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The Effect of Think-Aloud on the Amount of Translation Revision

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ABSTRACT

The current study intended to check whether think-aloud had any significant impact on the amount of translation; and, whether revision is subjected to direction of language. To this end, based on purposive sampling, five Iranian MA translation students, who were homogenized based on their performance on a general English proficiency test, translated two Persian texts into English and two English texts into Persian. The texts were translated under two conditions, namely with think aloud protocol and without think aloud protocol. All tasks were performed on a computer, and all keystrokes were logged with Translog. The results revealed that, contrary to expectation, there was a significant difference between the amount of revision with and without think aloud; and, it was concluded that the amount of revisions reduced with think aloud technique. Moreover, the direction of language did not affect the amount of translation revision. Providing explanations for the results obtained, the study suggested that translation instructors reconsider the significant role of think aloud technique in translation courses if neglected.

Keywords: Revision, Translation, Think-Aloud, Translation students, Translog

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1. Introduction

Obviously, there is more to translation than just associating words in one language with those in another. Cognitive scientific approaches to translation try to understand and explain the workings of translators' minds. Cognitive translation research is closely related to the ever-increasing process research in translation studies, which uses different methods to observe the actual chronological activity of translating by different groups of participants with different text types and different contexts (Chesterman, 2009).

In translation studies, the methods used to date have included, for example, introspection (Seleskovitch & Lederer, 1984—later criticized for its insufficient empirical basis and for relying on the authors' own experience, see e.g., Pöchhacker, 2000, pp. 67-8—and Seleskovitch, 1988), theoretical analysis (Wilss, 1996; Risku, 1998), think-aloud protocols (TAPs) of individual language learners and translators (Krings, 1986; Lörscher, 1991; Jääskeläinen & Tirkkonen-Condit, 1991; Tirkkonen-Condit & Jääskeläinen, 2000) and groups of translators, participant

observation (Risku, 2009), tracking/logging the translation process on computer screens (Jakobsen, 1999), and eye-tracking (see e.g., Göpferich, Jakobsen, & Mees, 2008; Rydning & Lachaud, 2010; Alves, Pagano, Neumann, Steiner, & Hansen-Schirra, 2010; O'Brien, 2010).

With methodological innovation having become a major topic in cognitive translatology, increasing attention is also placed on combining translation process observation with translation product analysis and corpus-based translation studies (Rydning & Lachaud, 2010; Alves et al., 2010; Halverson, 2010;).

With the advent and spread of personal computers, most translations have come to be typed on keyboard. As a result, translators keyboard skills have developed to where (in some cases at least) typing is almost as immediate and automatic as speech. In any case, editing has become so easy that most translators now prefer to get ideas into type immediately rather than finish processing whole clauses or sentences before starting to type them. An effect of this is that, when logged, a translator's keystrokes constitute what might be called a 'type-along protocol' or even a 'type-along think-aloud protocol', with information about first impulses, false starts, revisions, etc., much like that which is elicited in think-aloud protocols.

Keystroke logging is not a substitute for the information that can be elicited through think aloud; however, the combination of think aloud (TA) with keystroke logging creates a powerful method which makes it possible to triangulate observations and formulate stronger hypotheses about translation (Alves, 2001). If one data source dries up at a certain point, data may be available in the other, and the two methods will complement each other. If data from two different sources can be analyzed as converging, any finding will be stronger than if based on one data source only.

1.1 This Study

Introspective think-aloud has been employed as one of the principal techniques for the analysis of cognitive information processing dealt with in translation activities (Ericsson & Simon, 1984). This method has been supplemented by keystroke logging as a further technique for cognitive information processing, as reported by Jakobsen (1998, 1999).

In other words, the advancement of computer software has provided the researchers with the opportunity to collect the required information regarding the first impulses, false starts, and revisions of translation process through the keystroke loggings, as elicited in think-aloud protocols. Although keystroke loggings are not as efficient as think-aloud protocols, Alves (2001) considers them as an influential complementary technique for the purpose of triangulation in translation studies.

Drawing an analogy between computer central processing unit (CPU) and human's brain, Jackobsen (2002) assumes that intuitively the engagement of brain central processor in simultaneous cognitive activities influences the processing time and capacity of mind. However, Ericsson and Simon (1993, p. 62) hold a contrary assumption:

[...] our fundamental assumption is that, when the CP [the central processor] attends to or activates a structure in memory that is orally encoded, then this structure can at the same time be vocalized overtly without making additional demands on processing time or capacity. At any time when the contents of STM [short-term memory] are words (i.e., are orally

encoded), we can speak those words without interference from or with the ongoing processes.

The current study, accordingly, has a twofold concern. First, it is interested in shedding more light on the amount of revision made through translation under two conditions, namely with and without think-aloud. The study, following Ericsson and Simon's (1993) assumes, that human brain in general and more specifically short term memory is not overloaded by additional demands; and, its revision capacity and time in translation is not influenced by additional tasks, in our case think-aloud. Moreover, the study intends to explore the impact of language direction, that is translating from L1 into L2 and from L2 to L1, on the amount of revision; the revision amount is provided by keystroke logging behavior collected through the software Translog.

1.2 Research Objectives

This study is complementary research job to previous literature conducted to check the function of human brains in translation. Whether human brain processing capacity and time including translation revision is subjected to additional tasks and whether it is overloaded by simultaneous tasks is the primary objective of the study to be achieved. Furthermore, the study is going to shed more light on the nature of revisions made through translation regarding the direction of translation and its impact on the amount of revision.

1.3 Research Questions

In order to achieve the objectives of the study the following research questions were formulated to guide this research project.

RQ1: Is the amount of revisions made through translation subjected to think-aloud activity?

RQ2: Is the amount of revisions made through translation subjected to language direction (L1/L2 and L2/L1)?

1.4 Research Hypotheses

The above research questions were reformulated as null hypotheses to be tested through statistical analysis.

RH_1: The amount of revisions made through translation is not subjected to think-aloud activity.

RH_2: The amount of revisions made through translation is not subjected to language direction (L1/L2 and L2/L1).

1.5 Significance

Because the current study has adopted a cognitive perspective, it is hoped, it provides shedding lights on the nature of cognitive processes in translation as far as think aloud is concerned. Moreover, the study could be an academic endeavor to replicate and test Ericsson and Simon's (1993) assumption. As such, the study can play a significant role in the development of translation studies in general, and adopting more appropriate techniques of translation in particular.

2. Methodology

2.1 Participants

The initial sample of the current study was selected purposively because it was intended to conduct the study on participants who were familiar with translation. Accordingly, fifteen senior MA students of translation studies whose consent had been obtained were selected to participate in the study. They all had passed theoretical core courses on translation and were working on submitting their thesis. They were 10 female and five male students who aged 24 to 30. Because general English proficiency is one of the variables that influence the quality of translation, the researcher had to control for general English proficiency of the participants. Accordingly, all selected participants sat for

a placement test, namely Oxford Placement Test. Based on the participants' performance on the test only five participants could get a score between 40-47 out of the total of 60. Therefore, five participants who were at upper-intermediate level of English proficiency were selected as the final participants of the study.

2.2 Instruments

A few instruments were required to collect data and implement the study. As such, Oxford Placement Test, Translog software, Laptop, and digital bilingual dictionary were used to help the implementation of study.

2.2.1 Oxford Placement Test

The first instrument that was used in this study was the second version of quick Oxford Placement Test (OPT) (See Appendix). The OPT provides reliable and efficient means of placing students at the start of a course for teachers. The test has been calibrated against the levels system provided by the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (commonly known as the CEF), which has been adopted by the Association of Language Testers in Europe (ALTE) as well as by governments and major institutions, including exam boards, throughout Europe.

The test contained 60 questions where the participants had to choose the correct answers among the alternatives that were provided. After conducting the test, the results were collected and the participants whose scores in the placement test were recognized as the upper intermediate level were selected to homogenize the participants in terms of general English proficiency

2.2.2 Laptop

The participants used a laptop equipped with required softwares (Translaog and Microsoft Word 2010) for typing and time measurement to analyze the translation process of the participants of the study made with think-aloud protocol and without think-aloud protocol. The software could measure the translation sessions time in which the participants translated the target text from L2 (English) in to L1 (Persian) and vice versa.

2.2.3 The Translog Software

Translog was originally designed as a research tool to enhance the study of translation processes. Over the years it has been developed so that it can now be applied equally well to the study of general writing processes as well as to studies of reading. Translog records user activity data (UAD) all the keystrokes and gaze movements (if an eye-tracker is connected). It classifies the keystroke data as 1) insertion, 2) deletion (delete and backspace), 3) navigation (cursor movements), 4) copy/cut-and-paste, 5) return key, or 6) mouse operations. Since the keylogger runs in the background, the recording does not interfere with the writing or translation process. Translog logs the exact time at which each keystroke operation is made. If connected to an eye-tracker, Translog also records 7) gaze-sample points, 8) computes fixations (i.e. clusters of gaze- samples) and 9) mappings of fixations to the closest character on the screen. This latter operation performs a mapping from the spatial location of the gaze on the screen to a character offset in the text. That is, an X/Y coordinate of a fixation center is mapped onto a character position of the text that is being looked at. Since there is some noise in the recordings of gaze-sample points, the representation in the log file is such that fixations and to a certain extent also mappings can be re-computed offline. The gaze and the keystroke information can then be

correlated, as they both refer to textual positions. The information is stored in an XML format and can be replayed or analyzed with Translog or analyzed in external tool.

Translog-II has three main functions:

I. Create a project file:
- Determine the size and orientation of a source and a target window on the screen for reading and writing permission respectively.
- Produce texts for the source and/or the target window, their layout, text font, size, color, line spacing etc.
- Determine which data are to be logged, keyboard and eye-tracking,

II. Run and record a Translog session:
- Load a project file
- Calibrate eye-tracker (if connected)
- Record and log UAD

III. Replay and analyze a recorded log file:
- Statistics: figures about text production/elimination/navigation events
- User view: replays the translation session in time
- linear view: plots a textual representation of the UAD
- Pause plot: shows a 2D representation how the text emerge in time

This study used the software to analyze the revisions the participants of the study make with think-aloud protocol and without think-aloud protocol. Moreover, the software could measure the translation sessions time in which the participants translated the target texts from L2 (English) in to L1 (Persian) and vice versa.

2.2.4 Digital Bilingual Dictionaries

A digital bilingual (English-Persian) was provided with participants of the study to facilitate the process of translation. It was installed on the laptop. Through the process of translation the participants could check the meaning of unfamiliar vocabularies and check other relevant information such as part of speech of the words, synonyms and antonyms of the main entries. Prior to beginning of the study the researcher made sure all participants could use the software adequately. The rationale behind using digital dictionaries was to reduce the time of translation as much as possible.

2.3 Materials

Two English excerpts and two Persian excerpts were used to be translated by the participants of the study. The difficulty level of English excerpts was measured to make sure they match the proficiency level of participants of the study. To this end, Flesch-Kincaid Grade Level (FKGL) was used to evaluate readability of the texts.

This measure is primarily based on the US school system, ranging from 0-16. In this measure, the higher the score the more challenging the text is. The formula reads as:

FKGL= (0.39 × ASL) + (11.8 × ASW) – 15.59

Where ASL is the average sentence level (the number of words divided by the number of sentences) and ASW is the average number of syllables per word (the number of syllables divided by the number of words). The FKGL of the English Excerpt one turned out to be 13.45 and the second one was 13.04. The figures revealed that the excerpts were appropriate for upper-intermediate proficiency participants, according to FKGL scale.

The Persian excerpts were selected from two passages on Iranian New year celebration (No-Ruz) to make sure the titles are familiar to participants' ear. The Persian and English excerpts included approximately the same length and number

of words as measured by Microsoft word 2010.

2.4 Procedure

Five Persian students out of fifteen participants of English language translation were selected based on their performance on a version of OPT. They were trained how to think aloud in a pilot session and the researcher made sure they all knew how to work with the word processor used in this study, that is, Microsoft word (version 2010). Then, they were asked to translate two English excerpts and two Persian excerpts each one in a session. There was no time constraint for translation. They could check the digital bilingual dictionary installed on the laptop in case it was required. The software Translog was used to analyze the revisions the participants of the study make with think-aloud protocol and without think-aloud protocol The participants' translation speeds were calculated with and without think-aloud techniques and were tabulated for further statistical analysis.

3. Data Analysis and Results

Most text production involves a lot of 'editing' or revision. Some revision is trivial corrections of typos, but generally there are also more substantial changes, either of form or of content. Some revision is done while a translation is being drafted, as 'online' revision, and some is done after the first full draft has been completed as 'end' revision (Kings, 2001; Mossop, 2001).

The experimental version of *Translog* used in these experiments did a count of all keystrokes and a count of all text production characters (including e.g. spaces, but excluding cursor navigation keystrokes, mouse clicks, and deletion keys). One obvious count, therefore, was to subtract the number of text production keystrokes (Text prod keys) from the total number of keystrokes (Total keys). Since this difference between the total number of keystrokes and the number of text production keystrokes consists almost entirely of text elimination keystrokes, cursor navigation keystrokes, mouse clicks, and the like, it indicates keystrokes that can be unambiguously attributed to text revision activity. Thus, by subtracting Text prod keys from Total keys, dividing by Total keys and multiplying by 100, one obtains a percentage score (Rev1) of the amount of revision-related keyboard activity undertaken by a subject.

Formula: (Total keys - Text prod keys) / Total keys * 100.

However, while these figures certainly indicate aspects of the participants' keyboard behavior in connection with revision, the figures do not really capture the fact that what happens in revision, textually, is not only that normal characters are deleted and that the cursor is navigated, but that new characters are written - no less normal than the characters they replace.

In order to capture this textual aspect of revision, a new calculation was made (Rev2) based on a count of the difference between the number of text production keystrokes (Text prod keys) and the characters (and spaces) in the final target text (TT chars). Revision was here calculated as any character typed in addition to the ones in the final version of the target text.

Formula: (Text prod keys - TT chars)/ Text prod keys * 100.

Comparison of Rev1 with Rev2 would give an impression of participant's navigation efficiency during revision. Only detailed 'manual' scrutiny of the log files, however, would make it possible to find out how much text revision was mere correction of typos, and how much was the result of second thoughts about the translation.

The figures for the participants of the study were only slightly different. (Task order has been omitted, as there were no effects.) The Rev l figures were as follows:

Table 1: Keystrokes for participant with Rev1 percentages and averages by Text, Language direction, TA condition, and participants.

Participants	Text	Ta condition	Total keys	Text prod keys	Rev1 %	Ave by text	by Ldir	By TA	By prtcpt
1	1	No TA	638	510	20.1				
2	1	No TA	754	527	30.1				
3	1	No TA	1410	745	47.2				P1
4	1	No TA	519	442	14.8	T1			15.7
5	1	No TA	597	455	23.8	27.2			
1	4	No TA	1474	1277	13.4				
2	4	No TA	1955	1368	30.0				P2
3	4	No TA	3732	1788	52.1				31.9
4	4	No TA	1697	1396	17.7	T2	$L1 \rightarrow L2$	No TA	
5	4	No TA	2100	1434	31.7	26.8	27.0	28.1	
1	2	With TA	711	600	15.6				P3
2	2	With TA	1074	731	31.9				47.1
3	2	With TA	1422	753	47.0				
4	2	With TA	852	678	20.4	T3			
5	2	With TA	750	609	18.8	25.2			P4
1	3	With TA	1120	967	13.7				17.1
2	3	With TA	1524	981	35.6				
3	3	With TA	1972	1143	42.0				
4	3	With TA	1143	956	15.6	T4	$L2 \rightarrow L1$	with TA	P5
5	3	With TA	1183	956	19.2	29.0	27.1	26	23.4

Here, averages by Text were very uniform (range 25.2 - 29.0), and by Language Direction they were almost identical (27.0 and 27.1). Contrary to expectations, participants had slightly more revision without TA than when working under TA condition. As the figures in the above table display the average percentage of revision under think-aloud condition for the participants of the study is 26 while the percentage without think-aloud is 28.1.

To make sure the difference in the amount of revision in Rev1 is statistically significant a paired sample t-test was run to compare the revision of the texts by the same participants under two conditions namely, with and without think-aloud protocol.

Table 2: Paired Samples t-test on the difference of revision with and without TA in Rev1

		Paired Differences					t	df	Sig. (2-tailed)
		Mean Difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
time	With TA Without TA	-2.10	2.6560	1.706	-2.978	4.890	0.5601	8	0.04907

As displayed above in Rev1 the amount of revision of the texts by the same participants under two conditions, namely with and without think-aloud protocol, is statistically significant.

The Rev2 figures for the participants were as follows:

Table 3: Text production keystrokes and final target text characters for participants 1 to 5, with Rev2 percentages and averages by Text, Language direction, TA condition, and participants

Participants	Text	TA condition	Text prod keys	TT charts	Rev2 %	Ave by text	by Ldir	by TA	by prtcpt
1	1	No TA	510	399	21.8				
2	1	No TA	527	393	25.4				
3	1	No TA	745	446	40.1				P1
4	1	No TA	442	391	11.5	T1			13.6
5	1	No TA	455	387	14.9	22.8			
1	4	No TA	1277	1134	11.2				
2	4	No TA	1368	1113	18.6				P2
3	4	No TA	1788	1164	34.9				23.7
4	4	No TA	1396	1166	16.5	T2	L1→L2	No TA	
5	4	No TA	1434	1105	22.9	20.8	20.4	21.7	
1	2	With TA	600	532	11.3				P3
2	2	With TA	731	518	29.1				33.0
3	2	With TA	753	541	28.2				
4	2	With TA	678	605	10.8	T3			
5	2	With TA	609	545	10.5	17.98			P4
1	3	With TA	967	870	10.0				12.4
2	3	With TA	981	771	21.4				
3	3	With TA	1143	813	28.9				
4	3	With TA	956	860	10.9	T4	L2→L1	With TA	P5
5	3	With TA	956	839	12.2	16.68	18.8	17.3	15.2

Participants' variance was again the strongest effect, with P1 and P4 (and P5) producing the least amount of text not used in the final target text version, whereas P3 appeared to be either a somewhat compulsive reviser or to have integrated revision into her working method. Though there was also some variance by Text here, it was too small to be statistically significant. Similarly, the effect on revision by Language Direction was not significant as tested through a paired sample t-test displayed in the following table.

Table 4: Paired Samples t-test on the difference of revision by language direction TA

		Paired Differences					t	df	Sig. (2-tailed)
		Mean Difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Ldir	$L2 \rightarrow L1$ / $L1 \rightarrow L2$	0.832	1.9984	1.706	-3.591	3.901	0.9301	8	0.07907

However, to our surprise, the participants did considerably more text revision when working without TA than when thinking aloud while translating. Again, to make sure the difference in the amount of revision in Rev2 is statistically significant a paired sample t-test was run to compare the revision of the texts by the same participants under two conditions namely, with and without think-aloud protocol.

Table 5: Paired Samples t-test on the difference of revision with and without TA in Rev2

		Paired Differences					t	df	Sig. (2-tailed)
		Mean Difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
time	With TA Without TA	-4.40	1.982	1.706	-2.684	5.014	0.4901	8	0.04217

As displayed above in Rev2 the amount of revision of the texts by the same participants under two conditions, namely with and without think-aloud protocol, is statistically significant.

4. Discussion and Conclusion

As stated earlier, this study was designed to investigate the effect of think aloud technique on the amount of revision made through translation. The study also checked the impact of language direction (L1/L2 and L2/L1) on the amount of translation revision. To this end, the research questions of the study were reformulated as the following research hypotheses to be tested: 'The amount of revisions made through translation is not subjected to think-aloud activity' and 'The amount of revisions made through translation is not subjected to language direction (L1/L2 and L2/L1)'.

The results rejected the first hypothesis of the study. As displayed in Table 2, a mean difference of 2.10 was found between the amount of revision with think aloud (M=26) and without think aloud (M= 28.1) in Rev 1. Therefore, there was a significant difference between the amount of revision with and without think aloud in Rev 1: $t(8) = 0.5601$, $p \leq 0.049$. Accordingly, it was concluded that the amount of revisions reduced with think aloud technique. Moreover, as Table 5 indicated, a mean difference of 4.40 was observed between the amount of revision with think aloud (M=17.3) and without think aloud (M= 21.7) in Rev 2. As such, there was a significant difference between the amount of revision with and without think aloud in Rev 2: $t(8) = 0.4901$, $p \leq 0.042$. All in all, the results lead one to conclude that think aloud could reduce the amount of revision in translation.

The results are in line with Ericsson and Simon's (1993, p. 62) claim assuming that "when the CP [the central processor] attends to or activates a structure in memory that is orally encoded, then this structure can at the same time be vocalized overtly without making additional demands on processing time". Think aloud seems to have a contributive effect on the process of translation as the translator can have a better concentration resulting in fewer revisions made through translation.

The findings, however, did not reject the second hypothesis of the study stating that 'The amount of revisions made through translation is not subjected to language direction (L1/L2 and L2/L1)'. The mean of translation revision from L1 to L2 (M=27) was not that different from translation revisions from L2 to L1 (27.1) in Rev 1. Moreover, no significant difference was observed between the mean of translation revision from L1 to L2 (M=20.4)

was not that different from translation revisions from L2 to L1 (18.8) in Rev 2 according to t-test results (t (8) = 0.9301, p ≤ 0.07907) reported in Table 4. Therefore, the direction of language is not affecting the amount of translation revision.

The results regarding the effect of language direction on the amount of translation revision are to some extent in line with the results reported for the effect of language direction on the speed of translation with and without think aloud. Shahrokhi (2016, p. 67) reports "no significant interaction between think aloud and language direction was found".

According to the results obtained in the current study, the positive impact of think-aloud on translation process is highlighted and it is suggested that translation instructors reconsider the significant role of think aloud technique in translation courses if neglected. Moreover, freelance translators and students of translation studies in particular are recommended make use of think aloud technique as it helps them to perform their job more accurately.

5. Limitations and Suggestions for Further Research

The current study is not an exception as any research may suffer from some limitations. As stated by Shahrokhi and Kamyabi (2016, p. 233) the limitations of the any study need to be acknowledged "in order for the prospect readership to be cautious regarding the generalizations of results, and in order to shed more light on the directions for conducting further research and the replication". The limitations of the study include the small number of participants and methodological concerns.

The first limitation of the study concerns the number of participants. As the small number of participants of the current study included only five participants due to availability, future studies including larger samples will control the possible sample size effects. The second limitation stems from the design of study. The quasi-experimental design of the study might inevitably have involved uncontrolled variables influencing the outcomes of the current study. For instance, other educational levels than MA (e.g., BA students of translation studies and freelance translators) could be included in future studies.

Appendix:

Quick Oxford Placement Test: Version 2

Oxford University Press and University of Cambridge Local Examinations Syndicate

Name: ..... Date: .....

This test is divided into two parts: Part One (Questions 1 – 40) – All students.

Part Two (Questions 41 – 60) – Do not start this part unless told to do so by your test supervisor. Time: 30 minutes

Part: 1 Questions 1 – 5

• Where can you see these notices?

• For questions **1** to **5**, mark **one** letter **A**, **B** or **C** on your Answer Sheet

You can look, but don't touch the pictures.	A in an office B in a cinema C in a museum
Please give the right money to the driver!	A in a bank B on a bus C in a cinema
NO PARKING PLEASE!	A in a street B on a book C on a table
CROSS BRIDGE FOR TRAINS TO EDINBURGH!	A in a bank B in a garage C in a station
KEEP IN A COLD PLACE!	A on clothes B on furniture C on food

Questions 6 – 10

In this section you must choose the word which best fits each space in the text below.

For questions **6** to **10**, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

THE STARS

There are millions of stars in the sky. If you look **(6)** ..... the sky on a clear night, it is possible to see about 3000 stars. They look small, but they are really **(7)** ..... big hot balls of burning gas. Some of them are huge, but others are much smaller, like our planet Earth. The biggest stars are very bright, but they only live for a short time. Every day new stars **(8)** ..... born and old stars die. All the stars are very far away. The light from the nearest star takes more **(9)**..... four years to reach Earth. Hundreds of years ago, people **(10)** ..... stars, like the North Star, to know which direction to travel in. Today you can still see that star.

6	**A** at	**B** up	**C** on
7	**A** very	**B** too	**C** much
8	**A** is	**B** be	**C** are
9	**A** that	**B** of	**C** than
10	**A** use	**B** used	**C** using

Questions 11 – 20

In this section you must choose the word which best fits each space in the texts.

For questions **11** to **20**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

Good smiles ahead for young teeth

Older Britons are the worst in Europe when it comes to keeping their teeth. But British youngsters **(11)** ..... more to smile about because **(12)** ..... teeth are among the best. Almost 80% of Britons over 65 have lost all or some **(13)** ..... their teeth according to a World Health Organisation survey. Eating too **(14)** ..... sugar is part of the problem. Among **(15)** ....., 12-year olds have on average only three missing, decayed or filled teeth.

11.	**A** getting	**B** got	**C** have	**D** having
12.	**A** their	**B** his	**C** them	**D** theirs
13.	**A** from	**B** of	**C** among	**D** between
14.	**A** much	**B** lot	**C** many	**D** deal
15.	**A** person	**B** people	**C** children	**D** family

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Christopher Columbus and the New World

On August 3, 1492, Christopher Columbus set sail from Spain to find a new route to India, China and Japan. At this time most people thought you would fall off the edge of the world if you sailed too far. Yet sailors such as Columbus had seen how a ship appeared to get lower and lower on the horizon as it sailed away. For Columbus this **(16)**..... that the world was round. He **(17)**..... to his men about the distance travelled each day. He did not want them to think that he did not **(18)** ..... exactly where they were going. **(19)** ..... , on October 12, 1492, Columbus and his men landed on a small island he named San Salvador. Columbus believed he was in Asia, **(20)** ..... he was actually in the Caribbean.

16. **A** made **B** pointed **C** was **D** proved
17. **A** lied **B** told **C** cheated **D** asked
18. **A** find **B** know **C** think **D** expect
19. **A** Next **B** Secondly **C** Finally **D** Once
20. **A** as **B** but **C** because **D** if

Questions 21 – 40

In this section you must choose the word or phrase which best completes each sentence.
For questions **21** to **40**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

21 The children won't go to sleep..... we leave a light on outside their bedroom.
A except **B** otherwise **C** unless **D** but
22 I'll give you my spare keys in case you ..... home before me.
A would get **B** got **C** will get **D** get
23 My holiday in Paris gave me a great ..... to improve my French accent.
A occasion **B** chance **C** hope **D** possibility
24 The singer ended the concert ..... her most popular song.
A by **B** with **C** in **D** as
25 Because it had not rained for several months, there was a ..... of water.
A shortage **B** drop **C** scarce **D** waste
26 I've always..... you as my best friend.
A regarded **B** thought **C** meant **D** supposed
27 She came to live here ..... a month ago.
A quite **B** beyond **C** already **D** almost
28 Don't make such a.....! The dentist is only going to look at your teeth.
A fuss **B** trouble **C** worry **D** reaction
29 He spent a long time looking for a tie which..... with his new shirt.
A fixed **B** made **C** went **D** wore
30 Fortunately, ... from a bump on the head, she suffered no serious injuries from her fall.
A other **B** except **C** besides **D** apart
31 She had changed so much that ..... anyone recognised her.
A almost **B** hardly **C** not **D** nearly
32 ..... teaching English, she also writes children's books.
A Moreover **B** As well as **C** In addition **D** Apart
33 It was clear that the young couple were ..... of taking charge of the restaurant.
A responsible **B** reliable **C** capable **D** able
34 The book ..... of ten chapters, each one covering a different topic.
A comprises **B** includes **C** consists **D** contains
36 National leaders from all over the world are expected to attend the ..... meeting.
A peak **B** summit **C** top **D** apex
37 Jane remained calm when she won the lottery and..... about her business as if nothing had happened.
A came **B** brought **C** went **D** moved
38 I suggest we ..... outside the stadium tomorrow at 8.30.
A meeting **B** meet **C** met **D** will meet
39 My remarks were ..... as a joke, but she was offended by them.
A pretended **B** thought **C** meant **D** supposed
40 You ought to take up swimming for the ..... of your health.
A concern **B** relief **C** sake **D** cause

Part 2

Do not start this part unless told to do so by your test supervisor.

Questions 41 – 50

In this section you must choose the word or phrase which best fits each space in the texts.
For questions **41** to **50**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

CLOCKS

The clock was the first complex mechanical machinery to enter the home, **(41)** …….. it was too expensive for the **(42)** …….. person until the 19th century, when **(43)** …….. production techniques lowered the price. Watches were also developed, but they **(44)** …….. luxury items until 1868 when the first cheap pocket watch was designed in Switzerland. Watches later became **(45)** …….. available and Switzerland became the world's leading watch manufacturing center for the next 100 years.

41 **A** despite **B** although **C** otherwise **D** average
42 **A** average **B** medium **C** general **D** common
43 **A** vast **B** large **C** wide **D** mass
44 **A** lasted **B** endured **C** kept **D** remained
45 **A** mostly **B** chiefly **C** greatly **D** widely

Dublin City Walks

What better way of getting to know a new city than by walking around it? Whether you choose the Medieval Walk, which will **(46)** …….. you to the Dublin of 1000 years ago, find out about the more **(47)** …….. history of the city on the Eighteenth Century Walk, or meet the ghosts of Dublin's many writers on the Literary Walk, we know you will enjoy the experience. Dublin City Walks **(48)** …….. twice daily. Meet your guide at 10.30 a.m. or 2.30 p.m. at the Tourist Information Office. No advance **(49)** …….. is necessary. Special **(50)** …….. are available for families, children and parties of more than ten people.

46. **A** introduce **B** present **C** move **D** show
47. **A** near **B** late **C** recent **D** close
48. **A** take place **B** occur **C** work **D** function
49. **A** paying **B** reserving **C** warning **D** booking
50. **A** funds **B** costs **C** fees **D** rates

Questions 51 – 60

In this section you must choose the word or phrase which best completes each sentence.
For questions **51** to **60**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

51 If you're not too tired we could have a ..... of tennis after lunch.
A match **B** play **C** game **D** party
52 Don't you get tired..... watching TV every night?
A with **B** by **C** of **D** at
53 Go on, finish the dessert. It needs ..... up because it won't stay fresh until tomorrow.
A eat **B** eating **C** to eat **D** eaten
54 We're not used to ..... invited to very formal occasions.
A be **B** have **C** being **D** having
55 I'd rather we ..... meet this evening, because I'm very tired.
A wouldn't **B** shouldn't **C** hadn't **D** didn't
56 She obviously didn't want to discuss the matter so I didn't ..... the point.
A maintain **B** chase **C** follow **D** pursue
57 Anyone ..... after the start of the play is not allowed in until the interval.
A arrives **B** has arrived **C** arriving **D** arrived
58 This new magazine is ..... with interesting stories and useful information.
A full **B** packed **C** thick **D** compiled
59 The restaurant was far too noisy to be ..... to relaxed conversation.
A conducive **B** suitable **C** practical **D** fruitful
60 In this branch of medicine, it is vital to ..... open to new ideas.
A stand **B** continue **C** hold **D** remain

Alte level	**Paper and pen test score**		**Council of Europe Level**
	Part 1 score out of 40	Part 1 score out of 60	
0 beginner	0-15	0-17	A1
1 elementary	**16-23**	**18-29**	**A2**
2 lower intermediate	**24-30**	**30-39**	**B1**
3 upper intermediate	**31-40**	**40-47**	**B2**
4 advanced		**48-54**	**C1**
5 very advanced		**54-60**	**C2**

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