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Fluency Improvement in a Second Language

Supot Arevart and
Paul Nation
Victoria University of Wellington

Abstract

This article looks at the effect of a technique which gets learners to tell the same story three times to different listeners with decreasing time for each retelling. During the activity learners made substantial gains in speed of speaking and reduced the number of hesitations in their retellings. The technique allowed learners to perform at a level higher than their normal level of fluency.

Fluency in language learning includes the ability to make the most effective use of what is already known. Fillmore (1979) describes four kinds of fluency, the first of which is "the ability to fill time with talk". This requires learners to be able to draw quickly on their language resources in order to put their message across. A lack of fluency is characterized by a slow and hesitant delivery and in some cases by the presence of grammatical error as a result of a lack of sufficient time for planning.

The 4/3/2 Technique

In an attempt to provide spoken fluency practice for learners of English as a second language, Maurice (1983) devised the 4/3/2 technique. In this technique, learners deliver a 4-minute talk on a familiar topic to a partner. Then they change partners and deliver the same talk to a different partner but with a 3-minute time limit. Finally, they change partners again and deliver the same talk in two minutes to their new partner. Thus, each speaker has to deliver the same talk three times to three different people with a decrease in the time available for each delivery. Each of these three features, a changing audience, repetition, and decreasing time, makes an important contribution to the development of fluency. The changing audience makes sure that the speaker's focus continues to remain on the message, because although the message is repeated it is delivered each time to someone who has not heard it before. This also reduces the speaker's need to add new information to the talk. If it was delivered to the same listener more than once, the speaker may feel the need to keep the listener interested by changing the content. The second feature, the repetition of the talk, has a major effect on fluency because it increases the speaker's familiarity with both the form and content of the material and thus increases the speed with which a speaker can access wanted forms. The third feature, the decrease in time from four to

three to two minutes, has several effects. Firstly, it puts pressure on the speaker to increase the rate of speaking, and secondly it greatly limits the opportunity for the speaker to add new material in the 3- and 2-minute deliveries of the talk. This is important because the addition of new material reduces the proportion of repeated material between the talks. Having the same material repeated from one talk to the other allows the speaker to reach a level of performance in terms of fluency and accuracy which is higher than the speaker's usual performance.

In the following study the speaker's performance on the first (4-minute) delivery is assumed to be the speaker's usual level of performance. The second (3-minute) and third (2-minute) deliveries are compared with this to see if there is improvement.

Repetition and Fluency

Research on the effect of repetition on speaking fluency has shown that repetition has positive effects on spoken performance. Study of the role of repetition on spontaneous speech can be traced back to an experiment conducted by Goldman-Eisler (1968). In the experiment, the subjects were asked to describe and interpret cartoons. Under unlimited time, the speakers were asked to repeat the talk six times. Goldman-Eisler found that the duration of pauses gradually decreased from the first to the sixth repetition.

Hieke (1981b) studied a procedure he devised called Audio-Lectral practice (ALP), and conducted a study to investigate the effect of repetition on fluency. In the procedure, graded texts of increasing length and complexity in both vocabulary and sentence structure are recorded at normal native speed. First, learners listen to the text while silently reading the text given. Secondly, while listening and looking at the text, they simultaneously speak onto the tape in an imitative fashion. Thirdly, they listen to their own versions, comparing them with the model and jotting down phonological errors and all other deviant features. Finally, the learners repeat step 2, but at this stage they must reduce their errors. Repetition continues until their version matches the model as much as possible.

Tests were given before and after 12 sessions of training to 29 intermediate to low-advanced students studying English as a foreign language. The format of each test was identical. In the first part of each test, the subjects were asked to listen to a 5 minute short story once. They were not allowed to take notes. Then they had to paraphrase the story in three minutes. In the second part of each test, the subjects' task was to

tell a story based on a series of cartoons. The recordings were transcribed and analyzed. Fluency was measured in terms of speech rate. It was obtained by calculating the number of syllables spoken divided by total speech time. Hesitation phenomena were also counted. The comparison between the results of the pre- and post-tests within each test showed that the speaking rate increased and the number of hesitations decreased. Further, Hieke pointed out that, amongst hesitation phenomena, ah-phenomena tended to decrease much more than repeats and false starts.

A study involving the effects of repetition on the control of content was carried out by Brown et al. (1984). Their subjects were asked to work on two types of tasks, namely a static task and a dynamic task. In the static task, the speaker had to provide the hearer with sufficient instructions on how to reproduce a diagram, re-arrange a particular model, or put parts of an object together. In the dynamic task, the speaker had to describe pictures so that the hearer could either choose the correct picture according to the order or identify persons or things appearing in the pictures. Two studies were conducted, each of which consisted of two sessions one week apart. In the first study, the subjects were given practice in speaking on the task. In the second type, the subjects experienced the hearer's role immediately prior to performing the task as the speakers. The learners' talks were analyzed for the amount of detail they contained.

Brown et al. (1984) found that the amount of required information increased in the second occasion of each study. Further, it significantly increased if the subjects had been in the hearer's role before they performed as the speaker. Brown et al. concluded that speakers performed better when offered prior experience in speaking on the task, and even better if they had experience in taking the hearer's role.

In a study involving only six speakers, Nation (1989) found that while doing the 4/3/2 technique learners significantly increased their speed of speaking, reduced the number of hesitations, reduced certain types of grammatical errors, and used two or three more complex constructions to convey the same information. The present study is an attempt to replicate the previous study with a larger group of people and to look at the relationship between speed of speaking and hesitation. It investigates the following questions. Does repetition of a talk result in increased fluency as measured by words per minute and hesitations per 100 words? Are both of these measures necessary to assess fluency?

Subjects and Procedure

The 20 subjects in the experiment were 10 males and 10 females with ages ranging from 19 to 50 years. They came from 16 different countries.

including Switzerland, China and Tonga. They were all members of an English proficiency course at Victoria University of Wellington, New Zealand, and had obtained total scores on dictation, vocabulary and cloze tests that placed them within an intermediate range of proficiency. The study was conducted after the subjects had been following the course for eight weeks.

The speakers talked to classmates who shared the same daily experience, and the relationships among the learners were established in that they had become acquainted with each other over the preceding eight weeks of their course. As the transcripts show, the learners had no difficulty in addressing one another and talking at length to each other.

To avoid the effect that shared L1 backgrounds might have on the performance, the subjects were split into five groups. Each group participating in the experiment consisted of students with four different first languages.

Initially, the subjects were told to talk about their own experiences, but topics of common interest were also permitted since they made the subjects feel at ease. It was decided to have the subjects select the topic according to personal interest because such a topic might encourage a better performance in that the speaker has a particular reason for speaking and feels confident about it.

Table 1 summarizes the relationship and sequences in which the subjects performed each of the four 4/3/2 activities that they were involved in. For example, when Subject A became a speaker, the other subjects, B, C and D, in turn played the role of the listener. As soon as A finished the task, A became the third listener in the second sequence; and Subject

Table 1
The Arrangement of the Subjects

Sequence	Speakers	Listener 1	Listener 2	Listener 3
1	Subject A	Subject B	Subject C	Subject D
2	Subject B	Subject C	Subject D	Subject A
3	Subject C	Subject D	Subject A	Subject B
4	Subject D	Subject A	Subject B	Subject C

B, in turn, became the first speaker in the second sequence. So in the four activities that A was involved in, A was the speaker in the first activity, the third listener in the second activity, the second listener in the third activity and the first listener in the fourth activity.

The talks were tape-recorded and later transcribed. Where necessary the transcriptions were checked with the speakers. Hesitations, repetitions, long pauses and errors were all included in the transcripts. Each 9 minutes of talk (4 plus 3 plus 2) took approximately an hour and a half to transcribe. The Appendix contains one full transcript of the Swiss learner's three deliveries. It is typical of the average performance according to words per minute and hesitations per 100 words. Notice the large amount of material which is common to all three deliveries.

The study examines the effectiveness of the 4/3/2 technique and does not attempt to separate the effects of decreasing time and repetition. As has been pointed out in the description of the technique, these two variables form an important relationship in the 4/3/2 technique. The decreasing time allowance increases the pressure to repeat the same material in the following deliveries and not add new material, and the repetition allows the speaker to cope effectively with the decreasing time allowance.

Analysis and Results

Fluency was measured by calculating a) the speaking speed in words per minute and b) the number of hesitations per 100 words. Words per minute were counted with contracted forms counted as separate words. So, *I'm* was counted as two words. In this study hesitations included *ah* phenomena (*ah, er, um*), repairs (*You had hadn't you had never met*), sentence incompleteness (*before they said that the it mean that is 1975*), repetition (*if anyone don't go to work they they they accuse that ...*), markers of correction (*about five years or sorry about five or seven year*), and intrusions such as throat clearing or sighs. Each hesitation unit was counted as one item. So, one repair containing four words was counted as one hesitation. Each repetition was counted as a hesitation. So, *to to to go to different schools* included two hesitations, the second and third utterances of *to*. Research by Lennon (1990) supports the use of speech rate (words per minute) and filled pauses (hesitations) as indicators of fluency improvement.

There was an average increase of just over 18 words per minute (21.5%) from the first to the third delivery. If the first delivery is taken as the learners' normal rate, we can see that by the third talk they are clearly

Table 2
Changes in speed of speaking for 20 subjects over three deliveries of the same talk

Subject	Wpmin the 1st delivery	Wpmin the 2nd delivery	Wpmin the 3rd delivery	Percentage increase
1	106.75	91.33	118.50	11%
2	97.00	110.33	127.00	23.6%
3	56.75	62.33	57.50	1.3%
4	122.75	120.00	121.00	-1.4%
5	78.75	84.66	88.00	11.7%
6	84.00	87.00	105.00	25%
7	88.25	95.00	104.00	17.8%
8	94.00	105.66	111.00	18.1%
9	64.25	70.33	82.50	28.4%
10	85.50	101.00	111.00	29.8%
11	66.25	76.33	82.00	23.8%
12	130.00	139.00	151.50	16.5%
13	89.00	88.66	101.00	13.5%
14	66.75	85.33	108.19	62.1%
15	58.75	65.33	82.50	40.4%
16	101.00	120.00	114.50	13.4%
17	110.50	117.66	112.50	1.8%
18	49.50	71.00	77.00	55.6%
19	79.00	96.33	120.00	51.9%
20	60.00	65.66	77.00	28.3%
Average	84.44	92.65	102.59	21.5%

performing well above normal. Only three subjects showed little change in the words per minute rate, and two of these were already speaking at a reasonable rate in their first delivery. PROC GLM in SAS was used to analyze the data with subject as a random effect crossed with occasion (i.e. whether it was the 1st, 2nd or 3rd delivery). Using the occasion-subject interaction as an error term for the test of an effect due to occasion produced an F value of 33.41 on (2, 38) degrees of freedom, which is significant at 0.0001. That is, while doing the 4/3/2 activity the learners made significant increases in their speed of speaking.

As learners move from one delivery to the next we would expect the number of hesitations they make to decrease. Table 3 shows that this happens. On average, the speakers made 17.5 hesitations in their first delivery and 13.64 in their third. This represents a decrease of 3.88

hesitations per 100 words or 22%. A similar calculation to that used for rate of speaking produced an F value of 8.65 on (2, 38) degrees of freedom, which is significant at 0.0008, showing that the increase in speed was accompanied by a significant decrease in the rate of hesitations.

Table 3
Change in rate of hesitations for 20 subjects over three deliveries of the same talk

Subjects	Hesitations per 100 words in the 1st delivery	Hesitations per 100 words in the 2nd delivery	Hesitations per 100 words in the 3rd delivery	Percentage decrease
1	5.39	4.02	1.27	76.4%
2	22.42	16.92	15.35	31.5%
3	15.86	12.30	13.91	12.3%
4	10.00	15.56	18.18	+81.8%
5	22.86	16.93	18.75	18%
6	7.44	8.81	10.48	40.9%
7	13.88	11.23	6.25	55%
8	22.87	15.77	17.57	23.2%
9	21.01	21.80	13.94	33.7%
10	19.30	16.83	18.02	6.6%
11	17.74	13.54	11.59	34.7%
12	2.70	2.16	1.98	26.7%
13	10.39	9.77	5.94	42.8%
14	33.71	23.05	24.38	27.7%
15	25.53	26.02	26.06	+2.1%
16	6.43	5.83	6.55	+1.9%
17	12.67	9.63	13.78	+8.8%
18	36.36	22.54	20.13	44.6%
19	9.81	6.57	7.75	21%
20	34.00	26.40	21.00	38.2%
Average	17.52	14.28	13.64	22.1%

Note, however, that five of the learners increased the number of hesitations from the first to the third delivery. Three of these people however made substantial increases in rate, supporting Lennon's (1990) finding that learners may improve on different variables. The two measures of fluency show that having the opportunity to repeat a talk results in regular, significant improvements for most learners. Several repetitions

are clearly better than just one because the effect is incremental.

The two variables, words per minute and hesitations per 100 words, are so strongly correlated that a combination of words per minute minus (hesitations per 100 words times 7.648) explains 95% of the variance in the covariance matrix. The two variables are thus very similar measures of fluency. If this combination of the two variables is analyzed using a similar procedure to that used for the individual variables (i.e. a Multivariate ANOVA), then the F value is 33.49 on (2, 38) degrees of freedom using Roy's maximum root criterion, and the significance of occasion is 0.0001. Note that this is only fractionally larger than the F value of 33.41 for words per minute alone. This shows that using just words per minute as a measure would be sufficient to reach an acceptable comparative estimate of a learner's fluency.

Discussion

The significant improvement that learners made over the three deliveries of their talks indicates the value of spoken fluency activities that provide the opportunity for repetition with a focus on the message. Although learners have a command of lexical and grammatical items, they may have difficulty in accessing them when their attention is focused on conveying a message. As this study of the 4/3/2 technique shows, given repeated opportunities to access wanted items, most learners are able to do this successfully. If learners are to improve in fluency they need to have the chance to perform at a level above their usual level of performance. The 4/3/2 technique allows them to do this.

Some linguists such as Mahl (1956), have characterized hesitations as ill-formedness phenomena which interrupt the smoothness of utterances. Others, e.g. Hieke (1981a), Crystal (1981) and Temple (1985) have considered them as well-formedness phenomena which contribute to better quality speech production. The findings of our study incorporate both of these views. In the initial delivery of their talk, hesitations allowed the learners to plan what they would say and to access wanted items. This is the well-formedness aspect of hesitations. By the time learners gave their third delivery of the talk, the presence of hesitations had been greatly reduced and many of those left marred a fluent performance adding an ill-formed element.

Using 4/3/2

The 4/3/2 technique can be used with both small and large classes. In large classes seating needs to be arranged so that half the learners stay

where they are and the other half moves on to their next partner. We have used it in large lecture halls with the people at the ends of rows moving and those inside staying seated.

Maurice (1983) suggests that the learners in a pair take turns at delivering their talks before moving on to their new partner. In this experiment and our use of the technique, we have had speakers repeat their talks immediately without having to alternate listener roles, so that there is more chance of them repeating more of the material in the later deliveries of their talk.

On occasions with learners of low proficiency, we have allowed time for learners to plan and discuss their talk with each other before beginning the 4/3/2 procedure. Planning should have the effect of raising the speakers' level of performance, but we have not tested this experimentally.

The value of the research described in this paper rests on the following assumptions. Firstly, fluency is a trainable aspect of skill in language use. Secondly, one way of improving fluency is through message focused repetition of long turns. Thirdly, the fluency improvement achieved in practice tasks will carry over to other tasks requiring similar language resources. This experiment has provided support for the first two of these assumptions. Further research is needed to test the third.

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APPENDIX

A transcript of a 4/3/2 talk

The four-minute delivery

"Hallo Hiro I would like to tell you about eh events the traditional events who happened in Switzerland it's called eh /k/eh Fastnacht it's in English means carnival it happens eh in the month of the February and it's goes it happens one month, the whole February and it is some people they dress up in fancy clothes long clothes coloured clothes and also they paint their face so you can't eh recognize them or sometimes they put on masks and then sometimes they wear big hats or without hats and then they walking during the day through the street and make noise with drums or they blow et in in instruments and a lot of people watch them it ah all people are included or involved in this eh events also children they do the same and (2 secs) you can watch them and if you stand in the street and you hear the music you get very warm you know exciting because it's ah very ah exciting but it's very cold because it's winter time do you know the winter time in eh do you have winter in in Japan winter winter it is very cold and snow so sometimes we have to go in a restaurants to warm up us to get warm you know and they make also some wagons carriage with eh eh events who happen during the year you know like political (3 secs) events or or I I don't know and then after then when you watch them you can have eh hot sausage they they make hot sausages and you can buy them and eat them it's very funny and there in the evening there are are some balls you know for dancing the meet the people meet each other to dance by music also in these fancy clothes and you can't see the face before twelve o'clock after twelve o'clock they eh they they mark off their faces and then you can see who with who you enjoy the whole evening (laugh) oh it's it's very funny and shish then eh make this balls goes on till two o'clock in the morning then they go home you know also lots of alcoholic eh consumed consumed because eh it's ah ah happy things eh this eh festivity means they would like to throw away the winter thus the summer should come very soon so they like to have the time the warm time the summer."

The three-minute delivery

"Hello Sherry em I would like to tell you about a traditional events who

occur in Switzerland and in the during the month of February it's eh nice events people they dress up ah in fancy clothes long clothes long long clothes coloured clothes in eh different kinds of shape and also they paint their eh faces in many colours and sometime thick colour you know and also all mask them so you can't recognize them and they wear also big hat and they walking to the through the street um they sometimes they have instruments like drums or um to blow in blow in instrument children are also involved in these events they dress up also sometimes the most of them are clown clowns you know nice faces and they have some pipes to make noise and (2 secs) there are some people they watch them when they go through the street (2 secs) um (4 secs) after sometime it's very cold because it happens in the winter if you get cold you have to go inside to have eh some drink but if you stand outside if the people walk through the street and with this music you get very exciting you know there is a lot of fun (3 secs) um after the af in the evening there are some balls you know people they go in these dresses for for dancing eh and also their faces eh with colour or masks and they dance the whole evening with somewhere maybe with different people and then after twelve o'clock they they mask and eh also put the eh paint away so the people can recognize with whom she they enjoy the evening it's a very funny eh events and it is a lot of fun I was also sometimes clown eh dressed up and and you can make joke with people you you never done before (3 secs) and (2 secs) it it's eh go."

The two-minute delivery

"So I talk you about the events who happens in Switzerland it's called "Fasching" or Carnival people they dress up in fancy clothes coloured clothes in different shapes also they colour their face or mask their face and wear hats they have also some musics instruments like drums or blow instruments and they are walking during the day through the street some people watch them also little children are children are involved in this a um events (2 secs) it is very cold at this time it's winter time and it happens during the whole February in the evening people meet each other in in for a ball for a dancing also in these fancy clothes in these fancy ah coloured face or mask and after twelve o'clock (3 secs) eh they make joke with people you know but they don't know them so after twelve o'clock they they mask their face so the pe the people know with whom they enjoy the evening (2 secs) um (3 secs) it's very cold what would I say and it's it's going on till two o'clock in the morning and it means because it's winter time they would like to come very soon the spring and summer these events means the the spring these events means the the spring or summer should come very soon because they don't like the winter."