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CH 10 Cognitive Account

Cognitive accounts of second language production

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2024-2025

Introduction

This chapter examines how learners use their second language (L2) knowledge in communication, focusing on real-time language use rather than how L2 systems are developed. It emphasizes procedural skill, as highlighted in skill-learning models by Anderson and McLaughlin, which focus on concepts like proceduralization and automatization. Schmidt (1992) differentiates between procedural knowledge (knowing how to do something) and procedural skill (performing it in real-time). The section explores how procedural skill interacts with L2 acquisition and how learners manage challenges arising from knowledge gaps or difficulties in accessing their L2 knowledge.

Second language speech planning

We will focus on three areas of research and theory-building that are specifically cognitive in orientation:

- 1- Aspects of L2 production (especially fluency)
- 2- The effects of planning on L2 production, and
- 3- The development of procedural skill in an L2.

Aspects of L2 production

Early research undertaken by researchers at the University of Kassel in Germany, focused on two key aspects of oral production: temporal variables and hesitation phenomena. Both temporal variables and hesitation phenomena are online measures of speech related to the idea of fluency.

The basic methodology used by the Kassel researchers involved recording L2 learners performing an oral task, such as

- 1- Telling a story in both their L2 and L1,
- 2- Obtaining a native-speaker performance of the same task.

The recorded speech was transcribed to indicate features like pause length, intonation contours, vowel lengthening, fillers, drawls, and false starts. These transcriptions were analyzed using both qualitative and quantitative methods to measure speech processes. The goal was to describe how learners produce L2 speech.

Raupach's (1983) analysis of **Formulaic sequences** showed that learners use formulas as 'fillers' (e.g., "je ne sais pas," "mais") to give themselves time to plan, and as 'organizers' (e.g., "je crois que...") to structure speech. These formulaic chunks provide learners with 'islands of reliability' during planning problems.

More recent research by Segalowitz (2003, 2007) focused on fluency and automaticity, defining fluency as the smoothness of performance.

He defined fluency as those aspects of productive and receptive language ability characterized by fluidity (smoothness) of performance.

Two important aspects of fluency are "access fluidity"

1- The first aspect is fluidity concerns the learner's ability (the learner's ability to connect words with their meanings) and 'attention control.'

Access fluidity can be measured using reaction times but is limited by context.

2-The second aspect of fluency that Segalowitz (2007) considered was 'attention control'. Function words (such as 'the', 'under', 'above') help speakers convey how they interpret a situation.

A way to measure this aspect of fluency is by comparing response times when the task involves performing the same operation repeatedly and when it requires switching between different operations.

Fluency is only one part of L2 performance. Other researchers have studied L2 performance more broadly, focusing on Complexity and Accuracy alongside fluency.

Skehan (1998a) proposed that the three different aspects of production draw on different systems of language.

1- Fluency

Requires learners to draw on their memory-based system, accessing and deploying ready-made chunks of language and, when problems arise, using communication strategies to get by.

2- Accuracy and, In particular, complexity are achieved by learners drawing on their rule-based system and thus require syntactic processing.

3- Complexity is distinguished from accuracy in that it is related to the 'restructuring' that arises as a result of the need to take risks whereas accuracy reflects the learner's attempt to control existing resources and to avoid errors.

The effects of speech planning on L2 production

In Ellis (2005 b), I distinguished two principal types of task-based planning

1- Pre-Task planning.

2-Within-Task Planning.

In terms of when the planning takes place, either before the task is performed or during its performance.

Pre-task planning can be further divided into

1- Rehearsal

2- Strategic planning.

Rehearsal entails providing learners with an opportunity to perform the task before the 'main performance'. In other words, it involves task repetition with the first performance of the task viewed as a preparation for a subsequent performance. Strategic planning entails learners preparing to perform the task by considering the content they will need to encode and how to express this content.

Within- task planning can be differentiated according to the extent to which the performance is pressured or unpressured. In an unpressured performance learners can engage in careful online planning resulting in what Ochs (1979) has called Planned Language Use.

In pressured performance learners will need to engage in rapid planning resulting in what Ochs calls Unplanned.

The main theoretical foundation for research on the effects of planning on speech production is Levelt's (1989) model of speech production, which outlines three overlapping processes: conceptualization, formulation, and articulation. This model allows speakers to monitor both before and after producing an utterance. Levelt identified two relevant characteristics of speech production:

(1) Controlled and automatic processing and

(2) Incremental production.

According to Levelt, the conceptualizer and monitor operate under controlled processing, while the formulator and articulator mainly function automatically. His model helps to understand which components of language production learners focus on during planning and how planning strategies affect actual production.

Planning as rehearsal

Bygate (1996) compared one learner's retelling of a Tom and Jerry cartoon on two separate occasions, three days apart. He found that rehearsal enhanced

complexity, with the learner using more lexical verbs (as opposed to copula), more regular past tense forms (as opposed to irregular), a wider range of vocabulary and cohesive devices (for example, words like 'then', 'so', and 'because'), and fewer inappropriate lexical collocations on the second occasion. There were also more self-correcting repetitions on the second telling of the story.

Bygate (2001) reported a larger study that sought to investigate the effects of practicing specific types of task (involving narrative and interview) on both a second performance of the same task and on performance of a new task of the same type. The study showed that the second performance manifested greater fluency and complexity and also that the opportunity to practice that particular type of task helped. However, the practice did not appear to assist performance of a new task of the same type. In other words, disappointingly, there was no transfer of practice effect.

Gass (1999)

Reported very similar findings in a study that compared learners' use of L2 Spanish in tasks with the same and different contents. In this study an effect for task repetition on ratings of overall proficiency, accuracy in the use of 'estar' (to a lesser extent), and lexical complexity (type-token ratio) was found. However, again there was no transfer of these effects to a new task.

Pre-task planning

A whole host of studies have investigated pre-task planning. In an early study (Ellis 1987b), I asked 17 adult learners of English to perform three narrative tasks.

Task 1 consisted of a written composition for which one hour was allowed.

Task 2 was an oral reproduction of the same composition (without recourse to the written version).

Task 3 consisted of a different composition which the subjects were asked to relate orally without any advance planning. I compared the accuracy with which the learners used three past tense morphemes (regular - ed, irregular, and copula).

In the case of the regular past tense, a clear pattern emerged. The learners were most accurate in Task 1 and least accurate in Task 3, with Task 2 intermediate. This study suggests that, contrary to Hulstijn and Hulstijn's study, the availability of planning time systematically affects the accuracy with which at least some target variants are performed.

The tasks performed under the planning condition resulted in more complex language as measured, for instance, by the number of subordinate clauses per utterance. However there were no statistically significant differences in general measures of accuracy.

Within-task planning

In contrast to pre-task planning, within-task planning does appear to have an effect on the accuracy of learners' production, as Ellis' (1987b) study described above shows. Yuan and Ellis (2009) set out to investigate the relative effects of pre-task and online planning on a group of Chinese learners' performance of an oral and written narrative task. The design of the oral narrative study in Yuan and Ellis is shown in Table 10.4. The pre-task planners performed more fluently and used more complex language than the no planning group and the online planning group. Both planning groups produced more complex grammar than the no-planning group. Interestingly, only the online planning group performed more accurately than the no-planning group pre-task planning did not result in greater accuracy.

The development of procedural skill in an L2

The study of L2 production phenomena can shed light on the nature of the development that learners undergo in acquiring procedural skill. As well as acquiring L2 knowledge, learners need to increase their control over knowledge already acquired (i.e. learn how to process this knowledge in unplanned as well as planned language use). Studies that have researched this have investigated L2.

An alternative explanation, however, might be that learners concerned with developing their communicative skills (as these advanced learners were) need first to establish a threshold of fluency before turning their attention to complexity. In other words, Skehan's idea of a trade-off may apply over time as well as synchronically.

Evidence for such a developmental trade-off between fluency and complexity can be found in Ellis (1990b). I examined the relationship between the development of fluency (measured in terms of speech rate) and the development of complexity (measured in terms of production of word-order rules) in 39 adult classroom learners of L2. German. Segalowitz and Freed (2004) compared groups of learners of L2 Spanish in two different contexts—a formal classroom in their home university and a study-abroad setting. They obtained three sets of measures:

(1) Measures of oral fluency based on hesitation and temporal phenomena,

(2) A general

Measure of oral proficiency based on the Oral Proficiency Interview (OPI), and

(3) Cognitive measures of speed of lexical access, efficiency of lexical access, and speed and efficiency of attention control.

Segalowitz and Freed also examined the relationships between the three sets of scores. They reported positive correlations between (1) and (1). Also, there were a number Cognitive accounts of second language production 501

Of significant correlations between (1) and (3). In one case, the correlation was negative; the efficiency of attention control was negatively related to speech rate in the post-test, suggesting that as learners developed the ability to shift attention, they did so with a concomitant loss of temporal fluency.

Finally, the study also found statistically significant relationships between gains in oral performance as measured by the OPI and pre-test levels of cognitive ability.

The development of complexity, on the other hand, requires the extension of rule-based knowledge. Such a position, however, has been challenged, especially by researchers favoring a skill-building theory of learning.