CONSECUTIVE INTERPRETING AND NOTE-TAKING

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

BILA TSERKVA NATIONAL AGRARIAN UNIVERSITY

FACULTY OF LAW AND LINGUISTICS

Department of Romano-Germanic Philology and Translation

CONSECUTIVE INTERPRETING AND NOTE TAKING

INTENDED FOR THE 3-d YEAR STUDENTS (educational-qualifying level "Bachelor"; full- and part-time departments; specialty: 0-35Philology)

Bila Tserkva – 2019

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Посібник розраховано на студентів освітньо-кваліфікаційного рівня «бакалавр» денної і заочної форми навчання філологічних спеціальностей. Укладач пропонує теоретичні засади та практичні рекомендації з послідовного перекладу та техніки нотування, що є необхідною складовою формування професійної компетенції майбутніх перекладачів з іноземної мови українською. Посібник містить теоретичний блок і додатки, в які включено науково-технічні тексти аграрної тематики англійською мовою для тренування усного послідовного перекладу та техніки нотування.

Рецензент:

BNAU 2019

CONTENT

«Consecutive Interpreting and Note taking»

Course description

Code	Description
Course title	Consecutive Interpreting and Note taking
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Professional
Field of study	Linguistics
Volume of the course	90 academic hours, 3 credits
Language of instruction	EN, UA
Abstract	Students get acquainted with the course of Consecutive Interpretation, its aim and specific character of consecutive interpreting as well as with the work of an interpreter. They acquire the note-taking technique, perform different tasks, participate in role-plays and interpret simulated seminars, conferences, etc. Communicative and interactive study method. Independent and responsible learning, cooperative learning. Pair work at practical classes.
Goals and objectives of the course in terms of competences and skills	Aims of the course: -Development of consecutive interpretation skills and abilities of interpreting presentation texts of different character at the intermediate level from German/English into Latvian/Russian and the other way round, identifying and solving translation problems. Objectives of the course: - to perfect listening skills; - to train memory; - to develop quick and spontaneous reaction; - to practice comprehension of oral speech; -to master the principal elements of note-taking technique
Structure and tasks of	Individual work, pair work, tasks for training memory, translation of audio-records

independent studies	
Recommended literature	1.Baker M., (2009) The Routledge Encyclopedia of Translation Studies, Routledge, GB 2.Corsellis, A., (2008) "Public Service Interpreting", Palgrave Macmillan, GB 3. Cronin M., (2004) Translation and Globalization, Routledge, GB 4.Gillies A., (2005) Note-taking for Consecutive Interpreting - A Short Course, St. Jerome Publishing, GB 5.Jones R., (2002) Conference Interpreting Explained, St. Jerome Publishing, GB 6.Mikkelson H., (2000) Introduction to Court Interpreting, St. Jerome Publishing, GB 7.Munday J., (2005) Introducing Translation Studies: Theories and Applications, Routledge, GB 8. Nolan, J., (2011) "Interpretation Techniques and Exercises", Multilingual Matters, USA 9. The Translation Studies Reader, (2004) edited by L. Venuti, Routledge, GB

Course outline

Theme	Hours
The subject and aims of consecutive interpreting	2
Brief history of consecutive interpreting	2
Comprehension in consecutive interpreting. Intuition.	2
The role of listening in consecutive interpreting. Exercises training listening skills	4
Role of the interpreters notes	4
Effort model of consecutive interpreting and note-taking	2
Relation between processing capacity, memory and note-taking in consecutive interpreting	2
The choice of language in note-taking	2
Sense in interpreting	4
Speech analysis	2
Using symbols and abbreviations	
Organising the structure of the notes	

The margin	
Verticality and Shift	
Links	
The Recall Line	
The main characteristics of sight translation	
Some existing practices and further perspectives of sight translation	
International sight translation standard	
Tests	20

Learning outcomes and assessment

Learning outcomes	Assessment methods
Students are able to translate fluently and accurately intermediate and advanced texts in various fields from English into Ukrainian and vice versa.	Assessment: tests (phrases, numbers, reports, business negotiations, interviews, discussions, reports, presentations), credit (presentation 2,000 pr. signs EN/ UA; presentation 2,000 pr. Signs EN/ UA, 40 min).
Students are able to identify and quickly solve creative translation problems.	Assessment: tests, credit.
Students are able to identify key words in a translated text and use basic note taking techniques.	Assessment: tests, credit.
Students are able to use professional vocabulary and terminology accurately in a given context, using grammatical constructions of the TT correctly.	Assessment: tests, credit.
Students are able to adjust the voice and intonation to the needs of the target audience, maintaining visual and emotional contact with the instructor and the audience.	Assessment: tests, exam. Evaluation: tests – tested/not tested. Credit – mark according to 10 grade scale.

ПЕРЕДМОВА

Посібник «Основи послідовного перекладу та техніки нотування» розроблений для студентів 3 курсів перекладацьких відділень університетів та інститутів денної та заочної форми навчання. Структура подання навчального матеріалу та блок практичних завдань з послідовного перекладу, нотування та перекладу з листа дозволяє ефективно опанувати теорію даної навчальної дисципліни та набути практичних навичок протягом одного навчального семестру.

Посібник містить чотири тематичні розділи у відповідності зі структурою робочої програми курсу «Основи послідовного перекладу та техніки нотування». Перший розділ «ТЕОРЕТИЧНІ ЗАСАДИ» («THEORETICAL BACKGROUND») слугує введенням у курс, роз'ясненням сутності процесу послідовного перекладу та нотування, містить короткий історичний опис становлення усного послідовного перекладу у країнах світу. Також тут подається огляд історії викладання послідовного перекладу як навчальної дисципліни. Завершує перший розділ параграф «Перекладацьке нотування у майбутньому» ("The Future of Note-Taking). У другому розділі "НОТУВАННЯ ЯК НЕОБХІДНА СКЛАДОВА УСНОГО ПОСЛІДОВНОГО ПЕРЕКЛАДУ» («NOTE-TAKING IN CONSECUTIVE INTERPRETING») розглядаються наступні теми: «Роль нотування у перекладацькому процесі», « Схема розумового зусилля під час послідовного перекладу та нотування», « Взаємозалежність обсягу оброблюваної інформації, пам'яті та процесом здійснення записів», «Вибір мови нотування» . Остання тема роз'яснюється на прикладі досліджень вчених-лінгвістів. У третьому розділі «ОСНОВНІ ПРИНЦИПИ ПЕРЕКЛАДАЦЬКОГО НОТУВАННЯ» («BASIC PRINCIPLES OF NOTE-TAKING») укладач торкається проблем збереження змісту вербального повідомлення, його аналізу, зупиняється на використанні абревіатур, символів та скорочень у перекладацькому записі. Також, у окремому параграфі розглядаються різні прийоми організації структури нотаток. Четвертий розділ ("SIGHT TRANSLATION" цілком присвячено перекладу з листа. Тут розглядаються наступні теми: «Особливості перекладу з листа», «Існуючі техніки перекладу з листа та їх подальший розвиток», «Вправи на удосконалення навичок перекладу з листа», «Міжнародний стандарт перекладу з листа».

Практична частина посібника містить зразки нотування тексту повідомлення п'ятьма існуючими способами та завдання, націлені на закріплення знань та відшліфування навичок з усного послідовного перекладу та нотування, а саме: вправи на роботу в парах (усний послідовний переклад уривків текстів), вправи на скорочений запис та завдання на переклад з листа. Усі тексти з практичного блоку підібрано у ключі аграрної тематики, що відповідає спрямуванню ВНЗ. У додатках посібника міститься глосарій понять та термінів

перекладознавства, а також таблиці абревіатур та символів для використання під час скороченого запису .

Укладач посібника охоче прийме пропозиції та критичні зауваження, спрямовані на його вдосконалення та оптимізацію в майбутньому.

FOREWORD

This educational manual is intended for third year students of translation faculties at universities and institutes of both full and part time departments. The way in which structure of book is organized allows to learn the theory and acquire practical skills within one academic semester. The tutorial "Consecutive interpreting and note-taking" consists of four thematic sections, block of practical learning assignments and appendixes which provides comprehensive approach to mastering the course.

As it has been already mentioned above, there are four main sections in the book in accordance to the curriculum: "THEORETICAL BACKGROUND", "NOTE-TAKING IN CONSECUTIVE INTERPRETING", "BASIC PRINCIPLES OF NOTE TAKING" and "SIHGT TRANSLATION". All of them share the common purpose– to help students in deepening their knowledge in the subject of consecutive interpreting and note-taking. The first section ("THEORETICAL BACKGROUND") plays the role of an introduction to the discipline, clarifies the notion of consecutive interpreting and note-taking, contains brief historical review of consecutive interpreting development in the European countries. Also, it sheds some light on the establishing of first interpreting schools. Section one is closed by the chapter "The Future of Note-Taking". The following topics are included in the second section («NOTE-TAKING IN CONSECUTIVE INTERPRETING»): "Role of the interpreters notes", "Effort model of consecutive interpreting and note-taking", "Relation between processing capacity, memory and note-taking in consecutive interpreting" and "The choice of language in note-taking". The last theme is explained on the basis of the research experiment which had been carried out by Czech linguists. In the third section called «BASIC PRINCIPLES OF NOTE-TAKING» the complier highlights the issues of preserving the sense of the utterance, its analysis, addresses the question of abbreviations, symbols and contractions usage in interpreters` note-taking. The entire chapter is entirely dedicated to various techniques and methods of organization the structure of notes. The forth section is all about sight translation, therefore it contains the following chapters: "The main characteristics of sight translation", "Some existing practices and further perspectives of sight translation", "Sight translation practice exercises" and "International sight translation standard".

The block of practical learning assignments provides examples of noting the message using five basic methods of note-taking. It also contains tasks intended to strengthen consecutive interpreting and note-taking skills, namely pair work exercises, note-taking assignments and sight translation tasks. The appendix of the educational manual contains the glossary of translation and interpreting terms and tables of common symbols and abbreviations for note-taking.

The complier of the educational manual “Consecutive interpreting and note-taking” will readily accept all suggestions and critical remarks aimed at its improving in the future.

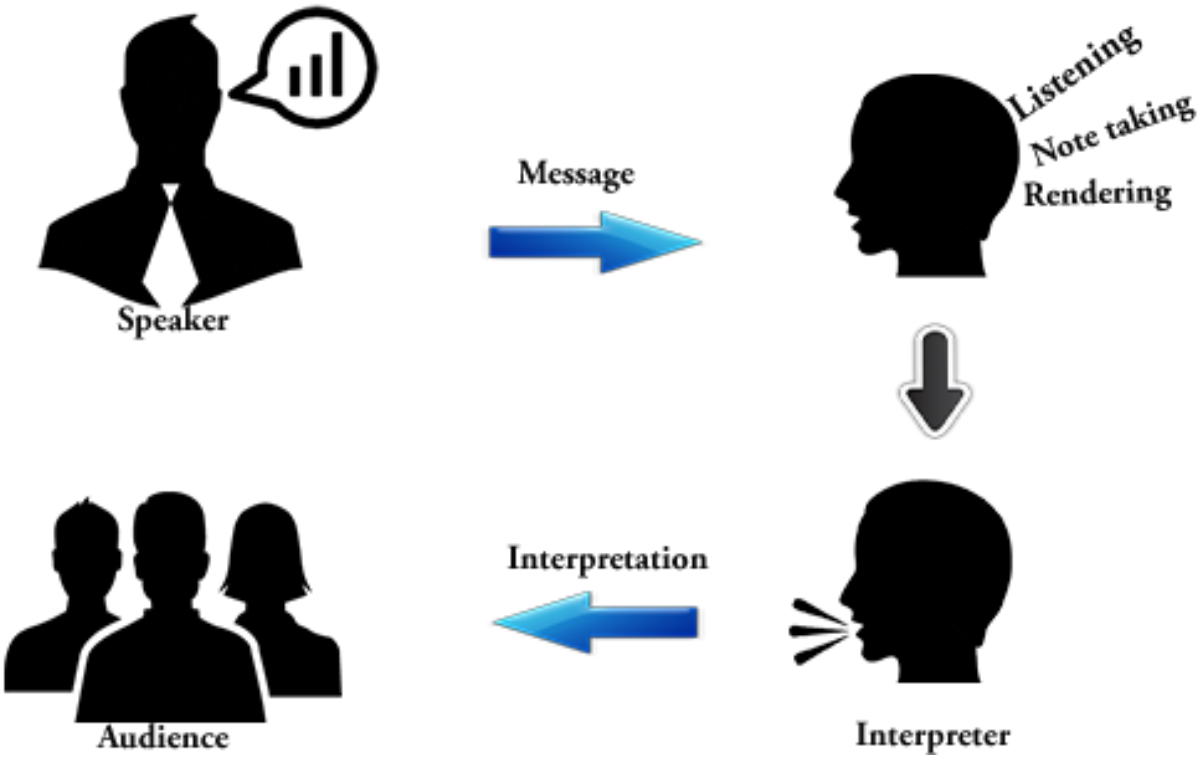
What makes a good translator?

What would you say are the main skills and attributes of a good translator? Here is a list of what are often considered the key skills required by translators. After you've read the text, select the three which you think are the are the most important, and the three which you think are the least important.

1. **Professionalism:** Ethics are very important in translation. You need to know when to preserve confidentiality, and when to refuse a job because you are not competent to do it.
2. **Networking skills:** People think translation is a solitary activity but in fact translators often work in virtual teams, revising each others' work or sharing big projects. Project managers have to manage big teams of translators. Freelancers have to meet and attract clients. People skills and playing well with others are a must! Marketing and advertising your work is also going to be very important when working as a freelancer.
3. **Attention to detail:** There's a bit of the pedant in all translators. If you've ever ground your teeth when you see a wrongly used apostrophe this profession might be for you! Translators need great revising and proofreading skills.
4. **Flexibility/adaptability:** Translation is a fast-changing profession and translators have to be prepared to pick up new skills and offer new services such as transcription, copywriting and post-editing.
5. **Organisational skills:** Translation is a very deadline-driven profession. You need to be able to meet deadlines and organise your time effectively. Initiative is important, too.
6. **Writing skills:** This is extremely important. Translators are professional writers. For this, you need to know your own language perfectly: grammar, vocabulary, style. Reading voraciously helps, and so will writing practice such as blogging, student journalism, creative writing. And spelling is really important for translators; bad spelling can give a bad impression to clients.

7. **General knowledge:** General knowledge is very important for translators. It can help you pick up mistakes in texts. Read the papers, watch the news, films and documentaries ... it's all part of your work!
8. **Analytical skills:** Translators are the best readers that a text will ever have. They need advanced analytical skills to understand how the source text works, so that they can reproduce this in their translation.
9. **Research skills:** Translators may get very different texts to translate from one day to the next and may have to pick up specialised vocabulary quickly. You learn where to find out about cereal and cylinder heads, fish and foot and mouth disease.
10. **Subject knowledge:** Any skills you have can be turned into specialised subject knowledge to help you. It might be law, medicine or mechanics, but it could also be a personal hobby, such as a sport. Think about subjects you know really well, and think about how you could get to know them in your other languages too.
11. **Curiosity:** Curiosity is one of the best attributes you can have as a translator. It will help you to learn new skills, research unfamiliar subjects, look up unfamiliar words you come across, spot potential problems with translation jobs and really get to the heart of what your clients want.
12. **Excellent knowledge of the foreign language:** You need to be able to read widely and easily in your foreign language and understand not only what it says, but what it really means – not always the same thing! Lots of practice reading, watching TV and films, listening to radio in your foreign language(s) will help.
13. **IT skills:** Translation is a very IT-driven profession these days; translators use many online communication systems and a wide range of general and specialised software for word processing, file formatting and translation memory retrieval. Tools for terminology management and machine translation are becoming increasingly embedded in the profession. Software develops fast, and translators need to be able to keep up.
14. **Good cultural awareness:** Language isn't just about language but also culture. There's a big difference between the 'banlieue [suburb] in France and 'suburbs' in the UK. In France the 'banlieue' are often associated with poverty, social housing and deprivation. Even though it's technically not the 'real' meaning, 'banlieue' might be better translated as 'inner city' in English.
15. **Love of reading:** Translators are professional writers who need to be able to write well. Wide reading is a must for developing a really good writing style. Read good novels, good-

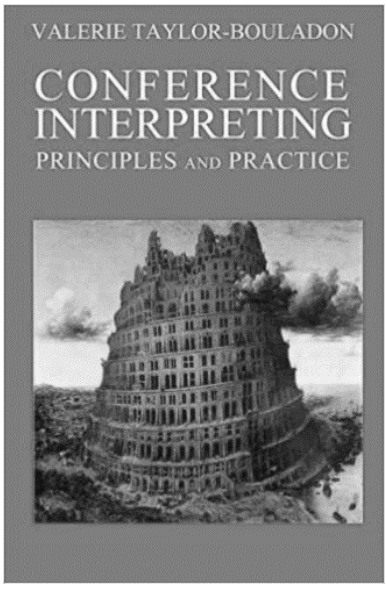
quality journalism (great for your general knowledge too), history, popular science – the more, the merrier. Some translators even get paid for reading books for publishers and commenting on whether they would be worth translating.



SECTION1: THE THEORETICAL BACKGROUND

1. Consecutive interpreting explained

Consecutive interpreting is one of the two working modes used in conference interpreting. Unlike simultaneous interpreting where, as the name itself says, the interpretation simultaneously follows the speech that is being given; ***consecutive interpretation follows after a certain segment of the speech was delivered, the interpreter listened to it and took notes from which he/she could later reconstruct the speech in the source language.***



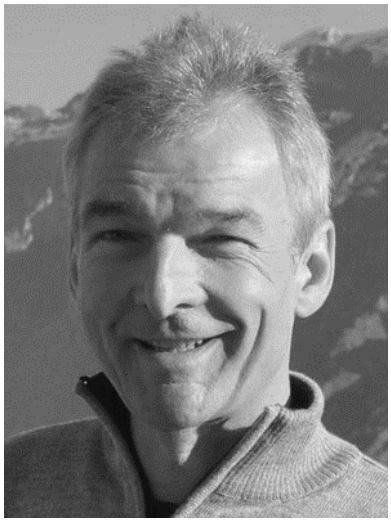
He listens to the speaker's message in one language while taking notes, and reproduces it in full immediately afterwards (consecutively) in another language as if he were delivering his own speech. This may be done for the whole speech if it does not last more than 20 minutes or so … (Taylor-Bouladon 2011:67).

It is suitable for meetings during which it is not required to interpret in more than two languages.

Consecutive interpreting is typically used for press conferences, after-dinner speeches and similar occasions. The statements to be interpreted can be as long as 20 minutes. As the capacity of the human memory is insufficient to provide a consecutive of longer statements, the interpreters make notes to support their memory and thus to facilitate the rendition in the target language (Albl-Mikasa and Kohn 2002:257)

Prof. dr. Michaela Albl-Mikasa

We can differentiate between the classic or true consecutive and short consecutive as can be seen in figure 1 (Pöchhacker 2004:218). One of the most important parts of true consecutive interpreting is note-taking. Namely, the interpreters do not have to rely only on their memory; they have their notes to help them. In the case of short consecutive, taking notes is not necessary, because segments to be interpreted are very short, up to a sentence or two, while note-taking is an integral part of the true or classic consecutive.



Franz Pochhacker

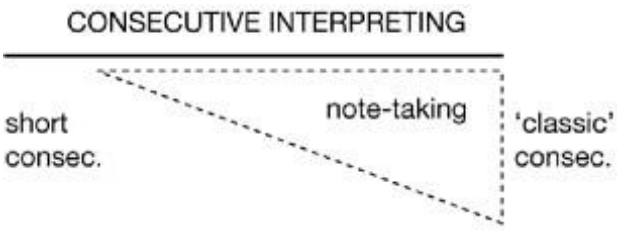


Figure 1, (Pöchhacker 2004:18), a schematic representation of the difference between short consecutive and classic consecutive.

2. Brief history of consecutive interpreting

Beginnings of consecutive interpreting are associated to the League of Nations conferences, especially between the two World Wars, when meetings were held in French and consecutively interpreted in English (Taylor-Bouladon 2011:15). "Conference interpreting today – as opposed to interpreting as it has existed from time immemorial and which has often been called the second oldest profession – started with the foundation of the League of Nations, where everything was interpreted consecutively" (Taylor-Bouladon 2011:4).

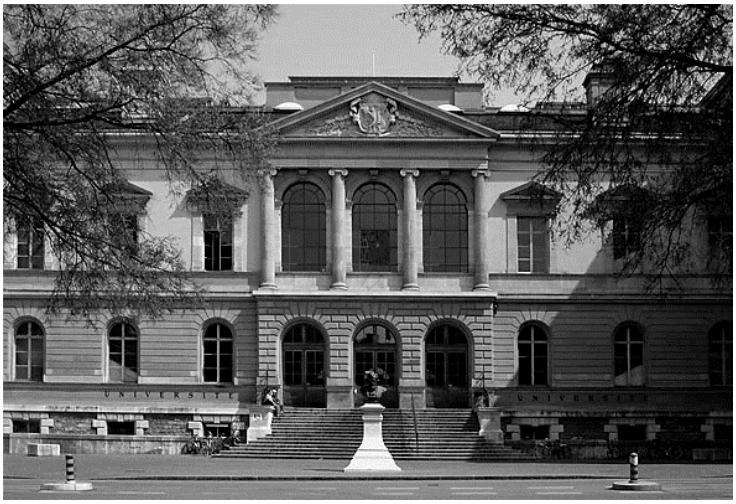
The development of technology in the 20th century made the use of simultaneous interpreting possible, thus making consecutive interpreting less needed. "It was only in the 1920s, when transmission equipment was developed to enable interpreters work simultaneously, that it became meaningful to distinguish between consecutive interpreting and simultaneous interpreting" (Pöchhacker 2004:18). The prevalence of simultaneous mode of interpreting over consecutive mode occurred during the Nurnberg Trials, when due to the time consuming process of the latter, and use of four languages

Valerie Taylor-Bouladon

simultaneous mode was preferred. They tried to use simultaneous interpreting at the League of Nations, but in the end, the consecutive mode prevailed (Taylor-Bouladon 2011:20- 21). "The interpreter waited until the speaker had finished and then strode up to the podium and delivered his interpretation from his notes. The speech might have lasted 45 minutes or even an hour …" (Taylor-Bouladon 2011:21). The United Nations used the consecutive mode till 1950s (Taylor-Bouladon 2011:21). Gillies (2005:3) points out that consecutive mode is still an "*essential part of an interpreter's repertoire and is considered by many to be the superior of the two skills*." Some of the important interpreters at that time were Jean Herbert, Antoine Belleman, Robert Confino, André and Georges Kaminker, Georges Mathieu, Evans and Loyd, Ted Pilley (Taylor-Bouladon 2011:21).

Andrew Gillies (Author of Note-Taking for Consecutive

3. Short historical overview of consecutive interpreting teaching



Geneva University

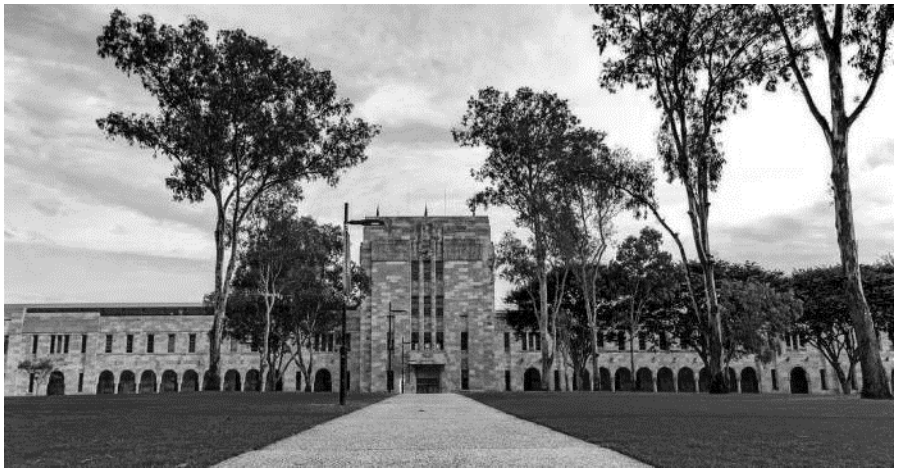
Though there are many conference interpreting schools, not all of them provide education in both simultaneous and consecutive mode of interpreting. Those that do are ETI (Geneva University), ESIT (Paris, Sorbonne University), and the University of Queensland Japanese Course (Taylor- Bouladon 2011:77).

In the past, there was no education for interpreters, most of them were self-taught. *"In*

the old days, before the times of interpreter/translator training courses (the AIIC Schools Committee was set up in 1957), especially in the days of consecutive when interpreters were the élite globe-trotting jet-set, the distinguished, elegant, witty actors on the world stage, interpreters and translators were self-taught" (Taylor-Bouladon 2011:32). As Pöchhacker (2004:28) says:

Sorbonne University

> *«The brilliant example of Paul Mantoux interpreting for the Allied Leaders at the Paris Peace Convention in 1919 marks a fundamental turning point in the modern history of international interpreting: the transition from 'chance interpreters' (i.e. more or less bilingual individuals who happen to be on hand) to the corps of specially skilled professionals working at the League of Nations and its affiliate, the International Labour Office (ILO), in Geneva.»*

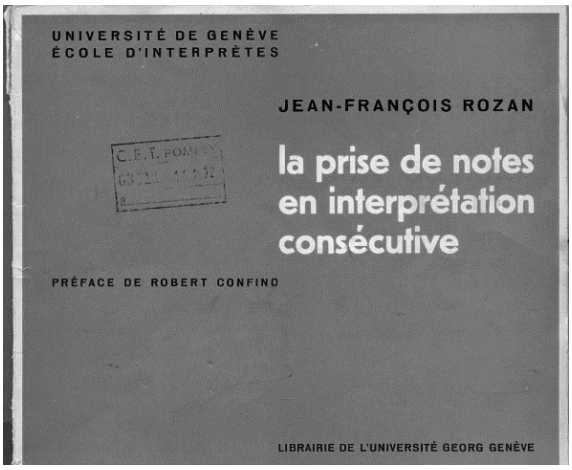


University of Queensland

The first interpreting and translation school was established in Mannheim in 1930, and was later transferred to Heidelberg. In the 1940s, two more interpreting schools were set up in Vienna and Geneva (Pöchhacker 2004:28).

To list some of the first and most famous and important books on interpreting published, Jean Herbert's *The Interpreter's Handbook* (Manuel de l'interprète) appeared in 1952 and had pedagogical orientation, while Rozan's *La prise de notes en interprétation consecutive,* a book on note-taking published in 1956, was specifically didactic. Even today, Rozan's book is held

to be one of the most useful ones, and is used in note-taking teaching.



Rozan based his note-taking on a ***thorough linguistic, semantic and cognitive analysis of the original***, together with his own perceptive way of dealing with equivalent reformulation and effective communication.

Above all he stressed ***the importance of abbreviating intelligently, keeping symbols to a mere handful*** … (Ilg and Lambert 1996:71).

Most of the books written on consecutive interpretation are in fact books on note-taking, a skill essential for good interpreting in this mode. One of the interpreters who also contributed greatly to the field is Danica Seleskovitch, whose doctoral thesis finished in 1973 was on note-taking in consecutive interpreting. In 1975, she published the book *Étude de la prise de notes*, in which "she focused on cognitive aspects and dismissed retention and recall as automatic by-products of the comprehension of meaning" (Ilg and Lambert 1996:71). As stated in Ilg and Lambert (1996:71,73) authors like Wilfried Becker (1972), who "has contributed a useful, very straight forward booklet in German", Heinz Matyssek (1989) who "opts for a very systematic and detailed code of drawings and symbols" also have to be mentioned. Sergio Allioni (1989) "defined a fairly structured 'grammar of consecutive interpretation' using English and Italian syntactic rules together with a moderate number of symbols"; Ruth Willet (1974) and Helene Kirchoff with her unpublished book *Didaktik des Dolmetchens* and article *Notationssprache* (1979) "provided a counterweight of sorts to Matyssek's more extreme views." There are also David and Margareta Bowen (1980) and Laura Gran (1979) (Ilg and Lambert 1996:72).

Jean Herbert

4. Future of note-taking

The development of technology might bring some changes into the note-taking as we know it. In the future, a notepad and a pencil may not be the only thing an interpreter can use. A new method might be introduced, i.e. the so called ***simultaneous consecutive interpreting***. It functions in a way that the original speech is recorded by a digital voice recorder, and then played back to the interpreter via earphones, and the interpretation then follows in the simultaneous mode.

According to Pöchhacker et Hamidi (2007:277), the first to successfully use the "digitally mastered consecutive" was the EU staff interpreter Michele Ferrari. He tried this method in a real setting in 1999, in 2001 and again in 2003 within the DG Interpretation in a series of tests. "The aim of these tests was not only to compare traditional and simultaneous consecutive interpreting, but also to examine different devices, such as handheld PC, a notebook with digital audio-editing software, and a digital voice recorder" (Pöchhacker et Hamidi 2007:277). The results of the first series of tests showed that simultaneous consecutive was "more complete and precise", but also sounds "too artificial" for certain language combinations (Pöchhacker et Hamidi 2007:277). The second series showed that simultaneous consecutive was a "viable possibility", but that the use of electronic devices needs to be practised. There are two more interpreters in the United States who also tried the new technique, namely John Lombardi (2003) and Erik Camayd-Freixas (2005), who used it for court interpreting. Lombardy tested it informally; Camayd-Freixas carried an experiment at Florida International University in 2005 and even "established label marketed by his language consulting firm" (Pöchhacker et Hamidi 2007:278). The aim of the experiment was to compare classic consecutive, with notes and simultaneous consecutive and to determine the accuracy of the interpretation, which was estimated regarding the words that were missing in the interpretation. Higher accuracy rate was measured in the simultaneous consecutive mode, especially when longer statements were involved. The interpretation using the new method proved to be more faithful to the original regarding intonation and liveliness, and the interpreter is able to listen to the speaker more carefully, since he is not taking notes, which results in better comprehension of the speech.

Another study was conducted at the Vienna University Center for Translation Studies (Hamidi 2006). The aim of the study was to answer the following questions:

1. *Does technology- assisted consecutive interpreting yield better results than the conventional consecutive method?*
2. *How does the audience respond to the new consecutive technique compared to*

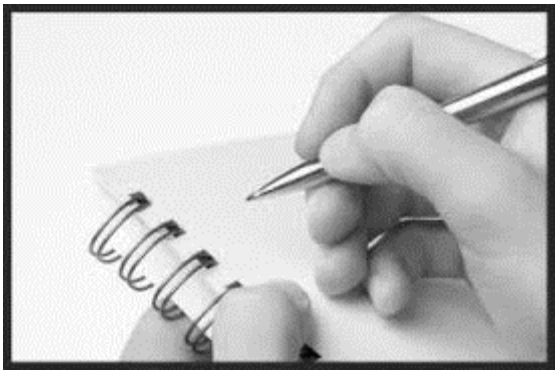
the traditional one?

3. *Is simultaneous consecutive likely to be adopted by professional interpreters as an interpreting method in its own right?* (Pöchhacker et Hamidi, 2007:278-279).

There was one group of three interpreters with at least ten years of experience as interpreters, who had to interpret two similar speeches, the first one using a digital voice recorder, the second one in the classic consecutive mode. The results showed that two of three interpreters felt more comfortable doing the simultaneous consecutive, and that they considered the interpretations done in that mode to be superior. As an advantage of this mode, they indicated that it is not as strenuous as consecutive, and it offered them a chance to listen to the original twice. It was however pointed out that they had to interpret everything, which was considered as a drawback. After the performances were assessed on the basis of transcript analysis, self-assessment and audience response, the results showed that ***the new method "permits enhanced interpreting performances, reflected in more fluent delivery, closer source-target correspondence, and fewer prosodic deviations"*** (Pöchhacker et Hamidi 2007:288). These results were corroborated by the "favourable response" of the audience regarding the new method. These ratings were again confirmed by the interpreters who had participated in the study, who easily adopted this mode and consider it "a viable technique." This new method needs to, however be further investigated.

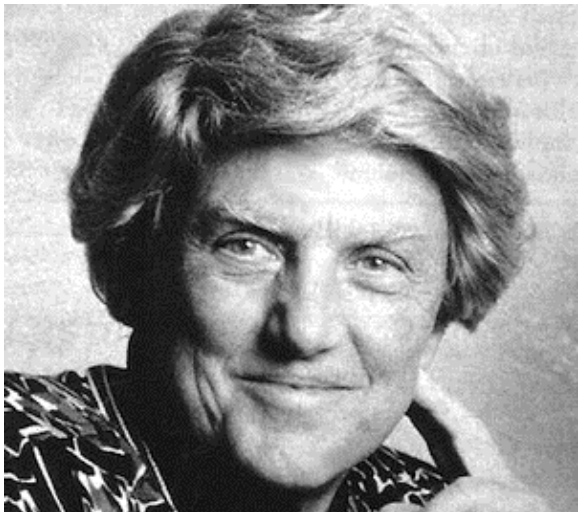
SECTION 2 NOTE-TAKING IN CONSECUTIVE INTERPRETING

1. Role of the interpreters notes



Although there are various approaches to how notes should be taken, all scholars highlight the same thing: ***note-taking plays a key role in consecutive interpreting, being an indispensable aid to the interpreter***. Considering the way in which consecutive interpretation takes place, it is clear that an interpreter could not possibly remember a speech lasting from 10 up to 60 minutes without writing down something that will revive his or her memory. According to Gillies, "***notes taken in consecutive interpreting are a representation of the skeleton structure of the speech***" (2005:6). ***„The aim of note-taking has often been described as the process of capturing some abstract, global-level conceptual sense on the notepad"*** (Albl-Mikasa 2008:208). Taylor- Bouladon (2011:68) agrees: ***„the aim is to take notes which represent ideas, so that they may serve as memory-joggers."***

In order for notes to be functional, they must be personal, and also enable easy retrieval of the speech that has to be interpreted. For this reason, even though many books on note-taking have been written, the fact remains that interpreters have to develop their own note-taking systems to be able to use them efficiently.



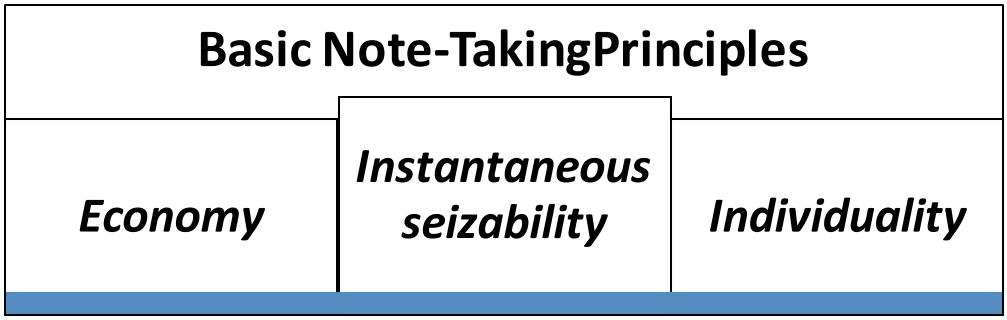
Danica Seleskovitch

As Seleskovitch (1975:84 cited from Pöchhacker 2004: 124) suggests, notes should be minimal cues, in whatever form, for retrieving a maximum of conceptual content. As stated in Nolan (2005:294) ***„developing a personal system of notes also helps to form the habit of summarizing and symbolizing words and phrases, which is an important aspect of the interpretation process."*** In Albl-Mikasa and

Kohn (2002:258-259) we can read that note-taking is

commonly regarded as some kind of supporting technique, developed by practitioners for practitioners to help retrieve part of their source text understanding from memory… Three basic principles can be identified that are largely undisputed in specialist literature: ***Economy****: to minimise the processing effort any notation should be as scarce and brief as possible.* ***Instantaneous seizability:*** *the strain on the memory can be effectively relieved only if the interpreter can read the notes at a glance.* ***Individuality:*** *note-taking is not governed by any obligatory rules or regulations. Generally speaking, anything that supports its function or that is subjectively felt to do so is admissible.*

Danica Seleskovitch



2. Effort model of consecutive interpreting and note-taking

Daniel Gile has developed the Effort Models *"to explain well-known, recurrent difficulties in interpreting, as well as advice given to students to overcome them …"* (Gile, 2009:188).

He developed them initially for simultaneous interpreting, but a modified version of the first model can also be used for consecutive interpreting. As he himself states they are "essentially didactic and have been developed in such a way as to be immediately understood by student interpreters" (Gile, 2009:189). According to that model, there are two phases of consecutive interpreting that can be clearly distinguished. The first phase is the ***comprehension phase (listening and note-taking)***, and the second phase is ***speech production (or reformulation).***

In Gile (2009:175,176) it is explained that, during phase one, the interpreter listens to the

speech, analyses it and takes notes. Four efforts can be distinguished:

- ***L* – Listening and Analysis,**
- ***N*- Note-taking,**
- ***M*- Short-term Memory operations**
- ***C*- Coordination.**

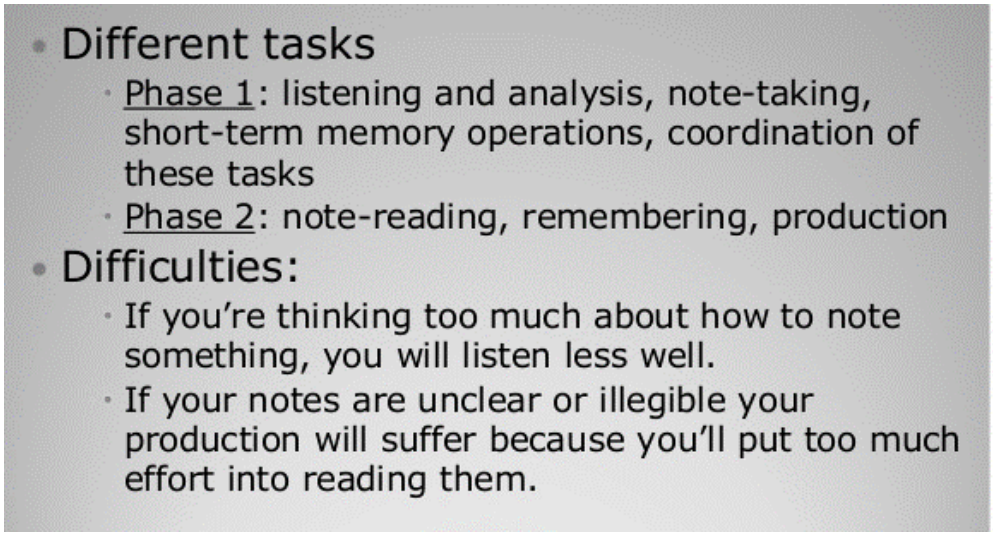
The Memory Effort refers to the „**time between the moment it is heard and the moment it is written down …**" There is, however, ***a Production Effort*** in the first Phase of consecutive, and „**it is devoted to the production of notes**". As explained in Gillies (2009:7), *the most common problem for student interpreters is that due to our finite intellectual capacity and the multitasking involved, interpreters cannot listen to the source speech and at the same time write it down, because they are thinking too much about how to note it, and do not listen carefully*. Also, it happens often that they simply do not hear what was said.

In the second phase, three efforts can be distinguished:

- ***Rem*- Remembering,**
- ***Read*- Note- reading,**
- ***P*- Production.**

Notes taken, thus note-taking in phase one, play an important role in the phase two of interpreting, because *Rem* processing capacity can be reduced if the notes are good.

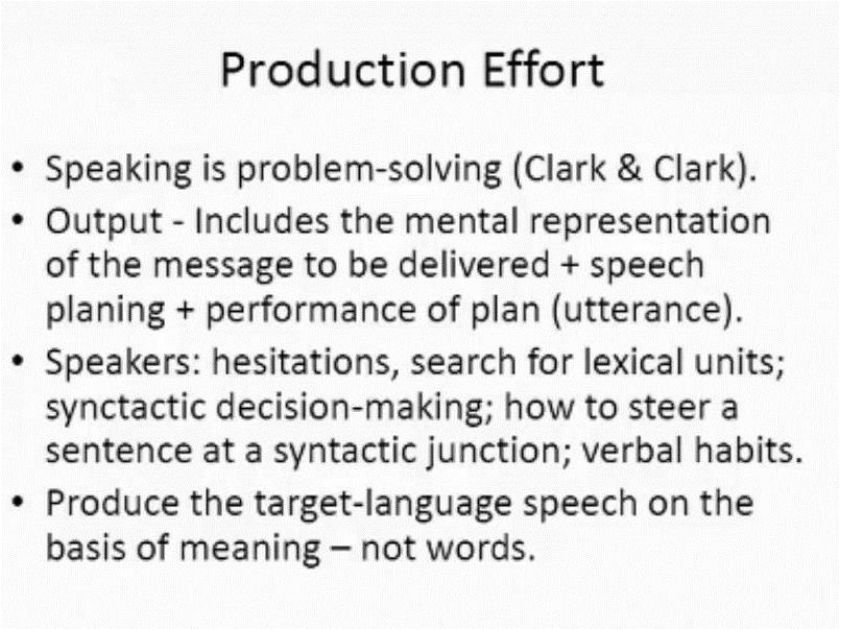
„When notes are taken according to a few simple layout rules, the layout itself can be hypothesized to act as a visual stimulator of memory regarding the logical structure of the speech" (Gile 2009:176). In Gillies (2005:7) clear notes are compared to stage directions, because they tell the interpreter "when to pause, when to add emphasis and when not to."



According to that model, consecutive interpretation will proceed smoothly only if the total capacity available is greater than total processing requirements.

3. Relation between processing capacity, memory and note-taking in consecutive interpreting

Gerver (1971: viii, cited from Pöchhacker 2004:55) defined the interpreting task as ***"a fairly complex form of human information processing involving the reception, storage, transformation, and transmission of verbal information."***



As pointed out in Ilg and Lambert (1996:72), *„consecutive interpretation draws on cognitive faculties of memory and attention which are not typical of other forms of translation"*. In a study on the depth-of processing conducted by Lambert it has been observed that during consecutive interpretation occurs the deeper processing of incoming material, when compared to simultaneous interpreting, shadowing and listening (1996:75). According to Gile (2009:177), in the first phase of interpreting (see 3.2.), during the Listening and Analysis Effort the capacity requirement becomes high, the interpreter can reduce the cognitive load by reducing the amount of notes being taken. On the other hand, due to manual nature of note taking, the process takes up time, which means that the cognitive load is greater in terms of short-term memory, which can lead to reduction of capacity available for the Listening and Analysis Effort. "It follows that in terms of processing capacity, note-taking is critical, which explains and justifies the large volume of literature it has generated, from Rozan (1956)

to Matyssek (1989) …" (Gile 178). Seleskovitch (1975: 120 cited from Pöchhacker 2004: 124) indicated that ***interpreters have to divide their attention between the conceptual processing of input and the taking of notes, latter must not detract from the attention needed for comprehension processes.*** As pointed out in Gile (2009:178), interpreters should concentrate on how they could reduce processing capacity and time requirements of note-taking and still be able to successfully use their notes as memory reinforcement.

As already mentioned, note-taking skills are closely related to the memory, as they serve to support it, „both as external storage devices (e.g. for numbers and names) and as a retrieval cues for memorized conceptual structures or patterns of sense…" (Pöchhacker 2004:124). According to Pöchhacker, in the early days of conference interpreting interpreters' ***long-term memory and note-taking skills were highlighted as major aspects of interpreting process***. Kintch (1998:217 cited from Pöchhacker 2004:124) defines ***long-term memory as „everything a person knows and remembers, episodic memory, semantic memory, as well as declarative and procedural knowledge."*** Although due to their complexity, cognitive mechanisms related to consecutive interpreting have not been fully investigated, it has been determined that *"note- taking for consecutive interpreting is as much a matter of attentional resource management ('short term processing') as of long-term storage"* (Pöchhacker 2004:124).

Due to their lack of experience, student interpreters tend to have problems with capacity management, which results in poorly taken notes, and consequently in bad quality of their consecutive interpretation. A range of studies has been conducted with this in mind (e.g. Gile 1991a, Andres 2002). According to Pöchhacker (2004: 124), in Andres' study which included 14 professional interpreters and 14 student interpreters, she proved that processing overload occurred during the first phase of interpreting, due to insufficient automatic note-taking which made substantial demands on attention, which resulted in students not being able to write their notes fast enough, thus falling behind up to 6 seconds, and leaving gaps in their notes. The classroom experiment Gile (1991a) conducted, showed that student interpreters missed more names in their rendition of the speech

when they had been taking notes, in comparison to consecutive interpretation without taking notes.

4. The choice of language in note-taking

Although regarding the language in which the notes should be taken, there are a few possibilities, i.e., interpreters can take notes in the source language, target language, in a mix of those two, in their mother tongue (regardless whether it is the source language, target language, or in some cases neither of the two languages), or in a third language, the two stances in the field regarding the choice of language for note-taking *"seem to refer to the general choice of the language (i.e. the choice of the language for the whole of the noted text) and focus on two languages – the source language and the target language"* (Błaszczyk and Hanusiak 2010).

The first group, as Dam (2004:256) illustrates, advises using the target language:

> *The advisability of using the target language has been stressed time and again (e.g. Herbert 1952; Rozan 1956; Seleskovitch 1975; Seleskovitch& Lederer 1989; Mikkelson1983; AIIC 1994) because it is felt that this option forces the interpreter away from the surface form of the source language speech and therefore makes for better processing of the text, and that it facilitates production of the target language speech.*

The other stance (using the source language) is represented by "Kirchoff 1979; Ilg 1988; Alexieva 1993; Gile 1995" (Dam 2004: 256), and justified by the fact that due to the language conversion that takes place, the interpreter experiences an overload in the first phase, i.e. the phase that is paced by the speaker, as opposed to the production phase (Dam 2004:256).

"In addition, some interpreting teachers report that their students perform markedly worse when they take notes in the target language (Alexieva 1993), while others contend that students perform poorly when writing in the source language (Seleskovitch

1975)" (Dam 2004:256).

4.1. The study by Dam

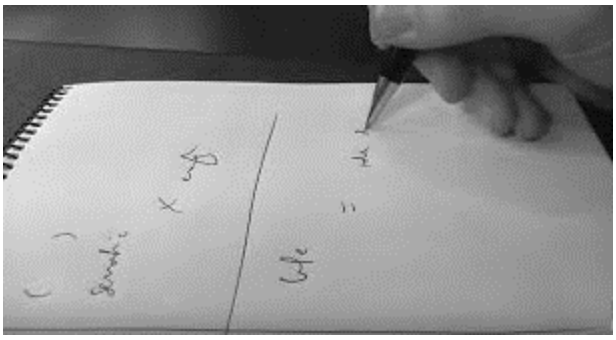
In her study on the choice of language, Dam (2004) tried to distance herself from the theory and establish what actually happens in practice. She used five sets of interpreters' notes made in the context of an experimental study on conference interpreting. All the interpreters were professionals employed in the EU, and working in the language combination Danish (A, or native language) – Spanish (B or C, foreign language). They were interpreting consecutively into Danish. There were four groups according to which the languages were divided: source language, target language, third language (mostly English) and the words which cannot be identified, i.e. could belong to either of the languages or to neither.

The results obtained showed that interpreters mostly used the target language (Danish, 72%), which is much more than the usage of the source language (Spanish, 10%), and the third language usage was even less frequent (English, 5%). To obtain even more precise results, the notes and the source text were divided into paragraphs and these smaller parts were analysed with the purpose to establish "in what cases the subjects had primarily used the target language for their notes, and when they had resorted to the source language." (Dam, 2004:257). The results showed that there was a tendency to use the source language when noting the first few paragraphs, as well as in paragraphs that contained numbers. The target language was mostly used in paragraphs towards the end of the speech. Dam suggests that the paragraphs in which the source language was used, were more difficult for the interpreters to handle, so they used the source language (what is consistent with the Gile's Effort Models), and the paragraphs that were easy to interpret were noted in the target language. As Gile (2009:179) also suggests**,** ***"a reasonable alternative would be taking notes in the target language when cognitive pressure is not too high and reverting to source language notes when close to saturation."*** Gillies (2005:16) also believes that one should note in the language one feels more comfortable with, and that this will mostly be the mother tongue, regardless whether it is the source or the target language. Dam concluded also that as the speech progressed, the interpreter got better acquainted with the style of the speaker, which made interpreting easier (thus shift to the target

language towards the end of the speech). Also, the paragraphs containing more numbers were more difficult to note, thus the use of the source language. Dam noted also that for paragraphs in which cause-effect relations could be found, target language was used, because of the possibilities in note-taking techniques concerning noting of these structures, "*such as arrows and equals signs, in combination with a few keywords and standard connectives*." (Dam 2004:259)

4.2. The study by Baselli

Another study conducted by Baselli (2012) concentrates not only on the use of source or target language, but also on the use of A or B language, as well as the influence of the third language. The language groups involved were English- Italian and German – Italian. Interpreters were all students and native speakers of Italian. There were nine interpreters with Italian as A-language, English as B-language and German as C-language, and nine interpreters with Italian as A- language, German as B-language and English as C-language.



The results of the study were divided into four categories. First, notes from the interpretation from English to Italian indicated that in 5 cases of 9 mix of both languages was found, in 4 out of 9 cases notes in English (source language, but not at the same time the A- language). In the second category, the notes from Italian to English, mainly Italian notes were observed (in 6 out of 9 cases). Here Italian was both the source and A-language. The use of some German words was also noted (German being the C-language). In the third category, from German into Italian, the results showed that a mix of languages was used, in 5 out of 9 cases there were more Italian words, while in 2 out of 9 cases more German words. In 2 cases, notes were written only in German (source language and B-language). In the fourth category, from Italian into German, 100% of the notes were written in Italian (A language and Source language). Also in this case, some English words (C-language) were noted.

Results indicate that *when the source language and A-language coincide, this is the preferred language choice for taking notes, but when this is not the case, B-language (source language) prevails. When translating from B- to A-language, students tend to use a mix of languages, and in some cases only B-language, i.e. source language*.

4.3. The study by Błaszczyk and Hanusiak

In their study, Błaszczyk and Hanusiak (2010) focused mainly on the use of the third language in note-taking, from their own perspective and experience. They consider that *"another aspect is the possible presence of the third language – the presence of non-symbolic expressions from neither source nor target language"* (Błaszczyk and Hanusiak 2010:3). Although they are aware of the possible criticism and arguments that the third language may only confuse the interpreter, they suggest, as cited from Jones (1998: 60):

> *«interpreters may choose to note things in any way they want, just for reasons of convenience, and may even wish to use words from a third language, perhaps because those words are very short and easy to note in that language, or because the interpreter has lived for a long time in the culture of that third language.»*

They admit that using the third language "may be highly idiosyncratic, depending on the number of languages that the given interpreter has command of, his/her interpreter training and professional experience, or absolutely arbitrary factors, e.g. individual preference" (Błaszczyk and Hanusiak 2010:3).

There were two interpreters included (the authors), their native language was Polish, and their B-language was English, whereas the third language for one of the interpreters was Swedish, for the other one Finnish. For the purpose of the study, three categories were created: using symbols, using abbreviations and using expressions in other languages.

The first language pair is Polish (A language), English (B-language) and Swedish (at least basic command). As the author argues, Polish is a language of long words and complex inflection, and thus not the best solution when taking notes. On the other hand, English and Swedish have shorter words. Second language pair is Polish, English and Finnish. As opposed to the third language suggested in the first language pair, i.e. Swedish, Finnish has very long words, but is still recommended by the authors. They argue that this language has other aspect that can be utilized, e.g. its morphological system.

Although the authors are aware that the solutions and suggestions made in this study are language specific, they paved the way for future studies on this subject.

SECTION 3: BASIC PRINCIPLES OF NOTE-TAKING

1. Noting ideas

Noting ideas and not words is one of the most important principles in the literature on note- taking. Rozan (1956:15), as one of the pioneers of note-taking indicates:

> *«what is important is the translation of the idea and not the word. This is even truer of interpretation since the interpreter must produce a version of the text in another language immediately. He must be free of the often misleading constraints that words represent.»*

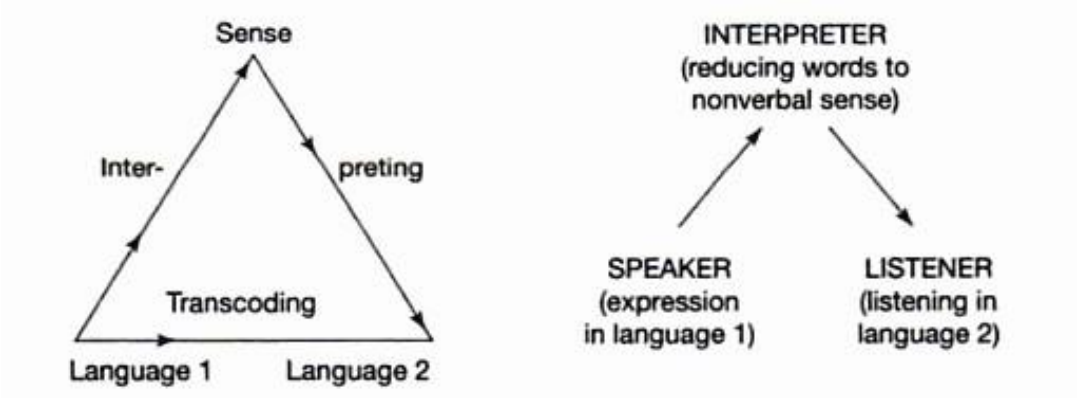
Gillies (2005:35) argues that there are ***two types of ideas***. *The first type* refers to "*parts of the message", which inform us about "who did what to whom",* and "for the purpose of note-taking" he defines this type as the notion of the term idea in his book *Note-taking for Consecutive Interpreting- a short Course* (2005:35). *The second type are ideas* which Rozan described, and they refer *to underlying meaning of a word or expression*. Gillies refers to this type of ideas as "*concepts*". He (2005:35-36) suggests that the answer to the question "who did what to whom", which helps us determine the idea of the message, is the sentence, thus its basic units- subject, verb and object. In other words, Gilles suggests that the idea which interpreter should note down always consists of **SVO** group. As he admits, he "bent" the definition used in describing language, and allowed verbs "to be" and "there is/are" to take objects. He also makes no difference between the direct and indirect object. In the case that the object is not a single word (2005:125), but a whole clause (usually preceded by the verbs of speech or thought: "say", "think", "declare", "consider", or by words like "that", "which", "who"), the interpreter should note a symbol to indicate a clause, separate the clause in SVO group, and then note it.

1.1. Sense in interpreting

In order to be able to note ideas, the interpreter first has to fully understand what the speaker had said. i.e. grasp the sense of the message. Theory of the Paris school, the so called "*theorie du sens"* or the IT paradigm, developed by Danica Seleskovitch at ESIT in Paris, highlights the importance of sense in interpreting. According to Pöchhacker (2004:68), the IT paradigm was first applied to the study of note-taking in consecutive interpreting. This model suggests that not the "transcoding", but the "interpreter's understanding and expression of "sense"" is the essential process at work in Translation (Pöchhacker 2004: 97). Seleskovitch

formed a triangular model of interpreting as follows:

Figure 2, (Pöchhacker 2004:97)



As Albl Mikasa (2008:200-201) reports, Seleskovitch argues that note-taking occurs during a non-verbal thought phase, and that only words such as numbers, names, enumerations and technical terms can be noted down directly. Other information should not be noted down as words, but as ideas which should remind the interpreter of the sense.

1.2. Speech analysis

In order to be capable of understanding the message of an utterance and moreover to be able to determine the main idea and make clear and concise notes, the interpreter first has to analyse the speech. Gillies (2005:6) argues that the "*original speech is a group of ideas in a certain order; it is not an arbitrary muddle of unrelated ideas*." He explains that every speech has a micro- structure, i.e. words, expressions and ideas, and a macro-structure, i.e. the structure, framework, skeleton of the speech. Therefore, he emphasises the importance of speech analysis skills. As he indicates:

> *«You will not only be listening to the words and the content as the normal listener does, but you will also be dissecting the speech in your head, analysing its structure and progression to find out what fits with what and why»* (Gillies 2005:17).

He claims that "speakers, even if improvising, will often stick to certain conventions" (Gillies 2005:17), and therefore recommends learning some standard conventions for giving speeches. He also suggests a bottom-up approach in analysing the source speech. In Pöchhacker (2004:118) the distinction was made between ***bottom-up*** (i.e. input driven) and ***top-down*** (i.e. knowledge based) operations. As Gillies explains (2005:233), "here it means

using a note-taking system to learn how to analyse a source speech, rather than using speech analysis to create notes." Ilg and Lambert also note that interpreters must focus on the macro-text, and then the details (micro-text) will fall in place (1996:79).

2. Using symbols and abbreviations

Country, nation, national	□
International, abroad	☒
Global, universal, world	W
Labour, work, action	w
Issue, problem, (question)	?
Members, participants, we etc.	Ms
Trade, trade relations, etc.	Tr

2.1. Symbols

To illustrate the importance of symbols, Rozan (1956:25) dedicates one entire chapter of his book only to symbols. However he advises not to use too many of them, and recommends a total of 20, 10 of which "are indispensable." They are divided into categories (Rozan 1956: 26-31):

Symbols of expression:

Thought	
Speech	
Discussion	
Approval	

Symbols of motion:

the arrow for direction or transfer	
he arrow for increase	
the arrow for decrease	

Symbols of correspondence:

equivalence	

Figure 3, (Rozan 1956:31). Group of symbols for concept of words that occur frequently:

Difference	≠
Framing	[ ]
Relation	/
Plus and minus	+ −

On the other hand, according to Ilg and Lambert (1996: 72), Matyssek "*opts for a very systematic and detailed code of drawings and symbols, so much that beginners tend to perceive his approach as an interpreter's shorthand … his method has exerted considerable influence …*"

Gillies (2005:100) advocates using symbols for "*concepts that come up again and again*" (e.g. verbs like agree, decide, discuss, propose, or consider). As Nolan (2005:295) also notes, one should "adopt use the symbols that are useful for the subject you are dealing with." Gillies also agrees with Rozan that there is no sense in having a symbol for every word, but for "more or less synonymous words and expressions", because symbols represent ideas or concepts. He asserts that a symbol can be a picture, short word, pair of letters or a single letter. Nolan (2005:295) recommends thinking of a symbol that would always have the same meaning, i.e. "*the main subject of the speech*". To the question "*why use symbols?",* he gives a simple answer- ***because they are easy and quick to write, easy to read and represent concepts and not words***. Nolan (2005:295) recommends using pictorial or graphic devices … *because one is not "writing out the speech, one is "drawing a picture …*" Gillies (2005: 103-104) also argues that ***symbols have to be clear and unambiguous, quick and simple to draw, prepared in advance, consistent, organic*** (you must be able to develop more different symbols from one symbol) ***and they must mean something to you***. Nolan (2005:296) agrees, and gives an example of this usage, e.g. if you decided to use the symbol x for time, the following variations are possible. (See Fig. 4) Nolan also notes that a symbol should always have only one meaning in a given context (2005:295).

Figure 4, Nolan's propositions for organic symbols:

x-	timeless, eternal
xx	many times, often
xx+	many times more
xx-	many times less
x t x	from time to time, occasionally
=x	equal time
+x	more time, longer time

-x	less time, shorter time
2x	Twice
3x-/	three times less than
100x	a hundred times
100x+	a hundred times more
ltdx	a limited time
oldx	old-time, old fashioned
x!	It's time, the time has come
x	now, this time
gdx	a good time
xly	timely, on time
unxly	untimely, late
x)	time limit, deadline
x>	Future
<x	Past
ovrx	Overtime
xng	Timing
sumrx	Summertime
xtbl	timetable, schedule
prtx	part-time
x,x	time after time, repeatedly
x.	time period
wrx	Wartime

Similar to that is his proposition regarding writing down numbers. He suggests to think of a sign or symbol which would mean "three zeros" or "two zeros", "e.g. -, then 89 - - would mean 89

million" (Nolan 2005:295). Similarly, Henderson (1976:110) suggests for example, that e.g. 13 000 could be noted as 13 -, 13 000 000 as 13 =, and 13 000 000 000 as 13 ≡. In relation to organic symbols, Gillies suggests this symbol ° to represent people or a person associated with the meaning of a certain symbol, e.g. national (adjective) = $\square^{al}$, but □° = national (noun), citizen; econ= economy, econ°= economist; π = policy, π°= politician, etc. In relation to objects in the form of clauses (discussed in 4.1.), he suggests the symbol ∩ when it refers to (128) *that, which, what*, and the ∩° when it refers to *who, whose, whom*.

For indication of gender Henderson (1976:110) proposes the biological signs for male

and female, thus ♂ and ♀.

Gillies, same as Rozan, suggests using one symbol for relation, i.e. /. "Discussions are *about* something; reports, comments and policies are *on* something; attitudes and reactions *to* something; responsibility, permits, contracts and authorisation *for* something." (Gillies 2005:165).

It is also possible to use "**parasymbols**". As stated in Błaszczyk and Hanusiak (2010:9) "This idea was expressed by Gillies (2007: 133-134), who proposed short words from other languages due to their shortness.

As the indication of verbs (i.e. tenses, negations and questions) is concerned, Gillies (2005: 132) recommends the following: he works= work; he doesn't work= x work; does he know the consequences = ? he consequences?; working= work[9]; work/= worked; /work= will work; wôrk= would work; wôrk/= would have worked. (Compare with Rozan's above mentioned proposal). He also suggest abbreviations for modal words: should = shd; could = cd; would = ˆ; must = >.

2.2. Abbreviations

In the section dealing with abbreviations, Rozan (1956:16-17) differentiates between abbreviated words, indications of tenses, gender and number, and abbreviating the register (group of words). Regarding the abbreviated words, he advises to write the word in its abbreviated form, "*unless a word is short (4-5 letters)*". He recommends abbreviating the word in such a manner that you keep the first and last few letters (e.g. *committee* and *Commission* should not be written *com.*, because it is ambiguous, and it should be therefore be C^{tee} for *committee* and C^{on} for *Commission*). He advises to indicate the tense by adding ^{ll} for the future and ^{d} for the past. To indicate plural, he advises the use of ^{s}. For the emphasis of the gender he uses ^{e}, since he worked from French into English and vice versa, he uses the French feminine ending. As far as abbreviating the register, he suggests that e.g. the expression "…which are worth looking at" can be noted only as int^{g} , which is the abbreviated form of the word *interesting*, that can be used to paraphrase the expression.

Henderson (1976:110) proposes to use the verb plus suffix $-^{ll}$ for future, suffix $-^{ed}$ for past, and suffix $-^{id}$ to indicate conditionals. Nolan (2005:295) suggests using abbreviations or acronyms for often used phrases "examples: asap= as soon as possible; iot= in order to; iaw= if and when)." Also, he considers adopting symbols for prefixes and suffixes, e.g. "pre-", "anti-", "-tion", "-ment". One of his recommendations for abbreviating words is not to write vowels

and double consonants when possible. (See Fig. 5)

Figure 5, Nolan's suggestion for abbreviating words by leaving out vowels and double consonants.

Zbr	Zebra
Arpln	Airplane
Hstry	History
Cmtee	Committee
Elfnt	Elefante
Prtl	Petroleo
Bmb	Bomba

Gillies (2005:130-131), also recommends thinking of single letters to replace suffixes in words. He proposes using the letter n for suffixes –ition, -ation, -ution, -istion (constitution = const^{n}); letter z for – ize, -ise (privatize= priv^{z}); letter v for – itive, -isive, -ative (comprehensive= comp^{v}); letter y for –ivity (competitivity= comp^{y}); letter t for –ment (government= gov^{t}); letter b for – able (fashionable= fash^{b}). One of the suggestions is also to write words down phonetically as opposed to writing them correctly.

Gillies and Nolan address the question of where to find symbols. Both agree that they are all around us. Gillies (2005:197) "*there are already lots of them around, so don't reinvent the wheel!*" He suggests some sources of symbols: mathematics, science, music, keyboard, punctuation, maps, short words in other languages, other alphabets, registration plates, currencies, chemical symbols, text messaging. (2005: 107-108). Nolan (2005: 297) indicates that it is not important from where one adopts the symbols, as long as they are used consistently. To name just a few of the possible sources of symbols he suggests: proofreaders' marks, symbols or abbreviations from dictionary entries, books on semiotics, ancient writing systems, pictographs and pictographic devices borrowed from ancient hieroglyphic scripts, sins of the zodiac, capital letters used for a specific meaning, children's "picture-writing", legal symbols, monograms, etc.

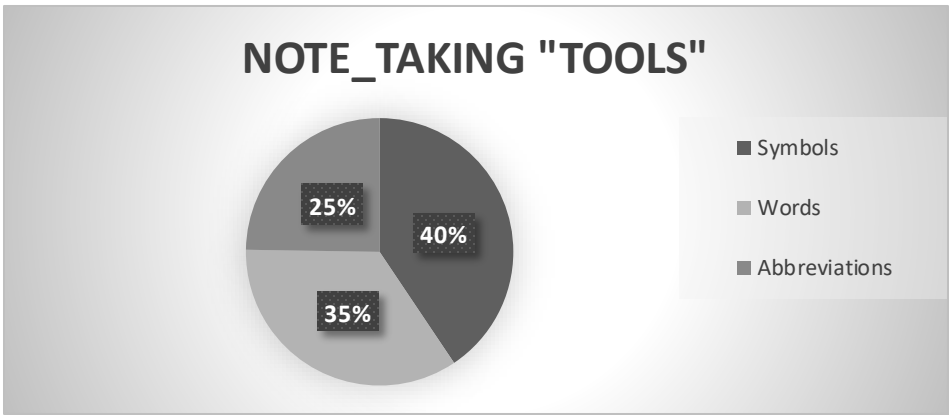
As for negations and emphasis, they form a separate chapter in Rozan's book, while in Gillies they are incorporated in the chapter on symbols. Rozan suggest indicating negation by means of crossing the word to be negated, e-g. ~~OK~~, or by writing no in front of the negated

word. Gilles proposition for negation is noted above. Both authors propose underlining as a means of emphasising important parts of the notes. Example from Rozan: very interesting = int^{g}; extremely interesting = int^{g} . By contrast, lack of emphasis may be indicated as follows: might be useful = useful. Also a word or idea can be labelled in terms of significance or insignificance: "important question" = ?, "imperfect solution" = sol^{tn} . Gillies shares a similar opinion: big = large; big = huge; big = colossal, etc. (Gillies 2005: 106-107). He also proposes (2005:161) writing words that are considered to be important in bigger letters.

These are all suggestions that could be taken into consideration and used as an inspiration, but one should bear in mind that the best way of developing an efficient note-taking system is to develop an own, highly individual system.

In a study by Dam (2004), in addition to choice of language, also the choice of form for the interpreters notes (symbol vs. language) was investigated. Three categories were formed during the research, namely:

words (words that had not been abbreviated)
abbreviations (units in which only part of a word is represented)
symbols (everything that is not language).



Then results are as follows, and are a reflection of what interpreters actually used while note-taking. Even though the results vary from examinee to examinee, as a group the examinees mostly used symbols (41% of all note units), the next category is words (35%), and abbreviations were used the least (25%). Comparing the examinees' results with one another, it was determined that there are two groups among the examinees; the first group is symbol oriented, while the second group is more word- oriented while taking notes. It can also be claimed that the more symbols the examinees had used, the more units they managed to write down, and the more words the examinees had used in their notes, the less notes they produced.

3. Organising the structure of the notes

The way in which notes should be structured is a very important factor in developing a note- taking technique. Well organised, structured notes enable the interpreter to know at every time where to look for a certain part of the text, and to facilitate the reading of notes. The most commonly recommended way of organizing your paper is to split it in half by means of a horizontal line, and to leave an additional horizontal row in the left half, which is called ***the margin***.

3.1. The margin

Gillies (2005: 137) suggests that the important things should be noted in the margin to make them stand out and "*facilitate the production stage of consecutive*". He differentiates four categories, namely:

- ***Opinions***
- ***structural elements*** (numbering, digressions and questions)
- ***dates***
- ***anything important.***

The numbering refers to part of the speech where the speaker himself divides his speech into sections by means of words "firstly", "secondly". When it comes to ***digressions***, which are of secondary importance, he proposes using the brackets **( ).** Being very important, dates must be written down, and Gillies considers that the margin is the best place for that.

3.2. Verticality and Shift

Rozan (1956:20) introduces ***the principle of verticality, referring both to it and the shift (discussed further in text) as the "backbone" of his note-taking system. Principle of verticality implies taking notes from the top to bottom and not from left to right.*** According to Rozan (1956:20), it enables the interpreter to group his ideas logically, which will facilitate the reading of notes. If noting in this way, the interpreter is also not required to note down links, since the structure enables him to see the synthesis (connections). He differentiates ***stacking*** (Example 1) and ***the use of brackets***. The same as Gillies (mentioned in 4.3.1.), he suggests using the brackets when noting things that are not "integral to the speaker's train of thought", but used for clarification or emphasis, see example 2.

Example 1 (Rozan 1956:20). **Stacking**:

1) "The report on Western Europe is an interesting document"

***R**ort* ***int**g*

W Eur.

2) "The chapters of the report which deal with economic situation in Europe offer additional information and new statistics"

Ch**rs* ***info

give new

Ec.Eur ***stat**ics*

Example 2 (Rozan 1956:20). **Use of brackets:**

„ … which leads to new investment, particularly in the transport sector"

+

in

***v**t*

s

(T

or

)

As far as the principle of shift is concerned, Rozan (1956:22) defines it as follows: "***Shift means writing notes in the place where they would have appeared had the text on the line above been repeated***." So, for him it represents both economy and saving time, by not writing down something repeatedly, but indicating the structure by means of shift (see example 3).

Example 3 (Rozan 1956:21).

"Over the course of 1954, prices rose. Athough not to the same extent as income, Thus the population's net income increased."

54, prices □

but ——— no = □ income

so ——— pop^{on} □

Gillies emphasises that:

> *Many a poor consecutive is sub-standard even though "everything is there", since everything is given the same weight and no particular elements or threads are highlighted, making it difficult for the listener of the interpretation to know what the speaker is really trying to say* (Jones 2002:22 cited from Gillies 2005:77).

In relation to his definition of idea (***subject, verb and object***), Gillies suggests noting the three segments diagonally across the page, as well as to separate each segment by means of a horizontal line, as can be seen in example 4 (2005:43). ***He enumerates a number of reasons in favour of noting ideas diagonally; he argues that notes taken this way are easier to read back, have a visible structure (make the structure of the speech visible at a glance), allowing eyes to move from left to right like (in a natural movement), the beginning of each idea is noted furthest on the left (beginning being the most important part of an idea), there is no syntactic interference and it gives the interpreter more free space for possible additions.***

Example 4 (Gillies 2005:46).

S V

In the areas for which I have some responsibility, ***there were*** *also, as the Prime Minister has*

O

mentioned, some important ***developments*** *at Feira.*

S V O O

We took stock of *the European Union's* ***relations*** *with Russia and* ***the situation*** *there, including in Chechenya, in the light of the recent EU-Russia Summit, which I think was regarded as fairly successful.*

	there were developments we took stock relations + situation

As can be seen from example 5, besides of taking down the idea diagonally, Gillies uses Rozan's principle of verticality, by writing words one below the other (relations, situation). The principle of parallel *values* suggests, that if there are for example two or more subjects for the same verb, providing they are of equal value, they should be noted parallel to one another (2005:78).

Example 5 (Gillies 2005:78).

Because French, German and British government have cut customs duties.

Cos	Fra Ger UK cut duties

As already mentioned, Gillies advises ***noting ideas diagonally across the page***. One of the reasons he proposes that is that the beginning of each idea is the most important segment, and it should be therefore noted further to the left. In his principle of ***shifting values,*** he proposes ***shifting everything that is of relevance to the left, and vice versa, everything less important to the right, thus facilitating reading back notes*** (2005:83). As stated in Gillies: "***This system suggests that the most important elements are furthest to the left, and that any two elements in the same section of notes, the same idea, that are vertically aligned on the page are of equal value***" (2005:86).

Ilg and Lambert indicate that in 1974 Buzan introduced a different approach both to studying in general and note-taking. He proposes a system of manipulating the space on the page, and not in a usual, linear manner, but using a method called ***patterned note-taking***. The explanation of this term by Norton 1981: 68 (cited from Ilg and Lambert 1996: 87):

> *The main idea behind patterned notes is that the student identifies the central argument or concept in the information presented and that his is represented by a key word or phrase placed in the middle of the page. From this central point, it is possible to build up a structure using arrows, shapes, pictorial illustrations and lines which radiate out from the central concept in as many different directions as required.*

As Ilg and Lambert (1996:87) argue, this pattern of noting is more in tune with the way our brain works, as opposed to the conventional linear method of noting, from top to bottom and from left to right.

3.3. Links

Both Rozan and Gillies point out the importance of noting down ***links, as they serve to connect ideas.*** As Herbert (1956:47, cited from Rozan 1956:18) argues, the most important, and at the same time most difficult to note is **the sequence of ideas and links between them.** There is no use of noting the idea without being able to connect it to what had previously been said, and to what comes next. Rozan emphasises the importance of noting down links and asserts that "***we should never miss out the links***" (1956:18). He proposes determining an abbreviation or symbol for a link that has certain meaning, and then use it for all the links that have the same or similar meaning. To name just a few examples: ***tho*** although, despite the fact that; to convey opposition, ***tfe*** therefore, one can then conclude: to convey conclusion. ***In+*** in addition, furthermore, if we also take account of; to convey the idea of additional precision.

Jean Herbert (1956:46, cited from Rozan 1956:19) indicates that

> *Linking is not just about representing the idea; it will often impact on the very content of the speech. It is a question of noting quickly and without repetition the group of subject words and the group of complement words to which the idea relates. This problem can be solved quickly and easily by using the recall arrow.*

Gillies (2005:58) agrees that "*a speech is all about two things: the ideas and the links between them*." He also highlights that what is important to bear in mind, is that ***the interpreter should recognize and write down, not the words or expressions which the speaker uses to signal ideas, but the links he sees between ideas.*** The same as Rozan, he proposes thinking of abbreviations or symbols which can be used to represent certain groups of links, e.g. **TO** (purpose) = (in order) to, in such a way as to, so that, with the aim of, the purpose being to. It is pointed out, however, that these symbols/ abbreviations must mean something to the interpreter, not his teacher or a colleague. According to Gillies (2005:62), **links should be noted on the left side of the page, i.e. in the margin.** The two reasons for it are **visibility** (what is noted in the margin stands out), and **readability** (due to natural eye movement, and if noting ideas starting from the left, the eyes go to the left at the beginning of each new idea).

3.4. The Recall Line

The recall line is, as previously stated, ***a means of linking a previously stated idea to the new section in which it is stated once again.*** Gillies (2005:135), however warns that it should not be used for links: "The recall line is not a link, it is a quick mechanical way of avoiding noting the same thing twice on one page." He also indicates that the recall line should be a simple line, not with an arrow (not to be confused with the causal relationship between two parts of the speech), and that it has to be drawn in a way that it does not obscure the already written notes.

4. What to note

According to Gillies (2005:120) things that must be noted are the following***: ideas; links; who is speaking; verb tense and modal verbs; proper names, numbers, dates, lists; terms to be transcoded*** (certain words that the speaker is using, e.g. technical terminology) ***and the last sentence of the speech*** (often conveys an important message).

In case the interpreter did not have enough time to note something, or simply did not

hear well, a blank line should be left, in order to remind him later, during the reformulation phase, that something is missing, and to give him a chance to use the context and his memory (2005:168).

A pro-form is "*for the purposes of note-taking ... a lexical unit that refers back, not just to one person, or object, but to a whole passage, a whole idea, or series of events*" Gillies (2005:151). It is similar to a recall line. An example of a pro-form is *this is why, it was for this reason* (Gillies 2005: 151). He suggests drawing a close bracket on the right side of the notes, alongside the idea the reference was made. The height of the bracket should correspond to the top and bottom of the idea noted. Another line should be drawn from the centre of the bracket to where the reference is made.

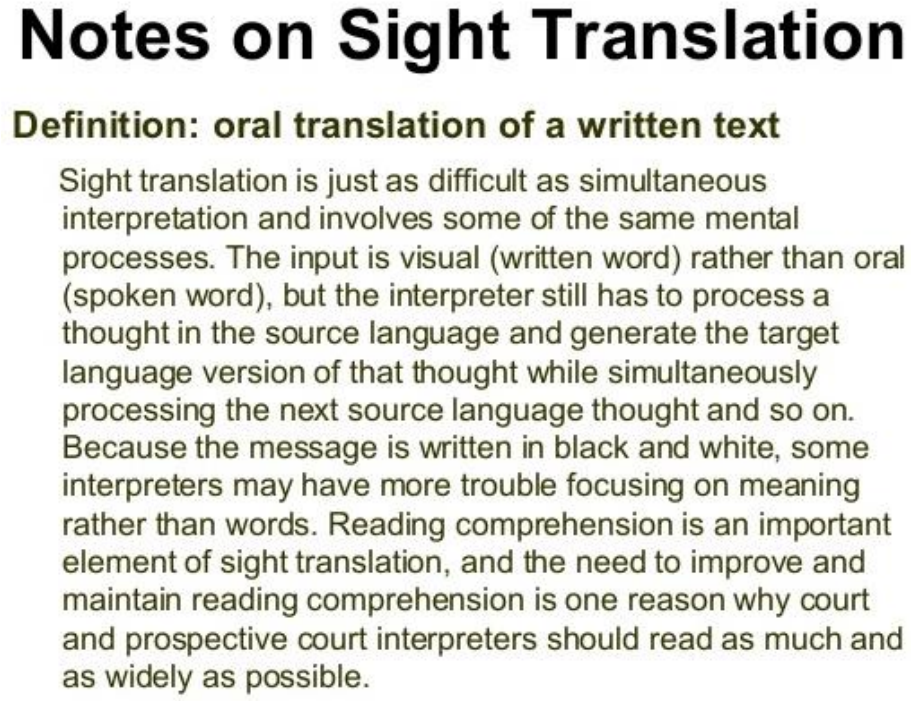
Ilg and Lambert (1996:78) argue that note-taking should be used for noting information "which is not easily stored in and retrieved from the memory, i.e. structure of the text, facts, figures, names, and deliberate nuances."

SECTION 4: SIGHT TRANSLATION

1. The main characteristics of sight translation

Sight translation involves ***reading a written text in one language silently, and simultaneously speaking the content aloud in another language***. For example, a legal firm may ask a Japanese to English translator to sight translate parts of Japanese documents, speaking the content aloud in English so they can identify what the documents are and whether they are relevant to a case and need to be translated in full.

Sight translation is highly skilled and requires a high degree of fluency in at least two languages, as well as knowledge of the subject matter of the documents being sight translated (e.g. experience of the legal



system or a technical background).

The main characteristics of sight translation suggested by M. Agrifoglio, D. Gile, B. Dragsted, I. Gorm Hansen, F. Pöchhacker and A. Sandrelli (Agrifoglio, 2004; Gile, 2005; Dragsted and Gorm Hansen, 2009; Pöchhacker, 2004, Sandrelli, 2003) and reconsidered by the author are the following:

1. Reception conditions:

- written source-text presentation
- absence of author
– punctuation
- permanent access to the text
- attention-sharing between visual input and oral output
- non-sequential reception (reader can go back)
- interpreter-paced (not paced by speaker)

2. Production conditions:

- oral target-text presentation (short, long, recorded)
- considerable time delay between source language production and translation
- coordination of Reading and Production Efforts (according to Gile's Effort Models)
- monitoring production while reading
- prior access to information (preliminary reading) / progressive access to new information (first sight translation)
- extreme risk of interference
- interpreter-paced (not paced by speaker)
- time-saving (in comparison to written translation)
- no help of colleagues `

The term **sight translation** (SiT) is defined as one of the basic modes of interpreting, more specifically a hybrid form (Timarová et al. 2014), namely the combination of written input and interpreting as oral output depending on the context (Setton/Motta 2007; Agrifoglio 2004) since it requires reading and production synchronization. Sight translation alludes to various sorts of activities depending on the circumstances where SiT is carried out. Sight translation can be applied in such occasions when an interpreter both sight translates and listens to the speech. According to Weber (1990), *sight translation necessitates rapid analysis of a text, swift information transmutation from one language to another while avoiding transliteration or literal translation, and the techniques/approaches of public speaking* (Lee

2012). Sight translation has been reckoned closer to interpretation rather than translation since interpreters are able to apply largely the same strategies that they use when they perform oral-to-oral interpreting" (Dragsted/Hansen 2007: 254).

Franz Pöchhacker argues that in sight translation, the interpreter's target text production is simultaneous not with the delivery of the source text, but with 'the interpreter's real time' (visual) reception of the written source text. If the interpreter is working 'at sight' without the constraints of real-time performance for a larger audience, sight interpreting will shade into the consecutive mode or even come to resemble 'oral translation', with considerable opportunity for 'reviewing' and correction. (Pöchhacker 2016: 20) Viaggio (1995) has pointed out that sight translation has been observed as an educational exercise for increasing interpreter's cognition of syntactic and stylistic variations between the source and target languages. Also, ***sight translation is considered as a beneficial asset in expanding language transfer and oral skills through the process of paraphrasing, reformulating, and restructuring the source text*** (Ilg/Lambert 1996). In the same manner, Song (2010) contends that sight translation is a "traditional step" and "***learn-to-anticipate" exercise*** between simultaneous and consecutive interpretation. Timarová et al. (2014) underline that sight translation is a useful exercise for working up speed and thus preparing students to undertake simultaneous interpreting in the booth. When allowing for prior reading, sight interpreting is believed to improve students' ability to navigate in a text applying a non-linear approach and to identify core information (Timarová et al. 2014). The question is whether sight translation is regarded as a particular mode of translation or interpretation. As both visual and oral forms of 'information processing' are included; therefore, ***SiT is considered as a particular kind of written translation (written input) as well as an alternation of oral interpretation (oral output)***. According to Lambert, sight interpretation – as opposed to sight translation – is one step closer to simultaneous interpretation in that the message is presented both aurally and visually. In this case, candidates are given five to ten minutes to prepare the written version of the message. Then, candidates are asked to deliver a sight interpretation of the text as it is being read to them through headphones. Candidates are urged to follow what the speaker is saying, given that the speaker may depart from the original text from time to time, and not to simply read from the passage as though it were a sight translation exercise. (Lambert 2004: 299) Reading and production synchronization arise simultaneously in sight translation. As a consequence, the interpreter needs to process the translation of the source text in his/her mind, while reading the source text (Weber 1990). The important task of an interpreter is to scrutinize the source text ahead for more particular keywords, while outlining the expressions of the target language so that he/she can produce a reliable and smooth translation (Agrifoglio 2004). In doing so, the interpreter is

advised to store some chunks of information in his/her short term memory until he/she "reads enough information from the source text to reformulate it in the target language" (Lee 2012: 695).

Sight translation can be performed in two shapes: **unstressfull** and **stressful sight translation** (Lambert 2004). The former refers to the situation when the candidate has plenty of time (e.g. ten minutes) to 'read a 300-word passage', while the latter alludes to the situation where 'preparation time' is removed completely and the participant is asked to render right away without having an opportunity to scrutinize the source text (Song 2010). Complex and long sentences demand greater processing efforts from the interpreter. The syntactic differences between the source and target languages create great obstacles for the interpreter to synchronize source language reading and target language production. The interpreter must avoid transliteration or word for word translation since the visual input might alleviate listening and memory efforts in sight translation; however, it might also make intrusion in the target language (Martin 1993). In line with Martin, Agrifoglio's observations indicate that the continual presence of the source language text seems a major challenge for the sight interpreter which conditions the ability to synchronize 'silent reading' and 'oral translating' as well as 'target language expression' (Nilsen/Monsrud 2015). To this effect, the flow and the speed of reading will affect the process of sight translation, as sight translator's reading speed will influence the accuracy and precision of the end-product. In spite of its importance in both interpreting contexts and interpreting training, sight translation has always received less academic observation than both simultaneous and consecutive interpreting.

2. Some existing practices and further perspectives of sight translation

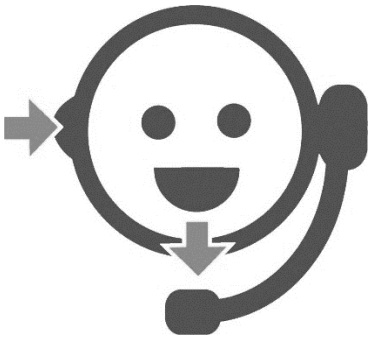
Though sight translation is used widely, in literature we find its description as a part of **public service interpreting**, **medical interpreting** and **legal interpreting**. It is believed to be appropriate mainly for short texts. This approach is reasonable, though exceptions still exist.

The working paper "Sight Translation and Written Translation: Guidelines for Healthcare Interpreters" developed by the Standards, Training and Certification Committee of the National Council on Interpreting in Health Care states that not all the documents are appropriate for sight translation (Bidar-Sielaff et al., 2010). The National Council on Interpreting in Health Care recommends ***strict limits on the length and complexity of documents that interpreters should be asked to sight translate***:

1. *long documents containing general background information (e.g. patient bill of rights) and educational materials are not appropriate for sight translation, as it is both time consuming and probably fruitless, because the patient is unlikely to remember what was read to him;*

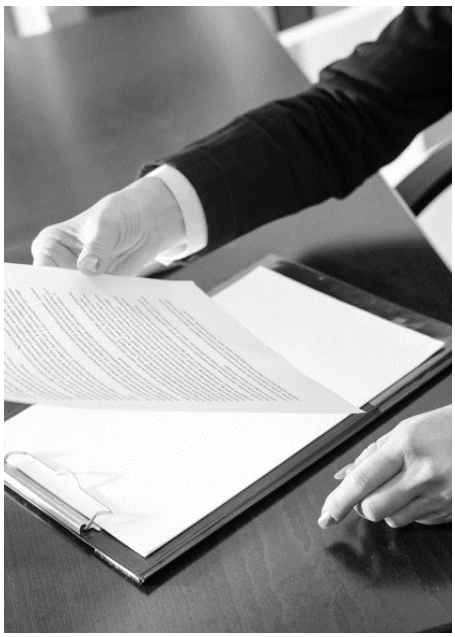
2. documents with specific instructions are appropriate for sight translation, with the provider present, so that the patient's questions can be answered by the provider, not the interpreter;

3. legal documents should be translated in written form first and then, if necessary, read aloud by the interpreter. (It is recommended – 95 – Veronika V. Obidina. Sight Translation: Typological Insights into the Mode because of the register and unfamiliar for medical interpreters terminology, which can result in errors. It is also questionable whether the patients will fully understand and retain long and complex sight translation. The provider should explain the procedure to the patient, including risks and alternate options, and to ensure that the patient has understood the explanation. This means that, even with a translated text, a provider needs to be present while the patient reads the form (or the interpreter reads it to the patient), so as to answer questions and guide the interpreter if there is text that can be omitted) (Bidar-Sielaff et al., 2010).



It is also mentioned that in the case of the less-commonly encountered languages sight translation by the interpreter will be required, regardless of the length or complexity of the material (Bidar-Sielaff et al., 2010). A. Corsellis says, that in the public services, interpreters should convey to the enquirer the fact that an accurate sight translation is not feasible, when the text in question is too long or too complex for sight translation. In those cases where a sight translation is required and the text is suitable, it is recommended to first read the whole text carefully to ensure a full comprehension, then to tell the listener the provenance and nature of the text before beginning translation (Corsellis, 2005).

Despite the fact that public service interpreting, medical interpreting and legal



interpreting are performed under different conditions they share common approaches mentioned above. During the debate, transcribed and published in "Translation research and interpreting research: Traditions, Gaps and Synergies" edited by C. Schäffner, sight translation, as well as subtitling, was mentioned as a field for further both theoretical and practical investigation (Sandrelli, 2004). The speed which is required in both translation and interpreting today, contributes to considering the introduction of sight translation as a separate course into the core curriculum of different types of interpreters and written translators. Since the job of that kind is required more and more frequently in the competitive market and, as M.T. Musacchio mentions, written translators often find themselves unprepared to meet this growing demand (Musacchio, 2004).

Talking about perspectives of sight translation in the language service industry, it is necessary to mention **niche translation**. The ***niche translation is when you translate sophisticated material about sophisticated subjects using sophisticated tools*** (Gouadec, 2007). The proposed sophisticated tool is a digital voice recorder, and the niche is recorded sight translation. Recorded sight translation is often used during interpreter and translator training for monitoring or (self-) assessment. This type of translation can occur when the client needs low-cost, sense-oriented, fast, transient translation (Biela-Woùoñciej, 2007).

3. Sight translation practice exercises

The exercises outlined below will help you develop skills in sight translation.

Exercises in Public Speaking.

1. ***Reading aloud***– stand in front of a mirror and read passages aloud from any book, newspaper or magazine. Record yourself and play back the tape when you are finished. Listen (and, if you can, videotape yourself) yourself critically and pay attention to your voice, pitch, tone, hesitations, sighs, projection, enunciation and posture.
2. ***Controlling emotions***– practice controlling your emotions, while reading aloud, texts with high emotional content such as fear, anger, humor, etc. Make sure you convey the author's intended emotions, not your personal reaction to the subject matter.

3. ***Public speaking***− practice speaking before a group of people at every opportunity. People you know will provide a less threatening audience and will allow you to ease your way into public speaking and build your confidence.

Reading Ahead in the Text

1. ***Extensive reading***− build up your reading speed and, as a bonus, also your vocabulary by reading as much as possible in many different fields.

2. ***Analyzjng***− analyze the content of each text and practice picking out the subject and verb to help find the core of meaning. (Example: although less influential than in Argentina, migration from Europe in the late nineteenth and early twentieth centuries affected the development of Chilean political culture. Subject: migration; verb: affected)

3. ***Identifying sentences and embedded sentences***− read a text aloud and as you are reading, − break up long sentences into smaller, more manageable units. (Example: juvenile delinquency, which is seen most often among minority youth in urban ghettos, nevertheless cannot be attributed to the urban environment alone, as it plagues the suburbs as well. There are three embedded sentences in this complex sentence:

A. Juvenile delinquency is seen most often among minority youths in urban ghettos.

B. It cannot be attributed to the urban environment alone.

C. It plagues the suburbs as well.

4. ***Deciphering handwriting***− obtain texts written by hand (e.g. letters) and practice deciphering the handwriting on the first oral reading.

Analitical Skills

1. ***Reading for content***− read a text aloud to a friend and afterwards have the person ask you questions about its content.
2. ***Chunking***− choose a text and mark off the units of meaning in it. (Example: I was getting ready/ to go out to lunch with/ my mother-in-law/ when all of sudden I felt sick to my stomach/ It occurred to me that/ it might be/ something psychosomatic/ but later found out that/ I was simply allergic to/ the perfume she always wore.

4. International sight translation standard

This standard is for interpreters who produce sight translations of written/video texts from the source language into the target language as part of interpreting assignments. The interpreter may be required to do this within the context of an interpreting assignment, when there is a text, the content of which needs to be translated at sight. This involves being able to assess whether a sight translation can be undertaken within a reasonable time during the

interpreting assignment and producing a sight translation of the text, conveying its meaning accurately and fluently. Text can include correspondence, personal status certificates, information leaflets, administrative forms, video clips and text messages.

Performance criteria

You must be able to:

1. read, speak and/or sign at a complex level in your working languages, which is equivalent to C1 within the Common European Framework of Reference for Languages (please see the Languages NOS for more information)
2. establish expectations with participant/s to facilitate effective sight translations and provide clarification, where necessary
3. assess whether a sight translation of the text can be undertaken and identify any potential and/or associated risks, as appropriate
4. determine whether a sight translation can be undertaken within a reasonable time during the interpreting assignment
5. inform the relevant parties if an immediate sight translation is not possible, so that alternative arrangements can be considered
6. make effective use of available resources and reference materials to check on vocabulary that is not familiar, including technical and specialist terms, as appropriate
7. produce a sight translation of the text conveying its meaning accurately and fluently
8. reflect the language, register and tone used in the text
9. check and clarify any uncertainty of meaning with the relevant parties, if appropriate
10. ensure your conduct is in line with ethical considerations, relevant codes of conduct and relevant legal requirements

Knowledge and understanding

You need to know and understand:

1. written, spoken and/or signed language at a complex level for your working languages, which is equivalent to C1 within the Common European Framework of Reference for Languages (please see the Languages NOS for more information)
2. the role of the interpreter, the principles of professional practice, relevant codes of conduct, relevant legislation and relevant legal requirements. This includes managing ethical behaviour/principles, conflicts of interest, confidentiality, impartiality, integrity, accountability and professionalism

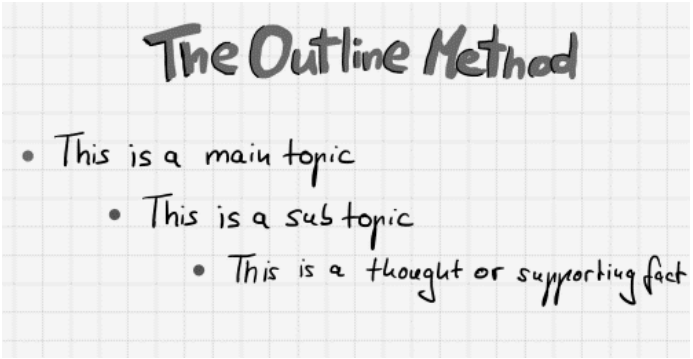
3. circumstances in which sight translations are and are not appropriate
4. texts for which sight translations are and are not appropriate
5. the potential and/or associated risks when undertaking sight translations
6. alternatives to immediate sight translations
7. the process of producing a sight translation from text
8. the cultures, conventions and formats used to communicate orally/signed and written communication in the languages in which you interpret; and the implications of these aspects for translating text at sight
9. the transfer of register from one language into another; and from text into spoken or signed language
10. techniques to assess the requirements for sight translations and the needs of relevant parties
11. the domain/s in which you interpret and translate at sight
12. the use of reference materials
13. research methods to access reference materials

PRACTICAL LEARNING ASSIGNMENTS

A BRIEF REVIEW OF BASIC NOTE-TAKING METHODS

1. Note-taking method 1: The Outline method

The Outline method allows to organize notes in a structured form, helping to save a lot of time for further reviewing and editing. As the name suggests, this method requires you to structure your notes in form of an outline by using bullet points to represent different topics and their subtopics. Start writing main topics on the far left of the page and add related subtopic in bullet points below using indents.

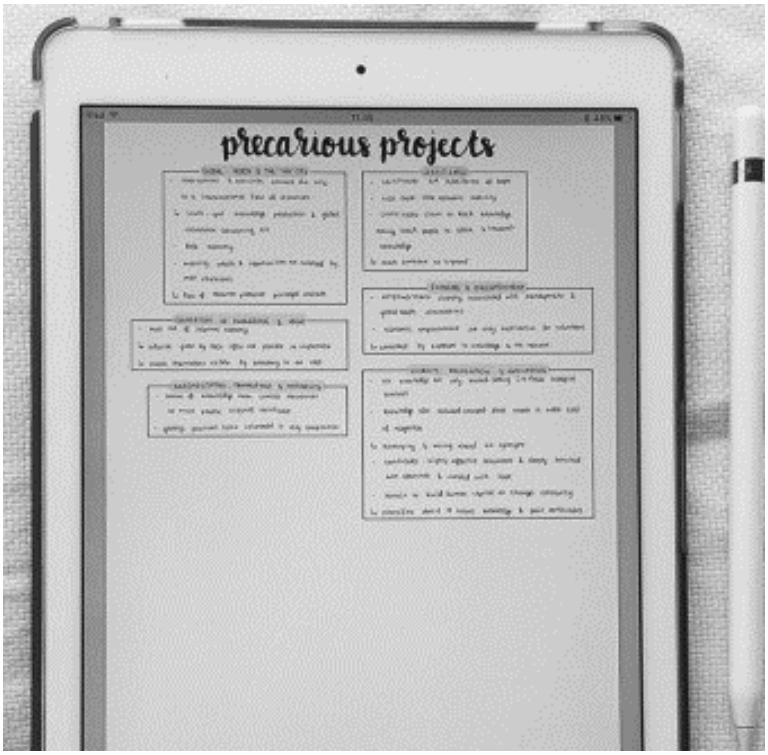


2. Note-taking method 2: The Cornell Method

It is a unique note-taking method that finds its application in a variety of situations. What differentiates it from other methods is the page layout. The page is divided into three or four sections starting from one row at the top for title and date (optional) and one at the bottom along with two columns in the center. 30% of width should be kept in the left column while the remaining 70% for the right

column. All notes go into the main note-taking column. The smaller column on the left side is for comments, questions or hints about the actual notes.

3. Note-taking method 3: The Boxing Method



This method might be still widely unknown but gains increasing popularity. All notes that are related to each other are grouped together in a box. A dedicated box is assigned for each section of notes which cuts down the time needed for reading and reviewing. iPad note-taking apps like our app GoodNotes are especially helpful for this method because content on the page can be reordered or resized subsequently. That way, you can just write down notes as you would normally do and then reorder them afterward to assign them to particular boxes. Digital note-taking also allows you to zoom in on the page, which helps to focus on one topic at a time during the review.

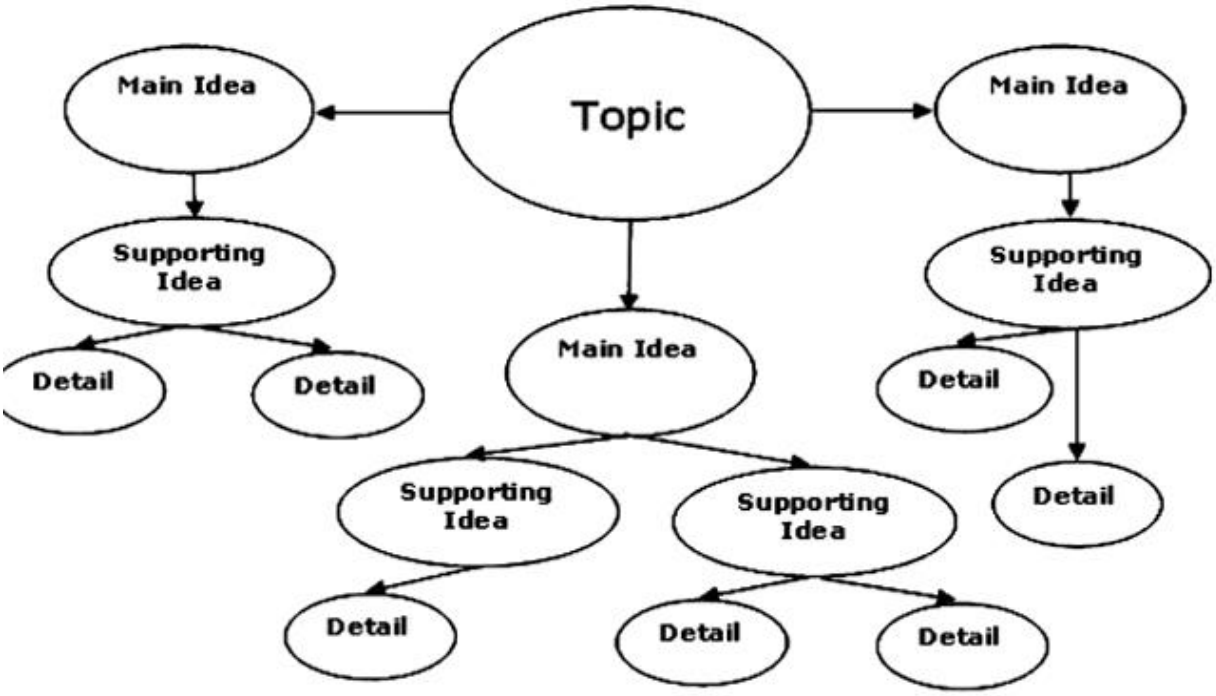
4. Note-taking method 4: The Charting Method

Method	Description	When to use	Pros	Cons
Outline				
Cornell				
Boxing				
Charting				

It is an ideal method for notes that involve a lot of information in theform of facts and statistics. The information will be organized in several columns, similar to a table or spreadsheet. Each column represents a unique category which makes the rows easily comparable. A great example of the charting method would be a summary of this paragraph:

5. Note-taking method 5: The Mapping Method

When the speach content is intense, the mapping method works best. It helps organize your notes by dividing them into branches, enabling you to establish relationships between the topics. Start with writing the main topic at the top of the map. Keep dividing it into subtopics on the left and right as you go down.



EXAMPLES OF NOTE_TAKING

Read the example of noting the textual passage using 5 basic methods (the Outline method, the Cornell method, the Boxing method, the Charting method and the Mapping method):

Phytoremediation of soil

Phytoremediation refers to the technologies that use living plants to clean up soil, air, and water contaminated with hazardous chemicals. Phytoremediation of soil falls into three types:

-Phytoremediation of soil metals

-Phytoremediation of soil contaminated with low concentrations of radionuclides

-Phytoremediation of Soil Contaminated with Used Motor Oil.

The phytoremediation of metal-contaminated soils offers a low-cost method for soil remediation and some extracted metals may be recycled for value. Both the phytoextraction of metals and the phytovolatilization of Se or Hg by plants offer great promise for commercial development. Natural metal hyperaccumulator phenotype is much more important than high-yield ability when using plants to remove metals from soils. One approach is to use fast growing plants inoculated with mycorrhizal fungi combined with soil organic amendments to maximize the plant accumulation and removal of radionuclides from contaminated soils, followed by harvest of above-ground portion of the plants. Plants are proposed as a cost effective method to remove radionuclides from the soils that have been contaminated by nuclear testing and nuclear reactor accidents.

1.The Outline method:

- Phytoremediation

-clean up soil, wt, air ~~chems~~

- 3 tps: soil metals, radionuclides, Used Motor Oil

-low cost, metals recycled

-comm.dvelopment

-fast growing plants…..

-high-yield ablt

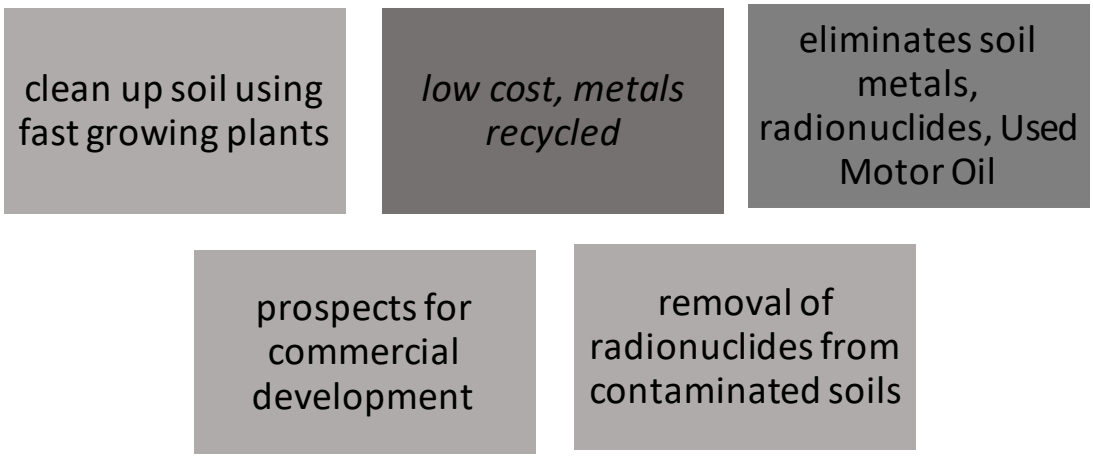
~~*-mtls in soil…*~~

2. The Cornell method:

Phytoremediation of Soil	use living plants to clean up soil, air, and water contaminated with hazardous chemicals.
3 types	soil metals, low concentrations of radionuclides, Used Motor Oil
Method advantages	low-cost method for soil remediation, great promise fo commercial development, efficient method to remov radionuclides from the soils that have been contaminated b nuclear testing and nuclear reactor accidents.

3. The Boxing method:

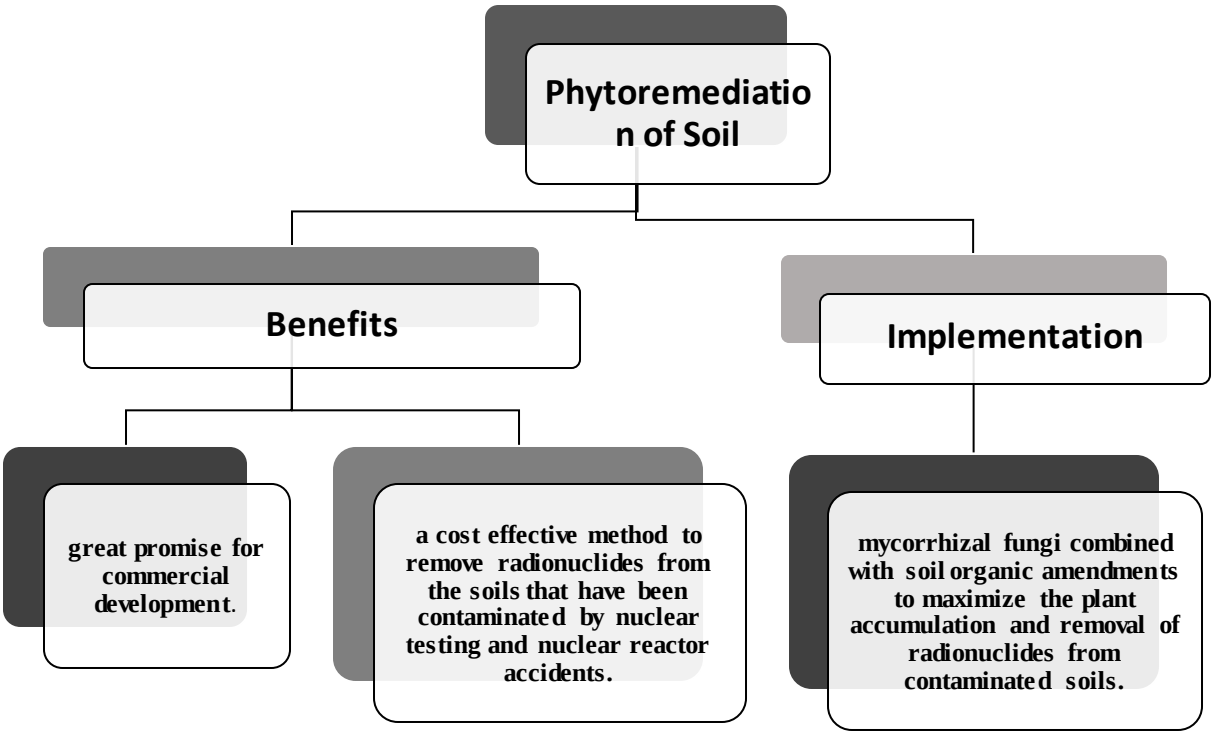
PHYTOREMEDIATION



4. The Charting method:

Technique	What`s involved	Features	outcomes
Phytoremediation of soil	using fast growing plants to remove metals from soils	-low-cost method - some extracted metals may be recycled for value	Removing radionuclides from the soils that have been contaminated by nuclear testing and nuclear reactor accidents.

5. The Mapping method:



I. Work in pairs. Translate the following passages after another student reading aloud. Take notes using symbols and abbreviations:

1) The agricultural sector has witnessed the *infusion* of digital intervention. Most stakeholders understand that the next *growth curve* for agriculture can be achieved through digital innovation in the sector. It can transform the entire input

supply chain, crop management cycle, storage and market access. The trend has begun to pick up as more and more agri innovation start up ventures are popping up in the sector looking at modernising agriculture by bringing in applications in precision agriculture/ *traceability*/ climate smart agriculture, creation of digital platforms and natural resource management.

- ✓ *Infusion–вливання, тут: наплив;*
- ✓ *growth curve–лінія зростання;*
- ✓ *traceability– простежуваність, передбачуваність;*

2) From a digital agriculture perspective, the focus will be on strengthening the supply chain of the sector. Government and private sector is likely to invest in infrastructure and technology enablement of areas such as quality, traceability, logistics and distribution.

3) Climate change is also high on the priority list. Climate risk mitigation strategy needs to be evolved - be it effective water management or adopting to rising temperatures or facing drought situations. Solutions for early warning system can play a vital role in estimating and minimizing the risk due to erratic climate change events.

4) We also need to focus on water management and find ways of effective implementation of existing solutions such as water user associations, water rationing to benefit the agrarian society. The private sector needs to move from an existing mandatory CSR (corporative social responsibility) perspective to a model which incorporates these strategies as a part of their businesses. We hope to see more private sector driven initiatives in the years to come.

5) The focus on developing the startup ecosystem and creation of digital agriculture is likely to continue. We expect to see more incubation happening for developmental and early stage startups while more funding is likely to continue in mid stage startups. It will be interesting to see the success rate of the innovation in the sector.

6) Initiatives on water management ranging from watershed management to *drip irrigation* and water user association can play an important role in the strengthening of the agricultural sector. Further, considering the scarcity of water, there is a strong need to create awareness and a sense of discipline in the end users towards conservation of water. The government agencies need to be empowered to administer and monitor the use of water in the agricultural systems. Farmers should be *incentivised* to use water *judiciously* in areas of abundant availability.
   - ✓ *Drip irrigation– крапельний полив*
   - ✓ *Incentivise– стимулювати, заохочувати*
   - ✓ *judiciously– розсудливо*

7) Nowadays, farms are often run like shoe factories; seeking maximum production with minimum regard for the human and environmental consequences. To understand better how we can improve our environment while dealing in agricultural practices, we first need to understand the global major problems regarding agricultural practices. From here, necessary changes can be made to create sustainable agriculture for the coming generations and sustain the health of the global environment.

8) Not only are the major agricultural chemicals poisonous or toxic to human health and microorganisms in the soil, they are also intoxicating pollinators and wildlife, running off into water bodies, polluting rivers, land and wetlands. These results into destroying important soil micro-organisms and bacteria that is critical for healthy soils.

9) Crops that are genetically modified are not only detrimental to the health of humans, but they are detrimental to the environment as well. GMO crops have resulted to a huge increase in farming using agricultural chemicals that are applied directly to crops. Moreover, there have been cases where GMO crop contamination has been found in non-GMO crop fields, as well as in water and soil systems.

10) In our current world, the agricultural practice of growing large volume of a single crop is leading the cause of deforestation, widespread use of heavy machinery destroying soil structure, and large use of agricultural chemicals.
Despite food insecurity and having a world today where large population families go hungry on a daily basis, the economy in the global market favours the overproduction of food leading to waste. Workers are also underpaid in most of the commodity grown farms and they work in terrible working conditions.

11) Global corporate agribusiness is really driving small local farmers out of business since they cannot compete with lower commodity prices on a global market.
Many small scale farmers today practice sustainable agriculture, but they however struggle with poverty due to the pressure for low global commodity prices from large scale farmers.

12) With the pressure from global markets and food insecurity, there has been need to increase production. Many farmers are planting crops on their entire pieces of land, leaving the land bare for soil erosion resulting from waterways from water runoff.

13) As more and more land is heavily ploughed and cleared to create room for agricultural practices, the natural habitat is gradually destroyed and the other land is becoming increasingly degraded. Such negative practices results to exposure of the top soil that is blown by wind or washed away by water or rain, erosion emanating from deforestation, sedimentation in water bodies and increased flooding.

14) For "efficiency" purposes, modern agriculture has separated the planting of crops and raring of animals, which used to coexist in harmony before. Naturally if they were kept together, no waste management would have been done, and crops should not require fertiliser or lack nutrients.

15) Most of the fertilizers used in industrial agriculture are made from petrochemicals and only supply three basic nutrients: nitrogen, phosphorous, and potassium.

These three nutrients may fulfil a plant's most basic requirements for growth, however, the crops may not receive other nutrients, or may have traces of minerals, which are not so good for their optimal health and for the health of those who consume them.

16) In the past few years, only few varieties of crops have been grown in the commercial space of agriculture. This has resulted in loss of a few varieties and breeds leading to loss of genetic diversity. This becomes a problem because crops cannot adapt to changing environmental conditions and diseases.

17) Sustainable crop production intensification should be the first strategic objective of innovative agronomic research for the next 40 years. A range of options exists for farming practices, approaches and technologies that ensure sustainability, while at the same time improving crop production. The main challenge is to encourage farmers in the use of appropriate technologies, and to ensure that knowledge about sound production practice is increasingly accepted and applied by farmers.

18) There is a huge, but underutilized potential to link farmers' local knowledge with science-based innovations, through favourable institutional arrangements. It is also suggested that a comprehensive effort be undertaken to measure different stages of the innovation system, including technological adoption and diffusion at the farm level, and to investigate the impact of agricultural policies on technological change and technical efficiency. This paper provides a brief review of agronomic management practices that support sustainable crop production system and evidence on developments in the selection of crops and cultivars; describes farming systems for crop which take a predominantly ecosystem approach; discusses the scientific application of ecosystem principles for the management of pest and weed populations; reviews the improvements in fertilizer and nutrient management that explain productivity growth; describes the benefits and constraints of irrigation technologies; and suggests a way forward.

- ✓ *cultivars– sort, variety*

19) Although there is increasing awareness of the importance of food legumes in human, animal and soil health, adoption of improved production technologies for food legume crops is not proceeding at the same pace as for cereal crops. Over the previous decade, the only food legumes have shown significant production increases: chickpea, lentil and faba bean in North America, chickpea in Australia, and faba bean in Europe. In smallholder farming in developing countries, production trends have mostly been static or have declined over the past decade despite the existence of technology that should permit higher and more stable yields.

20) Adoption of conservation agriculture is only just beginning for smallholder farming in Asia and Africa, catalyzed by the development of low-cost implements suitable for minimum tillage. Water use efficiency improves with conservation agriculture as it allows for earlier planting, reduced soil evaporation, better weed management, and increased access to nutrients. Ecosystem-based approaches to plant nutrition are evolving which place more reliance on accessing organic and mineral reservoirs than in replenishing the immediately available pool with chemical fertilizers, leading to enhanced nutrient use efficiency of cropping systems. Ecosystem-based approaches are also being applied to management of weeds, diseases, and insect pests of food legumes, again with decreased reliance on synthetic chemicals.

II. Compress the following passages using your own note-taking system. Use vertical noting, symbols, abbreviations:

1) Many have wondered for years if vertical farming is really the answer to the shortage of food in the world. However strange the concept of vertical farming might seem to many startups, it is an ingenious method to produce food in environments where arable land is unavailable or rare at the most. This method is especially handy for challenging environments such as deserts, mountainside towns, and cities where many diverse types

of vegetables and fruits are grown using precision agriculture methods and skyscraper-like designs.

2) Vertical farming is a revolutionary and more sustainable method of agriculture than its counterpart as it lowers the requirement of water to up to 70% and also saves considerable space and soil. This innovation in the field of agriculture with sustainability as its motto is making more and more heads turn today with its eco-friendly methods and making the possibility of farming real in difficult *environs*.

   - ✓ *Environ– оточення*

3) Research, institutional and policy settings for technological innovations in agriculture are, however, changing rapidly. Innovations now require plurality of systems and multiple sources. Linking technological progress with institutional and market changes is the need of the hour. Some key recent conclusions emanating from technological innovations include that: genetic improvements are successful, but not everywhere; there is a need for management and system technologies to complement genetic improvement; more investments are needed into research and development; the use of available technologies such as Information and communication technology have still not *permeated* some parts of the world to improve the efficiency of agricultural systems; and innovative partnerships are key. Sharing of data and information and infrastructural developments and deployment will help to ensure better reach and impacts of available innovations.

   - ✓ *Permeate– поширюватись, проникати, просочуватись.*

4) The characteristics of the various paradigms of agricultural innovation are changing rapidly, thereby having distinct effects, including, a move away from key innovators being scientists to potentially any of a range of actors, including farmers; the intended outcomes of *interventions* changing from mere technology transfer and uptake to enhanced capacities to innovate; and the changing role of policy from setting priorities and *allocating* resources to being an integral part of innovation capacity and strengthening the enabling environment.

- ✓ *Intervention– втручання, інтервенція, посередництво*
- ✓ *allocate– виділяти, асигнувати, бронювати, закріплять*

5) Mis-investments are *pervasive* in many countries. Mis-investments include spending on private goods such as subsidies and transfers and call public spending into question.

Reviews of public *expenditure* show that public budget allocations for subsidies and transfers are as high as 75 per cent in India, for example, and as low as 26 per cent in Kenya. Interestingly, as economies grow these allocations also grow. It should be noted, however, that not all subsidies are inefficient.

- ✓ *Pervasive– поширюваний, проникаючий*
- ✓ *Expenditure– витрати, використання*

6) Some countries such as Viet Nam are using evidence-based assessments to focus on spending in *core public goods* in their medium-term expenditure plans. *Sound estimates* of the effects of expenditure in agriculture coupled with rational political economy would help many countries not only to attract more investment but also to use their national budgets more efficiently. We must provide sound advice on the need to balance development economics with welfare economics and a greater understanding of the best use of funds to assist agriculture to take advantage of the benefits of reform and avoid the costs arising from an inability to adjust.

- ✓ *Sound estimates– слушна оцінка*
- ✓ *core public goods– основні суспільні товари*

7) Some regions such as sub-Sharan Africa continue to experience limited gains from the green revolution owing to the slow adoption of new and improved varieties by the farmers; agro-ecological *heterogeneity;* lack of infrastructure and lack of public policies that encourage better use of land and adoption of technologies; and poor market structures and related policies. Although the Consultative Group on International Agricultural Research, for example, invests some 35 per cent of its resources (twice the amount of investment in genetic improvement) in sustainable production systems the adoption and use of those systems remain limited, warranting an assessment of agricultural policies in these regions. Public funding that contributes to about 94 per cent of current investment in agricultural research and development is *scarcely* able to match investments needs.

- ✓ *Heterogeneity– гетерогенність, різнорідність*

- ✓ *Scarcely– скудно, недостатньо, обмежено*

8) There is limited private sector investment in research and development in agriculture in many developing countries, which is a cause for concern. Globally, research in agriculture is focusing more on maintaining yields than on improving them. In the absence of national policies on investment in agricultural research and development commercial interests may *erode* the thin base available to farmers in the form of agro-biodiversity. Innovative ideas such as *participatory plant breeding* offer sustainable solutions to address the need for improved research and development in agriculture. Through participatory plant breeding, for example, farmers will be trained to be more efficient in the use of their varieties and to improve them to suit local agro-climatic conditions in addition to providing them with an opportunity to be mainstreamed into commercializing and protecting their varieties through mechanisms such as 'farmers' rights'.

   - ✓ *Erode– псувати, підточувати, розмивати, роз'їдати*
   - ✓ *Participatory plant breeding– сумісна селекція рослин*

9) Participatory plant breeding (PPB) is when farmers are involved in a plant breeding programme with opportunities to make decisions at different stages during the process. Farmer`sinvolvement in PPB can include defining breeding goals and priorities, selecting or providing germplasm, hosting trials in their own fields, selecting superior plants for further breeding, engagement in the research design and administration processes as well as the commercialization of selected lines.

10) In achieving sustainable agricultural production systems, there is increasing realization of the need to move towards the tenets of organic agriculture, as exemplified in conservation agriculture and ecosystem-based approaches to plant nutrition and pest management. This does not necessarily imply a desire to qualify for organic product certification but more a realization of the need for sustainable agriculture. The movement towards conservation and organic agriculture encourages greater inclusion of food legumes, and legumes generally, in cropping systems. Unfortunately, however, technology transfer to resource-poor farming

situations, where most food legumes are produced, remains a major bottleneck to meeting global demand.

III. Sight translate the following passages:

1. Food legumes

The movement towards conservation and organic agriculture encourages greater inclusion of food legumes, and legumes generally, in cropping systems. Unfortunately, however, technology transfer to resource-poor farming situations, where most food legumes are produced, remains a major bottleneck to meeting global demand. More participatory approaches to technology development, testing, and dissemination are required than hitherto practiced. It is suggested that this process could be enhanced by better focusing on major constraints within the value addition chain for food legumes.

2. Agricultural innovations

Research, institutional and policy settings for technological innovations in agriculture are changing rapidly. Innovations now require plurality of systems and multiple sources. Linking technological progress with institutional and market changes is the need of the hour. Some key recent conclusions emanating from technological innovations include that: genetic improvements are successful, but not everywhere; more investments are needed into research and development; the use of available technologies such as Information and Communication technology have still not permeated some parts of the world to improve the efficiency of agricultural systems.

3. Food security prospects

Today, absolute priority must be given to the preservation of a diversified and viable biosphere for all living creatures, including ourselves. The sustainable securing of food for all humans is strongly required today. Qualitative progress must prioritize agricultural practices and the overall lifestyle to combine efficient food production with a greatly reduced environmental impact. Agricultural productivity can be significantly enhanced, particularly in developing countries, through improvements in farming technology, crop plant breeding, and the sociopolitical, economic and infrastructural conditions.

4. Crop rotation

Farms in Ukraine employ a variety of crop-rotation schemes, some including four or more crops, some only two. A six-year crop rotation in the winter grain region

will often include two consecutive years of wheat and one season of "clean fallow," during which no crop is sown. The chief reason for including fallow in the rotation is to replenish soil-moisture reserves, and it is more widely used in southern eastern Ukraine where drought is not uncommon. A typical crop sequence might be the following: fallow, winter wheat, sunflowers, spring barley, and corn. In traditional Ukrainian crop rotation scheme wheat almost always follows fallow.

5. **Wheat rotation model**

   According to this crop rotation model, this enables the wheat - which is typically the priority crop - to benefit from the reduced weed infestation. Fields are cultivated several times during the fallow season. Some crop rotations include several consecutive years of a forage crop. An example of such a rotation would be: fallow, two years of winter wheat, and four years of perennial forage. The perennial forage is usually alfalfa; farmers will get three to four cuttings per year, five if the crop is irrigated. In southern Ukraine, clean fallow is frequently omitted and a crop rotation will likely include sugar beets and/or sunflower, the region's chief crops.

6. **Wheat production**

   Wheat is grown throughout the country, but central and south-central Ukraine are the key production zones. About 95 percent of Ukraine wheat is winter wheat, planted in the fall and harvested during July and August of the following year. On the average, approximately 15 percent of fall-planted crops fail to survive the winter. The amount of winterkill varies widely from year to year, from 2 percent in 1990 to a staggering 65 percent in 2003, when a persistent ice crust smothered the crop. Due to a unique combination of favorable weather and a modest but steady improvement in the financial condition of many farms, wheat production has rebounded in recent years.

7. **Synthetic fertilizers**

   Synthetic fertilizers are water-soluble and can be taken up by the plant almost immediately. In fact applying too much synthetic fertilizer can "burn" foliage and damage most vulnerable plants. Because synthetic fertilizers are highly water-soluble, they can also leach out into streams and ponds. Synthetic fertilizers do have some advantages in early spring. Because they are water-soluble, they are available to plants even when the soil is still cold and soil microbes are inactive.

For this reason, some organically-based fertilizers also contain small amounts of synthetic fertilizers to ensure the availability of nutrients.

8. **Organic fertilizers**

In general, the nutrients in organic fertilizers are not water-soluble and are released to the plants slowly over a period of months or even years. For this reason, organic fertilizers are best applied in the fall so the nutrients will be available in the spring. These organic fertilizers stimulate beneficial soil microorganisms and improve the structure of the soil. Soil microbes play an important role in converting organic fertilizers into soluble nutrients that can be absorbed by your plants. In most cases, organic fertilizers and compost will provide all the secondary and micronutrients most plants need.

9. **Nanotechnologies in agriculture**

Agricultural systems can make excellent use of nanotech-enabled "smart" devices that can perform a dual role of being a preventive and early warning system. These devices can identify plant related health issues even before they become visible to the farmers. Nanotechnology will play a vital role in the development of the agricultural sector, being used in agricultural products that protect plants and monitor plant growth and detect diseases. Scientists have been working towards exploring new applications of nanotechnology in agriculture and the food industry - if these discoveries are applied sensibly, the environment, the agricultural sector and the food industry will see changes for the better in the coming years.

10. **Advances in field machinery**

Today, modern harvesters and planters may do a better job than their predecessors, the combines of today, cuts, threshes, and grain separators in essentially the same way earlier versions had done. However, technology is changing the way that humans operate the machines, as computer monitoring systems, GPS locators, and self-steer programs allow the most advanced tractors and implements to be more precise and less wasteful in the use of fuel, seed, or fertilizer. In the foreseeable future, some agricultural machines may be made capable of driving themselves, using GPS maps and electronic sensors. The new areas of nanotechnology and genetic engineering are more advanced, where submicroscopic devices and biological processes, respectively, may be used to perform agricultural tasks in unusual new ways.

11. **Renewable energy in agriculture**

Wind, solar, and biomass energy can be harvested forever, providing farmers with a long-term source of income. Renewable energy can be used on the farm to replace other fuels. Wind energy alone could provide 80,000 new jobs and $1.2 billion in new income for farmers and rural landowners by 2020, according to the U.S. Department of Energy. Renewable energy can also help reduce pollution, global warming, and dependence on imported fuels. Farms have long used wind power to pump water and generate electricity. Recently, wind developers have installed large wind turbines on farms and ranches in a number of states to provide power to electric companies and consumers. Farmers can plant crops and graze livestock right to the turbine's base. Some farmers have also purchased wind turbines; others are starting to form wind power cooperatives.

12. Gene engineering in biotechnology

Traditionally experiments in gene engineering refer to the field of biotechnology. The construction technology of recombinant DNA is the most important achievement of the biotechnology. The agricultural, possibilities of such techniques are almost as exciting. For example, it may become possible to transfer the nitrogen-fixing genes of certain bacteria to plants such as cereals which are unable to fix nitrogen. Should this prove possible, the savings in terms of fertilizer and improved soil fertility would be enormous. Similarly of there is the prospect of transferring to a number of different crops civic genes responsible for improved yield or pest resistance.

13. Sustainable agriculture techniques

Sustainable agriculture provides high yields without undermining the natural systems and resources that productivity depends on. Farmers should take a sustainable approach work efficiently with natural processes, use the best of current knowledge and technology to avoid the consequences of industrial, chemical-based agriculture. One important result is that farmers are able to minimize their use of pesticides and fertilizers, thereby saving money and protecting future productivity, as well as the environment. The most common sustainable agriculture techniques employed by farmers today are aimed to achieve the key goals of weed, pest, disease, erosion control and high soil quality.

14. Wind power in Ukraine

Only in the 1980’s did wind turbine development become a priority in Ukraine. The first steps were taken in Kiev, by scientists from the Kiev Polytechnic Institute and the Institute of Electrodynamics of the National Academy of

Sciences of Ukraine. Several prototypes of small windmills of up to 20 kW in capacity were constructed. In the latter part of the 1980's, in the design bureau "Yuzhnoe", 200 kW, 250 kW, and, later, 500 kW wind turbines were developed. Construction of commercial windmills started in 1992 at pilot windpower plants using Ukrainian designed wind turbines as well as turbines produced under license from USA. There is great potential for wind power energy in Ukraine. If, for instance, the 2,700 sq.km. of shallow waters in the Black and Asov Seas were used for wind turbines, this would cover the entire electricity consumption of Ukraine.

15. Application of fertilizers

Fertilizers have prime importance in today's agriculture as they provide necessary nutrients to the crops. Application of fertilizer unwisely can lead to negative consequences and desirable results may not be achieved. Integrated nutrient management is the approach in which fertilizers are applied in such a way that it may enhance the crop productivity without compromising environment as well as crop health. Among different types of essential nutrients supplied to the rice plants through fertilization, phosphorous has key position, as it is involved in many vital functions of the plant.

IV. Translate the following passages and note them using one of five basic note-taking methods: the Outline method, the Cornell method, the Boxing method, the Charting method and the Mapping method:

Text 1 ***Optical fibers***

Just as optical fibers have transformed communication, they are also revolutionizing medicine. These ultra-thin, flexible fibers have opened a window into the living tissues of the body. By inserting optical fibers through natural openings or small incisions and threading them along the body's established pathways, physicians can look into the lungs, intestines, heart, and other areas that were formerly inaccessible to them.

The basic fiber-optics system is called a fiberscope, which consists of two bundles of fibers. One, the illuminating bundle, carries light to the tissues. It is coupled to a high-intensity light source. Light enters the cores of the high purity silicon glass and travels along the fibers. A lens at the end of the bundle collects the light and focuses it into the other bundle. Optical fibers can also be used to deliver laser light. By use of laser beams, physicians can perform surgery inside the body, sometimes eliminating the need for invasive procedures in which healthy tissue must be cut through to reach the sight of disease. Many of these procedures do not require anesthesia and can be performed in a physician's office. These techniques have reduced the risk and the cost of medical care.

Text 2 ***Perspectives of further nuclear power usage***

Because geologists have long indicated that fossil fuels will not last indefinitely, the U.S. government finally acknowledged that sooner or later other energy sources would be needed and, as a result, turned its attention to nuclear power. It was anticipated that nuclear power plants could supply electricity in such large amounts and so inexpensively that they would be integrated into an economy in which electricity would take over virtually all fuel-generating functions at nominal costs. Thus, the government subsidized the promotion of commercial nuclear power plants and authorized their construction by utility companies. In the early 1970s, the public accepted the notion of electricity being generated by nuclear reactors, and the Nuclear Regulatory Commission proceeded with plans for numerous power plants in or near residential areas. By 1975, 54 plants were fully operational, supplying 11 percent of the nation's electricity, and another 167 plants were at various stages of planning and

construction. Experts predict that by 2020 24 nuclear power plants in the nation will be in operation, generating about 18 percent of the nation's electricity.

Text 3 ***Antiseptics***

Antiseptics are applied directly to affected areas to prevent or halt infections by destroying bacteria. Other terms used for antiseptic are disinfectant and germicide. Numerous chemicals have antiseptic qualities. Soap is easily the most prevalent and least expensive antiseptic chemical. The salts of mercury and silver, as well as chemicals containing chlorine and alcohol, interfere and disrupt their life-sustaining processes. Although there is no consensus on precisely how antibiotics affect bacteria, biochemists hypothesize that they prevent bacteria from consuming the substances they need to multiply. Over time, because of their ability to mutate, bacteria cells find new means to metabolize food and acquire resistance to the antibiotics. To preclude this from happening, physicians often begin treatment of infection with several strands of antibiotics simultaneously. An additional complication may arise if each bacterium species should be treated with a specific antibiotic or if a patient develops sensitivity to a particular strand. Occasionally, antibiotics are prescribed not for prevention of disease. In the long-term treatment of rheumatic heart disease, penicillin may be ingested to prevent infection.

Text 4 ***Apiculture***

Organic beekeeping production methods in the Ukraine are established, similar to the principles in organic agriculture. All organic apiaries should have a veterinary-sanitary passport in which all results of laboratory investigations of brood, honey residues (different drugs and pesticides) are indicated. For monitoring of the environment, honey and bee pollen are tested regularly for heavy metals and pesticide residues. This monitoring system gives the possibility to select bee farms that are placed in a clean environment, producing non contaminated honey and other bee products. Methods for improving the bees' immunity and their hygienic behaviour have been developed. Artificial combs to guarantee sterility and purity are also produced. Disease treatments with natural and organic substances (thymol, menthol, oxalic acid, natural plants) while suitable technological methods and bee selection guarantee optimal bee health. The organic beekeeping methods should be at least as effective as the conventional ones. Organic beekeeping in the Ukraine is at the beginning but it has a big potential: Ukraine produces about 70,000 tons per year and is one of the leading world honey producers.

Text 5 ***Agriculture of Great Britain***

For the period of latest decades Great Britain's agriculture saw a significant increase in scientific and technical level and profitability of agro-industrial complex. Countries support kites at the cost of local resources (the growth since postwar time rose from 1/3 to 4/5); a full self-sufficiency is reached by such products as milk, a high self-sufficiency have eggs, poultry, wheat, oats, barley, and potato; imported are fruits, butter, sugar, and cheeses. Due to conditions occurred in the EU imported goods cost more as compared to opportunities of foodstuffs import from the former colonies; this creates continuous controversies between Great Britain and other members of the UE. The British agriculture is nowadays one of the most efficient and mechanized in the world. The share of employment in the field amounts 2% of the total employment in the country. The total area of farmlands is 58.3 mln ha (76% of the total area of the country). Animal husbandry prevails in the structure of agricultural production. Developed are dairy and beef cattle breeding, pig husbandry, beef, sheep and poultry husbandry for meat. Great Britain is one of the largest suppliers of sheep wool.

Text 6 ***Peculiarities of the British farming***

Traditionally, animal husbandry in the UK is concentrated in river basins. Nearly 60% of tillage in crop husbandry is occupied by permanent grasses, more than 28% – by cereal crops (including wheat – 15%, barley – 11%), 12% – by industrial crops (rapeseed, sugar beet, flax) and feeding crops (including potato), and also by vegetable gardens and small-fruit crops. The main crop-producing areas are East England and the Southeast. There are many fruit gardens in Great Britain. Agriculture uses generous government support and receives donations from the EU budget. Production volumes exceed the volumes of consumption by such products as wheat, barley, oats, and pork; production volumes are lower than the volume of consumption by such products as potato, beef, mutton, wool, sugar and eggs. Therefore, Great Britain has to import many of the necessary products. The country 45 imports 4/5 of butter, 2/3 of sugar, a half of wheat and bacon, ¼ of beef and veal consumed in the country. The country occupies sixth place among EU members in terms of agricultural production volume. The area of farmlands in use as of June 2007 amounted to 17.4 mln ha, which makes nearly 77% of the countries area.

Text 7 ***Feeding the planet– environmental protection through sustainable agriculture***

Nearly one billion people suffer from hunger or malnutrition. Millions of them die each year of starvation or illness, and yet the human population increases steadily. Agricultural productivity stagnates – especially in areas where hunger prevails – due to soil degradation, desertification, dwindling water resources, local or global climate change and competing interests in the use of cultivated land. Well-fed populations in industrialized countries are particularly called upon to act rapidly by changing our attitude towards nature as well as our own species. Absolute priority must be given to the preservation of a diversified and viable biosphere for all living creatures, including ourselves. The sustainable securing of food for all humans requires is strongly required today. Qualitative progress must prioritize agricultural practices and the overall lifestyle to combine efficient food production with a greatly reduced environmental impact. Agricultural productivity can be significantly enhanced, particularly in developing countries, through improvements in farming technology, crop plant breeding, and the socio-political, economic and infrastructural conditions.

Text 8 ***Ukraine: an agricultural overview***

Ukrainian agriculture has been evolving since it achieved independence in 1991, following the breakup of the Soviet Union. State and collective farms were officially dismantled in 2000. Farm property was divided among the farm workers in the form of land shares and most new shareholders leased their land back to newly-formed private agricultural associations. The sudden loss of State agricultural subsidies had an enormous effect on every aspect of Ukrainian agriculture. The contraction in livestock inventories that had begun in the late 1980's continued and intensified. Fertilizer use fell by 85 percent over a ten-year period, and grain production by 50 percent. Farms were forced to cope with fleets of aging, inefficient machinery because no funds were available for capital investment. At the same time, however, the emergence from the Soviet-style command economy enabled farmers to make increasingly market-based decisions regarding crop selection and management, which contributed to increased efficiency in both the livestock and crop-production sectors. Difficulty in obtaining credit, especially large, long-term loans, remains a significant problem for many farms.

Text 9 ***Crop Rotations***

Farms in Ukraine employ a variety of crop-rotation schemes, some including four or more crops, some only two. A six-year crop rotation in the winter grain region will often include two consecutive years of wheat and one season of "clean fallow," during which no crop is sown. The chief reason for including fallow in the rotation is to replenish soil-moisture reserves, and it is more widely used in southern eastern Ukraine where drought is not uncommon. A typical crop sequence might be: fallow, winter wheat, sunflowers, spring barley, and corn. Wheat almost always follows fallow. According to farm directors, this enables the wheat - which is typically the priority crop - to benefit from the reduced weed infestation. (Fields are cultivated several times during the fallow season.). Some crop rotations include several consecutive years of a forage crop. An example of such a rotation would be: fallow, two years of winter wheat, and four years of perennial forage. The perennial forage is usually alfalfa; farmers will get three to four cuttings per year, five if the crop is irrigated. In southern Ukraine, clean fallow is frequently omitted and a crop rotation will likely include sugar beets and/or sunflower, the region's chief crops.

Text 10 ***Wheat cultivation in Ukraine***

Wheat is grown throughout the country, but central and south-central Ukraine are the key production zones. About 95 percent of Ukraine wheat is winter wheat, planted in the fall and harvested during July and August of the following year. On the average, approximately 15 percent of fall-planted crops fail to survive the winter. The amount of winterkill varies widely from year to year, from 2 percent in 1990 to a staggering 65 percent in 2003, when a persistent ice crust smothered the crop. Due to a unique combination of favorable weather and a modest but steady improvement in the financial condition of many farms, wheat production has rebounded in recent years (except for the disastrous 2003/04 crop which fell victim to unusually severe winter weather). Ukraine produces chiefly hard red winter wheat (bread wheat), and in a typical year roughly 80 percent of domestic wheat output is considered milling quality, by Ukrainian standards. Feed consumption of wheat dropped sharply during the 1990's, from over 12 million tons to less than 5 million. Meanwhile, food consumption has remained steady at around 10 million tons.

Text 11 ***Protection of vulnerable agricultural areas in the Netherlands***

Agriculture in the Netherlands is a critical industry, in terms of both its share of available land and its importance to the Dutch economy. Cultural-technical improvements and intensification of land use have resulted in increased productivity, but have also threatened vulnerable and valuable natural habitats and landscapes. The *Relatienota*, a government report issued in 1975, introduced an environmental policy implemented by regulation in 1983 and 1988. Under this policy, *Relatienota* areas (management areas and reserves) are established. Farmers in management areas voluntarily enter private contracts (management agreements) with the government, in which they promise to tailor agricultural production to nature and landscape conservation. By compensating farmers for activities that maintain existing natural conditions, management agreements provide the incentive for extraordinary efforts to protect agricultural environments for valuable plant and animal species. Particularly sensitive natural areas, where environmental values are incompatible with economic farming, are identified as reserves, and the land is purchased for specialized management.

Text 12 ***Recycling***

Every year, millions of tons of materials are being exploited from the earth's crust, and processed into consumer and capital goods. After decades to centuries, most of these materials are "lost". With the exception of some pieces of art or religious relics, they are no longer engaged in the consumption process. Recycling is only an intermediate solution for such materials, although it does prolong the residence time in the anthroposphere. Recycling is a process to convert waste materials into reusable material to prevent waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage, reduce air pollution and water pollution by reducing the need for "conventional" waste disposal and lower greenhouse gas emissions as compared to plastic production. Recyclable materials include many kinds of glass, paper, metal, plastic, tires, textiles and electronics. The composting or other reuse of biodegradable waste—such as food or garden waste—is also considered recycling. Materials to be recycled are either brought to a collection centre or picked up from the curbside, then sorted, cleaned and reprocessed into new materials destined for manufacturing.

Text 13 ***Ecological education in Ukraine***

A principle according to which the ecological safety becomes a significant element and component of natural safety of the state is in the basis of the formation of the state ecological policy. The Ministry of the Environment and Natural Resources of Ukraine provides an implementation of the state policy in the field of nature protection and rational use of natural resources.

Awareness-raising and training in the field of ecology, and the development of a cultural and integral ecological outlook is a decisive factor in overcoming the present global ecological crisis. Therefore ecological education is one of the priority areas of the state policy.

For many years there was no efficient system of ecological education in Ukraine which could form a basis for such training and education without essential changes. The system required has been developed and improved by experienced experts. Scientists and teachers are highly qualified in the field of sustainable ecological development, medical ecology, military ecology, methodology and matters of ecological education, ecological ethics and psychology, education and control, etc. Moreover, a group of specialists have prepared the Conception of Ecological Education Development in Ukraine.

Text 14 ***Ecological awareness-raising***

Awareness-raising and training in the field of ecology, and the development of a cultural and integral ecological outlook is a decisive factor in overcoming the present global ecological crisis. Therefore ecological education is one of the priority areas of the state policy. The system of ecological training and education existing in Ukraine has to be improved as to its efficiency and integration on the basis of a deep philosophical and psychological-pedagogical comprehension of the problem with regard for the social-cultural functions of ecology in the society, and an integral system of ecological knowledge. Also taken into consideration must be the traditions, rites and historical experience of the Ukrainian people in this sphere as well as the peculiarities of the ecological and economic situation in the country. It is coexistence which should serve as a key principle in cooperation between human society and nature, and not excessive consumption and violence. The single efficient system of ecological training and education in Ukraine has been developed and improved based on the experience of development experts and the national peculiarities of the country.

Text 15 ***Synthetic and organic fertilizers***

In general, the nutrients in organic fertilizers are not water-soluble and are released to the plants slowly over a period of months or even years. For this reason, organic fertilizers are best applied in the fall so the nutrients will be available in the spring. These organic fertilizers stimulate beneficial soil microorganisms and improve the structure of the soil. Soil microbes play an important role in converting organic fertilizers into soluble nutrients that can be absorbed by your plants. In most cases, organic fertilizers and compost will provide all the secondary and micronutrients most plants need. Synthetic fertilizers are water-soluble and can be taken up by the plant almost immediately. In fact applying too much synthetic fertilizer can "burn" foliage and damage most vulnerable plants. Because synthetic fertilizers are highly water-soluble, they can also leach out into streams and ponds. Synthetic fertilizers do have some advantages in early spring. Because they are water-soluble, they are available to plants even when the soil is still cold and soil microbes are inactive. For this reason, some organically-based fertilizers also contain small amounts of synthetic fertilizers to ensure the availability of nutrients.

Text 16 ***Chicken Breeding Methods***

Backyard chicken owners tend to prefer the flock chicken breeding methods and often have just one rooster, but there are benefits to breeding in pairs or trios, as well. Pair and trio mating require housing the best hens and roosters away from the others. This allows a much more controlled mating environment making selective breeding possible. Chicken breeding methods using a flock involve housing a group of hens with one rooster for every 12 hens. This requires much less space or divisions of space than small groups. Sometimes several roosters may not get along unless raised together. Raising and keeping roosters housed in bachelor groups, away from hens when not breeding, may cut down on rooster aggression. With 12 hens for every rooster there should be little to fight about and will ensure less stress on each hen. The roosters will divide their attention to all available hens. If you are trying to carefully watch the genetics of your chickens this may not be the best idea. For those who simply want more chicks the flock method may be ideal. This could involve an incubator and brooder.

Text 17 ***Phytoremediation of soil***

Phytoremediation refers to the technologies that use living plants to clean up soil, air, and water contaminated with hazardous chemicals. Phytoremediation of soil falls into three types:

-Phytoremediation of soil metal

-Phytoremediation of soil contaminated with low concentrations of radionuclides

-Phytoremediation of Soil Contaminated with Used Motor Oil.

The phytoremediation of metal-contaminated soils offers a low-cost method for soil remediation and some extracted metals may be recycled for value. Both the phytoextraction of metals and the phytovolatilization of Se or Hg by plants offer great promise for commercial development. Natural metal hyperaccumulator phenotype is much more important than high-yield ability when using plants to remove metals from soils. One approach is to use fast growing plants inoculated with mycorrhizal fungi combined with soil organic amendments to maximize the plant accumulation and removal of radionuclides from contaminated soils, followed by harvest of above-ground portion of the plants. Plants are proposed as a cost effective method to remove radionuclides from the soils that have been contaminated by nuclear testing and nuclear reactor accidents.

Text 18 ***Nanotechnology in agriculture***

There are many regulatory restrictions placed on pesticides in agriculture today. Pesticides such as DDT have increased public and regulatory awareness of the use of chemicals in farming, shifting the industry's focus on to the use of integrated pest management systems. These agricultural systems can make excellent use of nanotech-enabled "smart" devices that can perform a dual role of being a preventive and early warning system. These devices can identify plant related health issues even before they become visible to the farmers. User-friendly and eco-friendly delivery systems for nutrients and pesticides have started to find their place in the market. These can allow the use of pesticides with the absolute minimum risk of environmental damage. Nanotechnology will play a vital role in the development of the agricultural sector, being used in agricultural products that protect plants and monitor plant growth and detect diseases. Scientists have been working towards exploring new applications of nanotechnology in agriculture and the food industry - if these discoveries are applied sensibly, the environment, the agricultural sector and the food industry will see changes for the better in the coming years.

Text 19 ***Advances in field machinery***

The basic technology of agricultural machines has changed little through the last century. Though modern harvesters and planters may do a better job than their predecessors, the combines of today, cuts, threshes, and grain separators in essentially the same way earlier versions had done. However, technology is changing the way that humans operate the machines, as computer monitoring systems, GPS locators, and self-steer programs allow the most advanced tractors and implements to be more precise and less wasteful in the use of fuel, seed, or fertilizer. In the foreseable future, some agricultural machines may be made capable of driving themselves, using GPS maps and electronic sensors. The new areas of nanotechnology and genetic engineering are more advanced, where submicroscopic devices and biological processes, respectively, may be used to perform agricultural tasks in unusual new ways.

Vehicles have been adapted for use in farming, including trucks, airplanes, and helicopters, such as for transporting crops and making equipment mobile, to aerial spraying and livestock herd management. Many farmers are upset by their inability to fix the new types of high-tech farm equipment themselves.

Text 20 ***Selective breeding***

Selective breeding (also called artificial selection) is the process by which humans use animal breeding and plant breeding to selectively develop particular phenotypic traits (characteristics) by choosing which typically animal or plant males and females will sexually reproduce and have offspring together. Domesticated animals are known as breeds, normally bred by a professional breeder, while domesticated plants are known as varieties, cultigens, or cultivars. Two purebred animals of different breeds produce a crossbreed, and crossbred plants are called hybrids. There are two approaches or types of artificial selection, or selective breeding. First is the traditional "breeder's approach" in which the breeder or experimenter applies "a known amount of selection to a single phenotypic trait" by examining the chosen trait and choosing to breed only those that exhibit higher or "extreme values" of that trait. The second is called "controlled natural selection," which is essentially natural selection in a controlled environment. In this, the breeder does not choose which individuals being tested "survive or reproduce," as he or she could in the traditional approach.

Text 21 ***Renewable Energy and Agriculture: A Natural Fit***

Many farmers already produce renewable energy by growing corn to make ethanol. An increasing number of farmers and ranchers are now adding to their incomes by harvesting the wind that blows across their land to make electricity. Renewable energy and farming are a winning combination. Wind, solar, and biomass energy can be harvested forever, providing farmers with a long-term source of income. Renewable energy can be used on the farm to replace other fuels. Wind energy alone could provide 80,000 new jobs and $1.2 billion in new income for farmers and rural landowners by 2020, according to the U.S. Department of Energy. Renewable energy can also help reduce pollution, global warming, and dependence on imported fuels. Farms have long used wind power to pump water and generate electricity. Recently, wind developers have installed large wind turbines on farms and ranches in a number of states to provide power to electric companies and consumers. Where there are strong winds, developers may pay as much as $2,000 to $5,000 per year for each turbine installed. Farmers can plant crops and graze livestock right to the turbine's base. Some farmers have also purchased wind turbines; others are starting to form wind power cooperatives.

Text 22 ***Improving rice performance***

Pakistan has 4th position among rice producing countries of the world after China, India and Indonesia. In addition to domestic use of rice grain, rice is also exported by Pakistan making it 2nd most important source of foreign exchange. Rice is grown on about 10% of total cultivated area of Pakistan. In Pakistan, actual yield of rice crop is far less than the potential yield that can be attributed to many factors including: low plant population, soils poor in organic matter, low fertilizer use efficiency, poor management of insects-pests and post harvest losses due to poor management. Fertilizers have prime importance in today's agriculture as they provide necessary nutrients to the crops. Application of fertilizer unwisely can lead to negative consequences and desirable results may not be achieved. Integrated nutrient management is the approach in which fertilizers are applied in such a way that it may enhance the crop productivity without compromising environment as well as crop health. Among different types of essential nutrients supplied to the rice plants through fertilization, phosphorous has key position, as it is involved in many vital functions of the plant.

Text 23 ***Fertilizers production in Ukraine***

Ukraine is one of the world leaders in fertilizers production, specializing in nitrogen fertilizers. Ukraine's share on the global mineral fertilizer market is 8%. There are 8 big mineral fertilizer producers; 6 of them specialize in production of nitrogen fertilizers and form a foundation of Ukrainian chemical export: plants from Horlivka and Odesa possess around 24% of production; Cherkasy, Dniprodzerzinsk - about 22% and Severodonetsk - up to 10%. Annually they produce only 3, 6 million tons of urea. Some part of this urea is sold internally, i.e. on Ukrainian domestic market. Currently, Ukraine exports about 280.000 tons of urea and 130.000 tons of ammonia nitrate per month. It is estimated then the projected volume of domestic mineral fertilizers market will double by 2017.The largest share of the Ukrainian market of mineral fertilizers belongs to ammonium nitrate. In total consumption of fertilizers its share is 45 to 50%. In 2014, the Ukrainian market of ammonium nitrate decreased to 1 535 000 tons. The main reason was the reduction of nitrate production by 34% due to the outage of Severodonetsk Azot and Styrol plants, as well as decrease of the load of Rivne Azot plant in June and July 2016.

Text 24 ***Ammonium nitrate based fertilizers: an economical overview***

In 2015, the market volume of ammonium nitrate increased by 1,7-1,75 million tons. This became possible through increased volumes of Ukrainian production and reduced prices for ammonium nitrate. Despite the economic crisis, the need for classical nitrate remains stable. Small and medium-sized farms are going to be the main consumers of ammonium nitrate. A cheaper alternative to ammonium nitrate is ammonium sulfate. The excess of acidity is compensated by the lowest price among the other solid nitrogenous fertilizers and the availability of easily digestible form of sulfur. In 2014, there was a jump in the consumption of ammonium sulfate (+77%). The market volume reached 188 000 tons; one of the factors for such success was the deficit of nitrate. As in 2015 the production of nitrate increased, the demand for ammonium sulfate reduced slightly but remained at the level of 160-180 thousand tons. The biggest share of ammonium sulfate is supplied to Ukraine by independent importers. The second largest consumable fertilizer in Ukraine is NPK (a complex fertilizer of different formulas). Considering that the Sumykhimprom plant has successfully introduced these brands, the growth of domestic consumption of NPK in Ukraine by 63% is natural.

Text 25 ***Sugar beet cultivation***

In Ukrainian agronomy sector sugar beet cultivation is one of the most significant priority directions. Despite being a technical crop, in is planted on the vast areas. The sugar beet is a two-year plant. It forms a well-developed tuber. The seeds absorb much moisture at the germination time. The sugar-beet seeds must be sown into the plowed soil. The seeds sprout at the temperature of 3—4 degrees over zero. If the soil is enough humid and warms up to 18 degrees over zero, the sugar-beet shoots will germinate in 7—8 days. It's very important to reduce the term between the sowing and the germination of shoots. Shoots absorb the nutrient substances of seeds before they sprout. First leaves appear in ten days. Leaves start growing very quickly. The sugar beet yield depends upon the moisture quantity especially in July and August. Sugar-beets need a sufficient amount of the nutrient substances in the ground. The fertilizing system requires a sufficient fertilization in three terms: the principal fertilizer is applied in autumn. At the sowing time we apply the row fertilizers. And at the vegetation time the sugar beets need some nutrition. That's why sugar-beets are very high- 133 yield on the fertile soil.

Text 26 ***Growing and harvesting of sugar beets***

Thanked to the wonders of genetics and selection today there are plenty of varieties of sugar beets. Today advances in gene engineering allow improving disease resistance, sugar percentage and general performance on the crop. In some countries they are the basis of economy. Sugar-beets are cultivated on the loamy soils and grey forest soils. It is low-yield on the clay soils. Sugar-beets occupy the second place in the range of plants after wheat. A regular range of plants and a proper ploughing ensure high and stable yield of sugar-beets. The highest yield of sugar-beets with the biggest sugar amount is harvested at the period of the growth cessation. Too early and too late terms of harvesting cause the yield loss.

Generally the tuber amount increases in August and September. Simultaneously the sugar amount increases up to 2,2 %. Sugar-beets are mostly harvested with the help of the special equipment. There are three ways of harvesting: flow, roll and mixed harvesting. The sugar-beet top is cut simultaneously. Sugar-beet combines dig tubers. In order to get rid of sugar- beet losses, it's necessary to adjust all the combine mechanisms taking into account the soil humidity, the top height and the tuber size.

Text 27 ***Selection of agricultural crops***

Selection is an important direction of agronomy. For a long time plant-breeders have been breeding new varieties of drought-resistant grain crops and other agricultural plants which are resistant to the unfavorable climatic and weather conditions. At the same time they are characterized by high yield productivity. The agricultural biotechnology is of the greatest importance. It should create the new highly productive varieties and hybrids of the agricultural plants, biological means of the plant protection, different preparations and the ways of the waste recovery. Thanks to the cell engineering the researchers have bred an antivirus substance for different potatoes varieties. They have been breeding new varieties and hybrids of grain crops, fruits and vegetables. They breed seeds of sugar beets in the form of seedlings. Later they are ready for the further sowing in the granule form. The biotechnology is based on the fact that a celled organism is fully preserved by a gene of the previous type. Nowadays equipped laboratories carry out R α D programs to find out more in terms of feasibility of further experiments in the fields of genetics and selection.

Text 28 ***Gene engineering***

Traditionally experiments in gene engineering refer to the field of biotechnology. The construction technology of recombinant DNA is the most important achievement of the biotechnology. The agricultural, possibilities of such techniques are almost as exciting. For example, it may become possible to transfer the nitrogen-fixing genes of certain bacteria to plants such as cereals which are unable to fix nitrogen. Should this prove possible, the savings in terms of fertilizer and improved soil fertility would be enormous. Similarly of there is the prospect of transferring to a number of different crops civic genes responsible for improved yield or pest resistance. The plant cells are able to divide without any limit. It's necessary to keep the cell sterility and that's why special utensils are used. The cell amount for the cultivation is provided with the help of the plant organs processing. Their cultivation is provided into separate cells. They are put on the nutrient environment. The gene engineering is based on the molecular biology. It gives the possibility of inserting changes into the molecular interaction of the principal molecules inside the cell and outside it.

Text 29 ***Crop Rotation***

Crop rotation is one of the most powerful techniques of sustainable agriculture, and avoids the unintended consequences of putting the same plants in the same soil year after year. It is a key element of the permanent and effective solution to pest problems because many pests have preferences for specific crops, and continuous growth of the same crop guarantees them a steady food supply, so that populations increase. For example, right now European corn borers are often a significant pest in the United States because most corn is grown in continuous cultivation or in two-year rotations with soybeans. Four- or five-year rotations would control not only corn borers, but many other corn pests as well. In fact, rotation reduces pest pressure on all the crops in the rotation by breaking the pest reproductive cycles. In rotations, farmers can also plant crops, like soybeans and other legumes that replenish plant nutrients, reducing the need for chemical fertilizers. For instance, corn grown in a field previously used to grow soybeans needs less added nitrogen to produce high yields. The importance of crop rotation as a defense against pest infestations should be a key part of any discussion about growing crops for bioenergetics.

Text 30 ***Sustainable Agriculture Techniques***

Sustainable agriculture provides high yields without undermining the natural systems and resources that productivity depends on. Farmers should take a sustainable approach work efficiently with natural processes, use the best of current knowledge and technology to avoid the consequences of industrial, chemical-based agriculture. One important result is that farmers are able to minimize their use of pesticides and fertilizers, thereby saving money and protecting future productivity, as well as the environment. Below are some of the most common sustainable agriculture techniques employed by farmers today to achieve the key goals of weed, pest, disease, erosion control and high soil quality. Many farmers also take advantage of the benefits of having plants growing in the soil at all times, rather than leaving the ground bare between cropping periods, which produces unintended problems. The planting of cover crops such as hairy vetch, clover, or oats helps farmers to prevent soil erosion, suppress weeds and enhance soil quality. Using appropriate cover crops is worth the extra effort because it reduces the need for chemical inputs like herbicides, insecticides, and fertilizers.

Text 31 ***Biointensive Integrated Pest Management***

Nowadays sustainable farming spreads wider. Developed countries all over the world have outlined the directions for achieving Sustainable Development Goals. In this respect understanding a farm as an ecosystem rather than a factory offers exciting opportunities for effective pest control. For example, many birds, insects, and spiders are natural predators of agricultural pests. Managing farms so that they harbor populations of pest predators is a sophisticated and effective pest-control technique. One of the unfortunate consequences of intensive use of chemical pesticides is the indiscriminate killing of birds, bats, and other pest predators. One of the most promising technologies is the control of pests through integrated pest management (IPM). This approach relies to the greatest possible extent on biological rather than chemical measures, and emphasizes the prevention of pest problems with crop rotation; the reintroduction of natural, disease-fighting microbes into plants/soil, and release of beneficial organisms that prey on the pests. Once a particular pest problem is identified, responses include the use of sterile males, bio-control agents like ladybugs. Chemical pesticides are only used as a last resort.

Text 32 ***Wind Energy in Ukraine***

Only in the 1980's did wind turbine development become a priority in Ukraine. The first steps were taken in Kiev, by scientists from the Kiev Polytechnic Institute and the Institute of Electrodynamics of the National Academy of Sciences of Ukraine. Several prototypes of small windmills of up to 20 kW in capacity were constructed. In the latter part of the 1980's, in the design bureau "Yuzhnoe", 200 kW, 250 kW, and, later, 500 kW wind turbines were developed. Construction of commercial windmills started in 1992 at pilot wind-power plants using Ukrainian designed wind turbines as well as turbines produced under license from USA. There is great potential for wind power energy in Ukraine. If, for instance, the 2,700 sq.km. of shallow waters in the Black and Asov Seas were used for wind turbines, this would cover the entire electricity consumption of Ukraine. After the Chernobyl accident, several attempts were made to develop wind turbines in Ukraine. The most successful has been the joint venture Windenergo. It was created as a collaboration of a number of former military companies that have the necessary manufacturing facilities and a USA-based company, Kennetec Windpower.

Text 33 ***Combating dairy cattle disease***

A collaborative Michigan State University study involving microbiologists, epidemiologists, animal scientists, veterinarians, graduate students, undergraduates and farmers could lead to better prevention practices to limit dangerous *E. coli* bacteria transmissions. The study, published in *Applied and Environmental Microbiology*, a journal of the American Society for Microbiology, found that dairy cattle under stress from hot weather and energy loss from milk production were significantly more likely to shed Shiga toxin-producing *Escherichia coli* , or *STEC* -a type of *E. coli* that can cause serious illnesses in humans through the production of a potent toxin. Shedding is the process of expelling bacteria from the body, whether through the respiratory tract, the genital tract, or in the case of cattle, the intestinal tract through their feces. This new finding provides an opportunity for targeting prevention practices to reduce the prevalence of these potentially deadly strains of *E. coli*, which cause approximately 100,000 illnesses, 3,000 hospitalizations and 90 deaths annually in the USA. The study involved cattle farmers who were willing to be involved in projects that help to improve the safety and quality of the food they produce.

Text 34 ***Crop Failure and Fading Food Supplies: Climate Change's Lasting Impact***

As prolonged drought and extreme temperatures have taken their terrible toll on food crops in recent years, nations have tended to focus on regional episodes, such as a single drought-afflicted state or region. Now, scientists have assessed the global scale of food crop disasters for the first time — and the news is not good.

In a new study, researchers from Canada and the United Kingdom estimate that cereal harvests — including rice, wheat and maize — decreased by an average of 9 to10 percent during droughts and heat waves between 1964 and 2007, with the worst effects seen in North America, Europe, and Australia. Furthermore, the impact has grown larger in recent years. With climate change likely to exacerbate extreme weather and make it more common in the future, the study is perhaps the most comprehensive examination yet of the historic impact of extreme weather on global crop production. The researchers' work builds on an accumulating body of research and reports that consistently warn of the devastating effects extreme weather is having on agriculture: crop production losses varied by different regions of the world.

APPENDIX 1.

GLOSSARY OF TRANSLATION AND INTERPRETING TERMS

This glossary provides an explanation to many of the terms frequently used in connection with translation and interpreting. Whether you need to communicate effectively with translators or translation companies, or just want to know what Unicode or translation memory are all about, you'll find the answers here.

Accredited translator

In the UK a translator who has received accreditation from a professional institute such as the ITI. Accreditation – a requirement for association membership – is usually issued on the basis of examination and experience. The equivalent credential issued by the American ATA is Certified Translator.

Ad hoc interpreting

Spoken translation between two languages in informal conversations between two or more people. Used, for example in business meetings, for phone calls, during site visits and social events.

Adaptation

Modifying a text to make it suitable for a different purpose, target readership, region or country. Regional adaptation is a part of localization. In translation, the adaptation can be carried out, for example by the translator, an editor or a copywriter. Whether it is best to adapt the source text before translation or the translated target text depends on the situation.

Background text

Text in the source or target language providing background information about the subject matter of the text to be translated.

Background information

Information relating to the subject matter of the source text or the topic of discussion. Facilitates the translator's or interpreter's task by providing context, terminology, definitions, etc.

Back translation

A literal translation of a translation. Helps a translation consultant determine whether the original meaning has been preserved in the target language.

Bilingual

Someone with communicative skills in two languages. The term is often reserved for someone with native or near-native proficiency in two languages. Bilingualism is one of several required abilities of a translator or interpreter.

B language

A language that a translator or interpreter can speak, read and write almost as well as their native language (or » A language), and well enough to translate into as well as out of. (See also » C language)

Certified translation

A translation that has been reviewed by a translator or translation company and considered an accurate and correct reflection of the source text. To have legal status, certification must be performed by a sworn translator (in the UK) or before a notary public.

C language

A language that a translator or interpreter can read and understand well enough to translate **out of**, but cannot write or speak well enough to translate or interpret **into**. (See also: A language and B language.)

Computer-aided translation (CAT) , computer-assisted ~, machine-aided or -assisted

Translation with the aid of computer programs, such as translation memory, terminology management and » localization tools, designed to reduce the translator's workload and increase consistency of style and terminology. Not to be confused with machine translation!

Conference interpreter

Interpreter with highly specialized skills who provides simultaneous interpretation of a speakers words in one direction only from one language into another.

Consecutive interpreting

Oral translation of a speaker's words into another language when the speaker has finished speaking or pauses for interpreting. More formal than ad hoc interpreting and used, for example in formal business meetings, for negotiations, training sessions or lectures.

Controlled language

Language with a restricted vocabulary and restricted rules of formulation. Used, for example, in technical documentation to make the text easier to understand for users or for non-native speakers and to facilitate on.

Copywriting

Writing of advertising or publicity copy. It cannot be stressed too strongly that advertising copy will not translate satisfactorily due to the different cultural contexts and advertising cultures of other countries and regions. Adverts for foreign countries should therefore always be produced in those countries. There are some advertising agencies who provide this service.

Court interpreter

Interpreter with special subject knowledge, providing interpretation during legal proceedings.

Requirements regarding accreditation and certification for court interpreting vary from country to country.

Déjà Vu

Translation memory program, published by Atril.

Desktop publishing (DTP)

DTP is sometimes offered by translators and translation companies/agencies as a value-added service to provide a one-stop solution for customers' publishing needs. They will usually have the special equipment required to handle languages that use different typescripts.

Dominant language

Language of habitual use

Freelance translator

Self-employed translator, who may undertake work for translation agencies, localisation companies and/or directly for end clients. Often specializes in one or more particular fields, such as legal, financial, commercial or technical.

Free translation

1. Translation in which more emphasis is given to the overall meaning of the text than to the exact wording (cf. literal translation); 2. Translation completed free of charge. Offered by some translation companies – often online, and usually using machine translation programs. Can be used for gisting, but never of a sufficient quality for publication without comprehensive revision by a human translator.

Gisting

Producing a rough or outline translation of a text to provide an insight into the subject and overall content of the source text. Being less expensive and less time-consuming than a "proper" (or "custom") translation, gisting can be used, for example, to determine whether a text contains useful information before a custom translation is commissioned. The term gisting is sometimes used in connection with machine translation, which is used by some translation providers for that purpose.

Globalization

The process of developing and manufacturing products intended for worldwide distribution. Most commonly applied to software, but also used for websites and other publications and products, it covers two aspects: internationalization and localisation.

Glossary

An invaluable tool for the translator. Beside making use of the wealth of specialized mono- and multilingual online-glossaries on the Internet, most translators compile and maintain their own subject-, customer- and project-specific glossaries. Companies publishing documentation in

several languages can also benefit from maintaining multi-language glossaries of their own. This not only makes translators' work easier, but – by reducing the amount of terminology research required – speeds up subsequent translation projects. In addition, it ensures consistent and correct terminology usage in all languages. Some translators and most translation companies offer glossary compilation and maintenance, either as a separate service or as part of a translation agreement.

Inbound text

Text intended for internal use, generally not seen by people outside the originating organization. Includes internal correspondence, memos, work instructions, etc.

Internationalization

The process of designing or redesigning a product (e.g. software) to allow its localisation for other countries with a minimum of changes to its text content or program code. Internationalized software applications, for example, store their text in external resource files and use character encoding methods (such as Unicode) that support character sets for many different languages.

Interpreter

Provides oral (spoken) translation of a speaker's words from one language into another. (cf. translator)

Interpreting

The act of rendering spoken words from one language into another. (cf. translating; see also simultaneous interpreting, consecutive interpreting)

Keystroke

Often used as a measure of line or page length in defining the size of a translation job. Includes all visible characters as well as spaces and line breaks/paragraph marks. (See also standard line and standard page.)

Language Engineering

The Euromap Report, published in 1998 on behalf of the EUROMAP Consortium, defines language engineering as "the application of knowledge of written and spoken language to the development of systems able to recognize, understand, interpret, and generate human language". These language technologies include computer-aided translation, speech recognition and synthesis, as well as semantic searches and information retrieval.

Language of habitual use; similar: dominant language

The language that a person is most familiar with, usually the language spoken in the country in which the person lives. More appropriate than mother-tongue as a measure of a translator or interpreter's ability to work into the given language.

Language service provider (LSP)

Provider of translation and other language-related services that may include typesetting, publishing, project management, internationalization and language teaching (cf. translation company).

Liaison interpreter

Interpreter who provides – usually consecutive – interpretation between two languages in both directions. May be affiliated to the host company and act as facilitator in negotiations or undertake some PR activities.

Literal translation, transcription

Translation that closely adheres to the wording and construction of the source text. A literal translation of continuous text usually appears "stilted" and unnatural and is therefore to be avoided unless there is a specific reason for translating literally. (cf. free translation)

Literary translator

Translator specializing in the translation of literature, such as fiction, biographies and poetry.

Localisation , localization

The process of adapting a product (usually software, but also, for example, websites) to a specific locale, i.e. to the language, cultural norms, standards, laws and requirements of the target country.

Machine translation (MT)

1. Translation produced by a computer program; 2. Use of a translation program to translate text without human input in the actual translation process. The quality of machine-translated text, in terms of terminology, meaning and grammar, varies depending on the nature and complexity of the source text, but is never good enough for publication without extensive editing. Machine translation (usually using highly customized MT programs) is occasionally used by some translators and translation companies to assist them in their work, but rarely to translate entire documents. Some search engines interface with a translation program to provide translations of websites.

Mother-tongue

One's native language. Often used as an indicator of a translator or interpreter's ability to translate into a particular language. Because a person who has lived in another country for many years (perhaps from childhood) may be more fluent in their "new" language than they are in their original mother-tongue, the terms language of habitual use, dominant language and native language are often used instead.

Native-speaker competence

Oral and written command of a language equivalent to that of a person who not only learned the

language as a child and has continued to use it as his/her language of habitual use, but who also has had some language training.

Outbound text

Text intended for publication, i.e. for a readership outside the originating organization. Essentially designed to sell products and services. Includes PR articles, brochures, catalogues, advertising copy, etc.

Parallel text

Text in the source or target language that is comparable to the text to be translated in terms of subject matter or text type. Includes previous translations of the same type of text.

Plain English

A form of English that is clear, concise, direct, and natural. Advocated by an increasing number of people as a style of language that should be used by authors of technical texts – such as user manuals, legal documents, articles and speeches – plain English is easier and more enjoyable to read than legalese or texts laden with technical jargon and complex sentences for both experts and laypersons.

Proof-reading

Strictly, checking a proof before printing to ensure that no mistakes have been made in typesetting. The term is often used by translators in the sense of revising. When typesetting a translated text, it is advisable to let the translator who performed the translation proofread the typeset document, especially when the text is written in a language foreign to the typesetter.

Revising

Reading a text to identify errors, inconsistencies, incorrect grammar and punctuation, poor or inappropriate style, and, in the case of a translation, conformance with the source text, and making appropriate changes and corrections to the text. In general, the number of revision stages is proportional to the demands on the text quality: a translation intended for publication may, for example, be revised by the translator and by one or two third parties (e.g. the author, a subject expert, a second translator, an editor), whereas an internal memo may not require any revision after translation. (What exactly revising and editing entail and how they differ is the subject of much debate. What is important is that the person commissioning the work communicates clearly what is expected of the editor.)

Simplified English (SE)

A set of writing rules and a dictionary of controlled vocabulary aimed at improving the readability of technical documentation. Developed by the Association of European Airlines (AEA), it is also used to write texts for translation using machine translation tools.

Simultaneous interpreting

Oral translation of a speaker's words into another language while the speaker is speaking. The interpreter usually sits in a booth and uses audio equipment. (cf. consecutive interpreting)

Specialized language competence

Familiarity with the relevant subject matter and command of its special language conventions.

Standard line

A standard measure of the size of a text. The standard line length varies from country to country. In Germany, for example, it is usually 55 keystrokes, in Belgium 60. Translation projects are often priced on a per line basis.

Standard page , calibrated page

A standard measure of the size of a text, used esp. in the publishing industry and in literary translation. The standard page length may vary from country to country and depending on the sector, but is generally in the region of 1500 to 1800 keystrokes. Translation projects are sometimes priced on a per page basis, although – except in the case of literary translation – this practice is becoming less common, being replaced by the standard line.

Sworn translator

(In the UK) a translator who has taken an oath and can therefore produce certified translations.

Target audience

The group of people that an interpreter addresses. Used mostly in connection with simultaneous interpreting. Sometimes used (incorrectly) in the sense of target readership

Target readership

The group of people for which a text is translated, for example subject experts, novices, prospective customers. It is important to specify the target readership when commissioning a translation so that the translator can choose an appropriate style and vocabulary.

Terminology extraction (TE)

The creation of a corpus of monolingual or multilingual subject-specific terminology by extracting individual terms and phrases from a body of text.

Terminology extraction tool (TET)

A computer program that provides functions to assist with or automate the extraction of terminology from a body of text.

TermStar

Terminology program published by Star. A component of the Transit translation memory program, but also available as a separate product.

Text function

The function served by a text, e.g. to sell a product, to provide instruction on the use of a

product, to convey information about an event. It is important to specify the text function when commissioning a translation to so that the translator can choose an appropriate style and vocabulary.

Text type

Class of text (e.g. abstract, news report, light fiction, commentary) with specific characteristics of style, sentence formation, terminology, etc.

TMX

Standardized translation memory exchange format, designed to allow easier exchange of translation memory data between tools and/or translation vendors with little or no loss of critical data during the process. Supported by the latest versions of most leading translation memory programs.

Translating competence

Ability to render text into the target language correctly in terms of language, subject matter and idiomatic style, having regard to the text function of both the source text and the target text.

Translation agency

Provides translation and interpreting services, acting as middleman between customers and freelance translators. May offer value-added services such as typesetting, publishing, project management.

Translation company

Provides translation services using mainly in-house translators. May specialize in a particular field – such as legal, patents or technical – and may offer value-added services such as typesetting, publishing, project management. The term is often used synonymously with translation agency.

Translation Manager

1. Translation memory program published by IBM; 2. (Syn.: project manager) person in charge of managing a translation project. In large translation projects, the translation manager is responsible for liaising between customer and translators, coordinating the translation work (which may be carried out by several translators for each language), maintaining the terminology database, ensuring consistency of style and terminology, etc.

Translation memory (TM)

Computer-aided translation program that stores translated sentences (translation units or segments) with their respective source segments in a database (usually called the "memory"). For each new segment to be translated, the program scans the database for a previous source segment that matches the new segment exactly or approximately (fuzzy match)

and, if found, suggest the corresponding target segment as a possible translation. The translator can then accept, modify or reject the suggested translation.

Transliteration

Transforming text from one script to another, usually based on phonetic equivalences. For example, Russian text might be transliterated into the Latin script so that it can be pronounced by English speakers.

Unicode

Character encoding standard which, unlike ASCII, uses not 8 but 16 bit character encoding, making possible the representation of virtually all existing character sets (e.g. Latin, Cyrillic, Japanese, Chinese). The use of Unicode simplifies multiple language document and program creation. (See also internationalization.)

Voice-over , voiceover

Commentary in, e.g., a film, television programme, video, or commercial spoken by an unseen narrator. Foreign-language voice-over consists of two parts: translating the narrative, whereby, e.g., timing (coordinating the voice with the film sequence) is an important consideration; recording the voice-over, which may be performed by a linguist with special training and/or expertise or by an actor. Voice-over services are provided by some translators and translation agencies/companies.

Whispering, whispered interpreting

Similar to simultaneous interpreting, whereby the interpreter sits close to the listener and whispers the translation without technical aids.

Word count

A standard measure of the size of a text. Translation projects, for example, are often priced on a per-word (US) or per-1000-word (GB) basis.

APPENDIX 2.

SYMBOLS AND ABBREVIATIONS IN NOTE TAKING

Word	***Abbreviation***	**Word**	**Abbreviation**
Attorney	*atty*	State	*st*
Common Law	*C/l or cLaw*	Statute of Frauds	*SoF*
Consideration	*Cx*	Statute of Limitations	*SoL*
Constitution	*Con. Or C*	Strict Liability	*SL*
Contract	*K*	Summary Judgment	*sj*
Court	*ct*	Supreme Court of the US	*USSC*
Defendant	*D or Δ*	Amendment	*Am.*
Federal	*Fed*	Argument	*arg.*
General Rule	*Grule*	because	*b/c*
Jurisdiction	*jdx or juris*	between	*btw*
Marjoity Rule	*majR*	Government	*gov*
minority Rule	*minR*	President	*Pres*
Negligence	*Neg.*	Review	*rev*
Plaintiff	*P or π*	Standard	*Std.*
Standard of Review	*Sor*	without	w/out

Money Symbols and Codes

$	Dollar
€	Euro
£	Pound
₣	Franc
kr	Krone
¥	Yen, Yuan
₩	Won
₨	Indian Rupee
¢	Cent
¤	Currency (used when the correct sign is not available)

USD	United States Dollar
AUD	Australian Dollar
CAD	Canadian Dollar
NZD	New Zealand Dollar
SGD	Singapore Dollar
HKD	Hong Kong Dollar
TWD	New Taiwan Dollar
EUR	Euro
GBP	British Pound
CHF	Swiss Franc
DKK	Danish Krone
NOK	Norwegian Krone
JPY	Japanese Yen
CNY	Chinese Yuan
KRW	South Korean Won
INR	Indian Rupee

ABBREVIATIONS AND SYMBOLS FOR NOTE-TAKING

In order to listen effectively in your classes, you may want to abbreviate certain words tha are frequently used. Most people invent their own abbreviations; however, here are some suggestions.

1. Use only the syllable of a word

pol = politics
dem = democracy
lib = liberal
cap = capitalism

2. Use the entire first syllable and the first letter of the second syllable

subj = subject
cons = conservative
ind = individual

3. Eliminate final letters. Use just enough of the beginning of a word to form an easily recognizable abbreviation.

info = information
intro = introduction
chem. = chemistry
conc = concentration
rep = repetition
conc = conclusion

4. Omit vowels from the middle of words and retain only enough consonants to provide a recognizable skeleton of the word.

bkgd = background
ppd = prepared
prblm = problem

5. Leave out "a" and "the"

6. Use an apostrophe.

gov't = government
am't = amount
cont'd = continued
educat'l = educational

7. Use "g" to represent "ing" endings.

ckg = checking
estg = establishing
expting = experimenting

8. Use symbols for commonly recurring connective or transitional words.

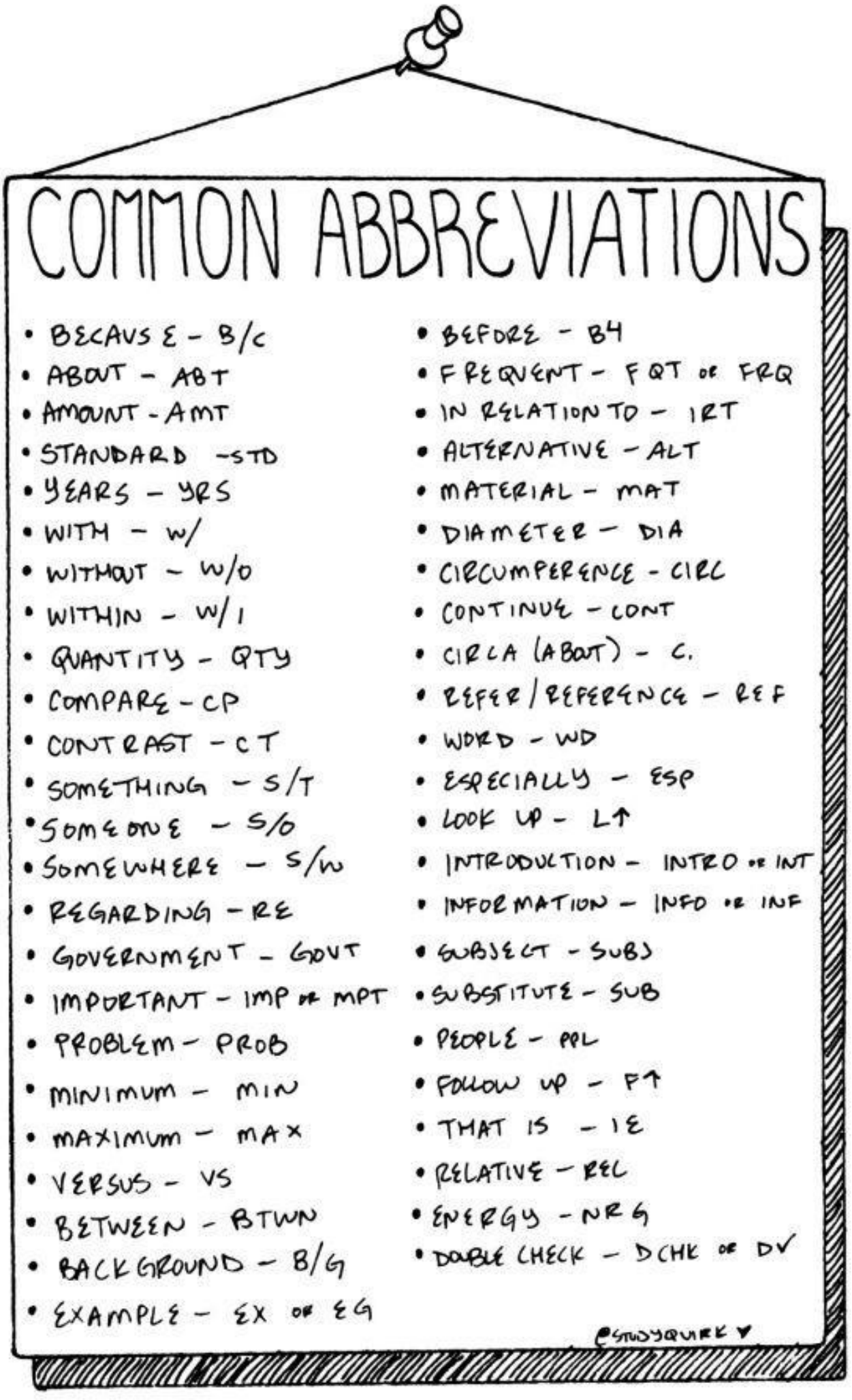
& = and
w/ = with
w/o = without
vs = against
.'. = therefore

9. Leave out periods in standard abbreviations.

eg = for example
dept = department
NYC = New York City

10. Use common technical and mathematical symbols.

+ = plus, positive
- = minus, negative
-> = approaches
< = angle
f = frequency


COMMON ABBREVIATIONS
• BECAUSE - B/c
• ABOUT - ABT
• AMOUNT - AMT
• STANDARD - STD
• YEARS - YRS
• WITH - w/
• WITHOUT - w/o
• WITHIN - w/i
• QUANTITY - QTY
• COMPARE - CP
• CONTRAST - CT
• SOMETHING - S/T
• SOMEONE - S/O
• SOMEWHERE - S/W
• REGARDING - RE
• GOVERNMENT - GOVT
• IMPORTANT - IMP or MPT
• PROBLEM - PROB
• MINIMUM - MIN
• MAXIMUM - MAX
• VERSUS - VS
• BETWEEN - BTWN
• BACKGROUND - B/G
• EXAMPLE - EX or EG
• BEFORE - B4
• FREQUENT - FQT or FRQ
• IN RELATION TO - IRT
• ALTERNATIVE - ALT
• MATERIAL - MAT
• DIAMETER - DIA
• CIRCUMFERENCE - CIRC
• CONTINUE - CONT
• CIRCA (ABOUT) - C.
• REFER / REFERENCE - REF
• WORD - WD
• ESPECIALLY - ESP
• LOOK UP - L↑
• INTRODUCTION - INTRO or INT
• INFORMATION - INFO or INF
• SUBJECT - SUBJ
• SUBSTITUTE - SUB
• PEOPLE - PPL
• FOLLOW UP - F↑
• THAT IS - IE
• RELATIVE - REL
• ENERGY - NRG
• DOUBLE CHECK - DCHK or DV
@STUDYQUIRKY

A core strength of Mighty Notes, tags categorize your notes with a set of simple symbols, adding insight into importance, relevance and actionability.

!	Important
!!	Very important
!!!	Extemely important
☐	Requires action; to-do! ...computer version: []
=>	Requires follow up
+	Investigate this further
◇	A milestone ...computer version: <>
₿	A budgetary item
>	More to come on this
;	This item is pending
#	This item is on hold
X	Cancelled or will not be completed
?	This item is in question
/	Lack of agreement on this
|–	A sidebar; pertaining to a different agenda

SYMBOLS & ABBREVIATIONS FOR NOTE TAKING

&	and	**govt**	government
=	is, are I	**mpt**	important
≈	about, approximately	**ea**	each
>	more than	**tho**	though
<	less than	**thro**	through
#	number	**probs**	problems
x	times	**min**	minimum, least
→	leads to, caused	**max**	maximum, most
Δ	change	**btwn**	between
/	or	**bkgd**	background
∴	therefore	**vs**	versus, against
↑	increase, grow, gain	**qty**	quantity (amount)
↑	decrease, loss	**hv**	have
♀	female, woman, girl	**N.B.**	note well (important)
♂	male, man, boy	**e.g.**	for example
yrs	years	**i.e.**	that is
@	at	**cp (cf)**	compare
w/	with	**ct**	contrast
w/o	without	**B4**	before
w/i	within	**p**	after
wrt	with respect to	**q**	every
re:	regarding	**ASAP**	as soon as possible
b/c	because	**STAT**	immediately
s/t	something	**f**	frequently (often)
s/o	someone		

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