.

YK, on the other hand, was unable to produce any long turns in her interviews at all, often speaking in a whisper, almost undetectable by the microphone and interspersed with long pauses, as if attempting to become invisible (a strategy often employed by less confident students in the classroom). By her own account, she struggled with lessons to the extent that she often could not even understand her teachers' instructions:

I: So what do you think of your classes this year?

YK: I don't enjoy them. I can't listen to the teacher so I don't know what to do.

Predictably, she had more difficulty coping with the authentic materials than MY and estimated that her initial comprehension of video input was around 20%, although she pointed out that the visual contextualisation of the films helped:

YK: Yeah I don't understand at all but the picture tell me.

YK's problems with the material seem to be more with the speech rates or accents since, when she read the transcripts, she realised that much of the vocabulary and grammar was already familiar to her:

I: So if you listen and read together is it easy to understand?

YK: Yes I can't listen to the native speaker. When I see the print I was surprised because I didn't know they say.

I: Ah but when you read it you can understand?

YK: Yeah.

This suggests, again, that it is lack of exposure to natural English models that is the source of many learners' comprehension difficulties, rather than knowledge of the language system itself. Because of YK's difficulties with the level of the class, we might have predicted that she would have expressed a desire for simpler, more controlled input but, surprisingly, she still stated a clear preference for authentic materials over textbook materials:

I: So this term we haven't used a course book. If you compare the things we have studied this term with using a course book, which one do you think is better?

YK: I think text isn't needed because I want to improve my speaking and listening skill. I think if I will use book it's hard to speak more smoothly with native speakers.

Similarly to the classroom diaries, the case studies provide a dynamic longitudinal narrative, and insights into learners' ontogenetic development during the course of the study. Unfortunately, interviews were only conducted four times for each student in this case, which limited their usefulness. However, with more finely grained data from interviews, tied in to actual classroom interaction from the participants, our understanding of variation across individuals or time, and their impact on the resultant classroom discourse could be enhanced.

Classroom interaction

Recording classroom interaction is both difficult and time-consuming, as Allwright & Bailey (1991, p. 62) point out:

‘Transcriptions of classroom interaction, where there are large numbers of speakers whose voices and accents may be similar, where voices often overlap, and where some speakers will be heard more clearly than others, can be very time-consuming indeed. (In our experience, one hour of language classroom data can take up to twenty hours to transcribe accurately).’

However, by capturing ‘the moment of action at the site of engagement’, we can gain insights into learning from a unique perspective, as it takes place second by second, microgenetically.

The example materials shown below in Figure 3, and the associated extract of student discourse generated from it, illustrate how classroom activities can play out in reality. The materials, adapted from Quentin Tarantino’s film *Reservoir Dogs*, were used with the experimental group and were designed to focus the learners’ attention on important features of oral narratives, such as: (i) the obligatory parts of a story: <abstract> <orientation> <complicating actions> <evaluation> <coda> (Labov, 1972); (ii) the highlighting function of the present historic tense, and (iii) non-verbal communication methods.

Telling Stories

A. What is happening in this picture?

1. What do you think the policeman is saying to the driver?
2. What is 'police procedure' in your country when a car is stopped? How do you think it is different in America?
3. What do people usually keep in their car's glove box in your country? How about in America?



B. Work in pairs & imagine you are policemen in America. Policeman 1 is going to tell a story to Policeman 2. Try to make your story as interesting and funny as possible, Policeman 2 should try to sound interested in the story. Here are the details:

- The other day, you stopped a suspicious car with an American man (called Chuck) and an oriental woman in it, the man was driving.
- You parked behind the car and approached it with your gun drawn.
- You walked round to the driver's side and pointed your gun at the driver and told him not to move.

The driver replied, "I know, I know" but continued to move his right hand towards the glove box.

- You warned the driver again, saying you would shoot him if he didn't put his hands on the dashboard.
- The driver's girlfriend told him to listen to you and to put his hands on the dashboard.
- Finally, the driver put his hands on the dash but he was nearly shot by you!
- Chuck was trying to get his registration out of the glove box.

C. Write down your dialogue & practice acting it out in a natural way.

D. Now watch this scene from *Reservoir Dogs* (Quentin Tarantino). How was it different from your story? Think about:

- (a) the different parts of the story
- (b) the grammar patterns
- (c) the vocabulary
- (d) the intonation
- (e) the body language

Figure 3: Example classroom materials (experimental group)

At the macro-level of design, the task first contextualizes the story related in *Reservoir Dogs* both visually and descriptively, which encourages students to develop pertinent schemas and scripts (Schank & Abelson, 1977) for the scenario of traffic violations in the USA, and also helps to activate key lexical items, such as *glove box*, *gun drawn*, and *dashboard*, arising in the follow-up listening activity. By designing the task in such a way that students are required to produce their own narratives first, they are encouraged to 'notice the gap' between their own L2 performance and that of native speakers under the same conditions. This attendance by students to their own generation of language, or 'auto-input' (Ellis, 2008, p. 261), and its subsequent

comparison with a NS model is thought to enhance acquisition of intake (e.g. Schmidt & Frota, 1986).

At the micro-level, the following transcription of two Japanese students attempting the activity shown in Figure 3 illustrates how they cooperate together to create meaning from the task, exploiting the materials and an electronic dictionary as mediational tools:

S1, S2: Male students (collaborating on the task)

US: Unidentified student in class

(...): Transcription remarks

[...]: Concurrent speech

italics: Japanese

bold: English translation

- 1 **S1:** *ha he ho ho nani ni shiyoka* A piece of paper
ha he ho ho what shall we do?
- 2 **S2:** A piece of paper
- 3 **S1:** *sou nanka omoshiroi hanashi wo tsukurashite morauyo*
Yes I'll make an interesting story
- 4 **S2:** *so omoshiroku shiyo omoshiroku naruka konna shinkokuna kore ga omoshiroitte iunara*
Yes let's do that make it interesting? I don't understand how we can make
- 5 *ore wa rikai dekihin* we don't understand what why this is funny
this serious story interesting
- 6 **S1:** What do we now here it's my it's my it's my car (S2 laughs) I'm sorry and I want to ride ride
- 7 *pato car* once finish (*pato car* = patrol car)
- 8 **S2:** (laughs) Oh really oh that's terrible
- 9 **S1:** *Patokaate nihongo patroruka ka?*
Is 'pat car' Japanese? Is it 'patrol car' in English?
- 10 **S2:** *Ah pata* Patrol car [S1: Patrol car]
Oh that's patrol car
- 11 **S1:** (Checking dictionary) Be available patrol car *rashii chuuka*
patrol car-ish or
- 12 *Police car no hou ga iissu*
Police car would be better
- 13 **S2:** Mm police car sq squad car
- 14 **S1:** *nani sore* squad car
What's squad car?
- 15 **S2:** *iya soo ya issho ni kangaete*
Can't we think about this together?
- 16 **S1:** *Pair yaro*
We're working as a pair aren't we?
- 17 **S2:** *Pair detan yaro kangaetekure*
If you're my partner please think of something
- 18 **S1:** (Reading from the worksheet) B work in pairs
- 19 **US:** *Omoshourokusuru*
Are you making it interesting?
- 20 **S2:** *sou sou sou*
Yeah

In line 6, S1 suggests a quick solution to the task, imagining the driver of the car simply apologizing to the policeman and explaining that his driving misdemeanors stemmed from his desire to ride in a police patrol car – a suggestion rejected by S2 in line 8 with the evaluation 'oh that's terrible'. The emergence of the expression *patokaa* in the discussion then initiates a series of turns from lines 9-14 where the two students negotiate with each other to arrive at a suitable English translation. They seem to be aware that, often, English loan words are shortened in Japanese (e.g.

‘convenience store’ becomes *konbini* and this knowledge causes them to doubt (correctly in this case) the acceptability of ‘pat car’ in English. S2 suggests ‘patrol car’ as a better alternative, but S1 appears to be unsure and searches his electronic dictionary for more information. His search yields an alternative expression, ‘police car’, which generates a final suggestion of ‘squad car’ from S2. S1 appears to want to search for more information about ‘squad car’ in his dictionary, but this is curtailed by S2’s impatience to continue with the dialogue construction task.

In line 15, S2 complains about S1’s lack of cooperation in the pair work activity. The reason for this comment is difficult to interpret from the transcript alone but is in actual fact brought on by S1’s continuing attention to his electronic dictionary, rather than S2. In lines 16 and 17, the pair continue to bicker over their contributions to the activity. In line 19, another student asks the pair if they have managed to make their story interesting and S2 replies enthusiastically that they have.

They continue, some 150 lines later, in a similar vein but now the story becomes twisted as it transpires that the driver has actually stolen the policeman’s patrol car:

- 1 S2: And I approach and approached I approachedu it with a gun drawn *hajime nante kakarouka*
how shall we start?
- 2 S1: *koko wa nan* (incomprehensible) *futari de kaiwa hajimarun*
This part shall we have two people talking?
- 3 S2: *so so so* (laugh) *sakki no yatsuka* (laugh) *sakki no yatsuka aa yu chan yo ai ya 2 ban no yatsu*
That’s right that’s what we were talking about before the no. 2 guy
- 4 *zenzen haitte kitenai hitori de zura tte*
isn’t talking at all is he?
- 5 S1: *kikijouzu yan* (S1 & S2 laugh)
He’s a good listener
- 6 S2: *aha uhu mitai na*
Ah it looks like it doesn’t it?
- 7 S1: (to the microphone) *kikijouzu* is means mm a person is good at listening to the story from someone
- 8 S2: (laughs) I walked around to the
- 9 S1: Ah no no no no good listener good listener (S2 laughs)
- 10 S2: Side and *zutto kore kaiteru dake yakedo iin*
I’ve just been writing is that ok?
- 11 S1: *iin janai no*
No problem
- 12 S2: Pointed my gun the at the driver *mazu* I say I say don’t move *kono ato ni nan tte itte tara iin kana*
what should he say after that I wonder?
- 13 Why you stole why why *ka*
- 14 S1: Why
- 15 S2: (laughs) Why you stole why you stole *yana* my car patrol car? *eh? chigau ??*
eh? eh? is that wrong?
- 16 S1: Eh?
- 17 S2: *nan yattakke nande nande tottan yatta ore*
What was that? Why did he steal the car?
- 18 S1: *ha*
- 19 S2: *nande patrol car patoka er tottan yattakke*
Why did he steal the car?
- 20 S1: *pat car noritakatta kara*
Because he wanted a ride in a patrol car
- 21 S2: *sairen narashitakattan dayo mitai na soko noke soko noke oira ga toru mitai na*
He wanted to use the police siren to show how important he is “Get out of the way
- 22 *sonna ki na* Get out get out I’ll I’m coming (S1 & S2 laugh)
everybody! I’m a VIP!”

This short extract of classroom interaction illustrates how even small amounts of transcribed data can be extremely informative. It is clear that the participants are both highly motivated and deeply engaged with the task, and in this sense the authentic materials appear to be facilitating language learning. This supports the notion that, in complex systems, data from one level of analysis can successfully triangulate with that from other levels; here the evident enthusiasm of the students for the task helps to explain both comments in the diary studies and the results of the statistical analysis.

Another important point to take away from this transcript is that, as constructivist models of learning suggest (e.g. Williams & Burden, 1997), language classes and syllabuses are only ever partially describable. Complex systems are unpredictable and, regardless of a teacher's best efforts to plan and control the language content, exactly what students will *do* with the input is uncertain:

'Learners are perfectly capable of reinterpreting tasks, in such a way that the carefully identified pedagogic goals are rendered irrelevant as a learner invests a task with personal meaning.' Bygate, Skehan & Swain (2001, p. 7)

As we saw above in the interaction between S1 and S2, the materials led to a discussion of the acceptability of 'pat car' and equivalent expressions in a way that would have been impossible to see in advance. Language teachers would be wise to embrace this unpredictability and to recognize contingent events such as these in the classroom as learning opportunities; instances where negotiation of meaning can occur, and input is likely to become intake.

Conclusion

'The theory that we choose to work with, explicitly as researchers and perhaps implicitly as teachers, will dictate how we describe and investigate the world. It controls how we select, out of all that is possible, what to investigate or explain, what types of questions we ask, how data are collected, and what kinds of explanations of the data are considered valid' (Larsen-Freeman & Cameron, 2008, p. 16)

A mixed methods approach seems a natural choice for researchers investigating language learning from a complex dynamic systems perspective because it provides a mechanism to explore, and elaborate on, the different timescales or levels of social organization within the system and to look for convergence and corroboration in the data, thereby enhancing the validity of a study. In the classroom-based investigation reported on here, the combination of quantitative and qualitative measures undoubtedly enhanced the quality of the findings. The quantitative approach helped to establish the important role L2 input and task characteristics can play in the development of learners' communicative competence. Inferential statistics viewed the data from a macro perspective, over phylogenetic timescales, allowing us to generalize out from the study group to make predictions about the effects of authentic materials on a wider target population. The qualitative approach focused in on lower levels of the learning context; to individuals or dyadic interaction, and microgenetic or ontogenetic timescales. Including the students' own emic perspectives provided insights that would otherwise have been unavailable to the researcher, and often complemented the quantitative results. The diary studies and transcripts of classroom interaction suggested that the authentic materials used with the experimental group

had been highly motivating and engaging and had successfully raised students' awareness of the different components of the communicative competence model (linguistic, pragmalinguistic, sociopragmatic, strategic and discourse competences). This 'noticing' appears to have facilitated the acquisition of both linguistic and paralinguistic features often inaccessible to learners through traditional language textbooks and helped to account for the statistically significant differences observed between the experimental and control groups.

No real compatibility issues emerged from mixing quantitative and qualitative data in this study; on the contrary, the characteristics observed at the microgenetic level of analysis mirrored closely those seen at the macro, group level. The main barriers to greater integration of qualitative and quantitative aspects of the investigation were constraints of time or resources. A mixed methods approach imposes a considerable burden on the researcher, who has to: (i) develop expertise in quantitative and qualitative procedures; (ii) collect a wider variety of data; and (iii) invest more time writing up the research and reconciling the findings.

The complex dynamic systems perspective could have been enhanced further by collecting yet more data, particularly at the micro level of the system. For example, the impact of different kinds of L2 input on mental processing could be investigated with functional magnetic resonance imaging (fMRI), which measures brain activity by detecting changes in blood flow. The relationship between microgenetic events and discourse events (whole lessons) could also be explored; presumably, elements of the pair or group work interaction feed into whole class discussion and may be traceable across a series of lessons. More work could also have been done at the ontogenetic level, assessing individual variation throughout the 10-month study by closer analysis of the classroom diaries or case studies.

Future research into language learning in the classroom context will need to continue to embrace a complex dynamic systems perspective if we hope to gain a deeper understanding of what is actually happening in this most complex of events. A mixed methods approach provides researchers with the necessary tools – the only question left to answer is whether we are willing to make the necessary investment.

References

- Allwright, D. & Bailey, K. (1991). *Classroom: An introduction to classroom research for language teachers*. Cambridge: Cambridge University Press.
- Austin, W., Park, C. & Goble, E. (2008). From interdisciplinary to transdisciplinary research: A case study. *Qualitative Health Research* 18(4), 557–564.
- Bailey, K.M. (1990). The use of diary studies in teacher education programs. In J.C. Richards & D. Nunan (Eds.), *Second language teacher education* (pp. 215-26). Cambridge: Cambridge University Press.
- Batstone, R. (1996). Noticing. *ELT Journal* 50(3), 273.
- Bauerlein, M., Gad-el-Hak, M., Grody, W., McKelvey, B. & Trimble, S.W. (2010, June 13). We Must Stop the Avalanche of Low-Quality Research. *The Chronicle of Higher Education*. Retrieved from <http://chronicle.com/article/We-Must-Stop-the-Avalanche-of/65890/>

- Bhatia, V.K., Flowerdew, J. & Jones, R.H. (Eds.) (2008). *Advances in discourse studies*. London: Routledge.
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research* 6(1), 97-113.
- Bryman, A. (2007). Barriers to integrating quantitative and qualitative research. *Journal of Mixed Methods Research* 1, 8-22.
- Bygate, M., Skehan, P. & Swain, M. (Eds.) (2001). *Researching Pedagogic Tasks*. Harlow, England: Longman.
- Carroll, M. (1994). Journal writing as a learning and research tool in the adult classroom. *TESOL Journal* 4(1): 19-22.
- De Bot, K., Lowie, W. & Verspoor, M. (2007). A Dynamic Systems Theory approach to second language acquisition. *Bilingualism: Language and Cognition* 10(1): 7-21.
- Dörnyei, Z. (2007). *Research methods in applied linguistics*. Oxford: Oxford University Press.
- Dörnyei, Z. (2009). *The psychology of second language acquisition*. Oxford: Oxford University Press.
- Dörnyei, Z. & Csizér, K. (1998). Ten commandments for motivating language learners: results of an empirical study. *Language Teaching Research* 2(3), 203-229.
- Eckes, T. & Grotjahn, R. (2006). A closer look at the construct validity of C-tests. *Language Testing* 23: 290-325.
- Ellis, R. (2008). *The study of second language acquisition* (2nd Edition). Oxford: Oxford University Press.
- Feilzer, M.Y. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research*. 4: 6-16.
- Gilmore, A. (2007a). State-of-the-art article: Authentic materials and authenticity in foreign language learning. *Language Teaching* 40(2): 97-118.
- Gilmore, A. (2007b). *Getting real in the language classroom: Developing Japanese students' communicative competence with authentic materials*. Unpublished doctoral dissertation, University of Nottingham, UK. Available at <http://etheses.nottingham.ac.uk/1928/>
- Gilmore, A. (2009). The times they are a-changin': Strategies for exploiting authentic materials in the language classroom. In S. Rilling and M. Dantas-Whitney (Eds.), *TESOL Classroom Practice Series: Authenticity in Adult Classrooms and Beyond* (pp.155-68). Alexandria, Virginia: TESOL Publications.
- Gilmore, A. (2011). "I prefer not text": Developing Japanese learners' communicative competence with authentic materials. *Language Learning* 61(4), 786-819.
- Greene, J.C., Caracelli, V.J., & Graham, W.F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis* 11(3), 255-74.
- Guba, E.G. & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin, & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-17). Thousand Oaks, CA: Sage.
- Guba, E.G. & Lincoln, Y.S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. Denzin & Y. Lincoln (Eds.), *Handbook of qualitative research* (3rd ed) (pp. 191-215). Thousand Oaks, CA: Sage.
- Halbach, A. (2000). Finding out about students' learning strategies by looking at their diaries: a case study. *System* 28: 85-96.

- Hall, R. (2013). Mixed methods: In search of a paradigm. In T. Lê & Q. Lê (Eds.), *Conducting research in a changing and challenging world* (pp. 71-8). New York: Nova Science Publishers.
- Hanlon, R.E. & Brown, J.W. (1989). Microgenesis: Historical review and current studies. In A. Ardila, & F. Ostrosky-Solis (Eds.), *Brain organization of language and cognitive processes* (pp. 3-15). Dordrecht, Netherlands: Springer.
- Jewitt, C. (Ed.) (2011). *The Routledge handbook of multimodal analysis*. London & New York: Routledge.
- Johnson, K. (1995). *Understanding communication in second language classrooms*. Cambridge: Cambridge University Press.
- Jones, R.H. (2008). Good sex and bad karma: discourse and the historical body. In Bhatia, V.K., Flowerdew, J. & Jones, R.H. (Eds.) (2008). *Advances in discourse studies* (pp. 245-57). London: Routledge.
- King, J. (2011). *Silence in the second language classroom*. Unpublished doctoral dissertation, University of Nottingham, UK.
- King, J. (2013). *Silence in the second language classroom*. Basingstoke, Hampshire: Palgrave Macmillan.
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. London & New York: Routledge.
- Krishnan, L. A. & Hwee Hoon, L. (2002). Diaries: Listening to 'voices' from the multicultural classroom. *ELT Journal* 56(3), 227-239.
- Labov, W. (1972). *Language in the Inner City*. Philadelphia, PA: University of Pennsylvania Press.
- Larsen-Freeman, D. & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford: Oxford University Press.
- Lebra, T. (1987). The cultural significance of silence in Japanese communication. *Multilingua* 6(4), 343-357.
- Loveday, L. (1982). Communicative interference: a framework for contrastively analysing L2 communicative competence exemplified with the linguistic behaviour of Japanese performing in English. *IRAL* 20(1): 1-16.
- McVeigh, B. J. (2002). *Japanese higher education as myth*. NY: M. E. Sharpe.
- Miller, A.N., Taylor, S.G. & Bedeian, A.G. (2011). Publish or perish: academic life as management faculty live it. *Career Development International* 16(5): 422-445.
- Neill, U.S. (2008). Publish or perish, but at what cost? *Journal of Clinical Investigation* 118(7): 2368-2368.
- Nunan, D. (1992). *Research methods in language learning*. Cambridge: Cambridge University Press.
- O'Halloran, K.L. (2011). Multimodal discourse analysis. In K. Hyland & B. Paltridge (Eds.), *Continuum Companion to Discourse* (pp. 120-37). London: Continuum.
- Onwuegbuzie, A. J. & Leech, N.L. (2005). On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International Journal of Social Research Methodology* 8(5), 375-387.
- Pallant, J. (2005). *SPSS survival manual* (2nd Edition). Maidenhead: Open University Press.

- Schank, R.C. & Abelson, R. (1977). *Scripts, plans, goals, and understanding*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Scherer, K.R. (1984). Emotion as a multi-component process: A model and some cross-cultural data. In P. Shaver (Ed.), *Review of personality and social psychology: Vol. 5. Emotions, relationships and health* (pp. 37-63). Beverly Hills, CA: Sage.
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11(2), 129-152.
- Schmidt, R. & Frota, S. (1986). Developing basic conversational ability in a second language: A case study of an adult learner. In R. Day (Ed.), *Talking to learn* (pp. 237-326). Rowley, M.A.: Newbury House.
- Scollon, R. (2001). *Mediated discourse: The nexus of practice*. London & New York: Routledge.
- Scollon, R. & Scollon, S.W. (2004). *Nexus analysis: Discourse and the emerging internet*. London & New York: Routledge.
- Schumann, J.H. (1997). *The neurobiology of affect in language*. Oxford: Blackwell Publishers.
- Smith, J.K. (1996). An opportunity lost? In L. Heshusius, & K. Ballard (Eds.), *From positivism to interpretivism and beyond: Tales of transformation in educational and social research* (pp. 161-68). New York: Teachers College Press.
- Smith J. & Heshusius, L. (1986). Closing down the conversation: The end of the quantitative-qualitative debate among educational inquirers. *Educational Leadership*, 15(12), 4-12.
- Teddlie, C. & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in the social and behavioral sciences. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of Mixed Methods in Social and Behavioral Research* (pp. 3-50). Thousand Oaks, CA: Sage Publications.
- van Lier, L. (1988). *The classroom and the language learner*. Harlow, Essex: Longman.
- Williams, M. & Burden, R. (1997). *Psychology for language teachers: A social constructivist approach*. Cambridge: Cambridge University Press.