Chapter VI

Results

6.1 Introduction

The results of this study have been organized into two main sections; firstly, the results of comparing the four stories are tackled; secondly, the results of each of the four hypotheses advanced at the end of Chapter IV are displayed. Further analyses of results under the different conditions, the results of the affective variables questionnaires, and an analysis of sequencing results will be provided in the following chapter.

6.2 Practice and order effects

First of all data were screened for outliers and checked for violation of score distribution *(*Algina & Keselman, 1997; Kepple, 1991; Tilley, 1994*)*. Outliers were eliminated in order to achieve the normality of score distribution for the calculation[1].

As mentioned in Chapter V, Section 5.2, the design assumed that stories were similar to one another, and that therefore story type would not affect the different

[1] Box plots were used to identify outliers for each measure which violated the sphericity assumption, which was controlled for by means of Mauchly's sphericity test. After eliminating outliers first from each story type and then from each condition, none of the measures violated the sphericity assumption. In Mauchly's sphericity test, a significant result means that sphericity is violated and, therefore, non-significant results mean that sphericity holds. As a consequence of the elimination of outliers, descriptive statistics will show a different 'n' for each measure.

levels of Task Complexity. It was thought necessary, however, to measure whether stories presented any differences as measured by the ten dependent variables. Repeated measures ANOVA was used for the calculation in which the level of significant was set at $p<.05$. Table 19 presents the means, standard deviations, and level of significance of the comparison among the four different stories.

As can be seen in Tables 19 and 20, there were no systematic overall differences among the stories. Some differences, however, were found among stories for the fluency measure Speech Rate A, the number of S-Nodes per T-Unit, and the TLU of articles.

Regarding Speech Rate A, it is unclear why story 2 generated significantly more fluent speech than stories 3 and 4, while story 4 was less fluent than stories 1 and 2. There are a number of possible qualitative and quantitative explanations for such behavior. Firstly, story 2 may have been intrinsically easier to narrate than the other stories, whereas story 4 was more difficult. This, notwithstanding, is not confirmed by the results of the affective variable questionnaires[2], which do not show any differences in perception of difficulty among the stories. Secondly, if a practice effect was to take place because it was performed second in the first session, the same effect should have been expected for the second story (story 4) in session 2,

[2] See affective variables results in Section 7.3, in the next chapter.

Table 19

Descriptive statistics of story type: means, standard deviations, skewness, and kurtosis.

	Dependent Variable	Story 1				Story 2				Story 3				Story 4			
		M	***SD***	***Sk***	***K***	***M***	***SD***	***Sk***	***K***	***M***	***SD***	***Sk***	***K***	***M***	***SD***	***Sw***	***K***
Fluency	Unpruned Speech Rate A (n= 41)	116.24	21.74	.146	.126	124.69	28.67	.331	-.394	114.42	22.39	-.038	-.836	110.56	22.68	.275	-.570
	Pruned Speech Rate B (n=42)	97.36	23.24	.364	.065	101..65	25.21	.109	-.778	98.37	22.38	.042	-.750	94.26	24.73	.452	-.281
Lexical Complexity	% of Lexical Words (n=44)	34.16	4.19	.050	-.730	34.56	3.58	.265	-.284	35.77	5.15	.414	-.383	35.27	3.21	-.080	-.501
	Ratio Lexical to Function (n= 44)	52.50	9.82	.286	-.683	53.27	8.58	.516	-.255	56.72	13.18	.783	.318	54.88	7.70	.135	-.504
	Guiraud's Index (n=45)	5.05	.609	-0.12	-.883	4.86	.673	-.007	-.551	4.85	.610	-.056	-.153	5.03	.752	.218	-.494
Structural Complexity	S-Nodes Per T-Units (n=47)	1.43	.183	.112	-.564	1.57	.293	.248	-.314	1.52	.229	.134	-.415	1.47	.289	.423	-.186
Accuracy	Error-Free T-Units (n= 47)	24.76	11.90	.089	-.460	25.75	16.01	.321	-.656	21.80	13.12	.162	-.457	22.17	15.21	.361	-.225
	TLU of Articles (n= 45)	84.03	9.44	-.343	-.627	88.91	9.68	-.662	-.151	81.14	11.03	-.157	-.755	81.20	10.52	-.206	-.160
	% of Self-Repairs (n= 48)	15.42	10.30	.508	-.088	18.13	13.95	1.34	3.47	18.45	10.76	.227	-.492	16.84	9.75	.119	.672
	Repaired to Unrepaired (n= 43)	18.05	12.86	.513	-.559	21.48	16.45	.760	.224	24.88	17.67	.875	.661	21.01	13.72	.581	-.1.051

M= Mean; *SD*= Standard deviation; *Sk*= Skewness; *K*= Kurtosis.

Table 20

Repeated measures ANOVA by story: degrees of freedom, sum of squares, F-value, and p-value, and effect size.

General measure	Dependent Variable	*Mauchly's sphericity*	*Df*	*Sum of Squares*	*F-value*	*p-value*	η^2
Fluency	Unpruned Speech Rate A	n.s	111,3	1573.49	3.927	*p< .05*	.109
	Pruned Speech Rate B	n.s	123,3	1500.58	2.170	n.s	n.s
Lexical Complexity	% of Lexical Words	n.s.	129,3	90.013	2.329	n.s	n.s
	Ratio Lexical to Function	n.s.	129,3	569.131	2.421	n.s	n.s
	Guiraud's Index	n.s	132.3	1.738	2.665	n.s	n.s.
Structural complexity	S-Nodes per T-Units	n.s.	138,3	.549	3.378	*p< .05*	.179
Accuracy	Error-Free T-Units	n.s	138,3	361.564	.770	n.s.	n.s.
	TLU of Articles	n.s.	132,3	1957.988	7.447	*p< .05*	.155
	% of Self-Repairs	n.s.	141.3	274.552	.751	n.s	n.s.
	Repaired to unrepaired errors	n.s.	126,3	1033.523	1.607	n.s.	n.s.

Df= Degrees of freedom; η^2= partial eta squared (effect size).

*$p< .05$
**$p< .01$

and that was not the case. Besides that, such a pattern was not found with Rate B. In the third place, a closer look at the effects of the interaction between story type and condition (See Figure 16 on facing page) reveals that story 2 affected three out of the four conditions (conditions 1, 3, and 4) in a similar way. In other words, all conditions except for condition 2 were affected by story 2. Even though it was thought that the conditions under which each story was performed would override any existing differences among stories, it was decided to consider the effects of story type on conditions when analyzing the effects of the different conditions on Rate A for fluency.

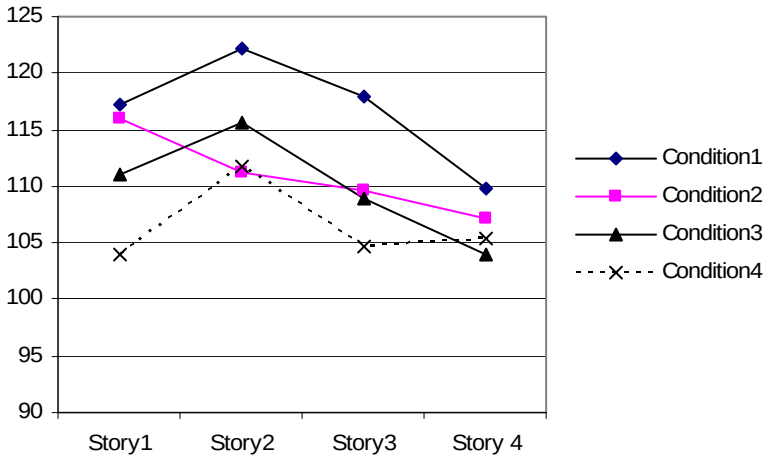

Figure 16. Rate A as affected by story type under each condition.

As for structural complexity, in the pilot experiment no differences were found among any of the stories. The fact that story 1 was presented first to all subjects may explain why it generated a significantly lower number of S-Nodes per T-unit than stories 2 and 3. Again, a more detailed analysis did not reveal any significant interaction between story type and condition. A repeated measures ANOVA with condition as the *between subjects* factor showed no significant differences in the way conditions were affected by story type. The existing differences among the stories were therefore ignored in the analysis of how structural complexity was affected by the different conditions.

Finally, the target-like use of articles displayed a higher percentage for story 2 than for any of the other three stories. A closer look at the data suggests that although story 2 generated a similar number of articles to the other stories as well as

a similar number of correctly supplied articles, subjects used a significantly lower number of incorrect articles than in any of the other stories. No explanation was found for such behavior. A quantitative analysis by means of repeated measures, however, shows no significant interaction between story type and condition, suggesting that all conditions were affected in similar ways by story 2. As a consequence, differences among the four stories were also ignored in the analysis of the impact of the condition on the target-like use of articles.

Regarding the sequence in which conditions were performed, it was decided to check for potential interaction between sequence and condition during repeated measures analysis by having sequence as a *between subjects* factor. The results of the interaction between condition and sequence are reported in Section 7.9.

6.3 Results of Hypotheses 1 through 4

First of all, Table 21 shows the means and standard deviations of the four different levels of Task Complexity (i.e. planned Here-and-Now, unplanned Here-and-Now, planned There-and-Then, unplanned There-and-Then) for the 10 dependent variables.

Table 21.

Descriptive statistics of conditions: means, standard deviations, skewness, and kurtosis.

	Dependent Variable	Condition 1 Planned Here-and-Now				Condition 2 Unplanned Here-and-Now				Condition 3 Planned There-and-Then				Condition 4 Unplanned There-and-Then			
		M	***SD***	***Sk***	***K***	***M***	***SD***	***Sk***	***K***	***M***	***SD***	***Sk***	***K***	***M***	***SD***	***Sk***	***K***
Fluency	Unpruned Speech Rate A (n= 40)	119.47	22.21	.200	-.648	115.08	22.87	-.157	-.760	115.76	20.70	.450	.043	111.87	22.88	.231	-.772
	Pruned Speech Rate B (n=43)	107.81	24.22	.349	-.578	97.08	23.42	.023	-.599	96.33	22.77	.323	-.025	89.75	24.04	.299	-.627
Lexical Complexity	% of Lexical Words (n=42)	36.64	3.45	.058	-.767	33.28	3.62	.126	-.229	35.43	4.17	.252	-.227	33.92	3.74	.197	-.564
	Ratio Lexical to Function (n= 42)	58.29	8.71	.257	-.704	50.33	8.27	.394	-.197	55.53	10.33	.584	.252	51.81	8.74	.433	-.375
	Guiraud's Index (n=41)	5.24	.609	.099	.045	4.79	.614	.127	-.973	5.08	.573	.116	-.513	4.59	.597	.171	-.146
Structural Complexity	S-Nodes Per T-Units (n=47)	1.55	.272	.312	.205	1.50	.271	.335	.053	1.46	.228	.329	-.178	1.45	.221	.145	-.086
Accuracy	Error-Free T-Units (n= 45)	23.65	14.33	.136	-.829	23.36	12.90	.196	-.539	24.32	13.02	-.043	-.570	21.53	14.59	.394	-.136
	TLU of Articles (n= 43)	86.09	10.28	-.345	-.769	84.41	8.39	-.526	.306	83.43	10.43	-.103	-.499	82.27	12.21	-.263	-.911
	% of Self-Repairs (n= 45)	14.21	9.44	.328	-.465	13.90	9.47	.417	-.426	19.84	8.99	.033	-.431	18.45	11.74	.110	-.467
	Repaired to Unrepaired (n= 40)	17.19	12.69	.643	-.081	17.63	13.92	.946	.820	25.46	13.39	.343	-.354	22.23	15.63	.475	.150

M= Mean; *SD*= Standard deviation; *Sk*= Skewness; *K*= Kurtosis.

All measures were tested using repeated measures analysis of variance. The 10 dependent measures belonged to the three dimensions of production, that is, fluency (Speech Rate A, Speech Rate B), linguistic complexity (Percentage of Lexical Words, Ratio of Lexical Words to Function Words, Guiraud's Index of Lexical Richness, and S-Nodes per T-Unit), and accuracy (Error-free T-Units, TLU of articles, Percentage of Self-repairs, Ratio of Repaired to Unrepaired Errors). Reported in Table 22 are the main effects obtained for each level of complexity.

Table 22

Repeated measures ANOVA by condition: main effects obtained for different levels of Task Complexity for all measures.

General measure	**Dependent Variable**	*Mauchly's sphericity*	*Df*	*Sum of Squares*	*F-value*	*p-value*	η^2
Fluency	Unpruned Speech Rate A	n.s	108,3	1616.904	4.889	.003**	.133
	Pruned Speech Rate B	n.s	117,3	8246.048	14.767	.000**	.281
Lexical Complexity	% of Lexical Words	n.s.	114,3	274.283	11.853	.000**	.238
	Ratio Lexical to Function	n.s.	114,3	1575.140	11.515	.000**	.233
	Guiraud's Index	n.s	111,3	8.738	18.873	.000**	.338
Structural complexity	S-Nodes per T-Units	n.s.	123,3	.277	1.711	n.s.	n.s.
Accuracy	Error-Free T-Units	n.s	123,3	322.966	.771	n.s.	n.s.
	TLU of Articles	n.s.	117,3	386.458	1.530	n.s.	n.s.
	% of Self-Repairs	n.s.	123,3	1439.946	5.617	.001**	.120
	Repaired to unrepaired errors	n.s.	108,3	3140.878	6.594	.000**	.155

Df= Degrees of freedom; η^2= partial eta squared (effect size).

**p< .05*
***p< .01*

6.3.1 Results of hypotheses 1

Hypothesis 1 was concerned with the effects of manipulating task demands along planning time on fluency, complexity, and accuracy. It stated that narrative tasks performed under planned conditions would elicit more fluent, and more structurally complex speech than under unplanned conditions, with no significant differences for lexical complexity and accuracy. This would happen on both simple (Here-and-Now) and complex (There-and-Then) versions of the tasks.

6.3.1.1 Fluency

There was a reliable main effect for Rate A F (108,3) = 4.889, p <.01 and for Rate B F (117,3) = 14.767, p <.01. As we will see throughout this chapter, differences in fluency rates were caused by both the manipulation of planning time and, to a lesser extent, by the manipulation of tasks along the +/- Here-and-Now variable.

Table 23 on the following page shows the mean differences and the level of significance between planned and unplanned tasks for both Here-and-Now and There-and-Then tasks.

Table 23

Hypothesis 1. Fluency Measure: Mean differences between planned and unplanned tasks under both simple Here-and-Now and complex There-and-Then conditions.

	Comparison	Unpruned Speech Rate A	Pruned Speech Rate B
Hypothesis 1	Planned Here-and-Now vs Unplanned Here-and-Now	4.39*	10.01**
	Planned There-and-Then vs Unplanned There-and-Then	3.89	6.58*

*p< .05

**p<.01

For Rate A, learners performing tasks under Condition 1, that is, with 10 minutes planning time and in the Here-and-Now, were significantly more fluent (p< .05) than learners performing tasks under Condition 2, that is, in the Here-and-Now but with only 50 seconds of planning time. For complex tasks, narrated in the There-and-Then, no significant differences were found between planned (Condition 3) and unplanned (Condition 4) tasks.

With regard to Rate B, both simple Here-and-Now and complex There-and-Then tasks generated significantly higher fluency when performed under the condition of 10 minutes planning time. Planned Here-and-Now tasks triggered significantly more fluent speech (p<.01) than unplanned Here-and-Now tasks. There-and-Then tasks performed under planned conditions were also significantly more fluent (p<.05) than tasks performed under unplanned conditions.

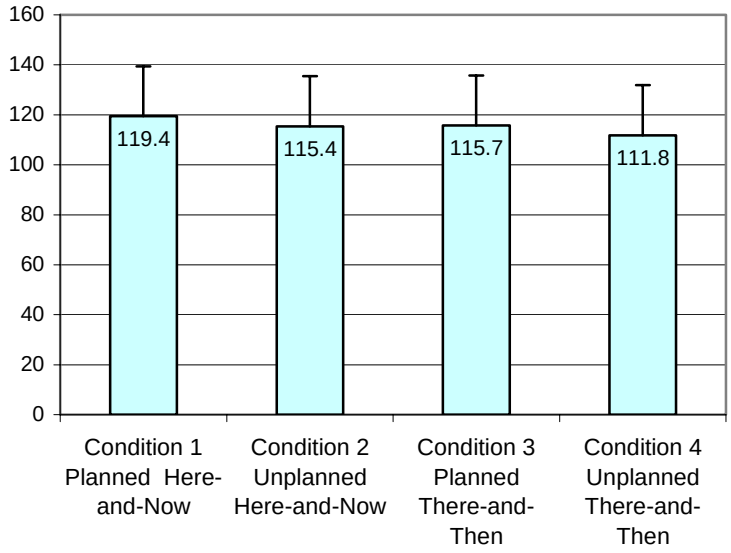

Figure 17. Hypothesis 1. Fluency Measure: Unpruned Speech Rate A.

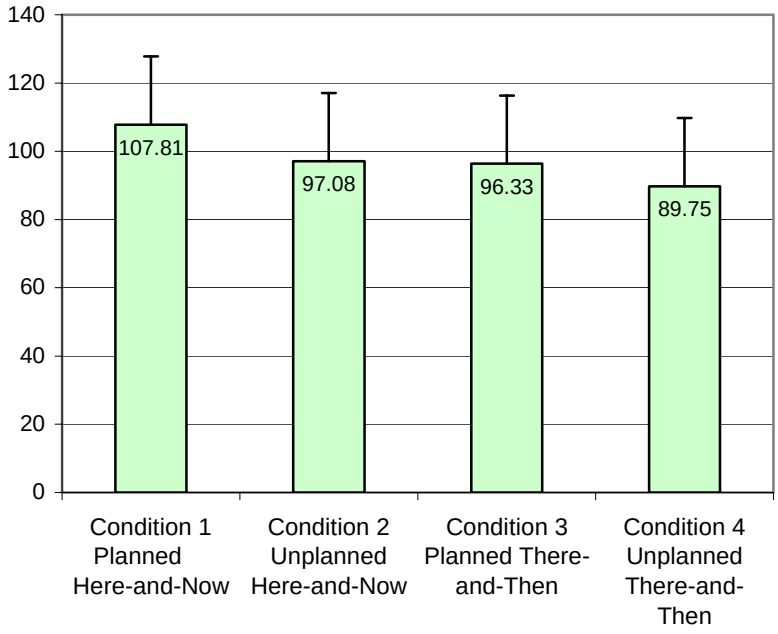

Figure 18. Hypothesis 1. Fluency Measure: Pruned Speech Rate B.

We can therefore conclude that the manipulation of planning time had a significant impact on fluency. Hypothesis 1 was partially confirmed for Unpruned Speech Rate A and largely confirmed for the Pruned Speech Rate B measure.

6.3.1.2 Lexical Complexity

As we saw in Table 21, there was a significant main effect for the percentage of lexical words $F(114,3) = 11.853$, $p<.01$; for the ratio of lexical to function words $F(114,3) = 11.515$, $p<.01$; and for the Guiraud's index of lexical richness $F(114,3) = 18.873$, $p<.01$. As we will see below, the manipulation of planning time again had a significant impact on the three measures of lexical complexity.

Table 24

Hypothesis 1. Lexical Complexity: Mean differences and significance levels between planned and unplanned tasks under simple Here-and-Now and complex There-and-Then conditions.

	Comparison	Percentage of lexical words	Ratio of lexical to function words	Guiraud's index of lexical richness
Hypothesis 1	Planned Here-and-Now vs Unplanned Here-and-Now	3.36**	7.96**	.45**
	Planned There-and-Then vs Unplanned There-and-Then	1.51*	3.72*	.49*

*$p< .05$
**$p<.01$

Regarding the percentage of lexical words, Here-and-Now tasks performed under planned conditions (Condition 1) caused learners to use a significantly higher (p<.01) percentage of lexical words than under unplanned conditions (Condition 2). This was similar for tasks in the There-and-Then, which displayed a significantly higher percentage of lexical words (p<.05) in planned tasks (Condition 3) as opposed to unplanned ones (Condition 4).

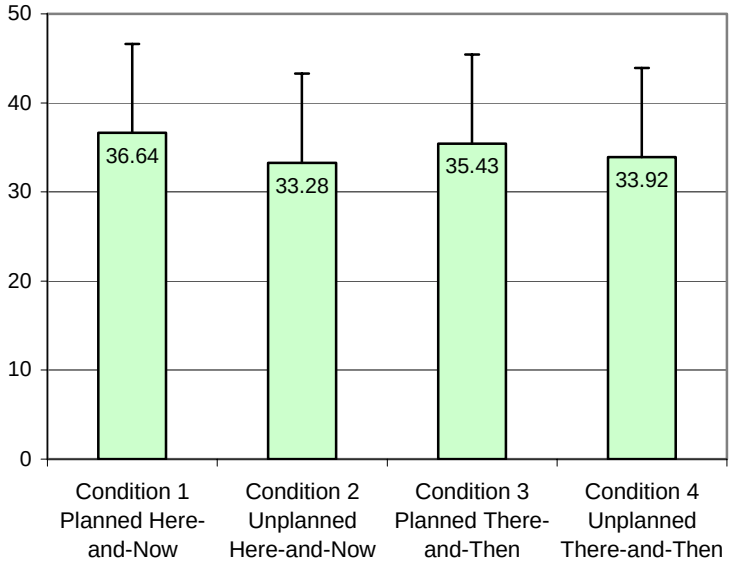

Figure 19. Hypothesis. Lexical Complexity Measure: Percentage of Lexical Words.

With regard to the ratio of lexical to function words, there was a significant difference (p<.01) between Here-and-Now tasks performed under planned and tasks carried out under unplanned conditions, the former ones generating a higher ratio of lexical words to function words (See figure 20 on the following page).

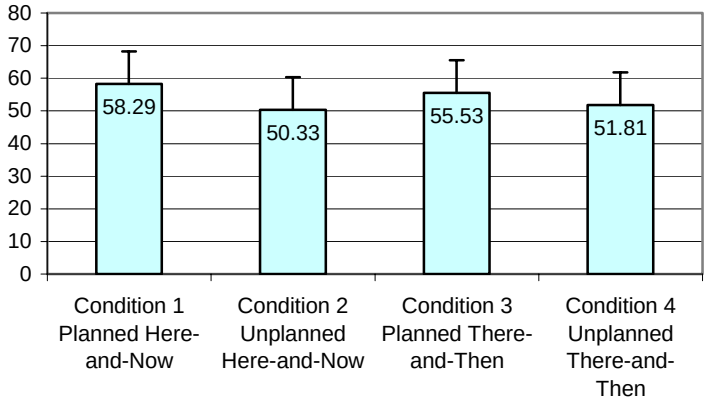

Figure 20. Hypothesis 1. Lexical Complexity: Ratio of Lexical to Function Words.

The results of the Guiraud's Index displayed results that resembled those of the percentage of lexical words and the ratio of lexical to function words. Here-and-Now tasks performed under planned conditions generated a significantly higher level of lexical richness (p<.05) than under unplanned conditions. There-and-Then narratives also generated a higher lexical richness (p<.05) when performed under planned conditions than under unplanned ones.

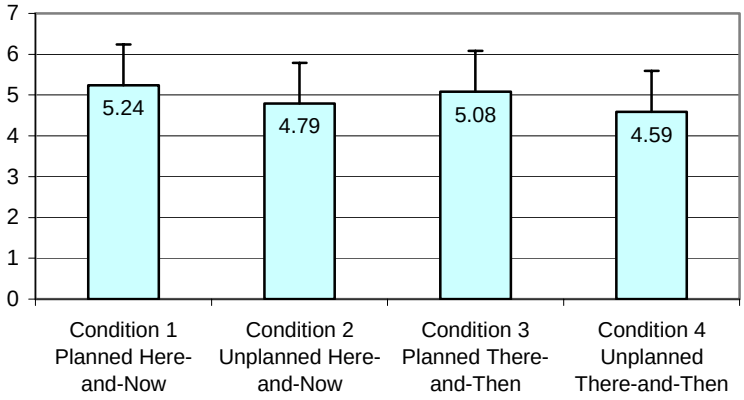

Figure 21. Hypothesis 1. Lexical Complexity Measure: Guiraud's Index of Lexical Richness.

Contrary to what Hypothesis 1 predicted, results show that increasing planning time generates significantly higher levels of lexical complexity as measured by the percentage of lexical words, the ratio of lexical to function words, and the Guiraud's index. This applies to both simple and complex tasks, that is, tasks performed in the Here-and-Now and tasks performed in the There-and-Then. Such behavior is confirmed by the three measures of lexical complexity, and it can therefore be concluded that Hypothesis 1 for Lexical Complexity was not confirmed.

6.3.1.3 Structural Complexity

Table 25 below shows the results for structural complexity which compare planned and unplanned simple tasks and planned and unplanned There-and-Then ones. As can be seen, there was no significant main effect for structural complexity $F(123,3) = 1.711$, $p=.168$). It can be advanced that none of the four combinations of the +/- planning and +/- Here-and-Now variables had any significant impact on structural complexity.

Table 25

Hypothesis 1. Structural Complexity: Mean differences and significance between planned and unplanned tasks, under simple Here-and-Now and complex There-and-Then conditions.

	Comparison	Sentence Nodes per T-units
Hypothesis 1	Planned Here-and-Now vs Unplanned Here-and-Now	.04
	Planned There-and-Then vs Unplanned There-and-Then	.01

*$p < .05$

As far as Hypothesis 1 is concerned, in both simple and complex tasks, providing time caused a slightly higher level of structural complexity. Nevertheless, these differences were not significant for either Here-and-Now or There-and-Then narratives (See Figure 22 below).

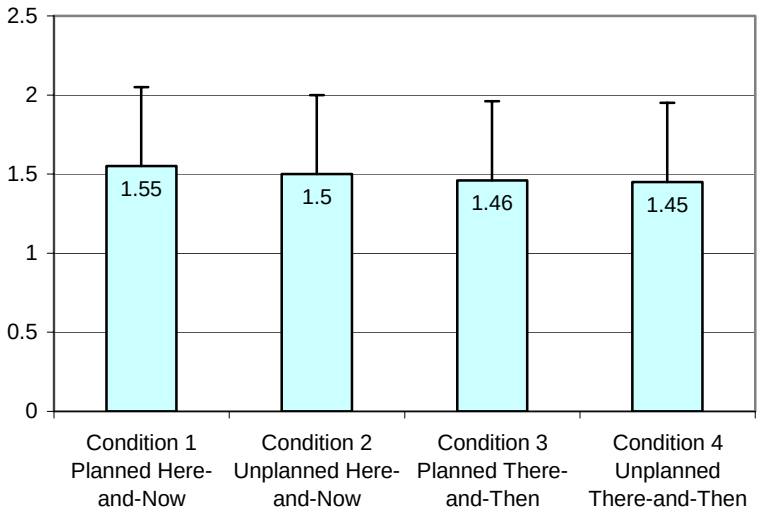

Figure 22. Hypothesis 1. Structural Complexity Measure: S-Nodes per T-Units.

It can therefore be concluded that the predictions for the impact of planning time on structural complexity were not confirmed.

6.3.1.4 Accuracy

Accuracy was measured by means of the percentage of error free T-units, the target-like use of articles, the percentage of self-repairs, and the ratio of repaired to unrepaired errors. There was not a significant main effect for either the percentage of error-free T-units $F(123,3) = .771$, $p = .771$) or the target-like use of articles $F(117,3) = 1.530$, $p = .210$; as for the two other measures, there was a significant main effect for both the percentage of self-repairs $F(123,3) = 5.617$, $p < .01$, and the ratio of repaired to unrepaired errors $F(108,3) = 6.594$, $p < .01$.

Table 26

Accuracy Measures for Hypothesis 1: Mean differences and significance between planned and unplanned tasks under simple Here-and-Now and complex There-and-Then conditions.

	Comparison	Percentage of Error-free T-Units	Target-like Use of Articles	Percentage of Self-repairs	Ratio of Repaired to Unrepaired Errors
Hypothesis 1	Planned Here-and-Now vs Unplanned Here-and-Now	0.29	1.88	.31	-.44
	Planned There-and-Then vs Unplanned There-and-Then	2.79	1.16	1.39	3.23

*$p < .05$

As seen in Table 26, providing learners with a 10-minute planning time did not have any effects on any of the measures of accuracy.

The percentage of error-free units was not affected by the time allotted to each task. Hence, although Here-and-Now tasks generated a slightly higher percentage of error-free T-Units than unplanned counterparts, they were not significantly different from unplanned Here-and-Now ones. A similar behavior was found for tasks performed in the There-and-Then. Despite the fact that planned tasks were slightly more accurate than unplanned ones, no significant differences were found between them either. This happened in all sequences, and no interaction between condition and sequence was found (See Figure 23 below).

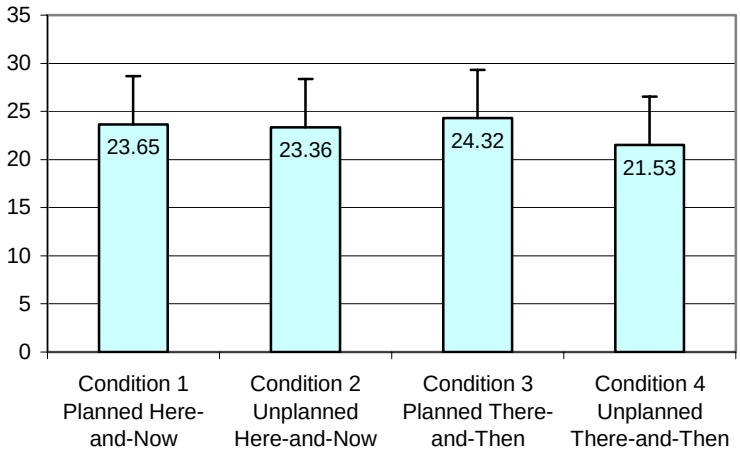

Figure 23. Hypothesis 1. Accuracy Measure: Error-free T-Units.

The target-like use of articles did not display any significant differences when varying the time devoted to task planning. For tasks in the Here-and-Now, there

was a slight decrease in the percentage of correct articles from the planned to the unplanned tasks. This was similar for tasks in the There-and-Then, since unplanned were slightly less accurate than planned ones.

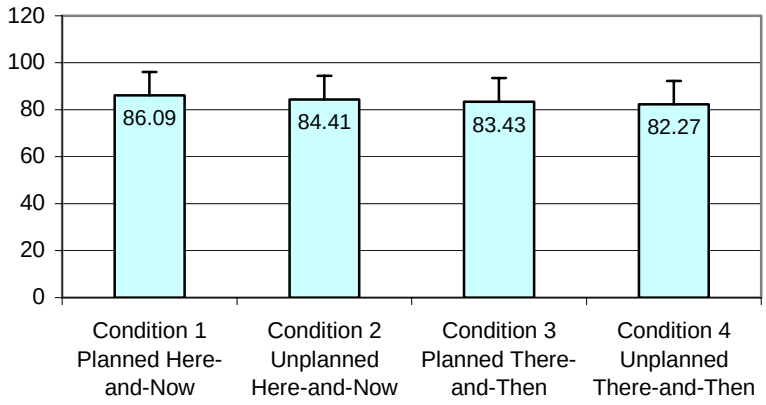

Figure 24. Hypothesis 1. Accuracy Measure: Target-like Use of Articles.

As we said in Section 5.2, story 2 generated a higher percentage of target-like use of articles and this seemed to have affected all conditions in a similar way. In the case of sequence of condition presentation, repeated measures ANOVA with sequence as the *between subjects* factor did not display any significant interaction between condition and sequence.

The percentage of self-repairs presented a similar picture to the two previous measures for Hypothesis 1. Simple tasks performed in the Here-and-Now with 10 minutes' planning generated a slightly higher percentage of self-repairs than tasks performed with minimal planning time. This was similar for There-and-Then tasks, which again caused a lower proportion of self-repairs in unplanned tasks as

compared to planned ones. None of these differences, however, reached statistical significance.

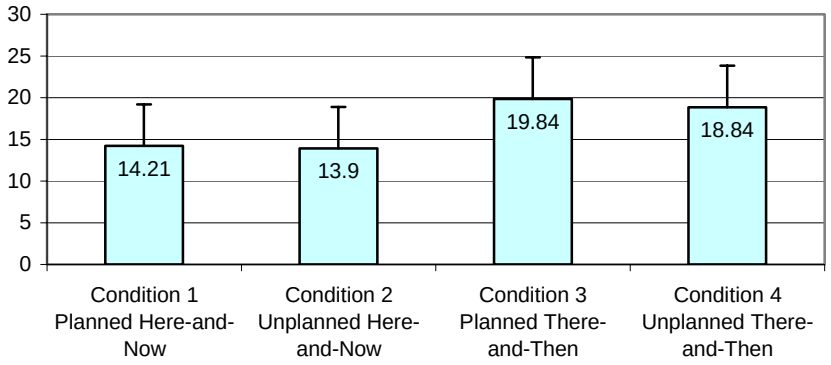

Figure 25. Hypothesis 1. Accuracy Measure: Percentage of Self-repairs.

If we consider Hypothesis 1 and the ratio of repaired to unrepaired errors, planned and unplanned tasks did not differ significantly between them. This was true for both tasks performed in the Here-and-Now and tasks performed in the There-and-Then since neither displayed significant differences.

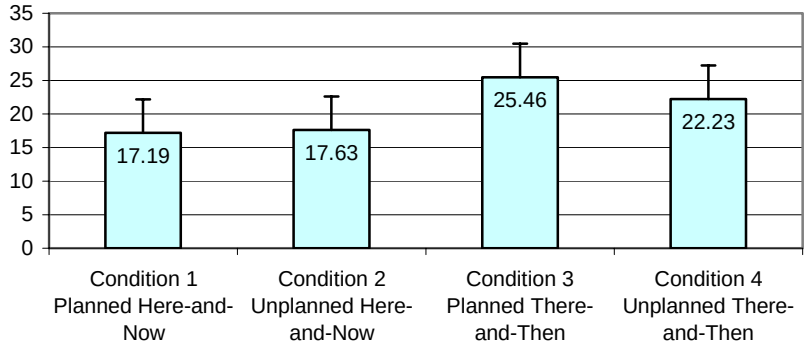

Figure 26. Hypothesis 1. Accuracy Measure: Ratio of repaired to unrepaired errors.

It can therefore be concluded that Hypothesis 1 is largely confirmed as far as accuracy is concerned.

Table 27

Hypothesis 1. Predictions, findings, level of significance, and confirmation/rejection of the hypothesis.

	Measure	Prediction	Findings	Level of significance	Confirmation/rejection of Hypothesis 1
Fluency	Speech Rate A	Planning time will affect fluency positively.	Production was more fluent when planning time was provided	Significant for Here-and-Now tasks. Not significant for There-and-Then ones.	Hypothesis 1 was partially confirmed for Rate A.
	Speech Rate B		Production was more fluent when planning time was provided.	Significant results for both Here-and-Now and There-and-Then task.	Hypothesis 1 was largely confirmed for Rate B.
Lexical Complexity	% of Lexical Words	Planning time will not affect lexical complexity.	Learners' production displayed a higher percentage of lexical words as a consequence of planning time.	Results were significant for both Here-and-Now and There-and-Then tasks.	Hypothesis 1 was not confirmed for the percentage of lexical words. Results ran counter to what was hypothesized.
	Ratio Lexical to Function		Learners' production showed a higher ratio of lexical to function words due to planning time.	Results were significant for both Here-and-Now and There-and-Then tasks.	Hypothesis 1 was not confirmed for the ratio of lexical to function words. Results ran counter to hypothesis.
	Guiraud's Index		Learner's production was lexically richer because of planning time.	Results were significant for both Here-and-Now and There-and-Then tasks.	Hypothesis 1 was not confirmed for the Guiraud's Index. Results ran counter to what was hypothesized.
Structural Complexity	S-Nodes Per T-Units	Planning time will affect structural complexity positively.	Production was not affected by planning time.	Results were not significant for either Here-and-Now tasks or for There-and-Then ones.	Hypothesis 1 was not confirmed for structural complexity.
Accuracy	Error-Free T-Units	Planning time will not affect accuracy.	Production showed a slight increase in accuracy when planning time was provided.	No significant results were obtained for either level of complexity.	Hypothesis 1 was confirmed for the percentage of error-free units.
	TLU of Articles		Production showed some impact of planning time on learners' accuracy.	No significant results were obtained for either Here-and-Now or There-and-Then tasks.	Hypothesis 1 was confirmed for the target-like use of articles.
	% of Self-Repairs		The accuracy of learners' production was not significantly affected by planning.	No significant results were obtained for either level of complexity.	Hypothesis 1 was confirmed for the percentage of self-repairs.
	Repaired to Unrepaired		Learners' level of accuracy was not significantly affected by planning.	No significant results were obtained for either Here-and-Now tasks or There-and-Then ones.	Hypothesis 1 was confirmed for the ratio of repaired to unrepaired errors.

6.3.2 Results of Hypothesis 2

Hypothesis 2 was devised to investigate the impact of increasing complexity along the +/- Here-and-Now variable under both planned and unplanned conditions. It was predicted that such increase would reduce fluency but would have a positive impact on the complexity, both lexical and structural, and accuracy of learners' production (See Table 32 on page 252).

6.3.2.1 Fluency

Table 28 below shows the mean differences and the level of significance between tasks performed in the Here-and-Now and tasks performed in the There-and-Then under both planned and unplanned conditions.

Table 28

Hypothesis 2. Fluency Measures: Mean differences between simple Here-and-Now and complex There-and-Then tasks under both planned and unplanned conditions.

	Comparison	Unpruned Speech Rate A	Pruned Speech Rate B
Hypothesis 2	Planned Here-and-Now vs Planned There-and-Then	5.99*	12.58*
	Unplanned Here-and-Now Vs Unplanned There-and-Then	4.58	7.30*

*$p < .05$

Given planning time, learners produced significantly more fluent speech (p<.05) when performing in the Here-and-Now (Condition 1) than when doing it in the There-and-Then (Condition 3). This was not the same in the absence of planning time, since Here-and-Now tasks (Condition 2) did not display significantly more fluent language than There-and-Then tasks (Condition 4).

Regarding Rate B, learners were significantly more fluent (p<.05) when narrating tasks in the Here-and-Now than when doing so in the There-and-Then under planned conditions. This behavior was the same when there was 50 seconds planning time, which caused learners to be significantly more fluent (p<.05) when producing Here-and-Now narratives than when producing narratives in the There-and-Then.

It can therefore be concluded that Hypothesis 2 was confirmed for the two fluency rates.

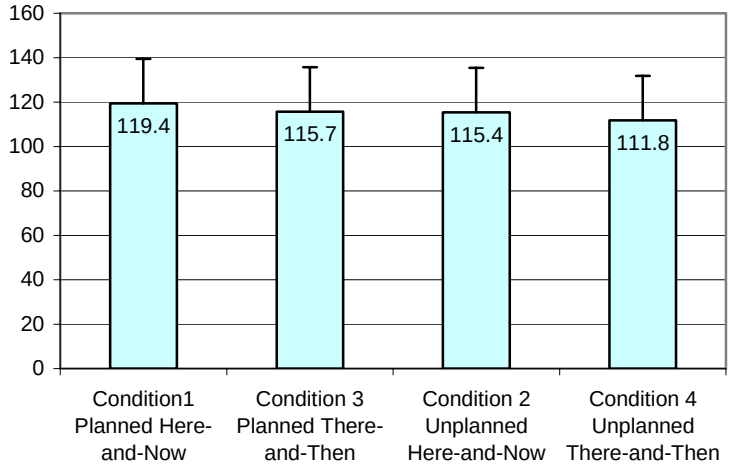

Figure 27. Hypothesis 2. Fluency Measure: Unpruned Speech Rate A.

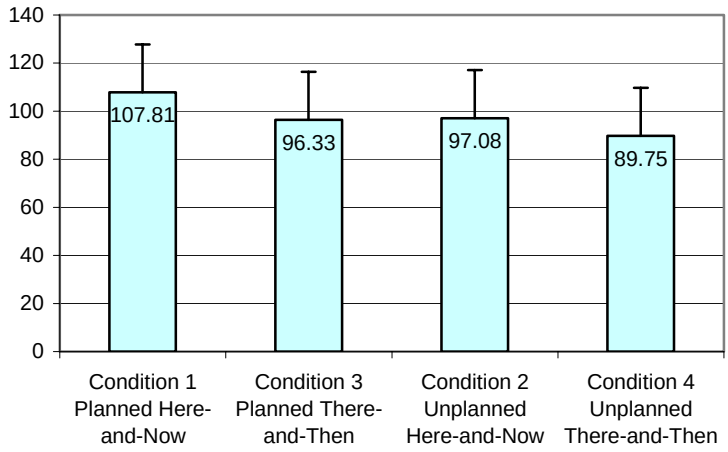

Figure 28. Hypothesis 2. Fluency Measure: Pruned Speech Rate B.

6.3.2.2 Lexical Complexity

Manipulating tasks along the +/- Here-and-Now variable did affect lexical complexity, but to a lesser extent than planning time. In general, it reduced lexical complexity although not significantly.

As far as the differences in Task Complexity along the +/- Here-and-Now are concerned, results showed no significant differences between simple and complex tasks under neither planned nor unplanned conditions. Planned There-and-Then tasks displayed a slightly lower percentage of lexical words than Here-and-Now ones. This was the reverse for unplanned tasks, since the most cognitively complex tasks in the There-and-Then triggered a slightly higher percentage of lexical words. These differences, however, did not reach statistical significance (See Table 29 below).

Table 29

Hypothesis 2. Lexical Complexity: Mean differences between simple Here-and-Now and complex There-and-Then tasks under both planned and unplanned conditions.

	Comparison	Percentage of lexical words	Ratio of lexical to function words	Guiraud's index of lexical richness
Hypothesis 2	Planned Here-and-Now vs Planned There-and-Then	1.12	2.59	.13
	Unplanned Here-and-Now vs Unplanned There-and-Then	-.08	-.21	.18

*$p < .05$

No significant differences were found between simple and complex tasks under planned conditions or unplanned conditions. Under planned conditions, learners produced a slightly higher percentage of lexical words when performing in the Here-and-Now than when doing so in the There-and-Then, but these differences were not significant. When resources were scarce because of the lack of planning time, learners used a slightly higher percentage of lexical words with There-and-Then tasks than with Here-and-Now ones. Again, these differences were not significant.

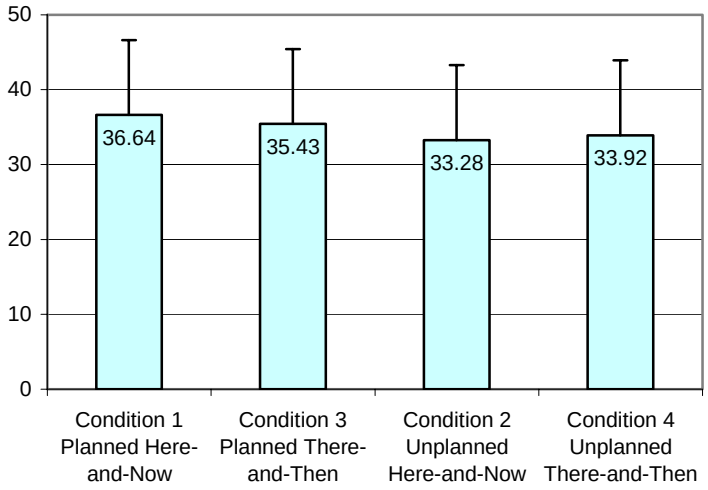

Figure 29. Hypothesis 2. Lexical Complexity: Percentage of Lexical Words.

Regarding the ratio of lexical to function words, Figure 30 below shows that increasing Task Complexity along the +/- Here-and-Now variable reduced the number of errors that were repaired when tasks were performed under planned conditions but increased when time was not available. None of these differences reached statistical significance.

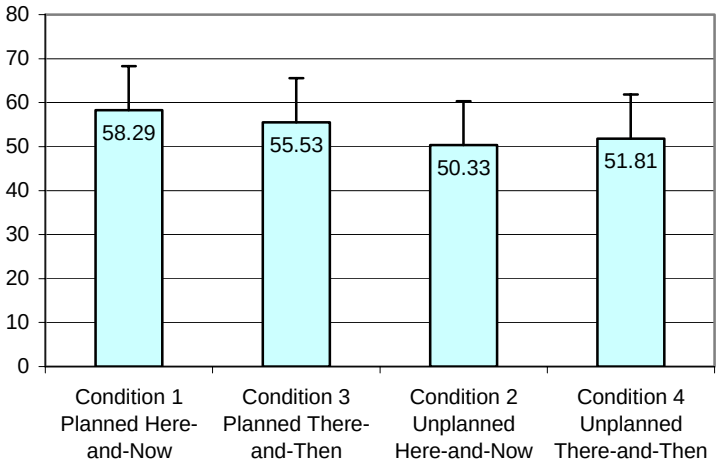

Figure 30. Hypothesis 2. Lexical Complexity: Ratio of Lexical to Function Words.

The results of the Guiraud's Index of lexical richness are slightly different from the results of the two previous measures. As can be seen in Figure 31 below, complexity is reduced by increasing task demands along the +/- Here-and-Now variable, hence contradicting what was hypothesized in Hypothesis 1.

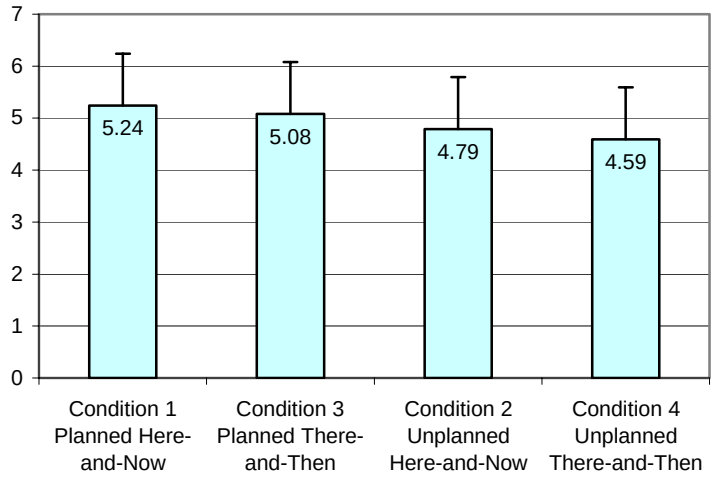

Figure 31. Hypothesis 2. Lexical Complexity Measure: Guiraud's Index of Lexical Richness.

Taken together, the three measures of lexical complexity show that increasing Task Complexity along the +/- Here-and-Now variable does not have a strong impact on lexical complexity for either task for which planning time has been provided, or for tasks for which minimal planning was allotted. On the contrary, it was seen that increasing task demands along Planning Time reduces lexical complexity significantly for both Here-and-Now and There-and-Then tasks.

6.3.2.3 Structural Complexity

As seen in Table 30 below, no significant differences were found between simple and complex tasks under either planned or unplanned conditions.

Table 30

Hypothesis 2. Structural Complexity measures: Mean differences between simple Here-and-Now and complex There-and-Then tasks under both planned and unplanned conditions.

	Comparison	Sentence Nodes per T-units
Hypothesis 2	Planned Here-and-Now vs Planned There-and-Then	.05
	Unplanned Here-and-Now Vs Unplanned There-and-Then	.01

*p< .05

This was the same between simple and complex tasks performed with 50 seconds' planning time. Hypothesis 2, predicted that tasks in the There-and-Then would also generate higher levels of structural complexity than those in the Here-and-Now. Hypothesis 2 was not confirmed.

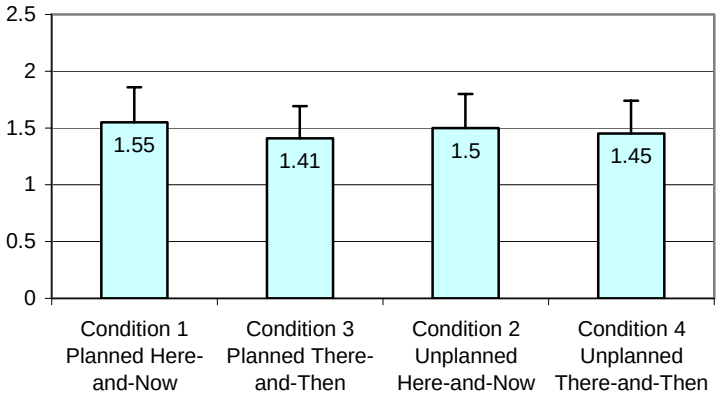

Figure 32. Hypothesis 2. Structural Complexity Measure: S-Nodes per T-Units.

6.3.2.4 Accuracy

The results for accuracy regarding Hypothesis 2 differ considerably from the ones obtained for Hypothesis 1. While providing time had a limited, non-significant effect on learners' accuracy, increasing complexity along the +/- Here-and-Now variable had a strong, positive effect on learners' accuracy. Hypothesis 2, however, is only partially confirmed for accuracy. Two of the measures, the percentage of error-free T-Units and the target-like use of articles did not show any difference in the accuracy of production when manipulating Task Complexity along the +/- Here-and-Now variable. This, however, was not the case with the two other measures. The percentage of self-repairs and the ratio of repaired to unrepaired errors showed higher levels of attention to form when tasks were performed in the There-and-Then than when produced in the Here-and-Now[3].

[3] It is important to note that although there were no significant differences in the number of errors made among the different conditions, the two measures showed significant differences in the proportion of self-repairs and the ratio of repaired to unrepaired errors.

Table 31

Hypothesis 2. Accuracy Measures: Mean differences and significance between Here-and-Now and There-and-Then tasks.

	Comparison	Percentage of Error-free T-Units	Target-like Use of Articles	Percentage of Self-repairs	Ratio of Repaired to Unrepaired Errors
Hypothesis 2	Planned Here-and-Now vs Planned There-and-Then	-.17	2.57	-5.89*	-9.69*
	Unplanned Here-and-Now Vs Unplanned There-and-Then	2.10	2.34	-5.20*	-8.04*

*$p < .05$

As shown by the significant differences in the percentage of self-repairs and the ratio of repaired to unrepaired errors, manipulating tasks along the +/- Here-and-Now variable had significant effects on learners' production.

When measured along the Here-and-Now variable, the percentage of error-free units did not display a significant difference between simple Here-and-Now and complex There-and-Then under either of the two planning time conditions. In the case of planned tasks, There-and-Then tasks led learners to be slightly more accurate than when performing tasks in the Here-and-Now. In the absence of planning time, the percentage of error-free T-Units was lower for There-and-Then tasks than for Here-and-Now ones.

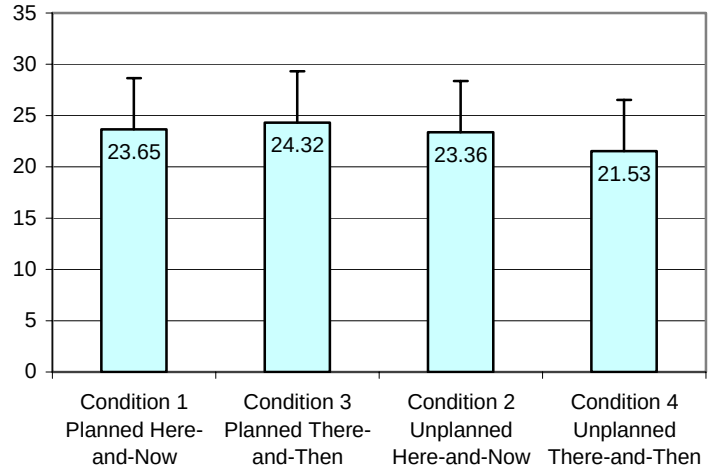

Figure 33. Hypothesis 2. Accuracy Measure: for Error-free T-Units.

As far as the target-like use of articles is concerned, when task manipulation worked along the +/- Here-and-Now variable, the pattern was the same under both planned and unplanned conditions. Tasks in the There-and-Then generated a non-significant, slightly lower percentage of the target-like use of article than tasks performed in the present and while looking at the pictures.

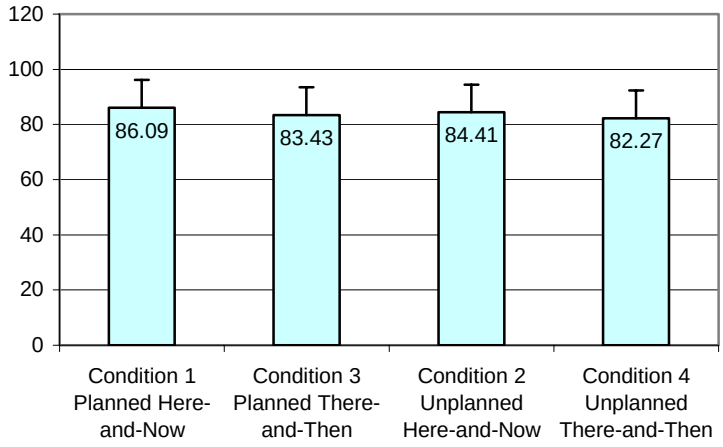

Figure 34. Hypothesis 2. Accuracy Measure: Target-like Use of Articles.

Regarding self-generated self-repairs, complex tasks in the There-and-Then triggered a significantly ($p<.05$) higher proportion of self-repairs than Here-and-Now tasks when performed after 10 minutes of planning. This was also the case when task demands were made higher by reducing planning time to less than a minute, which caused more episodes of self-repair when learners spoke in the past and without looking at the pictures than when narrating the stories in the Here-and-Now.

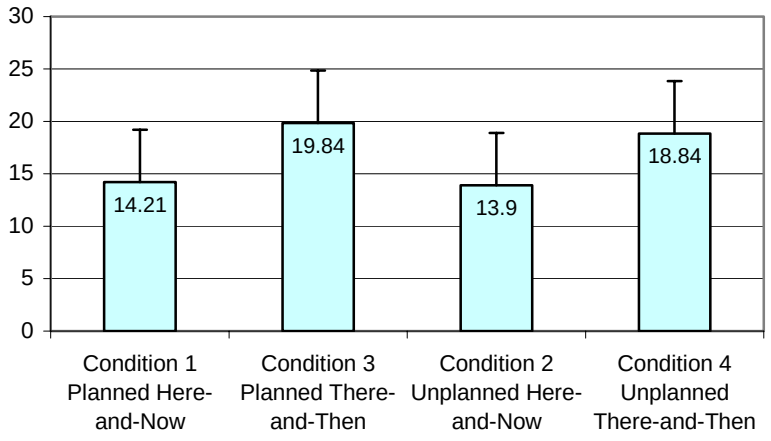

Figure 35. Hypothesis 2. Accuracy Measures: Percentage of Self-repairs.

In the case of ratio of repaired to unrepaired errors significant differences ($p<.05$) were found when tasks were manipulated along the Here-and-Now/There-and-Then variable.

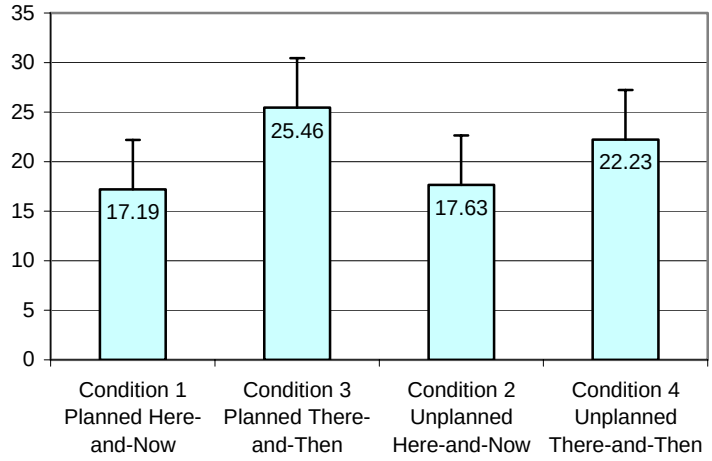

Figure 36. Hypothesis 2. Accuracy Measure: Ratio of repaired to unrepaired errors.

Table 32 on the following page provides a summary of the predictions made for the impact of increasing Task Complexity along the +/- Here-and-Now variable on learners' production, both under planned and unplanned conditions.

Table 32

Hypothesis 2. Predictions, findings, level of significance, and confirmation/rejection of the hypothesis.

	Measure	Prediction	Findings	Level of significance	Confirmation/rejection of Hypothesis 1
Fluency	Speech Rate A	Increasing complexity along +/-Here-and-Now will reduce fluency.	Production was less fluent in There-and-Then tasks.	Results were not significant under unplanned conditions.	Hypothesis 2 was partially confirmed for Rate A.
	Speech Rate B		Production displayed lower fluency in There-and-Then tasks.	Results were significant under both planned and unplanned conditions.	Hypothesis 2 was largely confirmed for Rate B.
Lexical Complexity	% of Lexical Words	Increasing complexity along +/- Here-and-Now will have a positive impact on lexical complexity.	Production was not more lexically complex for There-and-Then tasks.	Results were not significant for either planned or unplanned conditions.	Hypothesis 2 was not confirmed for the percentage of lexical words. Results run counter to what was hypothesized under planned conditions.
	Ratio Lexical to Function		There-and-Then tasks did not generate a higher ratio of lexical to function words.	Results were not significant for either planned or unplanned conditions.	Hypothesis 2 was not confirmed for the ratio of lexical to function words. Results run counter to hypothesis under planned conditions.
	Guiraud's Index		There-and-Then tasks did not trigger more lexically rich language.	Results were not significant under either planning condition.	Hypothesis 2 was not confirmed for the Guiraud's Index. Results run counter to what was hypothesized.
Structural Complexity	S-Nodes Per T-Units	Higher task demands along +/- Here-and-Now will affect structural complexity positively.	Production was not affected by increasing Task Complexity along the +/- Here-and-Now variable.	Results were not significant for either planned or unplanned tasks.	Hypothesis 2 was not confirmed for structural complexity.
Accuracy	Error-Free T-Units	Increasing complexity along +/- Here-and-Now will have positive effects for accuracy.	Production showed a slight increase in accuracy under planned conditions.	No significant results were obtained for either planning condition.	Hypothesis 2 was not confirmed for the percentage of error-free units. Right direction of hypothesis under planned conditions.
	TLU of Articles		Accuracy was reduced by increasing complexity along the +/- Here-and-Now variable.	No significant results were obtained for either planned or unplanned tasks.	Hypothesis 2 was not confirmed for the target-like use of articles. Results run counter to hypothesis.
	% of Self-Repairs		The accuracy of learners' production was significantly higher in There-and-Then versions of tasks.	Significant results were obtained under both planned and unplanned conditions.	Hypothesis 2 was largely confirmed for the percentage of self-repairs.
	Repaired to Unrepaired		Learners' level of accuracy was higher when narrating There-and-Then tasks.	Significant results were obtained under both planned and unplanned conditions.	Hypothesis 2 was largely confirmed for the ratio of repaired to unrepaired errors.

6.3.3 Results of Hypothesis 3

Hypothesis 3 was concerned with establishing the differential impact of planning time on the two different levels of cognitive complexity. It was hypothesized that the effect of increasing complexity along planning time would be stronger on the complex (There-and-Then) version of tasks than on the simple (Here-and-Now) version of tasks. It was predicted that fluency would show a higher mean difference between complex tasks than between simple tasks. Structural complexity would display a higher mean difference between complex tasks than between simple tasks. Lexical complexity and accuracy would show no significant differences between the two levels of task complexity.

Since the calculation of mean differences between, first, planned and unplanned Here-and-Now tasks and planned and unplanned There-and-Then tasks and, second, between planned Here-and-Now and There-and-Then tasks and unplanned Here-and-Now and There-and-Then ones left us with two groups to compare, T-test comparisons were used (See Table 33 on the following page).

Table 33

Hypothesis 3. Means, standard deviation, skewness, and kurtosis for Here-and-Now and There-and-Then tasks as affected by planning time.

	Dependent Variable	Here-and-Now				There-and-Then			
		M	SD	Sk	K	M	SD	Sk	K
Fluency	Unpruned Speech Rate A (n= 40)	4.39	15.70	.530	.324	3.89	15.47	.772	.849
	Pruned Speech Rate B (n=42)	10.73	17.80	.244	-.322	6.58	18.92	.368	-.439
Lexical Complexity	% of Lexical Words (n=42)	3.36	3.40	.379	.849	1.51	4.56	.351	.017
	Ratio Lexical to Function (n=42)	7.96	8.08	.420	.959	3.72	11.21	.427	.323
	Guiraud's Index (n=41)	.449	.488	.211	-.265	.490	.586	-.455	-.488
Structural Complexity	S-Nodes Per T-Units (n=47)	.050	.350	-.326	-.091	.010	.307	-.537	.251
Accuracy	Error-Free T-Units (n=45)	0.29	16.91	.227	-.417	2.79	15.71	-.188	-.666
	TLU of Articles (n=43)	1.68	10.54	.176	-.390	1.16	17.2	.174	-.357
	% of Self-Repairs (n=45)	0.31	11.61	-.410	.099	1.39	13.97	.183	.127
	Repaired to Unrepaired (n=40)	-.044	16.58	-.401	.184	3.23	19.11	-.388	.214

Table 34

Hypothesis 3. T-test results: The impact of planning time on Here-and-Now and There-and-Then tasks.

t-test	t	df	*p-level*
Unpruned Speech Rate A	.344	39	n.s.
Pruned Speech Rate B	1.313	41	n.s.
% of Lexical Words	1.546	41	n.s.
Ratio Lexical to Function	1.480	41	n.s.
Guiraud's Index	-.325	40	n.s.
S-Nodes Per T-Units	.297	46	n.s.
Error-Free T-Units	-.674	44	n.s.
TLU of Articles	-.213	42	n.s.
% of Self-Repairs	-.380	44	n.s.
Repaired to Unrepaired	.105	39	n.s.

*$p < .05$

T-test results did not show any significant differences between Here-and-Now and There-and-Then tasks (See Table 34 above).

Results for fluency run counter to the prediction advanced by Hypothesis 3. Simple Here-and-Now version of tasks seemed to have benefited more from planning time than more complex There-and-Then versions. This is suggested, without reaching significance, by both the mean differences of Rate A and Rate B.

With regard to lexical complexity, both the percentage of lexical words and the ratio of lexical to function words indicated that Here-and-Now tasks benefited more from planning time than There-and-Then narratives. In this case, as predicted by Hypothesis 3, no significant differences were found. Structural complexity, contrary to what was predicted, did not show any differences between simple and complex

tasks, although it pointed towards a larger benefit for Here-and-Now tasks when tasks were planned for 10 minutes.

Finally, three out of the four measures of accuracy (i.e. the percentage of error-free units, the percentage of self-repairs, and the ratio of repaired to unrepaired errors) showed that There-and-Then tasks benefited more from planning time than Here-and-Now tasks. The three means display a higher impact of planning time on accuracy for There-and-Then versions of the tasks. These differences, however, did not reach statistical significance as predicted by the hypothesis.

It can therefore be concluded that Hypothesis 3 was confirmed for lexical complexity and accuracy but not for fluency or structural complexity.

Table 35 on the following page summarizes the results obtained for Hypothesis 3. Since no statistically significant differences were found between simple Here-and-Now versions of tasks and the There-and-Then counter parts, levels of significance are not reported in Table 35.

Table 35

Summary of Hypothesis 3 results.

	Meausure	Prediction	Findings	Confirmation/rejection of Hypothesis 3
Fluency	Speech Rate A	Planning time will have a stronger effect on There-and-Then tasks than on Here-and-Now ones.	Simple Here-and-Now tasks benefited more from planning time.	Not confirmed for Rate A. Results against what was hypothesized.
	Speech Rate B		Simple Here-and-Now tasks benefited more from planning time than There-and-Then ones.	Not confirmed for Rate B. Results against what was hypothesized.
Lexical Complexity	% of Lexical Words	The effect on planning time will be the same for simple Here-and-Now versions of tasks and There-and-Then ones.	Simple tasks benefited more from planning time that their There-and-Then counterparts.	Confirmed for percentage of lexical words. No significant differences found.
	Ratio Lexical to Function		Here-and-now tasks benefited more from planning time.	Confirmed for ratio of lexical to functions words. No significant differences found.
	Guiraud's Index		Results showed a slightly higher positive impact of planning on There-and-Then tasks.	Confirmed for Guiraud's index of lexical richness. No significant differences found.
Structural Complexity	S-Nodes Per T-Units	The effect of planning time will be greater for complex versions of tasks.	Learners' structural complexity benefited from planning time when performing simple versions of tasks.	Not confirmed. Results run counter to what was predicted.
Accuracy	Error-Free T-Units	The effect of planning time will be the same for simple Here-and-Now and complex There-and-Then versions of tasks.	Learners produced a slightly higher number of error-free T-units as a consequence of planning time when performing complex versions of tasks.	Confirmed for the percentage of error-free units. No significant differences.
	TLU of Articles		Learners benefited more from planning time when performing simple tasks.	Confirmed for the percentage of TLU of articles. No significant differences.
	% of Self-Repairs		Learners self-repaired more often when narratiing complex tasks.	Confirmed for the percentage of self-repairs. No significant differences.
	Repaired to Unrepaired		Learners also benefited more from planning time on complex versions of tasks.	Confirmed for the ratio of repaired to unrepaired errors. No significant differences.

6.3.4 Results of Hypothesis 4

Hypothesis 4 was designed to speculate about the impact of increasing tasks along the +/- Here-and-Now variable on planned and unplanned tasks.

The impact of increasing Task Complexity along the +/-Here-and-Now was measured by calculating the mean difference between a simple (Here-and-Now) task and a complex (There-and-Then) task under planned conditions, and comparing it with the mean difference between a simple (Here-and-Now) task and a complex (There-and-Then) task performed under unplanned conditions. It was hypothesized that the effect of increasing complexity along the Here-and-Now variable would be stronger on planned tasks than on unplanned tasks. It was predicted that the mean difference regarding fluency between planned tasks would be higher than between unplanned tasks. Complexity, both structural and lexical, would be higher for planned tasks. The mean difference for accuracy would also be higher for planned tasks than for unplanned ones.

Table 36

Means, standard deviation, skewness, and kurtosis for planned and unplanned tasks as affected by increasing complexity along the Here-and-Now/There-and-Then variable.

	Dependent Variable	Planned				Unplanned			
		M	SD	Sk	K	M	SD	Sk	K
Fluency	Unpruned Speech Rate A (n= 40)	3.71	16.18	.523	-.120	3.21	17.68	.615	-.120
	Pruned Speech Rate B (n=42)	11.48	17.61	.258	-.004	7.33	21.44	.785	.471
Lexical Complexity	% of Lexical Words (n=42)	1.34	5.12	-.568	.061	-.064	3.76	-.008	-.804
	Ratio Lexical to Function (n=42)	2.96	12.72	-.727	.339	-1.48	8.77	-.141	-.625
	Guiraud's Index (n=41)	.16	.627	.324	-.015	.20	.347	-.008	.443
Structural Complexity	S-Nodes Per T-Units (n=47)	.09	.329	-.046	-.258	.05	.347	-.008	.443
Accuracy	Error-Free T-Units (n=45)	-.67	17.97	.460	.010	1.83	15.54	-.279	-.739
	TLU of Articles (n=43)	2.66	14.38	.371	-.135	1.94	14.42	.160	-.520
	% of Self-Repairs (n=45)	-5.43	10.59	-.351	.357	-.5.45	17.43	-.351	.297
	Repaired to Unrepaired (n=40)	-8.25	15.81	-.435	.915	-4.6	20.90	.358	.863

Table 37

T-test results: The impact of increasing complexity along +/- Here-and-Now on planned and unplanned tasks.

t-test	t	df	*p-level*
Unpruned Speech Rate A	.344	39	n.s.
Pruned Speech Rate B	1.313	41	n.s.
% of Lexical Words	1.546	41	n.s.
Ratio Lexical to Function	1.480	41	n.s.
Guiraud's Index	-.325	40	n.s.
S-Nodes Per T-Units	.297	46	n.s.
Error-Free T-Units	-.674	44	n.s.
TLU of Articles	.105	42	n.s.
% of Self-Repairs	.389	44	n.s.
Repaired to Unrepaired	-.380	39	n.s.

*$p < .05$

Hypothesis 4 predicted that increasing cognitive complexity along the +/- Here-and-Now variable would have a stronger impact on planned tasks than on unplanned tasks.

Without reaching statistical significance, both fluency rates, Rate A and Rate B, confirm that when planning time was available, increasing complexity along the +/- Here-and-Now variable had a stronger impact on fluency than when time was not available. As shown by the percentage of lexical words and the ratio of lexical to function words, increasing cognitive complexity under planned conditions had a stronger effect on lexical complexity than under unplanned ones. The same pattern

was found for structural complexity, which decreased more by the impact of increasing cognitive complexity along +/- Here-and-Now with 10-minute tasks than with unplanned ones. Finally, mean differences between Here-and-Now and There-and-Then tasks for accuracy were also higher when time was available.

We can therefore conclude that despite the fact that no significance levels were achieved for any of the differences, Hypothesis 4 pointed in the right direction by suggesting that the impact of increasing complexity along the +/- Here-and-Now would be higher under the condition of planning.

Table 38 on the following page summarizes the results obtained for Hypothesis 4. As with Table 36, since no statistically significant differences were found between simple Here-and-Now versions of tasks and the There-and-Then counter parts, levels of significance are not reported in Table 38.

Table 38

Summary of Hypothesis 4 results.

	Measure	Prediction	Findings	Confirmation/rejection of Hypothesis 4
Fluency	Speech Rate A	Increasing complexity along +/- Here-and-now will have stronger effect under planned conditions.	The effect of increasing complexity was enhanced under planned conditions.	Confirmed for Rate A. Right direction of hypothesis.
	Speech Rate B		Rate B showed a similar pattern to the one of Rate A.	Confirmed for Rate B. Right direction of hypothesis.
Lexical Complexity	% of Lexical Words	The effect of increasing complexity along +/- Here-and-Now will be stronger when planning time is available.	A higher mean difference was obtained under planned conditions.	Confirmed for percentage of lexical words. Right direction of hypothesis.
	Ratio Lexical to Function		Also a higher mean difference was obtained when planning available.	Confirmed for ratio of lexical to functions words. Right directions of hypothesis.
	Guiraud's Index			Not confirmed. Results run counter to what was hypothesized.
Structural Complexity	S-Nodes Per T-Units	The impact of increasing complexity will be enhanced by planning time.	A higher mean difference for the number of S-Nodes per T-unit was obtained when tasks were performed under planned conditions.	Confirmed for the hypothesis in the right direction.
Accuracy	Error-Free T-Units	The effect of increasing the complexity of tasks along the +/- Here-and-Now variable will be greater when tasks are performed under conditions of planning.	The effect was not enhanced by planning time but by the lack of planning time.	Not confirmed. Results run counter to hypothesis.
	TLU of Articles		Under conditions of planning time the impact of increasing complexity was higher.	Confirmed for the percentage of TLU of articles. Hypothesis in the right direction.
	% of Self-Repairs		The effect of increasing complexity was enhanced by the lack of planning time.	Not confirmed for the percentage of self-repairs.
	Repaired to Unrepaired		The effect of increasing complexity was enhanced by planning time.	Confirmed for the ratio of repaired to unrepaired errors. Hypothesis in the right direction.

6.4 Summary of Chapter VI

Chapter VI started by presenting and discussing the practice and order effects tasks may have undergone during experimental performance. It was shown that no systematic overall differences existed among the different stories. Then the results of Hypothesis 1, which was concerned with the effects of planning time on performance, and Hypothesis 2, which dealt with complexity along the +/- Here-and-Now variable, were described. The results of Hypotheses 3 and 4, which measured the strength of the impact of both planning time and +/- now on production, were then analyzed.