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A Reading "Din in the Head": Evidence of Involuntary Mental Rehearsal in Second Language Readers

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ABSTRACT *The phenomenon of involuntary mental rehearsal of language, or the "Din in the head," has been considered by researchers as an indicator of second language (L2) acquisition among acquirers. Previous studies have noted that the Din occurs primarily among beginning and intermediate L2 students after the reception of oral input that is comprehensible, but not after reading. It has been argued that this lack of a reported Din is due to the fact that such students typically do very little reading, and that acquirers who did read would experience a "reading Din." This study provides evidence for an L2 Din after reading from a survey of two classes of intermediate Spanish students: a "Reading Only" group (N = 20), whose only source of L2 input was reading; and a "Reading and Conversation" group (N = 15), who received both printed and oral input. Both groups reported a Din after L2 reading. The findings lend support to claims made by Krashen concerning the importance of comprehensible input in L2 acquisition. Implications for the use of reading in beginning and intermediate L2 classrooms are discussed.*

Introduction

Krashen (1983) proposed that involuntary mental rehearsal, termed the "Din in the Head," in second language (L2) acquirers as described by Barber (1980) is caused by stimulation of the Language Acquisition Device (LAD) and is therefore an indication that acquisition is taking place.[1] Bedford (1985), Parr, and Krashen (1986) and de Guerrero (1987) confirmed that the Din was widespread among L2 learners, particularly after activities involving L2 listening. Bedford found, however, that the Din did not seem to be as common after L2 reading. Krashen (1993) suggested that the lack of evidence of a "reading Din" was due to the fact that very little reading is done in traditional L2 language programs. He hypothesized that L2 acquirers who read extensively would also experience the Din. This study provides new evidence for the Din phenomenon by examining the reports of two groups of L2 acquirers who were involved in extensive reading programs at an intermediate level. After reviewing the evidence on the Din and its connection to language acquisition, we will describe the study, present and analyze the results, and discuss implications for second language pedagogy as it relates to reading.

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Literature Review

Barber (1980) described the phenomenon of involuntary mental rehearsal after a trip to Eastern Europe where she heard and used languages in which she was not fluent. She noted that shortly after arriving in Russia she experienced "a rising Din...in my head; words, sounds, intonations, phrases, all swimming about in the voices of the people I talked

with" (29-30). Bedford (1985) later described this experience with second languages as a "noticeable din or jumble...of words, phrases, or even characteristic melody patterns" that "pop into the head at nearly any time or place" and are "quite involuntary" (286). Along with Parr and Krashen (1986) and de Guerrero (1987), Bedford found that the Din is widespread among second and foreign language students. Among the 581 subjects surveyed in the three studies, nearly 75 percent of beginning and intermediate language students reported experiencing the Din (data summarized in Murphey 1990, Table 1). Seville (cited in Krashen 1993) also found evidence of the Din among children learning English as a second language.

Krashen (1983) hypothesized that the Din is an indication that language acquisition is taking place in the acquirer. Language is acquired, according to Krashen, when learners receive "comprehensible input" (CI) or messages that they understand. This input must be just slightly above the current level of acquisition of the learner, or "i+1," where "i" is the level of acquisition. The Din is a result, then, of the acquirer receiving CI that contains i+1. Krashen further states that for CI to be acquired, learners must have a low level of anxiety and be interested in the input. This is to avoid the creation of an "affective filter" that would prevent the input from reaching the LAD.

It follows from Krashen's hypothesis that: (a) advanced acquirers in the language should no longer experience a Din, or do so with considerably less frequency, since they are likely to encounter little new input; and (b) activities that are likely to contain interesting, comprehensible input will trigger the Din more than those that do not. Parr and Krashen tested this first condition by comparing the Din survey responses of 504 beginning and intermediate L2 students with 28 clearly advanced L2 performers (Spanish professors and graduate students). A Chi-square analysis of the results showed very significant differences between the two groups: while 78 percent of the beginning and intermediate group stated they experienced a Din, only a small portion of the advanced group (10 percent) responded that they did (Chi-square = 155.27, $p < .001$[3]). The Din does not seem to be caused, then, by the mere reception of CI at the acquirer's current level of input ("i"), since the advanced group did not experience it. Rather, only those acquirers who were likely to still be receiving CI that contains new input ("i + 1")—beginning and intermediate students—report getting a Din.[2]

Bedford and de Guerrero tested the second condition by examining the circumstances under which the Din occurred. They found (results summarized in Krashen 1993, Table 1) that the Din does in fact take place more frequently after students receive CI in the form of listening and conversation than after traditional grammar and skills instruction. The one exception to this finding was among Bedford's subjects, who reported a Din after "drills in class" with the same frequency as they did after "listening to the L2" (1985, 286). Bedford explains that this may be due to the fact that students understood the drills because they were familiar, making this input comprehensible. It is less certain whether drills can be considered "interesting," however, although this would depend on the student and how the word "drill" was interpreted. In any case, Bedford's results were not sustained by de Guerrero, whose subjects, as predicted, ranked drills lower than listening and conversation.

There is little evidence on a Din specifically for reading. Bedford noted that fewer of his subjects reported a Din from reading than from listening.[3] He gave the raw data for the number of respondents who reported a Din in reading, but did not include an overall percentage. Reanalyzing the data, we found that 51 percent of his subjects said they got the Din from reading "sometimes," "often," or "very frequently." His subjects were all enrolled in beginning language classes in the United States or were participating in a study-abroad program where both oral and written input was available to them. Huber (1993) found, however, that on average very little class time is devoted to reading during the first two years

of second language instruction in the United States. There is no indication of just how much Bedford's subjects read, but if the classes were typical, we can presume it was not a great deal. Krashen hypothesized that beginning and intermediate L2 learners who do read in the second language would most likely experience a "reading Din," even if reading were their only source of CI. It is this hypothesis that will be tested in the present study.

The Study

Subjects and Methodology

Two groups of language learners involved in extensive reading were surveyed. The first ("Reading Only") was a class of fourth semester university Spanish students involved in an experimental reading course. The course was offered fall and spring semesters; 13 students participated in the fall, seven in the spring. The 20 students (M = 10, F = 10) in the course were required to read several children's, adolescent, and graded-reader books as well as self-selected, individual reading. Several types of popular literature were made available to choose from, and this reading was the students' primary source of CI. Students met with the instructor twice a week to discuss selections of texts and problems or concerns encountered in their reading. The second group ("Reading and Conversation") consisted of fourth-semester Spanish students in an intermediate conversation course, who also did extensive, self-selected reading. Like the experimental reading course, the conversation class was offered for two semesters, meeting twice a week. Eleven enrolled in the fall, four in the spring, for a total of 15 (M = 8, F = 7).

All subjects were asked approximately four weeks into the semester to fill out a survey (adapted from Bedford, see Appendix) that included specific questions on whether they experienced the Din in reading. Subjects responded to the questions on the Din by circling numbers on a scale 1 to 5 (never, rarely, sometimes, often, and very frequently). Complete numerical tallies are reported in the Appendix below.[4]

Results and Discussion

Due to the low numbers in each cell, responses for all the Likert-scale items of the survey were collapsed into two categories (No = never and rarely; Yes = sometimes, often, and very frequently) as in Bedford and de Guerrero. Table 1 displays the results for the first question on whether the subject has ever experienced the Din. Combining the responses from both groups, we see that 80 percent of both groups reported experiencing a Din "sometimes," "often," or "very frequently," slightly higher than the overall 75 percent found in other Din studies. The results shown in Table 2 indicate that 69 percent of the subjects experience a Din after listening ("I hear the Din after reading Spanish I can understand"). The Reading and Conversation Group, however, had a significantly higher incidence of aural Din than the Reading Only group (Chi-square = 3.99, df = 1, $p < .05$). Given that the Reading Only group received only printed input, this result is not surprising.

TABLE 1

Responses to Item 1

I have experienced the Din.

Group	Yes	No
Reading Only	80% (n=16)	20% (n=4)
Conversation and Reading	80% (n=12)	20% (n=3)
TOTAL	80% (n=28)	20% (n=7)

TABLE 2

Responses to Item 2

I hear the Din after listening to Spanish I can understand.

Group	Yes	No
Reading Only	55% (n=11)	45% (n=9)
Conversation and Reading	87% (n=13)	13% (n=2)
TOTAL	69% (n=24)	31% (n=11)

Table 3 shows that slightly more than 57 percent of both groups reported experiencing the Din after reading, with no significant differences between the two groups. This is a bit higher than Bedford's figure of 51.2 percent reported above. While the overall reading Din figure was lower than the listening Din (57 percent vs. 69 percent), the difference did not reach statistical significance, suggesting that both sources, reading and listening, are important in triggering a second language Din.

What is important to note in terms of Krashen's prediction on the reading Din is that half (50 percent) of those in the Reading Only group experienced the Din after contact with comprehensible text. This suggests that language acquisition, as indicated by the Din, seems to be taking place even when the only source of CI is reading. The Conversation plus Reading group's reading Din is higher, although again, the difference is not statistically significant (Chi-square = .97, df = 1). The results are consistent with the hypothesis that more new CI should result in more Din.

The only other significant difference between the two groups appeared in Item 4, "I hear the Din after practicing conversation outside of class," reported in Table 4. Almost all of the Conversation Group reported a Din under such conditions (87 percent), while only 30 percent of the Reading Only Group did (Chi-square = 8.58, df=1, $p < .01$), a difference attributable to the nature of each group's input.

Responses for the items related to affect and attitude were roughly similar to those reported in Bedford. Over 66 percent said they felt relaxed and less anxious while experiencing the Din (Item 8), the same percentage as in Bedford. More subjects reported feeling a strong desire to talk or read Spanish when they hear the Din (Item 9) than in Bedford (66 percent versus 52 percent), and a greater number said they were less shy on days when the experienced a Din (Item 10) (69 percent verus 51 percent in Bedford). None of these differences reached statistical significance, however. The subjects' responses in both studies indicate that the Din has a positive effect on their disposition toward using the L2, even making them want to experience more Din. This may be related to Krashen's concept of the Affective Filter discussed above, which holds that acquisition is impeded when the learner is tense or ill at ease. The evidence on the Din indicates that a low Affective Filter may not only facilitate acquisition, but that acquisition itself, by way of the Din, may produce pleasurable effects that stimulate the learner to seek more input. Krashen has suggested just such a link between acquisition and the pleasure derived from activities that are likely to promote language acquisition (Krashen, 1994).

Subjects were asked how long it took for the Din to begin after listening and reading. Not all subjects responded to these questions. Reports varied from "immediately" after listening or reading something in the L2 to two hours, with most of the listening Din falling in the five-to-ten minute range. The reading Din figures were slightly longer, between 10 and 20 minutes. One subject noted that her Din "occurs more readily when the reading flows;

TABLE 3

Responses to Item 3

I hear the Din after reading Spanish that I can understand.

Group	Yes	No
Reading Only	50% (n=10)	50% (n=10)
Conversation and Reading	63% (n=10)	37% (n=5)
TOTAL	57% (n=20)	43% (n=15)

TABLE 4

Responses from Item 4

I hear the Din after practicing conversation outside of class

Group	Yes	No
Reading Only	30% (n=6)	60% (n=14)
Conversation and Reading	87% (n=12)	13% (n=3)
TOTAL	51% (n=18)	49% (n=17)

that is, you are not interrupted..." Another stated that "once I get into the stories, then it will occur." The implication is that acquisition can take place in a traditional classroom time frame of 50 minutes to an hour if interesting and comprehensible input is provided.

No specific questions were asked as to the content of the Din, and as to whether it came from recent input or was a product of input received during previous exposure to the L2. The relative immediacy of the "trigger" would suggest that it is recent input, but further study is needed to see if this is indeed the case.

The survey also included an open-ended question on the types of reading that triggered the Din. It was thought that reading that was self-selected might present the subjects with a lower Affective Filter than that assigned by the instructor. Since almost all of the reading was self-selected, however, there was little opportunity to compare how the subjects encountered the texts. No subject reported differences in the type of reading and the presence of the Din. Moreover, all the assigned reading was considered by the course's instructor to be of "high interest" and thus would meet the conditions of a low Affective Filter.

Implications

If the Din is a sign of language acquisition—and the available evidence suggests that it is—then its presence after exposure to comprehensible texts in this study may be a sign that L2 acquisition is taking place during reading and that reading is an important source of CI. In addition, since the instructor gave participants the opportunity to select almost all of their own reading, and the course was free of any sort of "reading skills" instruction in the L2, the results also provide evidence that reading is a natural process during which acquisition can occur without any instruction or direct teacher intervention. Second language teachers may wish to explore ways of integrating reading, particularly free reading, into their courses as a means of providing interesting and fruitful sources of language acquisition for their students. This approach has proved successful at intermediate and advanced (Cook, Dupuy, & Tse, in press) levels and may even be possible for beginning students, who can read short, simple texts provided they are comprehensible and interesting.

NOTES

[1] We would like to thank Steve Krashen, Steve McQuillan, Lucy Tse, and Tom Cook for their assistance in the paper.

[2] Both de Guerrero and Bedford stated their "advanced" students also reported getting a Din. Bedford admits, however, that it is "doubtful that any subject in the sample could be described as a very advanced acquirer" (1985, 283). The case of de Guerrero's subjects (EFL students in Puerto Rico) appears to be similar. Her advanced students were so classified based on a written, standardized English exam, which would permit students with a great deal of conscious knowledge of the L2 to be classified as "advanced" even if they have only intermediate or beginning levels of the acquisition.

[3] Murphey (1990) does state that "several" of his subjects interviewed on the existence of a "musical" Din reported getting a Din from reading "books, magazines (and) vocabulary work," but he does not give any further description. Parr and Krashen (1986) and de Guerrero (1987) do not report any data on the specific question of reading and the Din.

[4] Both Bedford and de Guerrero note that caution must be taken with the current instrument, since each subject may interpret the terms used to indicate frequency in a different manner; i.e., one subject's "sometimes" may be another subject's "very frequently."

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APPENDIX

Research Survey

(Results from both groups shown. Only those figures analyzed in the study are presented.)

Biographical Information:

1. Sex: M = 18; F = 17
2. Date of Birth: Mean age = 23.5 years
3. Major: Various
4. How many semesters have you studied Spanish? Mean = 3.0
5. What language do you consider your primary or dominant language right now—that is, what language do you feel most comfortable speaking and writing in? English (n=35)
6. What was your final grade in your last L2 course? Mean = 3.24 (0-4 scale)

Survey

Thank you very much for cooperating with this study. The information you provide will be highly useful in devising more efficient and pleasurable ways of learning a second language. Your responses will be completely anonymous for the purposes of any publication of this study.

The purpose of this survey is to find out how many language students experience a phenomenon known as "Din." You will be asked whether you have the Din or have had it in the past, so you need to know exactly what is meant by this term. Here is the description:

> You have the Din if you sometimes "hear" a clearly noticeable jumble of Spanish words, sounds, phrases, or even characteristic melody patterns in your head. (This is very normal!) These words and phrases are usually things you have been hearing or reading recently. Often you "hear" words and phrases or perhaps see them flash through your mind. These random "bits" of Spanish just pop into the head at nearly any time or place, and it's all usually quite involuntary. At times it may be active enough to be described as a "constant rehearsal in the head."

There it is. If you have ever had the Din, it was an unmistakable phenomenon that you will readily recognize from the description. If the above paragraph doesn't sound familiar or is unclear, you should take it that you have not had the Din. No matter, your answers to the survey are still just as important.

There are no right or wrong answers to the following items. It is not known how many people have the Din when studying a second language, nor is it known if the Din has any importance for learning the language well. Please help by answering every item according to your experience.

APPENDIX *(Continued)*

Please circle the number that most nearly describes your experience. Use the following scale.

1: never **2: rarely** **3: sometimes** **4: often** **5: very frequently**

	1	2	3	4	5
1. I have experienced the Din.	3	4	18	5	5
2. I hear the Din after listening to Spanish that I can understand.	6	5	9	10	5
Comment: How long do you have to listen before the Din begins? ____					
3. I hear the Din after reading Spanish that I can understand.	8	7	8	8	4
Comment: How long do you have to read before the Din begins? ____ (minutes/hours)					
4. I hear a Din after practicing conversations outside of class.	5	12	5	6	7
5. I hear the Din in other situations.	4	9	12	6	4
6. I "hear" in my head some words or phrases I don't know the meaning of, but that I have heard a lot in class or on tape.	10	4	10	6	5
7. I "see" in my head some words or phrases I don't know the meaning of, but that I have read or seen.	11	8	9	5	2
8. The Din occurs when I am relaxed and relatively free of anxiety about using Spanish.	5	7	6	8	9
9. On days when I hear the Din I feel a strong desire to talk or read Spanish.	6	6	7	9	7
10. On the days when I hear the Din I am less shy about using Spanish with other people.	4	7	14	6	4
11. When I am alone and I hear the Din, I imagine conversations in Spanish and I talk the "parts" out loud.	10	15	2	5	3
12. I still experience the Din now.	3	8	11	8	5

13. Before hearing the Din for the first time, I had studied Spanish for about:

a. less than one week	2
b. 1-4 weeks	10
c. 1-2 months	8
d. more than 4 months	7
e. no response	8

14. I'm taking Spanish:

Only because					Mostly because
I have to	1	2	3	4	5 I love it
	(2)	(4)	(5)	(13)	(11)