Ildikó Horváth

Interpreter Behaviour

A psychological approach

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A PSYCHOLOGICAL APPROACH

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Introduction

The present study is based on my experience as a former trainee in interpreting and translation, as a professional interpreter and as an interpreter trainer at the Interpreter and Translator Training Department of ELTE University, Budapest. My personal interest in the topic is rooted in my teaching experience, as well as discussions with my colleagues, interpreter trainers and trainees. As a freelance interpreter, I have had the chance to work in different modes of interpreting (consecutive, simultaneous, chuchotage, remote interpreting). I have also had the opportunity to interpret in a wide variety of contexts: at international conferences, for governmental organisations, politicians, private businesses, NGOs, and television. I have also been involved in court and community interpreting. All this has inspired me to conduct the present research.

Interpreting can be categorised best according to the mode of translation. Very broadly, simultaneous interpreting (SI) occurs when the interpreter simultaneously listens to the source text and produces the target text. In such cases at least two interpreters work together in a booth listening to the original speech through earphones. Depending on the level of difficulty of the original speech, they usually take turns every twenty to thirty minutes. In consecutive interpreting (CI), interpreters first listen to the source text before rendering it into the target language. The length of the original speech varies: it may contain two to three sentences but can also be as long as ten minutes, or even more. Depending on the length of the original speech, interpreters take notes. 'Chuchotage' (whispering) can be considered a specific kind of simultaneous interpretation: the interpreter is placed next to the listeners requiring interpreting and renders the original message in the target language by whispering into the ears of the audience. This can only be done when the number of listeners to the interpreters' speech does not exceed three to four persons. Interpreting can also be categorised according to the event type. Thus, we speak of conference interpreting, court interpreting, television interpreting, or

community interpreting, the latter mostly involving linguistic mediation in a medical, immigration, or other professional context. Remote interpreting (RI) occurs when the interpreters are not physically present in the room where the communication event takes place.

An interpreter's language combination is usually defined in terms of active and passive languages, or 'A', 'B' and 'C' languages. An 'A' language is an active language from which and into which an interpreter works. It is the language in which they have native competence. A 'B' language is also an active language which the interpreter learnt as a second or foreign language and in which they have acquired near-native competence. A 'C' language is a passive language from which an interpreter works, but in which their production is not good enough for it to become an active language.

Interpreting is a form of linguistic mediation whose aim is to transfer a speech from the source language (SL) into the target language (TL). Everybody seems to have an opinion on interpreting, but only a few know that it is a rather complex activity involving much more than the 'high level' knowledge of two languages. Sometimes even interpreters boasting a long career in the profession identify interpreting with interlinguistic transfer and linguistic skills. But interpreting is much more than that. It is communication, speech production, language use, creative problem-solving and decision-making, as well as information-processing: a very complex cognitive task requiring lifelong learning. These are the main topics around which the present study revolves.

My study does not aim to be theoretically exhaustive, and it cannot do so since there exists a wealth of studies on the subjects mentioned here. Its objective is to examine how the different issues concerning interpreting influence the on-the-job performance of the interpreter in order to learn more about the various processes involved in it. We have seen that interpreting types vary to a great extent, and each has been the subject of numerous publications. However, there are core issues and characteristics that are of central importance with regard to interpreter behaviour when we talk about interpreting in general.

The present volume carries the title 'Interpreter Behaviour' for it takes an interpreter-centred view. Its goal is to focus on the interpreter as a human being and not purely a 'black box' or 'non person'. In this sense, it

attempts to offer a broader picture of interpreting as a profession and of interpreters as professional language mediators, describing the different factors influencing behaviour. Thus, the interpreter is not a more or less invisible instrument anymore. Instead, we look at the person who carries out this complex linguistic and cognitive task and, at the same time, bears a large part of the responsibility for the success of communication he or she is involved in. Interpreter behaviour, just like human behaviour, is the end result of the interaction of a number of components.

It is beyond the scope of the present paper to review and present all the research that has been conducted so far, either in the field of psychology or in the field of interpreting. My immediate interest lies with those studies that present the most important and relevant research results and which discuss the most valuable insights as to the various aspects involved in the professional behaviour of interpreters with the aim of deepening our understanding of these processes. In my opinion, if we understand the motives underlying our behaviour, it will lead to a better understanding of interpreting, which in turn will hopefully have an impact on our performance as professional interpreters and will possibly be useful for the training of future interpreters as well.

The seven chapters which constitute this volume are based on papers that have either been published in international journals of translation and interpreting or whose publication is underway, and they also serve as the basis for my series of twelve lectures on Interpreting Studies (IS) held at ELTE University. Each chapter is structured along the same principles. First, it presents an overview of the research relevant to its topic of discussion available in the literature. Then it reviews and evaluates the most salient publications in IS and sheds new light on them by offering a descriptive, practice-oriented perspective based on my observations and empirical research (Horváth 2003, 2005, 2007a, 2007b, 2010). It also introduces into the scientific discussion on interpreting the notions of creative behaviour, professional bilingualism, cognitive flexibility, speech behaviour and autonomous learning. Finally, at the end of each chapter, new avenues of research are suggested.

The first chapter looks at the communication behaviour of interpreters. As a starting point for discussion, it defines and characterises human communication. It describes the notions of relevance and

communicative competence before discussing the subject of intercultural communication. Finally, it investigates the role of interpreters as professional communicators, their role in the interpreted communication event, and their physical and non-physical visibility.

The second chapter studies the speech behaviour of interpreters, which is an essential facet of their behaviour as professional communicators. It starts with the description of human speech in general by elaborating on the characteristics of continuous speech, voice quality, voice production and breathing. Then it discusses interpreters' speech behaviour including such topics as interpreters' voice production and prosodic features, voice identity and unnatural interpreter speech behaviour.

The third chapter is about interpreters' linguistic behaviour. First, it examines the structure of the human brain and where language can be localised in it. Then it presents what we know about the mental lexicon of humans. Another major topic is bilinguality and bilinguals. Finally, it proposes to consider interpreters as professional bilinguals and re-examines the previously presented topics from this perspective.

The fourth chapter deals with creativity in interpreting. After an overview of the various views of creativity, it endeavours to describe creativity in interpreting in terms of products, processes and behaviour. In doing so, it looks at, among other things, literary vs. non-literary texts, translating 'the impossible', creating something new in interpreting, as well as creative mental processes and comprehension in interpreting.

The fifth chapter investigates interpreter behaviour and stress management. It examines the evolution of stress research in general before analysing it in interpreting. It touches upon such topics as coping with stress, stress and remote interpreting, interpreters as stress-seekers, self-control and self-knowledge in finding the right amount of stress.

The sixth chapter is about cognitive flexibility and interpreting. It considers interpreting in terms of information-processing and details the most salient cognitive processes and tasks involved in it. The major topics are memory processes, attention, multimodal information-processing, anticipation, comprehension and the search for meaning in interpreting.

The seventh chapter examines interpreter trainee behaviour and how training programmes can help students become lifelong learners through autonomous learning. It offers a definition of autonomous learning in

general and describes autonomous learners and teachers in particular. It also presents the main components of an interpreter training programme contributing to the practical realisation of autonomous learning such as student-centeredness, cooperative learning, learner training and out-of-class independent practice. Finally, it offers a model of the cognitive components of autonomous learning in interpreter training.

CHAPTER 1
Interpreters' communication behaviour

Interpreting is communication. This implies that professional interpreters are professional communicators who help interlocutors not speaking each other's language and belonging to different cultures achieve their communication goals. As these interlocutors do not fully share each other's culture, interpreters find themselves at the centre of intercultural communication in addition to being linguistic mediators. This, of course, has several implications for their communication behaviour. In what follows, I will strive to examine the different aspects of interpreting as professional communication and explore its complex and manifold nature. In doing so, I will first discuss the characteristics of human communication and those of intercultural communication.

1. Human communication

Humans are characterised by an inherent **psychological need** to communicate. In other words, we cannot *not* communicate. According to Gibson and Hanna,

> [c]ommunication behaviour is the heart of the human condition. It is what sets us apart from other creatures because it allows us to remember the past, plan for the future, conceptualize the abstract, and manage the enormous complexity of our world. In short, communication is the essence of our human nature (Gibson and Hanna 1992: 8).

Communication is not something without an aim, and it has a clear motivation. According to Williams, humans communicate to satisfy different types of human needs. More precisely,

> [w]e want to make things happen, to get other people to do things for us, to find out what is going on. Communication is also our basis for learning about ourselves and for identifying relations between our "self" and others. […] We learn about our culture through communication, and we use communication to transmit our culture to the next generation. Communication is the basis for religious practices – even inspiration. And, not to be overlooked, communication is often a basis for relaxation, for entertainment, or for sheer escape (Williams 1989: 14).

Thus, communication is not only an individual's psychological need, but it is also a basis for human relationships in society, and "[e]ach time we communicate, we engage in the process of refining and negotiating a relationship between ourselves and others. Message exchange is the basis of all human relationships. In this way, we are vastly superior to other creatures" (Gibson and Hanna 1992: 8).

1.1 The characteristics of human communication

In order to gain a better understanding of human communication and the role of interpreters as professional communicators, we need to be more specific and describe the fundamental characteristics of human communication, some of which have already been mentioned above.

1.1.1 Meaning

Human communication is characterised by the fact that it is the exchange of meaningful symbols, which Williams (1989) calls symbolic interaction. A symbol

> represents or takes the place of, or points to ideas, or objects, or events. A symbol can even represent a feeling or an emotion. […] We can use symbols in this way because we agree, as a speech community, that the symbols refer to, or represent, some part of our shared experience. They mean something to all of us (Gibson and Hanna 1992: 9).

Here we need to analyse what it means *to mean something*. In Gibson and Hanna's view, "to mean implies an agreement between two or more people that they will recognise what they represent by a sign or symbols" (Gibson and Hanna 1992: 9). That is to say "communication will not take place unless we share meanings for the symbols" (Williams 1989: 11).

Samovar and Porter highlight the importance of the **attribution** of meaning to behaviour during communication. In their view, "attribution means that we draw upon our past experiences and give meaning to the behaviour that we observe", and they add that the meaning that we thus attribute "is relative to each of us because each of us is a unique human being with a unique background and a unique set of experiences" (Samovar and Porter 1997: 9).

1.1.2 Language

There are **symbol systems** that humans use for communication purposes. One such system is the road signpost system that we use for facilitating and regulating road traffic. Another example of such systems is language, which is the essence of human communication and "a system of signs and symbols, a body of words and the rules for their use, that ties people together into a speech community. Language is our primary message system. As far as we know, only humankind has evolved language" (Gibson and Hanna 1992: 9).

This, of course, does not mean that other species do not communicate among themselves within their communities. In fact, we have ample evidence that bees or apes, for example, have and use an elaborate communication system. As Williams puts it,

> we can teach apes to use rudimentary sign language, parrots to mimic sounds, or dogs to respond to voice commands, but there is no other known organism with the communication capabilities of the human. No one or no technology – not even the most powerful computer – matches our human capabilities to communicate, interpret, or act on shared meaning (Williams 1989: 8).

Concerning human communication, it should also be noted that "we can only physically exchange symbols, as in speech or writing or in the more complex exchange of printed, broadcast, filmed, or electronically coded messages" (idem 11).

1.1.3 Message

This brings us to the next essential element of human communication, namely, that it has to have a message. Messages can be verbal (language) or non-verbal, intentional or unintentional. According to Tubbs and Moss, a "verbal message is any type of spoken communication that uses one or more words […]; these are the conscious attempts we make to communicate with others through speech". Unintentional verbal

messages are things that we do not mean to say, such as slips of the tongue. Intentional non-verbal messages are non-verbal messages we want to transmit and are often used to reinforce our verbal message. In contrast, "unintentional non-verbal messages are all those aspects of our behaviour transmitted without our control", such as hand gestures, facial expressions, tone of voice, etc. (Tubbs and Moss 1991: 8-9). It is important to note here that, although we make a distinction between verbal and non-verbal messages, when communication occurs multiple messages, contexts and channels are involved. This means that non-verbal can replace, reinforce or contradict the verbal message, but both are crucial to the interpretation of the message and the response.

As for the **interpretation** of non-verbal messages, it should be noted that a receiver can depend on spatial, temporal, visual and vocal cues. Spatial and temporal cues will be mentioned in the section on intercultural communication. The study of non-verbal behaviour is divided into two main domains: that of the paralinguistic characteristics (the study of the acoustic signs) and kinesics (the study of bodily behaviour).

Paralinguistic features are the vocal characteristics such as tone, pitch, articulation and rhythm. They are seen as a system of more or less important signs that use the same channel of communication as the verbal one. Paralinguistic signs have three functions within the framework of communication. They play an important role in the segmentation of communication as they mark the turns the participants take. Next, they dissipate ambiguity by completing the verbal information. Finally, they inform the participants about the emotions of the speaker, or they can even influence the perception of his or her personality.

The paralinguistic functions mentioned above can be fulfilled by the different kinetic signs. **Kinesics** is the study of body movement in communication. Visual cues are facial expressions (the most important source of non-verbal communication), eye movements, body movements, hand gestures (the second most important source of non-verbal communication), touch, physical appearance and use of objects.

It seems important to explicitly include another aspect in our discussion on communication, this time primarily non-verbal: that of the body. For a long time, language was considered to be the only means of human communication even if today it is considered only one of the forms of

communication and can prove to be ambiguous and obscure if looked at without its support, namely **body language**. The human body, with all its manifestations, accompanies the verbal message and, at the same time, it is also a channel with the help of which humans express themselves.

By emitting signs the body plays a decisive role in the process of communication. Its role is considerable not only in the production phase but also in the reception and most of all in the interpretation of the message. It transmits a lot of information through the way it is presented, the way it is packaged as well as through its movements, gestures and facial expressions. Deep analysis of human behaviour in communication shows that verbal and non-verbal behaviour run parallel to each other, reinforcing or weakening each other.

Another aspect of non-verbal human communication worth mentioning is **proxemics**: the study of distance between people when they are talking to each other. This kind of examination can be undertaken in an interpersonal and an intercultural sense, since the factors coming into play here "can be looked at in relation to the sex, age, and the social and cultural background of the people involved and also their attitudes to each other and their state of mind" (Richards *et al* 1992: 299). From the point of view of the communication process, it is the study of the choices made concerning physical interpersonal distances as elements of the process. This choice is meaningful as it makes a "symbolic use of space as the projection of the psychological relation between the participants" (Ghiglione 1986: 110, my translation). Depending on the context, the status of the participants, culture and spatial behaviour can be interpreted as indecent or aggressive.

Furthermore, our communication behaviour may be either conscious or unconscious. As Samovar and Porter put it, "we frequently do things without being aware of them" like in the case of "such habits as fingernail biting, toe tapping, leg jiggling, head shaking, staring, and smiling" (Samovar and Porter 1997: 9). The concept of conscious-unconscious non-verbal communication behaviour is important in so far as it acknowledges that we may produce messages and not be aware of it.

1.1.4 Interference

Another important issue that should be addressed regarding the communication message is interference. When a message is misinterpreted or there is no response to it, more often than not it is due to interference. Tubbs and Moss define interference as "anything that distorts the information transmitted to the receiver or distracts him or her from receiving it". They distinguish between two kinds of interference: technical and semantic. **Technical interference** refers to the "factors that cause the receiver to perceive distortion in the intended information or stimuli". It should be noted here that the senders themselves may create distortion to their messages. For example, "a person who has a speech impediment or mumbles a great deal may have difficulty making words clear to someone else" (Tubbs and Moss 1991: 11).

The other type of interference is **semantic interference**, which "occurs when the receiver does not attribute the same meaning to the signal as the sender" (idem 11-12). However, as we have seen above, it is very rare that two people attribute the same meaning to a verbal or non-verbal message. According to Gibson and Hanna, "people project themselves onto the messages they receive. The more ambiguous the message, the more this projection phenomenon occurs. Each person distorts the messages so they conform to personal expectations" (Gibson and Hanna 1992: 17).

1.1.5 Communication as a process

Communication, seen as behaviour, is not an object but a process. The participants of this process are the **sender** and the **receiver** of the message. The sender's role is to encode the message; the receiver decodes it. Encoding is "an internal activity in which verbal and non-verbal behaviours are selected to create a message in concordance with the contextual rules that govern the interaction and the rules of grammar and syntax applicable to the language being used". Decoding is the "internal processing of a message" through which "meaning is attributed to those behaviours that represent the [sender's] internal state of mind" (Samovar and Porter 1997: 10-11).

To be complete and successful, communication needs to have a medium, also called a channel. The **channel** provides the physical means by which the messages move from sender to receiver. In telephone communications, the channels that transmit the communications message are the telephone wires, in mass communication newspapers, radio, television, the Internet, etc. In face-to-face communication, the channels are the sensory organs. According to Tubbs and Moss, we rely almost exclusively on three of these: hearing, sight and touch. Williams, however, states that the air is also a communications channel as "it carries small particles that we can smell or taste". He also adds that all the sensory organs "have physical bases for linking sender and receiver and can have a pattern of symbols imposed on them" (Williams 1989: 12).

Communication is a **dynamic**, two-way process consisting of many separate but interrelated steps that take place over time. This means that the sender relies on the feedback, or response, of the receiver of the message. As Gibson and Hanna put it, the "decoder-receiver works on the incoming message by sorting out and interpreting the words and the non-verbal messages" (Gibson and Hanna 1992: 16). This dynamic process builds on its participants' goodwill and **cooperation** (Grice 1975) to understand one another.

Feedback can be defined as "messages that the receivers send to a source" (idem 16). In communicational terms, it means that facial expressions such as smiles, glances and nods of the receiver are considered to be feedback. Feedback can take a long time, or can happen the moment the message is sent. When feedback occurs this way, "the communication event involves each participant in an instantaneous and mutually beneficial message exchange where the distinction between source and receiver is blurred and indistinguishable. We are, at the same moment, both sender and receiver" (idem 17). This implies that the communication process is an interactive, transactional process that evolves over time with the participation and underlying intentions of both parties.

1.1.6 Context

Communication is a process that occurs in **context** "which includes such features as light, space, temperature, furniture, electronic equipment, the number of people, and the purpose of the people assembled". The context is an essential component of human communication as it "enhances some interpretations and inhibits others" (Gibson and Hanna 1992: 16). Context thus provides a frame for the communication event.

To define context is at least as difficult as trying to define communication since there are different ways of looking at a communication situation and thus highlighting different dimensions of the communicative event. The first dimension is **linguistic**. In Kramsch's explanation "the choice of one linguistic form over the other is determined by the co-text […], those linguistic elements that precede or follow and that ensure the text's cohesion". The choice of a linguistic form, however, is also determined by "the internal context" of the utterance. Context in this sense equals "the intentions, assumptions, and presuppositions of speakers and hearers, which ensure that their discourse is coherent and therefore makes sense for the participants" (Kramsch 1994: 35).

Meaning, however, also depends on the external elements, the **situational context** of the speech event. The earliest and most well known definitions of situational context are those of Roman Jakobson and Dell Hymes (1972). According to Jakobson, a speech event is constituted by six factors: addresser, addressee, context, message, contact and code. Context is that to which the message refers, "the propositional content of the utterance" (cited in Kramsch 1994: 36). Hymes expanded Jakobson's view of context and set up his own model for the situational context under the acronym SPEAKING. According to Hymes, the context of situation is defined by the following factors: the setting (the physical setting of the speech event, time and space), participants (the combinations of speakers and listeners and their various roles), ends (the purposes that the participants try to achieve), act sequence (form and content of the utterance), key (the tone, manner, spirit of the message conveyed), instrumentalities (choice of channel, e.g. oral or verbal), norms of interaction and interpretation, and finally genre.

The work of another author worth mentioning here is Goffman's,

who introduced the notion of **footing** into the discussion on situational context. He defines footing as "the alignment we take up to ourselves and the others present as expressed in the way we manage the production and reception of an utterance" (cited in Kramsch 1994: 38). Footing is the position speakers and hearers take toward themselves and each other. In a speech event, we regularly change footing several times out-of-awareness, i.e. without being conscious of it.

To this level of analysis, Ellis and Roberts added the notion of prototypical contexts or **domains**. By this term they mean "a grouping together of recurring situation types" (cited in Kramsch 1994: 40). More precisely, it means that we enter different situations of communication with different "scripts" in mind belonging to the anticipated scenario, and we tend to first behave according to these expectations usually defined by social norms.

The third dimension of context is created by the interaction itself, where the acts take place and the beliefs and expectations that the participants bring to the act of communication. The **interactional context** was also defined by Ellis and Roberts and is cited by Kramsch as follows:

> Context is created in interaction partly on the basis of particular and individual choices by speakers at a local level and partly by those speakers being able to make inferences about each other on the basis of shared knowledge and assumptions about the world and about how to accomplish things interactionally (Kramsch 1994: 41).

This means that topics are introduced into conversations not only because of the original intention of the speakers, but also because of "perceived local interactional needs and the constraints imposed by multiple audiences" (idem 41). In other words, we cannot plan everything to be uttered in advance since the immediate need might arise from the interactional context to bring other subjects into the encounter spontaneously.

Two other dimensions of context come into play when an individual makes choices while creating texts. One of them is the **context of culture**, a term coined by Malinowski. It implies that language cannot be understood without culture. He describes the context of culture as "the institutional and ideological background knowledge shared by

participants in speech events" (cited in Kramsch 1994: 42). In this sense, context is a community's shared knowledge of the world formed by the accumulated experience of its members, living or deceased. In other words, speakers of a language speak with their individual voices and also through the "established knowledge of their native community and society, the stock of metaphors this community lives by, and the categories they use to represent their experience". As seen by Tannen, it means that we approach the world

> as experienced and sophisticated veterans of perception who have stored their prior experiences as "an organised mass", and who see events and objects in the world in relation to each other and in relation to their prior experience [which] takes up the form of expectations about the world, and in the vast majority of cases, the world, being a systematic place, confirms these expectations (Tannen 1979: 144).

The last dimension of context to be taken into account here is **intertextual context**, a concept introduced by Halliday. The notion of intertextual context refers to how a text relates to other previous and future texts, to different assumptions and expectations. It arises "from the friction between the texts that people generate and the contexts that are thereby shaped by them" (Kramsch 1994: 45).

In our discussion of the concept of context, we have examined it in five different dimensions, five different ways of how it relates to reality: linguistic, situational, interactional, cultural and intertextual. Context is not fixed and cannot be defined ahead of the communicative encounter. It is created by persons in communication who negotiate meaning throughout the whole course of communication "saying things about the world and thus making statements about themselves and their relationship to one another" (idem 46). Context is an important factor of communication in so far as it underlies the act of communication and provides clues to the creation and interpretation of meaning.

1.1.7 The functions of communication

Williams distinguishes four functions of communication: information, entertainment, instruction and persuasion. These functions are often mixed, for example, in the case of instructors, who mix entertainment with facts and information.

Information is the facts, data, statements, figures, etc. Examples of information communication are reports of observations of phenomena, weather reports, computer data or bank balances.

Entertainment is communications based on activities that are interesting and satisfying. Examples of communication as entertainment are jokes, an absorbing motion picture where the story line is less important than audience enjoyment, reading for pleasure, computer games, etc.

Instruction is to be understood in a much broader sense than a textbook or a university lecture. The basic nature of instruction consists of the fact that it offers us messages that teach us skills, understandings, insights. Our environment offers us ample opportunity to "learn". Besides textbooks and lectures, examples of instruction are self-help books, educational computer programmes, school, parent and child interactions, or simply learning from experience.

Persuasion is the most complex of the traditional functions of communication, and it more often than not involves the combination of information, entertainment, and instruction. The most common examples of persuasive communication are advertisements, important interpersonal communication, political speeches, arguments, debates, inspirational editorials or speeches.

1.2 The principle of relevance

Sperber and Wilson, in their relevance theory of communication, reconcile the code model, according to which communication is achieved by encoding and decoding messages, with the inferential model of communication. According to this latter model, communication is achieved through producing and interpreting evidence. Thus, verbal communication involves two types of communication processes: the

coded and the inferential. One of the precepts of this theory is that communication is the attribution of intention and making **inferences**. In other words,

> from a psychological point of view, the description of communication in terms of intentions and inferences also makes good sense. The attribution of intentions to others is a characteristic feature of human cognition and interaction. Humans typically conceptualise human and animal behaviour, not in terms of its physical features, but in terms of its underlying intentions (Sperber and Wilson 1986: 23-24).

In this manner, the principle of relevance stipulates that we pay attention only to information which we think is relevant to us. In order to communicate, we need to attract attention and imply that the information we are communicating is relevant. Sperber and Wilson assume that "people have intuitions of relevance: that they can consistently distinguish relevant information from irrelevant information, or in some cases, more relevant from less relevant information" (idem 119). This notion of degrees of relevance relies heavily on context and context formation.

Sperber and Wilson view relevance as a psychological property and assert that "the context used to process new assumptions is, essentially, a subset of the individual's old assumptions, with which the new assumptions combine to yield a variety of contextual effects" (idem 132). They do not view context as something determined in advance but see it "as being formed either before the comprehension process gets underway, or as a preliminary stage in this process". They go on to add that "there is nothing in the nature of context, or of comprehension, which excludes the possibility that context formation is open to choices and revisions throughout the comprehension process" (idem 137).

Another essential notion linked to the principle of relevance is **cognitive environment**, which Sperber and Wilson define as follows:

> An individual's total cognitive environment is the set of all the facts that he can perceive or infer: all the facts that are manifest to him. An individual's total cognitive environment is a function of his physical environment and his cognitive abilities. It consists of not only all

> the facts that he is aware of, but also all the facts that he is capable of becoming aware of, in his physical environment. [...] Memorised information is a component of cognitive abilities (idem 39).

Finally, with regard to **cognitive efficiency** during information-processing, Sperber and Wilson assert that

> all human beings automatically aim at the most efficient information-processing possible. This is so whether they are conscious of it or not; in fact, the very diverse and shifting conscious interests of individuals result from the pursuit of this permanent aim in changing conditions. In other words, an individual's particular cognitive goal at a given moment is always a more general goal: maximising the relevance of information processed (idem 49).

Furthermore, information-processing involves considerable effort, and "there is no point in drawing someone's attention to a phenomenon unless it will seem relevant enough to him to be worth his attention" (idem 49).

1.3 Communicative competence

The term **communicative competence** was introduced by the anthropological linguist Hymes (1972). He defined it as the sum of different other competences: semiotic, socio-pragmatic, discursive-textual and referential competences. Henri Boyer added a fifth element, that of ethnosociocultural competence (Boyer 1991: 41-44). Semiotic competence concerns the way language functions on a verbal level (phonology, phonetics, grammar, semantics, lexemes) and the way it functions on a para-verbal level (i.e. in oral language, it means mimics and gestures, and in writing it refers to graphics). Socio-pragmatic competence concerns the way language functions in its interactional dimension, in relation to the collective norms and usage of speech acts. Discursive-textual competence is applied to language functions seen in a dimension above the sentence level (discourse, textual cohesion and

coherence, etc.). Referential competence refers to the fact that one knows, among other things, the social, anthropological, demographic, geographic, artistic, scientific and technological reality behind a language. Finally, ethnosociocultural competence has bearing on the knowledge of the collective imaginations, the shared representations, the coded implicit meanings and the beliefs as well as the values of a community. In fact the latter two – referential and ethnosociocultural competences – cover the concept of cultural competence defined above by Holec (1988) and Porcher (1988).

Communicative competence has been viewed recently as the ultimate goal to be reached in modern second and foreign language teaching/learning. It is useful for our purposes here to demonstrate the multidimensional nature of communication and the different aspects that come into play when looking for meaning. In the case of interpreting (and translation), one should probably add another element to this picture: the ability to decode and encode linguistic signs in their context.

To sum up our discussion on communication, we can state that human communication seen as behaviour or interaction is multidimensional involving sending messages at different levels. It is composed of several variables at the same time, such as speech and its paralinguistic features, accent, pronunciation, the words and their meaning, the body and its disposition in space, as well as its different manifestations such as mimics, tics, smiles, posture, gestures, clothes, etc. An important element of verbal communication is improvisation, making it spontaneous (see also Horváth 2010). Because of the complexity of the communication process in general misunderstanding and misinterpretation occur so easily even in monocultural situations. It is all the more complex when the cultural factors come into play, i.e. in 'intercultural' or 'multicultural' communication.

2. Intercultural communication

Intercultural communication has become a topical issue lately due to the development of what we call the global village. Porter and Samovar postulate that this is the result of four elements: improvements in transportation technology, developments in communication technology, globalisation of the economy, and changes in migration patterns. They add that "these events have produced major transformations in both worldwide and local patterns of communication and interaction" (Porter and Samovar 1997: 5).

To cite Porter and Samovar on intercultural communication, we can define it as communication that "occurs whenever a message produced in one culture must be processed in another culture". As cultural diversity may pose difficulties for effective intercultural communication, "intercultural communication entails the investigation of those elements of culture that most influence interaction when members of two different cultures come together in an interpersonal setting" (idem 8).

Not unlike human communication, culture is a complex construct. For this reason, it is very difficult to find one single concise definition. Therefore, in what follows, we shall present definitions offered by several authors in order to arrive at a comprehensive view of the issue.

Culture can be defined as a list of things that characterise a nation, society or a group such as customs, literary compositions, works of art and music, historical events, acts of law, institutions, the way of life, etc. In this sense, culture equals civilisation at a particular period of time in that it is made up of distinct items characteristic of that period (e.g. France in the 18th century). This definition of culture is High Culture or culture with a capital C. Tomalin and Stemplenski (1993: 6) use the term 'achievement culture' for this **'Big C' culture** and add that it "remains as it was", i.e. it is fixed and unchanging. The facts that make up a 'Big C' culture can be learnt by heart, and this knowledge can be evaluated by schoolteachers. As Katan puts it:

> [T]his Culture is external to the individual and relates to a particular and restricted body of knowledge learned, and to a particular (upper) middle-class upbringing. It tends to be associated with 'well-educated', 'refined', 'man of culture' (rather than woman), 'culture vulture', 'cultured', and so on. Culture for these people is fixed in time and ended with the end of the novel (Katan 2000: 16).

Another way to view culture is to consider it as behaviour. It is then called **'little c' culture** or behaviour culture. This 'little c' culture has been broadened "to include culturally influenced beliefs and perceptions, especially as expressed through language, but also through cultural behaviours that affect acceptability in a community" (Tomalin and Stemplenski 1993: 7). Culture in this sense is not external and "not visible as a product, but is internal, collective and is acquired rather than learned" (Katan 2000:17). The culture under discussion here is interpreted by Katan in terms of

> a shared mental model or map of the world, which includes Culture, though it is not the main focus. The model is a system of congruent and interrelated beliefs, values, strategies and cognitive environments which guide the shared basis of behaviour. Each aspect of culture is linked in a system to form a unifying context of culture which identifies a person and his or her culture (idem 17).

Nevertheless, it is a fallacy to say that all the beliefs, values and strategies that underlie a given culture are thought to be true by all member of that culture. This is what Hofstede (cited in Katan 2000) calls "ecological fallacy". What is certain is that members of the same culture "would accept that those underlying cultural values, and associated beliefs and patterns of behaviour are congruent with that culture" (idem 44). Thus it can be said that stereotypes are true in the sense that they are acceptable within the cognitive environment of a culture, but they do not necessarily characterise every individual belonging to that culture. It is all the more the case that in this broadened sense of culture, individuals can belong to many cultures at the same time. The problem is made even more complicated by the fact that stereotypes are also cultural products as

"group identity is not a natural fact but a cultural perception" (Kramsch 1998: 67), which means at least two things. First, it suggests that an individual's racial, ethnic and national identity is determined by that state's bureaucratic system. Second, it proposes that "our perception of someone's social identity is very much culturally determined", i.e. the things we perceive about a person's culture and language is "what we have been conditioned by our own culture to see, and the stereotypical models already built around our own" (idem).

3. Interpreters as communicators

3.1 The interpreter's role in the communication process

An interpreter's job consists of facilitating communication between individuals who do not share the same language and culture. The interpreter's role in an interpreted communication situation is that of a **mediator**. This means that they are not the author of the message; their task consists of transmitting it from the sender to the receiver. They are neither the original sender nor the final receiver of the message but fulfil the role of the channel. However, since they are wedged between the original sender and the final receiver(s) of the message, they need to receive it from the sender, then perceive, understand, decode, encode, and send it to the receiver. They cannot be considered simple non-persons (see Wadensjö 1992). The reason for this is that they are present in the communication situation with their personality. Thus, they occupy a peculiar place in the communication process, which is worth analysing in more detail.

Interpreters as mediators do not have a leadership role in a communication situation. This is true for dyadic and group communication as well. They are not the leaders even though it is possible that the participants ask them their opinion on a certain issue that has emerged from a discussion or conference. In certain situations, interpreters might react to these solicitations, but they should never forget that they are not part of decision-making since they do not have the expertise required for that purpose. Their domain of expertise is not related to the subject matter of the communication event but rather to the professional aspects of interpreting and communication.

Sometimes it does not seem obvious for the simple reason that more often than not interpreters dominate the communication situation in terms of net speech time since they are the ones who speak the most.

What's more, they receive a lot of attention if not most of the attention during a meeting. It is especially true for face-to-face interpreted communication, where they are usually physically in the centre, seated or standing next to the speaker(s). But they should always keep in mind that their task is to pass on the message as smoothly as possible, i.e. without major distortions, thereby facilitating communication, and that they do not wield power in such situations.

An interpreter's role can be compared to that of a lawyer or a doctor in that they are there to **help their clients** with a problem, which is quite an urgent or basic one: a communication problem. An interpreter's relationship with their clients is also based on mutual trust and respect. It is a relationship characterised by discretion, confidentiality and stability in which the interpreter is assertive and offers a sense of security and orientation to their clients. There might, however, be exceptions to this 'rule'. As Valero-Garcés notes, based on her empirical research conducted in the field of community interpreting,

> some official institutions and NGOs, as well as organisations providing help and dealing with social affairs and migration, assign the translator and interpreter a wider role by assuming that he/she also has to deal with cultural differences and explain deficiencies in communication together with other related tasks (filling out forms, giving reports, offering phone help, accompanying them to some public services, etc.) that help the parties understand each other. [...] the translator and interpreter also seem to assume these tasks as part of his/her role as interlinguistic mediator, making him/her more visible (Valero-Garcés 2007: 100).

Another notion that needs to be mentioned in connection to the interpreters' role is their **visibility/invisibility**. There has been a shift in thinking since the view held by Seleskovitch and Lederer (2002), according to which the most important role of interpreting amounted to communicative faithfulness to the sense of the message. Diriker (2004), for example, views interpreting as embedded in the communication situation and in a particular socio-cultural setting and stresses the fact that the meta-discourse of 'professional identity' fails to take note of the

fact that actually interpreters are actively involved in shaping the meaning in interpreted communication. She asserts that

> the interpreted utterance is not the reproduction of the 'meaning intended by the original speaker' but the representation of 'the meaning negotiated by the simultaneous interpreter' – in a dialectical relationship with the source utterance, the interpreter's own subjectivity and a variety of socio-cultural and interactional factors (Diriker 2004: 144-45).

In the field of community interpreting, the neutrality of the interpreter has been challenged on several occasions (Angelelli 2003, Bot 2003). In her model, Angelelli (2003) proposes that "the interpreter is visible with all the social and cultural factors that allow her/him to co-construct a definition of reality with the other co-participants to the interaction". This means that "the interpreter is present with all her/his deeply held views on power, status, solidarity, gender, age, race, ethnicity, nationality, socio-economic status, plus the cultural norms and blueprints of the social factors that are used by him/her to construct and interpret reality". Furthermore,

> [a]s the interpreted communicative event (ICE) unfolds, the interpreter brings not just the knowledge of languages and the ability to language-switch or assign turns. The interpreter brings the self. The self cannot be artificially blocked as the ICE unfolds to create the illusion of an 'invisible interpreter'. The interpreter is 'opaque' rather than 'transparent', 'visible', not 'invisible' (Angelelli 2003: 16).

In addition, Angelelli also found that "interpreters themselves did not consider their role to be invisible in any of the settings in which they worked", and "they perceived that they played a role in building trust, facilitating mutual respect, communication affect as well as message, explaining cultural gaps, controlling the communication flow and aligning with one of the parties in interaction". Another interesting finding that emerged from Angelelli's study is the fact that "according to the setting in which they worked, interpreters' perception would vary along a visibility/

invisibility continuum", and "[m]edical interpreters perceived themselves as being more visible than court or conference interpreters" (idem 26).

Monacelli also emphasises the difference between 'the ideal interpreter' described in the discourse of codes of ethics or professional associations and the actual behaviour of interpreters in action and sees interpretation as communicative interaction and **situated activity**. She states that interpreting takes place in an inherently unstable and constantly evolving environment, and as such, it is a constantly face-threatening activity. In such an environment, a conference interpreter's primary goal is professional survival. One of the techniques to achieve this consists of face-saving mechanisms such as distancing the self from what is being said, i.e. "an interpreter will speak for him or herself, entertain subordinate communications with an audience, for the exclusive goal of promoting professional survival" (Monacelli 2009: 4).

Thus an interpreter's behaviour is characterised by **self-regulation** and self-preservation. As Monacelli puts it

> [a]ll living systems are self-regulating, which means that they have a set of inner mechanisms that control the system. Human beings, however, have a capacity for self-regulation that far exceeds that in other living beings, in part because the conscious mind is involved in the process and this enhances the flexibility, range and articulation of behaviour (idem 54).

3.2 Interpreters as professional communicators

Interpreters are professional communicators, and as such, they are expected to be **skilled** communicators rather than poor ones. To achieve this, their communication must always be **conscious**, and they need to be aware of themselves as communicators. This is true for verbal and non-verbal communication, requiring them to know their specific characteristics as communicators starting from their linguistic knowledge and their speech, their vocal characteristics (the tone, pitch, articulation and rhythm of their speech), and their body language in order to be able to control the signals they are emitting while listening and speaking.

Interpreters must not have tics such as rubbing their nose, or staring at the ceiling when immersed in deep thoughts, etc.

This concept of **control** is all the more essential in interpreting as interpreters are present in a communication process, but they do not contribute to it in the sense of creating the meaning that emerges during the communication process. This does not mean that some of the messages might not surprise or shock them. It only means that they should not let their emotions show through non-verbal cues, as it might have an unwanted impact on the communication process. They might even experience interrole conflict, which might influence their intrapersonal communication. However, as professional communicators, they must never show signs, neither verbal nor non-verbal, of such a conflict.

Controlling one's non-verbal communication becomes especially important in the case of **interference** in the interpreted communication process, be it technical or semantic. Instances of technical or semantic interference are disturbing enough phenomena in non-interpreted communication situations. Such interferences often happen during the interpreted communication process due to the fact that it is more complex than non-interpreted events for the simple reason that there is a third person present who relays the message between the principal participants. Interferences may destabilize interpreters, but they must never show signs of it. One way of achieving it is by controlling their non-verbal communication, ensuring that their communication behaviour does not interfere in the communication process.

We have seen that professional interpreters can be compared to lawyers or doctors as they offer a sense of security and discretion to their clients. These latter aspects are all the more important since their clients are very often people of certain renown in their field, and have a certain responsibility and very often high status, and they might find themselves disoriented in a communication situation where they need interpreters in order to be able to make themselves understood. If interpreters do not manage to control their communication (verbal and non-verbal), they will certainly be unable to provide stability and orientation to such clients.

3.3 Interpreters as intercultural communicators

Translation and interpretation theorists are beginning to define translators and interpreters as **mediators between cultures**. This implies that linguistic mediation is seen not only as a process of understanding languages but also understanding cultural frames and involving cross-cultural transfer. Bassnett, for example, states that

> beyond the notion stressed by the narrowly linguistic approach, that translation involves the transfer of 'meaning' contained in one set of language signs into another set of language signs through competent use of the dictionary and grammar, the process involves a whole set of extra-linguistic criteria also (Bassnett 1991: 13).

This more recent holistic or global approach does not mean that the language mediators can disregard 'the text' itself. Instead, it implies that language and culture are interrelated and professional mediation has to be seen in a wider sense as culture-bound communication. As we have already noted, culture is the framework within which all communications take place, meaning that "a successful mediator must be consciously aware of the importance of both text and context, which means both the words and the implied frames" (Katan 2000: 126). Context, as seen above, is understood on five different levels: linguistic, situational, interactional, cultural and intertextual.

3.3.1 Interpreters as cultural mediators

The informal or out-of-awareness level is the level at which translators and interpreters as cultural mediators should be able to intervene and mediate the "non-converging world views or maps of the world, so allowing the participants to cooperate to the degree they wish" (Katan 2000: 11). Hence, cultural mediation is more than translation: it facilitates intercultural communication, understanding and action. A cultural mediator then "will have developed a high degree of intercultural sensitivity, and will have reached the level of contextual evaluation" (idem

12). In this sense, we can talk about communicative interpreting, which is beyond pure linguistic translation.

3.3.2 Cultural competence

In discussing culture in the context of interpreting, one must address the notion of cultural competence defined by Holec (1988) as **extralingustic knowledge** composed of

> information gathered on the issue of the relation of language and reality, and the knowledge of which is crucial for a language to fulfil its referential function […]; the information needed for the comprehension and the use of the connotations inherent in the lexical units of a language […]; the whole body of the general knowledge shared by the members of a cultural community and which enable those who possess this body of knowledge to reconstruct implicit significations […]; the socio-cultural conventions that manage the social practices of that language as well as the rules of the 'savoir-faire', politeness and tact as expressed in the language of a given cultural community […]; socio-cultural conventions underlying non-verbal behaviour in a situation of communication […] (Holec 1988: 106-107, my translation).

According to this view, acquiring cultural competence means a sort of **socialisation in the culture** one lives in as far as being able to speak a language is considered being able to establish social contacts with the people belonging to the same culture. In this sense, cultural competence is defined as a double articulation, which means that culture represents a total system and at the same time it is a living reality that is constantly changing and is lived by the individuals. Cultural competence is then best described as the "ability to see the general behind the particular […] and to establish rules with the aid of the individual incarnations" (Porcher 1988).

This is where the most difficult part of interpreting lies since an interpreter does not only need to be aware of the linguistic features

of their two, three or even more working languages but also of the culture behind them. As Katan suggests, "culture is not a factor, but is the framework (the context) within which all communication takes place" (Katan 2000: 241). An interpreter will need to understand how cultures generally operate in order to be able to translate or interpret for their clients who necessarily belong to different cultures. This in turn presupposes an **enlarged view of the world**, an enlarged "map of the world" that accommodates even those culture-bound behaviours, beliefs and representations that clash with one another and with her culture(s) of origin. Hence, as Katan puts is, the heart of the translator's [and the interpreter's] task is "not to translate texts but to translate cultures, and help strangers give new texts welcome" (idem).

3.3.3 Cross-cultural awareness

Another way to approach this subject is through the notion of cross-cultural awareness. Grosman defines cross-cultural awareness as "an awareness of the otherness and differentness of others, or rather of foreign cultures in all their complexity". Furthermore, it can be asserted that this "presupposes the capacity for noticing, and, consequently, for understanding and tolerating the otherness of foreign cultures" (Grosman 1994: 51).

This capacity seems to be a prerequisite for successful communication in general and in interpreted communication in particular since "it can prevent the automatic tendency to perceive the other and the different in terms of the known and the familiar". In addition, it "promotes open-mindedness beyond one's own cultural border, contributing to a better understanding between people", and "constitutes an indispensable body of knowledge about the possibilities and relevance of differences between cultures" (idem).

3.4 Interpreters and the context of communication

An interpreter's job consists of relaying the message of the sender who fulfils the same communication function. In doing so, their communication behaviour is influenced by the context in which the communication process they are expected to facilitate takes place. The context of an interpreted communication situation is a multilayered construct, and each component contributes to the global context of the situation. The communication event itself never occurs in a vacuum as it usually takes place in an intertextual setting: there are other events leading up to it and occurring as the result of it. There have been previous conferences or preparatory meetings, and the event will probably lead to future meetings, actions or a written report. There might even be parallel actions. The interpreter will need as much information as possible regarding this larger intertextual context in which the concrete communication event is embedded because it contains those linguistic and non-linguistic elements that contribute to the understanding and interpretation of the meaning of the message(s) as well as that of the communication that takes place within a given speech community.

3.4.1 Interpreting and the speech community as context

The notion of speech community leads us to another essential point in our discussion of the interpreter's communication behaviour. An interpreter's job is to facilitate communication between members of a community that speak different languages and belong to different cultures. These individuals, however, belong to the same community. The foundations of such a community may be professional as in the case of an international organisation of dentists; recreational, like the international organisation of sports angling; or political, to name but a few. These are communities that have their own signs and symbols, customs, their words with idiosyncratic connotations, their own rules and shared experience, founding members and leaders. These elements either all mean something to the members of the community, or at least have an impact on the interpretation of the meaning.

The interpreter is not a member of the community, as they do not share the same experience or play an active role in the life of the community; they do not contribute to it in the way its members do. However, the interpreter must become familiar with the subtleties of the life within this community, of how this community operates. On a linguistic and behavioural level, they will need to adapt to the environment for the duration of the meeting where they are expected to help members communicate.

3.4.2 Interpreting and linguistic context

The linguistic context is there to guide the interpreter on the most immediate level offering clues not only concerning the linguistic form but also the meaning of the message. This means, for example, that when the interpreter hears the conjunction 'on the one hand', they will expect to hear 'on the other hand'. This presupposition will help them a lot in getting to the heart of the meaning of the text by establishing a logical link between the different elements of the utterance.

3.4.3 Interpreting and situational context

The situational context of the communication event (meetings, seminars, conferences, award ceremonies, toasts, etc.) offers another layer of the context lending a more global frame to the interpretation of meaning. Elements of the situational context are the venue, the position of the furniture in the meeting or conference room, the position of the interpreter, or that of the booths, the time and space the event takes place.

The participants are obviously one of the elements of the situational context that have the greatest impact on the interpreter's communication behaviour. It is the participants, the keynote speakers, the speakers and the members of the audience who set the tone and the general atmosphere of the communication event. Their role, status and agendas define the position they will probably take towards themselves, their colleagues and the interpreter (the footing). As communication is interaction, a

professional communicator needs to notice changes of footing for their work which consists of looking for meaning. Some clues are the following: change of codes, tones of voice and instrumentalities.

The situational context also provides the most important clues as to the degree of formality of the event, which guide the interpreter in their communication behaviour. An interpreted communication situation is usually a formal one. Nevertheless there is some room for manoeuvre in this respect, which the interpreter must be aware of. A ministerial meeting is rarely as informal as when two close friends or family members come together, but it can be relaxed. An interpreter's communication behaviour must fit into, and at the same time, depends on this aspect of the situational context. The modalities of the relationship between the participants, and between the participants and the interpreters influence the communication behaviour of the latter as interpreters might sometimes be expected to be relaxed and even cool, but they must always adapt their behaviour to the specifics of the context of the situation.

3.4.4 Interpreting and event types

Communication situations where interpreters are needed usually have their script, i.e. their procedural rules governing the event. Conferences, seminars, bilateral meetings between two state representatives, court hearings, medical consultations, etc. are characterised by a certain order of the events, and participants have typical roles. For example, a conference always starts with an opening speech and finishes with a closing speech and has coffee breaks and lunch breaks. Turn-taking is usually coordinated by a moderator, and there are keynote speakers, guest speakers, etc. The conference is usually divided into plenary sessions, workshops, panel discussions, and question and answer sessions. A professional interpreter, in order to be able to help communication at such events, must be aware of these rules as well as the protocol governing the main types of meetings and even the dress code required for certain events.

3.4.5 Interpreting and culture as context

Another essential element in the context in which the interpreters find themselves is the cultural context of the communication event. Culture comes into play on two levels: on the level of the 'Big C' culture and on the level of 'little c' culture. Interpreters must be familiar with the major achievements (literary, artistic and other), history, individuals that make up the Culture of the countries covered by their language combination since these elements of Culture mean something to the members of the given Culture. This meaning is sometimes apparent on the linguistic level, but is very often hidden to the foreigner, and the interpreter needs to explicitly explain it or its connotations.

'Little c' culture is not necessarily linked to a certain language but rather to a community. It is a set of norms and values, a form of behaviour, a way of life and being, which sometimes manifests itself through language use. Compared to Culture, which is stable and unchanging, culture evolves over time. Participants of an interpreted communication event bring the elements of their civilisation and their culture into the meeting. They build, rely and, to a certain extent, depend on it. The interpreter's role is to navigate between these elements not only on given occasions but throughout their career. They must develop a strong cultural competence in general and be open-minded. They also need to be able to follow cultural changes and to be able to stay non-judgmental. This latter aspect is essential since interpreters must never get too involved in a communication situation, and it must be reflected in their communication behaviour.

3.4.6 Interpreting and relevance

Based on Gutt's *Translation and Relevance*, it can be asserted that beyond the most obvious linguistic differences between source language and target language, contextual background differences may pose problems for the translator (interpreter). This is because

> no matter what the translator [interpreter] does in the translated text itself, the understanding of the target audience will crucially depend on the context in which it processes it. This context-dependence is built into human nature and affects translation as much as any form of human communication (Gutt 2000: 230).

This means that "like any other form of human communication, translation [interpretation] can only be successful when processed in the intended context" (idem). This shows that relevance based translation strives to achieve the same contextual effect and is focused "on the comparison of interpretations, not on the reproduction of words, linguistic constructions, or textual features" (idem 233).

3.5 Communication and the interpreter's physical visibility

What has been said so far is true for both consecutive and simultaneous interpreting, although some aspects might be more salient in the case of consecutive interpreting than simultaneous and vice versa. There are obviously subtle differences between these two types resulting from the situational characteristics and from the physical place the interpreter occupies. In terms of communication behaviour, however, the most important factor that needs to be reckoned with is the interpreter's physical visibility in the communication situation. Following from this, the most important characteristic of communication situations relevant in terms of interpreting is whether it is a face-to-face communication situation or not.

3.5.1 Interpreting in face-to-face communication situations

In face-to-face communication situations, the interpreter is not separated from the participants. This encompasses consecutive, community interpreting as well as chuchotage, where the interpreter is physically present in the situation but is working in the simultaneous mode. The distinguishing aspect of face-to-face situations in terms of interpreting

is that the interpreters are physically present and totally visible, which means that their whole body offers communication clues. This means that their non-verbal communication plays a much more important role than in the case of interpreting in a booth. It also implies that they must pay special attention to their body language so that it does not contradict or harm in any way their verbal behaviour.

This situational characteristic also results in immediacy: when the interpreter is visible, feedback is more immediate and direct since the other participants have the chance to express their opinion or address the interpreter during the communication act through either verbal or non-verbal means. This might affect the behaviour of the interpreter.

3.5.2 Interpreting in non face-to-face communication situations

Interpreters often work in communication situations where they are removed from the place where the communication takes place. In such situations they work in the simultaneous mode, and are seated in booths in the same room as the other participants of the communication situation on the premises of the communication event but in a different room, or on different premises. Remote interpreting occurs at videoconferences as well.

Interpreters working in the same room where the communication event takes place and separated from the event by a booth does not mean that they are not visible at all. It only means that they are less visible than when they work in face-to-face communication situations. It is when they are completely removed from the premises of the meeting such as in the case of remote interpreting that they become invisible.

This implies that body language plays a less significant role while the linguistic performance and especially the paralinguistic features become more accentuated. For this reason, in non face-to-face interpreted communication situations the interpreters must be aware of the importance of the vocal communication cues they are emitting via the rate, volume, fluency of their speech as well as the pitch and the quality of their voice.

This is true for two reasons. First, in such communication situations, as the interpreter's body is less visible, these paralinguistic features become

more salient and carry more meaning than in communication situations where body language contributes to the understanding of the meaning. If paralinguistic cues indicate hesitation, insecurity or lack of knowledge on behalf of the interpreter, they obviously hinder communication.

Second, body language translates into paralinguistic features very easily. If the interpreter changes position abruptly, turns away from the microphone, makes vehement hand movements in protest to or in support of what they have just heard, shakes their head or rubs their nose, it can be heard in their voice quality or speed of speech, which distorts the original message.

As for feedback, in interpreted communication situations where the interpreter is removed from the room where communication interactions take place, it can be asserted, as a general rule, that feedback is less immediate than in the case of face-to-face interpreted communication situations. Interpreters do receive feedback, but it usually comes during the breaks after communication has started, or at the end of the event.

During the communication act, interpreters receive less direct feedback compared to when they are physically present in the meeting room as it only very rarely occurs that one of the clients comes into the booth to give feedback. When it happens, a serious problem must have occurred, and the aim is to correct it and prevent it from happening again. Most of the time it is during the question and answer session that interpreters receive more direct feedback, as these sessions are more interactive and whether or not the questions, answers and comments are on the mark indicate to what extent the given instance of interpreted communication has been successful.

3.6 Other communicational aspects of professional interpreting

Other communicational aspects of professional interpreting involve communication with clients, their business communication and communication with colleagues.

3.6.1 Communication with clients

From the point of view of communication with clients, we should distinguish between freelance and staff interpreters. Freelance interpreters work for a great variety of clients ranging from private to public organisations, and do different types of interpreting from television through board meetings to international conferences since it is very difficult to specialise in a small number of fields. The underlying reason for this is that the interpreting market is usually rather volatile, and it is characterised by the fact that interpreters cannot afford to focus on a limited range of topics and reject others. In contrast, staff interpreters work for companies, national or international organisations. These are usually characterised by a more restricted number of topics, communication situations and participants, and the interpreters need to work for less varied types of speech communities and cultures. Whether one chooses to work as a freelancer or a staff interpreter has to do with their personality, job possibilities as well as personal preferences.

Communication with clients is an important issue both for freelance and staff interpreters. Here, we especially refer to direct interpreter-client communication before and after the interpreted communication event and not communication during the event itself. In most cases these acts of communication serve the purpose of helping the clients and interpreters get to know each other, gaining information about the content, form and aims of the communication event.

An interpreter's communication in such instances is of great significance as very often it offers the client the first impression of the interpreter. For this reason, it needs to be smooth and reflect their professionalism. An interpreter must therefore behave in a professional manner and must never show signs of irritation and anger at their client by shouting or speaking loudly because, for example, they have not received a presentation in advance. In addition, they can never show signs of stress if a meeting is expected to be more stressful than usual or in the face of unknown situations, agendas or linguistic challenges.

Another important aspect that needs to be mentioned here is an interpreter's handling of a situation where one of their clients or participants at the meeting comes up to them and is mistaken in their feedback or

judgement of the interpreter's work. Even though the interpreter is aware of the fact that they have not committed any mistakes, they cannot take offence or allow themselves to contradict their clients, or listeners but behave in a way that can be expected from a professional interpreter and arrange the problem.

When there is more than one interpreter working on an assignment, their communication behaviour with the other participants must reinforce the fact that they are one team working for the same aim.

3.6.2 Business communication and interpreting

In the case of freelance interpreters active in a given market and offering interpreting services, there is another aspect of communication that is worth mentioning: business communication. As service providers, such interpreters need to behave in a professional and conscious way throughout the communication process, from the first contact through giving price quotations to delivering the service and invoicing. To be able to do this they must be well versed in written business communication since they need to write and answer emails, draw up price quotations and send covering letters.

3.6.3 Communication with colleagues

Communication with colleagues also needs to be mentioned when discussing the factors influencing an interpreter's communication behaviour. General communication with colleagues outside the interpretation assignment itself contributes greatly to the success of communication during the assignment.

We need, however, to stress the importance of communication with colleagues when there is more than one interpreter working at an event either in the consecutive or in the simultaneous mode. What has been said about interpreters as professional communicators in general also applies to communication between the interpreters working either in the consecutive mode or sharing the same booth (for a survey of 200

freelance conference interpreters on the subject of booth manners, see Chmiel 2008). In order for the interpreted communication event to be successful, they must behave and communicate keeping in mind that the ultimate aim is to facilitate communication for the participants in the communication event. On a very practical level, it means that their misunderstandings or divergences of opinion must never be perceived by their audience. Communication between interpreters is usually done in writing. If not, they must always make sure the microphone is either switched off, or they must use the mute button. This is also true for communication between booths.

4. Conclusion and further research

Interpreters can be seen as intercultural mediators of oral communication since their task consists of passing on the message created by a sender to a receiver where these participants do not speak each other's language and do not share the same culture.

When it comes to describing interpreting in terms of communication, it is worth examining the interpreter's behaviour in a communication process with its context, setting, participants, and the interpreter's role and place. This analysis is crucial so that communication is seen as a product mutually created by the sender(s) and receiver(s). This implies that they actively contribute to the final message. In order to achieve this, they bring into the communication event their personal and professional beliefs, experiences, attitudes, and person. In this sense, the interpreter is not an 'ordinary' participant since it is not their person that they bring into the communication process but their professional skills as communicators. However, they are interactants in this process, which confers on them a special place and role.

Furthermore, the interpreter is not expected to contribute to the final product of the communication event in terms of the message. Their contribution is restricted to the facilitation of the communication between the other participants. This contribution is not to be undervalued, since without it, the communication event could not take place at all.

Interpreted communication events have their specific features. They are characterised by a certain context, rules and norms governing a speech community's life and participants. It is within this physical and cognitive environment that interpreters work. Successful communication behaviour of interpreters is characterised by the fact that they behave in a reassuring and assertive but discrete way. This is dependent on specific personality traits such as empathy, spontaneity and flexibility.

However, further research is needed before we can assert that we fully understand interpreters as professional communicators. One of the possible paths is the further exploration of professional interpreters'

communicative and intercultural competences. Another interesting topic is the specificities of interpreters' intrapersonal communication. Furthermore, a valid project for empirical research would concern bilateral interpreting and the way interpreters influence turn-taking in conversation.

CHAPTER 2
Interpreters' speech behaviour

In addition to being professional communicators, interpreters are also public speakers. Their professional career consists of relaying other speakers' spoken messages to an audience that does not understand, or just partially understands the language of the original speech. This means that interpreters spend an enormous amount of time speaking during their professional life. For this reason, their speech behaviour is an essential component of their profession of linguistic and cultural mediation. It is not the aim of this chapter to describe the linguistic competence of interpreters but rather to examine the way they use language with special focus on paralinguistic features and their impact on meaning. In what follows, we shall first discuss the main characteristics of human speech with a special focus on continuous speech and its prosodic features such as stress, intonation, speed and voice quality. Then, we shall turn to the topic of speech behaviour in general and elaborate on the topics of voice health and voice hygiene, voice and identity, the role of breathing during speaking and the function of the human speech apparatus in voice production. Finally, we shall endeavour to characterise the speech behaviour of professional interpreters.

1. Human speech

At first sight, speech and speaking might seem to be simple and obvious concepts to research and describe since most of us use them in our everyday and professional communication. In fact, the vast majority of our communication is done through speaking. In the absence of a pathological cause, all humans learn how to speak. Once we have mastered the skill of speaking, it seems as natural as breathing.

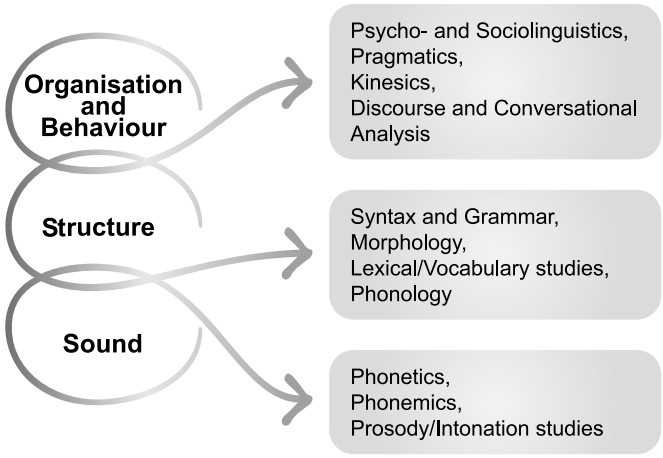

Figure 1. Levels and fields of research into speech and conversation (based on Hughes 2002: 7)

However, as Hughes notes, speaking overlaps with other areas and activities and he breaks down the study of speech and speaking into three distinct areas: the global or discourse level, the structural level and the level of speech production (see Figure 1). In what follows, we shall be primarily concerned with the third level, and more widely with behaviour, i.e. the way speech can be used to convey meaning in communication and the psychological motivations to voice use.

The simplest way to schematise the way speech takes place is through

the speech chain (see Figure 2) as it shows the three main events during speaking: voice production with the help of our chest, throat and head; the sounds travelling through the air in the form of vibrations; and the reception of the sounds by the listener's ears.

Figure 2. The speech chain (based on Roach 2001: 4)

Another way of characterising human speech is through the concept of the vocal-auditory channel. It is a feature of human speech and human linguistic communication is generated via the vocal organs and perceived via the ears.

However, it needs to be emphasised that the brain of both the speaker and the listener must also be taken into account in this respect. As Roach puts it,

> the brain of the speaker is involved in controlling the production of the speech, and the brain of the listener has to do the job of analysing the sounds that have been heard, and converting them into a meaningful message. [...] Not only does the brain send out the commands necessary for producing speech, but it is also constantly receiving feedback in the form of the sound of the speech that is being produced; if we were not able to monitor our speaking in this way, we would find it extremely difficult to speak at all (Roach 2001: 4).

We can further characterise speech and speaking as an interactive task and something that happens under real-time processing constraints. The complexity of the speaking process is best described by Levelt, who asserts that

> [a] speaker with a normal speech rate produces over 150 words per minute [...] – on the average, one every 400 milliseconds. Under time pressure the rate can easily be doubled to one every 200 milliseconds.

> A normal, educated adult speaker has an active vocabulary ... of about 30,000 words. A speaker makes the right choice from among these 30,000 words or so alternatives not once but, in fluent speech, continuously two to five times per second – a rate that can be maintained without any clear temporal limit. There is probably no other cognitive process shared by all normal adults whose decision rate is so high. Still the error rate is very low. Garnham [*et al* 1982] found [...] 191 slips of the tongue in a text corpus of 200,000 words – about one slip per 1000 words (Levelt 1989: 199).

This complex process requires careful planning, when the various components (sounds, phonemes, words, sentences) are assembled into meaningful utterances.

1. 1 Continuous speech

In addition to being spontaneous and taking place in real-time, speech is characterised by the fact that it is **connected**. According to Field, in speech

> phonemes blend into each other: in a word like *cat*, we cannot say exactly where the [k] ends and the [æ] begins. Furthermore, where writing has words separated by blank spaces, pauses in speech are irregular and infrequent. So what we actually hear is a string of joined words (Field 2003: 93).

Underhill describes continuous (or connected) speech as consisting of "a flow of sounds which are modified by a system of simplifications through which phonemes are connected, grouped and modified". In continuous speech, the "modifications to dictionary pronunciation [...] are fairly systematic and include *assimilation* (the changing of sounds), *elision* (the changing of sounds), *vocal reduction*, *liaison*, *linking* and *intrusive sounds*, and *juncture*"(Underhill 1994: 58).

In continuous, or fluent speech, meaning is partly conveyed by suprasegmental features, or rather, the changes we make in them. The most important **suprasegmental features**, according to Roach, are "pitch,

loudness, tempo (that is, speed), and voice quality [...]. The study of these features is often referred to as the study of prosody. Two such features form the basis of specially important functions, stress and intonation" (Roach 2001: 31).

Underhill distinguishes between careful colloquial and rapid colloquial speech. **Careful colloquial** speech is characterised by the fact that it

> contains all types of simplification to a moderate degree. Words remain closer to their dictionary pronunciation than in rapid colloquial speech. This style is likely to be used in more formal setting, the speaker shaping utterances more carefully, deliberately and slowly (Underhill 1994: 59).

In contrast, in **rapid colloquial** speech there are

> more simplifications, and individual words may be further from their dictionary pronunciation form [...]. This style is used in less formal settings as when native speakers are talking informally to one another. [It] may be characterized by faster delivery and less care and attention to precise articulation on the part of the speaker (idem).

Clark and Clark define **ideal delivery** as the "correct way of executing a sentence" and they add that

> [w]hen people know what they want to say and say it fluently, they are giving ideal delivery. Actors saying their line, except when making deliberate errors, come close to ideal delivery, and so do practiced readers or orators. For theories of speech production the ideal delivery is of central importance, they all assume that people strive for the ideal delivery, and every deviation points to something that has gone wrong in planning or execution. [...] In the ideal delivery, most types of clauses are executed in a single fluent speech train under one smooth intonation contour (Clark and Clark 1977: 261).

Although ideal delivery is very difficult to execute, it is nevertheless worth taking a closer look at how such prosodic features of continuous speech as stress, intonation and rate can contribute to it.

1.1.1 Stress in continuous speech

Stress is one of the most important prosodic features of speech. In Underhill's words

> [s]tress is an umbrella term used to cover both *accent* (or word stress), and *prominence* (or sentence stress). The former belongs to the word, while the latter is chosen by the speaker to highlight the intended meaning. Continuous speech contains both word accents (in a sense *regardless* of the speaker) and prominence (*because* of the speaker). And what happens then is that individual word accent is likely to be subordinated to the speaker's choice of prominence, and these prominences form the major part of the rhythm of the whole utterance (Underhill 1994: 58).

1.1.2 Intonation in continuous speech

Another suprasegmental prosodic feature that influences understanding and conveys meaning is intonation. Concerning the **function of intonation**, Underhill notes that

> intonation and rhythm together help to focus attention on the information structure of a discourse and to indicate 'what goes with what' in an utterance. Within the context of a particular discourse, the intonation contours chosen by the speaker may indicate attitudes, mark syntactic boundaries, highlight the relationship between the utterances, and indicate the common ground assumed between speaker and hearer (idem 59).

Furthermore, intonation can "indicate different types of utterances, such as statements and questions [...]. Intonation also gives the listener a lot of information about what is being said [and we] can use intonation to signal that we are giving a list". Roach also agrees that intonation may express the psychological state of the speaker and "indicate the attitudes

and emotions of the speaker, so that the sentence like 'I think it's time to go now' can be said in a happy way, and a sad way, an angry way, and so on". While all these are true, Roach also defines intonation in terms of the discourse structure of speech, and explains that

> [w]e speak in order to communicate, and we need to interact with our listeners to do this. We must indicate what type of information we are presenting and how it is structured, and at the same time we must keep our listeners' attention and their participation in the exchange of information. Communicative interaction would be much more difficult without intonation: think how many misunderstandings between people arise in the exchange of e-mail messages when intonation cannot play a role (Roach 2001: 33-35).

1.1.3 Speed in continuous speech

The tempo or rate at which the speech is made is another factor influencing intelligibility. It is usually measured by the number of syllables per minute, and it is something the speaker can influence or change. A speaker should strive to achieve a rate of speech that is comfortable for both speaker and listener.

According to Richards *et al* there are several factors that may influence speech rate, or the rate of utterance such as "the speaker's personality, the type of topic, the number of people present, and the speaker's reactions to them. Another factor is the speaker's familiarity with the language or dialect he or she is using". They also distinguish between the rate of speech and the rate of articulation, noting that the former is "measured by the number of syllables per minute, and the rate of articulation [is] measured by the number of syllables per minute minus the time taken by pausing. Usually, the longer and more frequent the pauses, the slower the speech rate" (Richards *et al* 1992: 305).

A typical situation characterised by a **slow speech rate** is when adults speak to children. Clark and Clark describe that

> adults select what they say to young children by restricting it to the 'here and now', so they alter the way they say what they say when talking to children. They do it in three ways: they slow down, they use short, simple sentences, and they repeat themselves frequently (Clark and Clark 1977: 326-327).

When trying to solve a long-standing language myth, according to which some languages are spoken more quickly than others, Roach concludes that the social determination of speed seems the most plausible explanation. According to this explanation,

> in some societies it is regarded as acceptable or approved to speak rapidly, while in others, slow speech is preferred. There is certainly a certain interaction with gender here, with slow speech usually being preferred for males. This would mean that, while *at normal speaking speed* the sounds-per-second rate for all languages may be effectively the same, some languages are characteristically using higher and lower speaking rates than other languages in a particular social situation (Roach 1998: 155).

Roach lists several studies that have proven that the speech rate differences between languages are more dependent on style of speech, for example, during story-telling and interview than on the languages used for them. He then enumerates some **psychological factors influencing speech rate** and notes that

> [c]ertainly we are all capable of speaking faster and slower when we want to. There are variations in speed associated with the situation in which the speech is being produced – we speak more rapidly if we are in a hurry, or saying something urgent, or trying not to be interrupted in a conversation. We tend to speak more slowly when we are tired or bored. The emotional state of the speaker at the time of speaking is clearly influential. There seems to be also a personal factor – some people are naturally fast speakers, while others habitually speak slowly, within the same language and dialect and the same situation (idem 156).

To this, I would add another important factor having an impact on the speed at which we are speaking, namely how stressful a communication situation proves to be for us. This may depend on a number of components such as the formality of the event, the extent to which we are used to speaking in less colloquial or more formal events, whether or not we are trained public speakers, our level of preparation and knowledge of the subject, and our stress management skills, to name just a few.

A last important point needs to be noted here. Fast speakers are generally perceived to be more competent than slow ones. It is also mentioned by Roach who asserts that "[r]esearch has shown that our opinion of speakers is influenced by their speaking rate: [...] a positive linear relationship has repeatedly been found between speech rate and perceived competence" (idem). This seems to indicate that the higher the speaker's rate of speech is the more competent the listeners think they are.

1.2 Voice quality: right voice vs. wrong voice

Lionel Logue, King George VI's speech therapist, who has recently gained worldwide renown thanks to the Oscar-winning film entitled 'The King's Speech', wrote back in 1932 the following:

> [o]nly a minimum of people realise what an asset [voice] may be. [...] The voice is a sure indication, not only of personality, but of physical condition. I have studied voices all my life and can tell a person's physical peculiarities by hearing their speech, even if I am in another room (Logue and Conradi 2010: 99-100).

Voice quality may vary from gentle and pleasant to harsh and unpleasant. Richards *et al* define voice quality as

> the overall impression that a listener obtains of a speaker's voice. It is also sometimes called timbre, and refers to those characteristics of a particular voice that enable the listener to distinguish one voice from another, such as when a person is able to identify a telephone caller (Richards *et al* 1992: 403).

Cooper states that "successful communication depends largely on effective use of the voice", and distinguishes between right and wrong voice. **Right voice** "is well produced and natural and healthy. Such a voice is a valuable asset. It can have, quite literally, a hypnotic and powerful hold on your listeners". **Wrong voice**, in contrast, is "an inefficient or unpleasant or misplaced sound" which has a "detrimental effect". It is a voice "imbued with negative symptoms or traits" that "will hurt rather than help. It will inhibit rather than enhance" (Cooper 1984: 4).

Cooper introduced the term **voice image** which designates the vocal representation of a person, the image one leaves behind after a speech act. Voice image, he asserts, "pertains to sound and persona. It designates the way you perceive your own sound and the way you perceive others' sounds, as well as the interpretative judgements you apply to those sounds". A right voice leaves a positive voice image, while a wrong voice a negative one. Positive voice image "represents the substance and character of the speaker, as well as the content of his ideas, in a positive light", whereas a wrong voice "can cause an individual to be viewed and remembered as an unattractive person" (idem 5). For this reason, an individual's manner of expression, i.e. how they use their voice, is key to their identity. This implies that speech behaviour is not so much about what one says, but rather how one says it.

Natural voices are clear, dynamic and well used voices. From a communicational point of view, speaking in one's natural voice is all the more important as it fulfils two aims: attracting attention both to the speaker and the content. As Cooper notes, such voices "generate positive responses – *not* to the sound of the speaker, but to personal characteristics as well as to the content of the discussion. The properly produced voice, then, permits individuals to be perceived for their substance – physical, intellectual, and emotional" (idem 26).

2. Speech behaviour

Speech behaviour is not just about using words. It implies using words in a certain manner enabling speakers to reach their communicational goal(s), i.e. to fulfil the purpose they have set themselves when they decided to take the floor or make a comment. Thus, speech behaviour is governed by rules whose aim is to **facilitate communication**, i.e. the understanding of the message sent out by the speaker and eventually reacting to it. When we speak, we must make sure that we do not cause nuisances in the communication chain since any disturbance in the chain might make it difficult if not impossible to function. This presupposes an effort on the part of all the participants in the communication chain, but the primary responsibility lies on the shoulders of the speaker, who must comply with the rules of speech behaviour. These rules concern the content as well as the form of the message. A good speaker is aware of the rules and norms governing the speech behaviour of a given speech community and makes a conscious effort to learn and use them.

When communicating, we need to simultaneously accomplish several things: we need to speak and behave in a way that fits into the cultural framework of the speech act. Gósy defines speech behaviour as the rules, characteristics and possibilities of speaking that are actualised by the speaker within the framework of the trio of language, speech and behaviour with the primary aim of facilitating understanding this way ensuring seamless communication (Gósy 1990: 9).

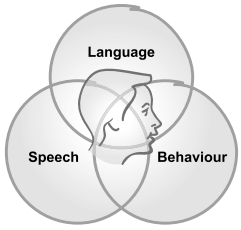

Figure 3. Gósy's model of speech behaviour (my translation)

Gósy summarises the three main components of speech behaviour as shown in Figure 3. All three have different aspects attached to them that a conscious speaker must be aware of. These are as follows:

- language: grammar, vocabulary, thinking, knowledge of the subject matter, ability to express oneself;
- speech: voice production, breathing, pronunciation, prosodic factors;
- behaviour: eye-contact, gestures, movement, physical appearance, ethnic and social customs (idem 12).

This is a very broad definition of speech behaviour which sometimes overlaps with communication behaviour. In my opinion, it needs to be narrowed down for our purposes. In Figure 3 above, certain aspects of behaviour can be better grasped and understood in the context of communication behaviour. In our more restricted view, speech behaviour refers to the way we speak, i.e. the vocal form for the message, the way this vocal form influences intelligibility, reinforces and complements the message. In fact, body language such as eye contact, gestures or physical appearance is part of our behaviour and has communicational value since it conveys a message. However, when we consider speech behaviour, the way we speak, the way we use our voice, it is seen as a form of behaviour. For public speakers it means that the actualisation of speech is the result of a **conscious effort** and, more often than not, of **conscious choices** on the part of the speaker who is aware of the rules and culture-specific norms of voice production and prosody.

In addition to being a tool for communication, speech is also a **marker of emotional states**. Emotions may be expressed through the use of emotion words. Alternatively, they can be expressed through voice characteristics and paralinguistic variables such as the one we have seen above: intonation, stress, pitch, speed of speech, etc. without making explicit reference to the speaker's states. Such paralinguistic features may be significant sources of information.

Speech may also **indicate personality**, i.e. "relatively enduring characteristics referred to with words like intelligence, extraversion, neuroticism or psychotism". Furthermore, "speech is also a source for social identity, and [c]ertain speech patterns are indicators of demographic

characteristics such as age, sex, occupation, amount and type of education, nation or region of origin" (Robinson 1972: 72).

2.1 Voice health and voice hygiene

Incorrect voice production and use may have health-related physical consequences (Cooper 1984, Gósy 1990, Potter *et al* 1966). The symptoms of **vocal impairment** are of three types: visual, sensory and auditory. Visual symptoms include the redness of the vocal folds, inflammation or swelling. Diagnosed disorders include the thickening of the vocal folds; growths or lesions of the vocal folds; bowed vocal folds; a paralyzed vocal fold; and possible neurological involvement.

Sensory symptoms include non-productive throat clearing; coughing; progressive voice fatigue following brief or extended voice use; acute or chronic irritation or pain in or around the larynx; swelling of veins and/or arteries of the neck; throat stiffness; feeling of a foreign substance or lump in the throat; ear irritation or tickling; repeated sore throats; scratchy or dry throat; a feeling that talking is an effort; a choking feeling; tension and/or tightness in the throat; earache; back-neck tension; headache; mucus formation; pain at the base of the tongue; and chronic toothache without apparent cause.

Auditory symptoms include acute or chronic hoarseness; reduced or limited vocal range; inability to talk at will and at length in variable situations; tone change from a clear voice to a breathy, raspy, squeaky, froggy or weak voice; repeated loss of voice, laryngitis; voice breaks, voice skips; a voice which comes and goes during the day or over a period of months; clear voice in the morning with tired or froggy voice in the afternoon or evening; missed or inaudible speech sounds (based on Cooper 1984: 114-117).

Voice abuse may even lead to **voice suicide**, which is a term coined by Cooper to underline the fact that a misused or abused voice can physically harm its owner. Their health might be at risk as a result of improper voice use over the long-term. This situation might eventually lead to dysphonia, i.e. "any voice impairment or any difficulty in making voice sounds". There are two main types of dysphonia: organic and

functional. Organic dysphonias are "voice disorders in which the larynx (or laryngeal structure) has been organically altered. In some instances, congenital or structural anomalies are at work (as in vocal fold paralysis); in others partial or complete excision of the larynx is responsible, as might be required in the case of primary disease such as cancer". In the case of functional dysphonias "there are no neurological or organic activating factors present. Voice misuse and/or abuse is occurring within a normal laryngeal structure. Included in this group of disorders are spastic dysphonia; falsetto voice; nasality; and [...] functional misphonia". Functional misphonia is "a tired, hoarse, or weak voice or one given to acute and chronic laryngitis" (idem 109-110).

2.2 Voice and identity

Finding and using one's natural voice is all the more important as voice is closely linked to identity since the manner in which we express ourselves is part of our personality. Yule highlights that voice and identity are linked because of "some rather amazing facts about the nature of language" and the physical and biological characteristics for voice production. In his words,

> two physically different individuals would inevitable have physically different vocal tracks, in terms of size and shape. In a sense, every individual has a physically different vocal track. Consequently, in pure physical terms, every individual will pronounce differently. There are, then, potentially thousands of physically different ways of saying the simple word *me* (Yule 1997: 53).

A concept that needs to be mentioned here is **voice type**, which, according to Cooper, "represents, in one fashion or another, a commitment to the cultural norms of the society and/or to the stereotypes that [an] individual has observed as being correct for a certain station, position, or situation". As for the acquisition of voice type, it "may be consciously or unconsciously acquired, but in either event is indicative of a sound concept with which the user is comfortable" (Cooper 1984: 57).

As for the conscious manipulation of voice type, Cooper notes that "the

individual may have adopted this voice because others have commented favourably upon it. Or perhaps it fulfils an image role and vocal identity by sounding like the type of voice a person in a certain class or position or of a certain age should have" (idem).

It is similar to what Richards *et al* call **modified speech**, i.e. "speech which is deliberately changed in an attempt to make it sound more educated or refined. The change is usually temporary and the speaker lapses back to his or her normal speech pattern" (Richards *et al* 1992: 234). Modified speech may also be the result of linguistic insecurity, which is "a feeling of insecurity experienced by speakers or writers about some aspect of their language use or about the variety of language they speak (idem 214).

Regarding the unconscious acquisition of a voice type, Cooper asserts that it may happen

> because the individual has simply imitated the voice of a friend, or, more often, of a family member. Sometimes a cold or an illness initiates a voice type which remains after the cold or illness has passed. Personality needs are frequently revealed through the voice, as when a shy person speaks quietly, or an insecure person uses the loud voice of authority to appear secure (Cooper 1984: 57).

More often than not, however, when a voice type is created, as Cooper notes, it is most probably "affected by a lack of voice knowledge and by poor vocal models in all areas of society, including the family, the schools, the office [as well as] the media, which encourage and perpetuate voice stereotypes" (idem).

Another phenomenon that needs to be taken into consideration here is **voice schizophrenia**, i.e. "vocal confusion resulting in the use of a different voice for every occasion and every encounter. It's a sort of revolving door of sounds with a different pitch and quality of voice emerging in haphazard fashion. Voice schizophrenia results from the lack of clear voice identity" (idem 65).

Finally, it should be mentioned that having a second or put-on voice (or modified voice) is not an infrequent phenomenon as most of us use a different voice when speaking to our parents, children, pets or colleagues.

Another example is using a different voice when speaking in public from when we engage in a private conversation. In fact, we have "at least one second or put-on voice, used for special occasions. This is a sound that is artificial in pitch, tone focus, quality, volume, or rate, used intermittently and briefly" (idem).

2.3 Voice production and breathing

In order to better understand speech behaviour, we need to describe the mechanisms involved in voice production and breathing. Voice production is a complex process (Cooper 1984, Gósy 1990, Puppel 1992, Roach 2001). All the sounds we use when we speak are produced by moving air from our lungs. The air passes from the lungs through the windpipe (trachea). The windpipe is connected to the lungs and passes through the chest into the neck, and through the larynx. This is where the vocal tract starts. Then the air continues its passage through the vocal tract and flows past the lips, from where it leaves the human body into the air (see Figure 4).

Human speech and breathing are activities that are similar in nature. To cite Roach's words, speech

> is sometimes described as 'modified breathing': the process of speaking begins, except for a relatively small number of cases, with the air inside the speaker's chest escaping from the lungs, through the throat and the mouth, and put into the open air [...] If we produce this flow of air without impeding it in any way, the activity could just be called 'breathing out', or if we do it loudly enough to make a sound, a 'sigh'[...] (Roach 2001: 11).

In speech, however, we modify the flow of air in order to produce sounds. According to Field "[s]peech may be characterised by the fact that it involves **vocalisation** [...]. Two factors determine the ability of the language user to produce speech-like sounds:

a. The shape, size and position of the **articulators** that we use. Speech

demands a complex interrelationship between our tongue, teeth, soft palate, jaw and nasal cavity as well as the ability to flex our vocal cords at will.

b. The ability to breathe and utter sounds at the same time. Human beings are able to exercise much greater control over their breathing than most other species. This enables us to produce a flow of air from the lungs upon which the articulators can operate freely without impeding the process of breathing out (Field 2003: 6).

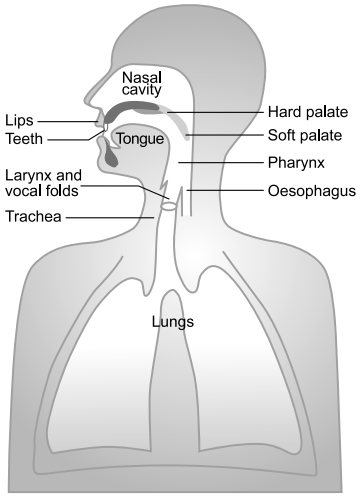

Figure 4. The breathing system and the vocal tract (based on Roach 2001: 12)

To illustrate the differences in normal (physiological) breathing and breathing during speech, it should be noted that

quiet breathing (i.e. when no speaking occurs) is a rhythmical activity which consists of inhaling the air and exhaling it on average of about 15 times a minute. In this type of breathing the inspiratory and expiratory phases of the respiratory cycle are about equal in duration. During speech, however we employ the expiratory phase. [And] the inspiration-expiration synchrony in chest volume during normal

> breathing becomes markedly different during speech. [...] In other words, speaking is superimposed upon the respiratory mechanism" (Puppel 1992: 9).

By way of comparison, as described by Gósy, during normal breathing approximately 500 cm^3 of air is exchanged in our lungs. In chest breathing, it is 1500 cm^3, while in abdominal (midsection) breathing, it is 2000-2500 cm^3. The majority of women use chest, and the majority of men abdominal breathing when speaking. The main difference between the two types of breathing resides in the fact that in the former the air is stocked in the thorax, while in abdominal breathing through the activation of the diaphragm, an increased volume of air is used for voice production. The right amount of air ensures stability of voice production and enables the speaker to articulate their speech as they wish. It also contributes to stress management by decreasing the level of anxiety. When speaking, it is advisable to breathe in through the nose, or the nose and the mouth.

As for breathing when starting a speech, we often see speakers who are lost for air and breathe heavily. More often than not, it is the result of the fact that, mainly due to nervousness and bad stress management, speakers breathe in an enormous amount of air, but it hinders them, and they cannot start speaking. For this reason, they breathe out the majority of this air before starting their speech. Therefore, it is advisable to take a smaller breath before starting to speak, and after one or two sentences to form the right air column. Finding the right air column is all the more important as it supports speech. Self-observation helps find the right amount of air needed for speech in general. It can be learnt how long one can speak with a certain amount of inhaled air, when one needs to increase the air column flow, or when one needs to create an air column. To increase the air column we use supplementary air, which is a small amount of inhaled air (Gósy 1990: 17-19).

Cooper advocates midsection breathing in contrast to upper-chest breathing and asserts that midsection support

> allows for properly controlled air usage. It also takes the muscular tension away from the throat area, placing it on the abdominal muscles, which are more able to bear pressure and tension without

> interfering with vocalisation. Correct breath support also allows for controlled volume without effort or strain (Cooper 1984: 46).

Cooper (1984) and Gósy (1990) describe correct breathing techniques and highlight their importance as they are the basis for intelligible and clear speech. They also emphasise that learning to breathe correctly is very simple and list the fundamental exercises. These voice training and breathing exercises can be used effectively to get to know our voice and gain sufficient voice consciousness, which will lead to better voice quality through a better control of the rate, tone, sound vitality, and projection of the voice. Eventually, the mastery of voice production will also lead to better stress management.

According to Cooper, good-sounding, well-projected and healthy voices are correctly projected from the mask. He defines the mask as the area of the face which "includes the bridge and sides of the nose to and around the lips". This area is called the mask "because in ancient Greek times stage actors, playing both male and female roles, spoke through masks that covered this part of their faces and amplified their voices" (Cooper 1984: 15).

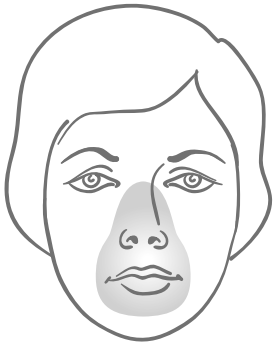

Figure 5. The mask

Cooper and Gósy base their methods on correct breathing and voice training. It still seems to be a relevant approach, although there is a new approach to patients with non-organic, i.e. functional voice problems, such as dysphonia (hoarseness of the voice). As Pedersen *et al* point out, based on the findings of their pilot study in laryngology,

> careful medical treatment and diagnosis seems to improve the dysphonic (hoarse) patients' quality of life at least as much as the previously used voice training. A combination of medical voice hygiene advice at the first visit of patients with 'non-organic' disorders and a scientifically based treatment of 'micro-organic' disorders such as allergy, infection, reflux, etc., of the upper airways has possibly a better effect than one of them alone (Pedersen *et al* 2004: 315).

2.4 The speech apparatus

In order to better understand the mechanisms of speech production and be able to use one's voice to its best advantage, one needs to be familiar with the organs involved in speech production (see Figure 4 and Figure 6). Human speech can be divided into three parts: the lungs, the vibrating vocal cords and the vocal tract. The lungs are responsible for the air-stream mechanism, the vocal cords for phonation (or voicing) and the vocal tract for articulation.

2.4.1 The larynx

The larynx plays an essential role in speech production as it is the speech organ responsible for voicing (phonation). According to Roach, the "vital part of the larynx is a pair of folds of muscular tissue called the vocal folds, and we can move these into a number of positions between wide open and tightly closed" (Roach 2001: 13). The way the larynx functions is described by Roach as follows:

> we open [the vocal folds] widely to allow a rapid escape of air. If they are slightly narrowed, so that the gap between them is only a few millimetres, the air makes a rushing noise that we associate with the sound at the beginning of the English word 'head'. If we close them enough for them to be lightly touching each other, the air passing between them causes them to vibrate; this is called voicing or phonation, and it can be varied in many ways, most importantly

> in pitch, which may be high or low according to how we adjust our vocal folds. [...] Finally, if we close the vocal folds firmly, we prevent air from escaping. This is often called a glottal stop (idem 13-14).

2.4.2 The vocal tract above the larynx

As seen in Figure 6, the pharynx is the passageway immediately above the larynx. The function of the pharynx consists of carrying air as well as food when we are eating. If we move upwards from the pharynx, it can be seen that the vocal tract divides into two parts: the nasal cavity and the oral cavity or mouth (see Figure 6). The nasal cavity is the passageway "from where air escapes through the nose; however it only happens if we allow it. We can close off the access to the nasal cavity by raising the soft palate (also known as the velum), or allow air to go into the nasal cavity by lowering it". At the extreme end of the soft palate, there is "a small piece of tissue called the uvula [...], which plays a part in the pronunciation of some languages" (Roach 2001: 14).

We have already seen above that inside the oral cavity there are many parts which we use when we speak. According to Roach,

> the most important is the tongue, which is so important in speaking that in many languages the word for 'language' is also the word for 'tongue'. It is amazingly mobile and flexible [...]. The tongue can move upwards and downwards, forwards and backwards. In producing vowels the tongue does not make a great deal of contact with the palate (the upper part of the mouth, sometimes called the roof of the mouth); in many consonants, there is extensive contact (idem).

As for the lower jaw, it "can also move upwards and downwards, and to a small extent forwards and backwards too. The teeth can be important in speaking, though we can't move them" (idem).

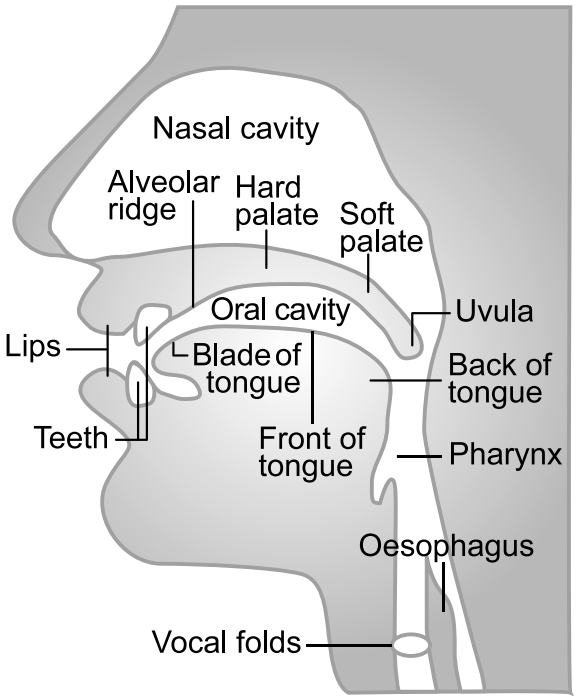

Figure 6. Places of articulation (based on Roach 2001: 21)

So far we have described the inner part of the vocal tract. At its outer end, the lips also need to be mentioned in connection with the speech apparatus since they also contribute to the process of speech production. They are also "very flexible and easily manoeuvrable", and as such, "they can be moved towards each other and firmly closed, or can be moved further apart. They can be pushed forwards and rounded, or pulled back and widened as a smile" (idem).

3. The speech behaviour of interpreters

There are some professions where the voice plays an important part in the professional performance of its owner. These professions, most of the time, are also characterised by a specific speech behaviour. It is easy to see how teachers, politicians, journalists, actors, TV anchors and interpreters need to rely on their voice during their working hours not only in terms of quantity, i.e. the time spent speaking but also of quality. This latter aspect is important since, as we have seen above, good voice quality attracts attention both to the person making the speech and to its content. Furthermore, these professions are more often than not about raising and keeping the attention of an audience.

Interpreters are, however, different from all of the other professionals mentioned above because while the others sometimes fall silent and listen to what others have to say, interpreters, especially conference interpreters, are never silent. If we take journalists as an example, when they ask a question, they are normally silent while they listen to the answer. So are teachers when they have elicited a student's response or asked students to orally deliver an assignment. Interpreters, on the other hand, speak practically all the time. Additionally, in the simultaneous mode, where they are physically separated from the speakers and their audience, and can hardly be seen if they can be seen at all, since they are sitting in a booth removed from the centre of attention, they become one with their voice, and their voice becomes one with them.

Another characteristic of an interpreter's speech behaviour results from the fact that they speak for others. This has several consequences. First, they fulfil somebody else's communicational needs and purposes. Second, somebody else creates the content and the message of their speech. In other words, their motivation is different from that of the original speaker, but they share the same communication goals. Third, interpreters have at least two active languages, which they use during speaking. It is obvious, however, that their speech behaviour needs to be as seamless as their communication behaviour in order to convey not only the message of

the source language speech but also their professionalism. In other words, their speech behaviour is part of their professional behaviour, and it is another facet of their communication behaviour.

The fact that interpreters are **secondary speech producers** may have several implications for their speech behaviour in terms of voice production, paralinguistic features such as intonation, speech rate, pitch of voice and voice identity. In what follows, we shall examine some of these aspects and discuss how they can arrive at an ideal delivery, which is a rather vague but useful concept for our purposes since it describes the ultimate aim of an interpreter's speech behaviour. It remains the case even if the original speaker's delivery is far from ideal.

3.1 Interpreters and voice production

Professional interpreters need to be familiar with the speech organs involved in voice production and the process of voice production itself: not only for the purposes of interpretation but also for long-term health reasons. Interpreters, like other public speakers, should have a good quality voice as in this ever increasingly competitive profession it might be voice quality that sets them apart from their competitors. As we have already seen above, a well projected and good voice is listened to and **inspires confidence**, something interpreters depend on to a large extent, as their work is constantly being judged by everyone involved in an interpreted communication situation.

Attracting and keeping the listeners' attention is at the heart of the functioning of the communication process. It is particularly important in the case of interpreted communication as it presupposes a great deal of effort on behalf of the user of interpretation as well. For this reason, if an interpreter's voice distracts rather than attracts the attention of the audience (because it is harsh or too high-pitched), the **quality of interpretation** will suffer.

Awareness of correct breathing techniques is also of primary importance in this profession where an interpreter is usually speaking into a microphone, which may amplify any superfluous sound produced. Controlling one's breathing is not only an essential part of **voice**

management, but it is also a form of **stress management**. Finding the right air column and ensuring the correct air column flow often leads to better stress control and, in turn, to a calmer and more dynamic voice. The basis for seamless air column flow is good posture, holding one's upper body upright, when sitting or standing. This and other techniques are quite easy to learn, and interpreter training schools often introduce voice coaching classes into their curriculum with the dual aim of enhancing would-be interpreters' voice quality and stress management skills.

Another specificity of interpreter speech behaviour derives from the fact that they use different languages during their speech from the source language. Most of the interpreters have or strive to have more than one active language, which means that they are actually native or near-native speakers of at least two languages. As a result, their organs involved in the speech production process, and most specifically those involved in articulation, are characterised by a higher **flexibility**. They need to be able to pronounce a wider range of sounds in an intelligible way to both native and non-native speakers of those languages.

3.2 Interpreters' speech behaviour and prosody

Since interpreters render other speakers' oral messages into another language, their speech behaviour might be influenced by that of the original speaker. It might most often be felt in their intonation and rhythm, the speed at which they speak, their diction, the pauses they make or do not make. Prosodic features are essential in so far as they play an important role in conveying a message: a change in them may modify the overall message of a whole speech. These are the features that are the most often neglected by interpreters. However, they are an essential part of their performance. Prosody is the wrapping paper around the present. It is the first contact with the message.

3.2.1 Intonation in interpreting

Flat intonation makes it more difficult for the users of interpretation to grasp the meaning of what is being said. This often requires an extra effort on their behalf, which is not what interpreters want to achieve since their task consists of facilitating comprehension and communication. Correct intonation is an essential component of good quality interpreting as it may convey additional or hidden meaning. Incorrect intonation, on the other hand, may alter the meaning in a way that changes the whole message of the speech to be interpreted. Intonation may carry grammatical meaning, as in the case of questions or statements. It may convey additional information to the words of a certain utterance by making them sound more assertive or, by way of contrast, more doubtful. It may also indicate the speaker's attitude towards, and approval or disapproval of the subject that is being discussed.

Different languages are characterised by different intonation patterns. Intonation patterns may differ between certain varieties of the same language like in the case of British and American English. In some speech communities, it may also happen that there is a gender or age difference in the intonation patterns. For this reason, interpreters are expected to be sensitive to intonation, and understand the meaning a certain intonation pattern conveys.

3.2.2 Speed in interpreting

Interpreters are expected to produce continuous speech without causing communication disturbances. One of the prerequisites for this is the speed at which they are speaking. They are supposed to find a **comfortable rate** that allows them to monitor their speech, to think about the meaning of utterances and to transfer the message from one language into another. Speaking too fast has several disadvantages. It makes the message less intelligible for users. It might give the impression that the interpreter is nervous for some reason, which, in turn, might lead to a loss of confidence in what they are saying on the part of their listeners as it does not leave enough time for them to monitor their output. It is also more

exhausting and consumes more of their energy available for the overall task of interpreting.

Speaking too slowly is not suitable either, as it may be interpreted by the listeners as the sign of linguistic insecurity or might give the impression that the interpreter has not understood the content of what is being said. It also makes listening to the interpreter's speech more tiring or even boring, which may lead to the audience losing interest or the interpreter losing the attention of the audience.

The right rate is all the more difficult to find as the interpreter depends on the speed at which the original speaker is delivering the message, as well as the time constraints imposed on them. The rate of the original speech can be too fast or too slow as the speaker, although speaking before an audience, might not be aware of the basic rules of public speaking, or might be too nervous to control the prosodic features of their speech. Interpreters, however, are not supposed to copy the original's speed if it hinders understanding by the audience. Experienced interpreters will have acquired the necessary techniques for counterbalancing speeches that are too fast or too slow.

Interpreters are expected to speak at a rate which is comfortable for them and for their listeners. A comfortable rate means that the interpreter's speech is intelligible and allows for good diction, i.e. clarity not only of pronunciation but also of what the interpreter is trying to express. This implies that they need to speak with ease, or at least need to give the impression they are speaking with ease. For this, they need to exercise a perfect command of their prosody.

All this enables them to have the required level of **fluency**. However, this fluency needs to take into account the prosodic features of the active language they are working into. These features, such as intonation, speed, stress, native-like pausing result in native-like or near native fluency, which is needed in interpreted speech for communicating ideas in an effective manner. High quality interpreted speech sounds natural and it is easy and pleasant to listen to. However, if prosodic rules are broken for some reason, even accentless interpreted speech sounds unnatural.

Darò asserts that an interpreter's speech rate depends on six factors, namely (1) the speaker's rate, (2) the direction of translations, (3) the type of text to be translated (e.g. technical versus rhetorical texts), (4) the

strategies used by the interpreter (word-for-word versus meaning-based translation), (5) the level of proficiency of the interpreter and (6) their physiological abilities (Darò 1994: 255).

Meuleman and Besien studied the strategies conference interpreters used to cope with extreme speed conditions, i.e. when the speed rate of the speaker was extremely high. There are various techniques and suggestions in the literature on the subject: segmentation (salami technique or saussisonage), using short and simple sentences, splitting sentences, using noncommittal sentence beginnings, etc. Meuleman and Besien conducted their study with the help of sixteen Brussels-based interpreters working from French into Dutch, and found that "in the case of complex sentence structure, segmenting is preferred", and "in the case of high speed delivery, on the other hand, tailing appears to be the most successful strategy". They also found that "although both strategies may be used to cope with extreme speech conditions, their success rate varies, and may be influenced by the interpreter's style" (Meuleman and Besien 2009: 31-32).

3.3 Interpreters and voice identity

Interpreters' voice identity is an obvious issue since they do not speak to fulfil their own communication need: it is easy to see how the speech behaviour of their client may influence their own speech behaviour and voice identity. In addition to this, they tend to speak in the first person singular, which may make the issue of identity and voice identity even more worthy of attention.

Most of us have several voices that we use on different occasions. Furthermore, most of us adopt different types of speech behaviour on different occasions. The most salient examples are when we speak to children or sometimes to an elderly person in need of assistance, or a person we do not know at all or just know too well. In the professional life of an interpreter, it is even more tempting to use a **put-on voice** for several reasons. Because interpreters are not the owners of the content of their speech, they do not want to or cannot identify with the speaker and the content of their speech. If this is the case, they might modify their

professional speech as a sign of alienation or disapproval. Interpreters may also want to sound and behave in a formal way and feel that for this effect, they need to use a different voice identity. Another reason is that they are insecure about the linguistic form or the content of what they are saying. Alternatively, they experience a sudden adrenaline rush due to the appearance of an unexpected stressor, and they start to breathe more heavily as if they were lost for breath, which frequently leads to an accelerated speech rate. This, in my experience, mostly happens unconsciously, i.e. the interpreter rarely seems to be aware of the change.

This modified or put-on voice and speech behaviour can be momentary, for example, when it is triggered by an unexpected stressor. Once the stressor's effect has disappeared, the interpreter resumes their natural mode of voice and speech behaviour. But it can also be constant. In other words, the interpreter changes voice identity the moment they put on their interpreter hat: they identify with their professional role a different voice and different speech behaviour from their everyday speech characterised by their personality-specific speech habits.

Whether or not an interpreter uses a put-on voice for professional purposes only matters if this put-on voice sounds unnatural, or it is unpleasant to listen to: too high-pitched or too monotonous voices do not facilitate understanding. Instead they make the communication of ideas difficult.

4. Conclusion and further research

Speaking is an intrinsically instrumental activity. When we speak, we do so in order to have an impact on our audience by providing information, entertainment or by asserting our knowledge, to name but a few. We try to convey a message in accordance with our communication goals and intentions. At least this is the case of primary communication acts in monolingual communication situations.

Interpreters are professional public speakers involved in 'secondary' communication since they convey the meaning of somebody else's speech and communicate other speakers' ideas in a language different from the one the speaker uses. This has several implications for their speech behaviour, which is often different from that of the original speaker.

Since an interpreter's speech behaviour is the first 'contact point' between them and their audience, it conveys their professionalism. In other words, their professionalism is reflected in the way they speak, in their diction, and the fluency and prosody of their active languages. To be able to keep up a comfortable, 'ideal' rate, they need to have native or near native competence not only in terms of linguistic but also paralinguistic features.

Their speech behaviour is a crucial facet of their communication behaviour which conveys meaning. For this reason, interpreters are expected to display smooth speech behaviour since such behaviour not only facilitates understanding for their audience, but also strengthens confidence in the interpreter's speech and performance. In other words, interpreters' speech behaviour is an essential component of their expertise and professional behaviour.

Seamless interpreter speech is fluent and interesting to listen to. It is characterised by the fact that intonation, speed and fluency serve the needs of understanding. It is a conscious behaviour fostered by correct voice use since misused voices arouse less interest in the content of interpreted speech and are less pleasant to listen to. Conscious use of one's voice does not mean putting on artificial prosodic habits. It means quite the opposite: finding one's natural voice and voice pitch.

Speech consciousness and the control of voice use are also essential factors in terms of voice health and voice hygiene and in the prevention of vocal impairment. The most common sensory symptoms of voice impairment are voice fatigue and coughing, which we tend to accept as natural functions of the voice. Yet these symptoms disturb prosody and speech behaviour. Furthermore, incorrect voice production may have long-term health consequences as well.

An essential prerequisite for professional speech behaviour is correct breathing techniques and posture. This is the basis for good air flow from the lungs, which is indispensable for ensuring intelligibility of speech and a well-projected voice. Correct breathing also helps manage stress and compensate for linguistic or content insecurity. As a consequence, it helps discipline one's speech, which is a way of preventing the interpreter from unnecessarily wasting energy.

However, a lot of questions remain unanswered, and much empirical research is needed before we can fully understand the factors involved in the speech behaviour of interpreters. Is voice consciousness enough to provide interpreters with an increased control over the suprasegmental features of the speech they are producing? How does perceived personal or professional identity influence the speech behaviour of interpreters? To what extent is it possible for interpreters to prevent their emotions from being heard through their voices? Is it possible to maintain a completely neutral, unbiased attitude to the content of the message of the speech to be interpreted? To what extent do an interpreter's attitudes towards the topic of discussion influence their speech behaviour? What impact does the degree of technicality of a speech have on the paralinguistic features of the interpreter's speech? These are questions that require further research in the context of interpreting.

CHAPTER 3
Interpreters' linguistic behaviour

Interpreting is also language use in real time. Interpreters use languages as part of their job. Perhaps this is the most obvious facet of their professional activity as even 'outsiders' to the profession can easily see it whereas they do not necessarily think of interpreting in terms of information-processing or behaviour. In what follows, we will examine the issues of neuropsychology and psycholinguistics relevant to the linguistic behaviour of interpreters: language and the human brain, the mental lexicon, and bilingualism.

1. Language and the human brain

The brain is relevant to the study of linguistic behaviour since speech is the product of brain functioning. The brain is the organ of the human body which is central to communication, information storage and processing, language perception and production.

With regard to the difference in size and structure between the human brain and that of primates which do not possess language, Field (2003) states that there are two explanations: the nativist and the cognitivist views. According to the former, "a human infant must have some kind of genetically transmitted language faculty in order to acquire language as rapidly and successfully as it does", while the cognitivist view holds that "differences in the operation of the human brain are what enabled us to evolve language when other species could not" (Field 2003: 7).

1.1 The structure of the human brain

The human brain can be divided into three different areas: upper and lower parts, left hemisphere and right hemisphere, and front and back.

The upper surface of the brain consists of the **cortex**, which is also called grey matter due to its colour when it is exposed to air. The cortex "deals with many of the more complex operations, including making connections with stored information, analysing input and controlling sophisticated muscular movements". Below this upper surface is the **sub-cortex**, or white matter. It consists mainly of nerve cell fibres. This lower part of the brain "is responsible for reflex actions, controlling functions such as breathing and heart beats". At the base of the brain is the **cerebellum**, and it "has a delicate role in co-ordinating a range of muscular movements which have become highly automatic" (Field 2003: 8).

The brain is also divided into left and right **hemispheres**. The left hemisphere's role consists of controlling "movement and sensation on the right side of the body" and "the right hemisphere is linked to the left side". It can also be said that in general, "the left hemisphere in most

individuals is associated with analytic processing and symbolisation, while the right is associated with perceptual and spatial representation". The two hemispheres "are joined by a complex web of nerve connections known as the **corpus callosum**" (idem).

As for the front and back division of the human brain, there are four major regions or lobes in each hemisphere. These are the frontal lobe at the front, the temporal lobe running from front to back and the occipital and parietal lobes at the back.

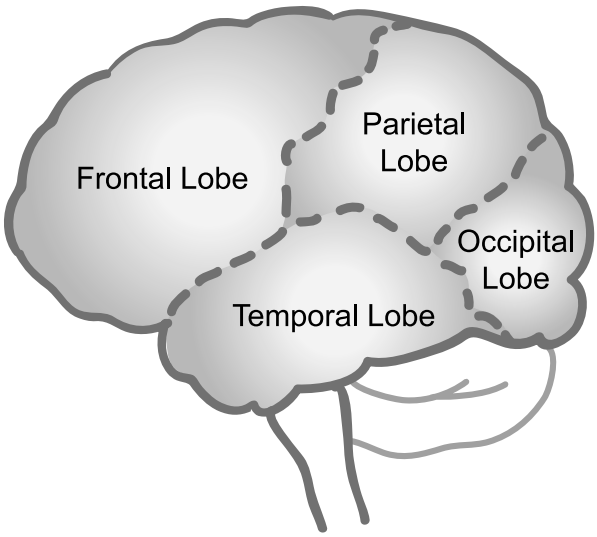

Figure 7: The human brain

1.2 Localisation of language in the brain

There have been numerous attempts to localise language in the brain. There are, in fact, two different views regarding the place of language in the brain. Some researchers assert that "language is restricted to a single location or a limited number of locations", which would "support the idea that we possess a language faculty that is independent of other thought processes". Others believe, however, that language "is widely distributed throughout the brain" (Field 2003: 53).

The first attempts to find the place of language in the brain go back to the middle of the 19th century. These attempts are based on evidence from patients who had suffered brain damage which had impacted their speech. The two most salient researchers were a French surgeon Paul Broca and a German doctor Carl Wernicke. Paul Broca presented a paper at the French Anthropological Society at the beginning of the 1860s, in which he described the observations he had made of twenty individuals suffering from severe language impairment. In nineteen out of these twenty cases, "the problems with language appeared to have resulted from brain lesion on the left side of the head, just in front of the ear and slightly below the top of it (technically the lower part of the left frontal lobe)" (idem). This area is known as **Broca's area**, and it seems to support the localisation theory of language to a certain part of the brain. It also suggests that the region responsible for speech production is localised in the left hemisphere.

A few years later, in 1874, Carl Wernicke identified a different area in the brain linked to language deficit. It is called **Wernicke's area**, and is also situated in the left hemisphere in the posterior part of the temporal lobe, behind the left ear. However, this localisation theory has been challenged by more recent techniques of brain imaging used for the study of language and speech localisation in the brain. Most recent evidence from brain imaging suggests that

> language is widely distributed throughout the brain. There is evidence that different lexical sets (colours, foods, tools) may be stored in different places. The brain seems to differentiate between two types of language processing – with the central parts looking after more rapid analytic operations (e.g. recognising phonemes) and other parts looking after the slower, associative operations (e.g. building meaning) (idem 56-57.)

These findings supporting the fact that language is distributed across the brain can nonetheless be reconciled with Broca's and Wernicke's earlier findings. If we accept that language is not localised in certain areas but rather distributed across the brain,

> it must rely upon a massive system of nerve connections to transmit and assemble it. It seems likely that the Broca and Wernicke areas represent major junctions for these networks. So what is damaged in an aphasic patient is not a separate 'language store' but the ability to transmit language across vital neural links (idem).

1.3 Lateralisation in the brain: left vs. right hemisphere

Regarding speech, it is important to note that the nerve connections going from the right ear to the left hemisphere are thicker than those going from the left ear to the right hemisphere. Language and speech processes are coordinated by the left and the right hemispheres, but the exact roles of each hemisphere are much debated even today. Earlier theories asserted that language comprehension resulted from the functioning of the left hemisphere, while the right hemisphere was responsible for controlling other types of perception such as musical talent (Gósy 1999: 21).

The relationship of the two hemispheres with the rest of the body is a **contralateral relationship**, which means that "the right side of the brain controls movement and sensation on the left side of the body while the left hemisphere is responsible for the right side". Furthermore, "the left hemisphere in most individuals is associated with analytic processing and symbolisation, while the right is associated with perceptual and spatial representation". If we take this reasoning further, it can be suggested that there is "an important role for the left hemisphere in language processing, and, indeed, the effects noted by Broca and Wernicke involved damage to the left side of the brain" (Field 2003: 96).

In light of the above, it can be proposed that language and speech can be localised in the left hemisphere of the brain, but this does not exclude the role or participation of the right hemisphere in speech processes. While it can be asserted that mainly the left hemisphere is responsible for decoding language, speech perception and comprehension, the right hemisphere might take over some of these processes, i.e. language can **re-lateralise** itself in the case of patients who have suffered brain damage at a very early age. The reason for this "might be that in early life there is a period of flexibility in the brain, with neural connections yet to be fully

established and language not yet lateralised". This means that if "the left part of the brain is unavailable due to an accident or surgery, then language might establish itself in the right hemisphere instead" (Field 2003: 97). According to Lenneberg's theory, if the damage occurred before a certain age in infancy, the patient might fully recover speech. This period is called the **critical period** in first language acquisition, and it is estimated to be around the age of five to seven years (Field 2003, Gósy 1999).

2. The mental lexicon

The most salient aims of verbal communication amount to deriving meaning from visual patterns when reading, and sound patterns when speaking or listening. In order to be able to do this, we need to possess stored knowledge in our memory about words presented in the incoming perceptual information. This stored knowledge is the mental lexicon. According to Garnham, the mental lexicon "specifies how the word is spelled, how it is pronounced, its part of speech and what it means. However, it is convenient to think of the lexicon itself as containing not the meaning of words, but rather *pointers* to those meanings" (Garnham 1985: 43).

One of the characteristics of the mental lexicon is that it is **highly organised** since it needs to contain an enormous number of words. According to estimates the "number of words known by an educated adult [...] is unlikely to be less than 50,000 and may be as high as 250,000". This means that "words cannot be heaped up randomly in the mind" and that "the mental lexicon is arranged on a systematic basis" (Aitchison 1987: 6-7).

Another reason for the systematic organisation of words in the mental lexicon is that they can be retrieved very fast. As Aitchison notes "[p]sychologists have shown that human memory is both flexible and extendable, provided that the information is structured" (see also chapter 6). Furthermore, [r]andom facts and figures are extremely difficult to remember, but enormous quantities of data can be remembered and utilised, as long as they are well organised" (idem 5).

The mental lexicon is often likened to book dictionaries (Aitchison 1987, Garnham 1985). However, there is little similarity between the words contained in a dictionary and those in our minds. One of the main differences can be found in the organisation of book dictionaries and the mental lexicon. While the former list words in alphabetical order, "human mental dictionaries cannot be organised solely on the basis of sounds or spelling. Meaning must be taken into consideration as well, since humans

fairly often confuse words with similar meanings." This implies that "the organisation of the mental lexicon is likely to be considerably more complex than that of book dictionaries, for whom orderliness is a prime requirement" (Aitchison 1987: 10-11).

Book dictionaries and the mental lexicon differ in terms of **content** as well. Book dictionaries contain "a fixed number of words which can be counted". For this reason, they are "inescapably outdated because language is constantly changing, and vocabulary fastest of all". The contrary is true for the mental lexicon, whose content is constantly changing since people "add new words all the time, as well as altering the pronunciation and meaning of existing ones". Furthermore, people "often create new words and new meanings for words from moment to moment, while speech is in progress" (idem 11). The mental lexicon is therefore characterised by a much higher degree of **fluidity** and **flexibility** than book dictionaries.

Another difference resides in the fact that the mental lexicon contains far more information about each entry. Furthermore, "in book dictionaries, words are mostly dealt with in isolation". They "tend to give information that is spuriously cut and dried", and they "do not often spare the space to comment on frequency of usage" (idem 12-13).

As for sounds, book dictionaries usually specify only one pronunciation for each entry. Native speakers of a language, however, "are likely to be able to understand quite different pronunciations by different speakers. In addition, they are likely to have more than one pronunciation in their repertoire, depending on the formality of the occasion and how fast they are speaking" (idem 13-14).

2.1 The structure of the mental lexicon

Models representing the mental lexicon can be grouped in two main categories: a) atomic globule theories and b) cobweb theories (Gósy 1999, Aitchison 1987). **Atomic globule** theories can be summarised as follows: "words are built up from a common pool of 'meaning atoms', and [...] related words have atoms in common". According to these views, the mental lexicon is organised in semantic fields of different sizes, and the units making up the semantic fields can belong to more than one

semantic field at the same time. Unlike atomic globule theories, **cobweb theories** assert that "words are recognised as related because of the links which speakers have built between them" (Aitchison 1987: 64). This means that any given semantic unit might be linked to several other units (see Figure 8).

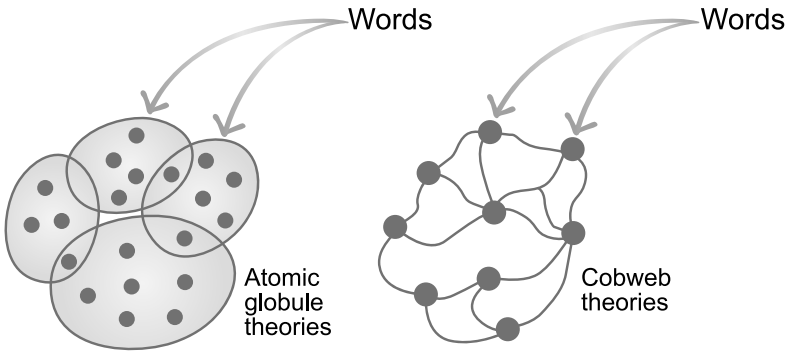

Figure 8: Atomic globules and cobwebs (based on Aitchison 1987: 64)

Of these two types of theories, the cobweb view seems to describe better how words in the human mind are linked together (Gósy 1999, Aitchison 1987). Word association experiments have shown that words in the human mental lexicon seem to be organised in **semantic fields**, and that "words from the same semantic field are closely linked". Connections between coordinates and collocational links are thought to be strong. Furthermore, it can be asserted that the mental lexicon is flexible since "unless the link is a commonly used one, it seems likely that humans work out the connection by performing a quick analysis rather than simply consulting a fixed chart in their mental lexicon". Association experiments also support the idea that "topic areas are stored to some extent independently, and that some semantic fields can be damaged without involving others, even though in normal speakers one would not expect this degree of isolation between areas" (Aitchison 1987: 84-85).

The mental lexicon is **constantly evolving**. It is characteristic of the individual and is language specific. It is not the vocabulary an individual habitually uses. The mental lexicon is composed of three different parts

whose borders are quite fuzzy: the active, the passive and the activated part. The active part of the mental lexicon consists of linguistic elements often used by the speaker. The passive part contains the words and linguistic elements which are rarely used by the speaker. The activated part of the mental lexicon comprises the elements that the speaker is using at a given moment. These can belong either to the active or the passive part (Gósy 1999). When it comes to activating words contained in the mental lexicon, "humans behave like jugglers [...] in that they have to deal with semantic, syntactic and phonological information at the same time" (Aitchison 1987: 165). In addition, "they seem to activate many more words than they need as they plan speech, words which occasionally pop into one's utterance inconveniently" (idem 175).

2.2 Retrieval from the mental lexicon

There are several models that try to account for the way items are retrieved from the mental lexicon: the stepping-stone model, the waterfall or cascade model and the **spreading activation model**. Out of these three, the last one seems to be the most plausible. It is also known as the interactive activation model (Gósy 1999, Aitchison 1987). It takes into account the fact that various stages of the retrieval process are interlinked and sometimes occur simultaneously. It also shows that during retrieval, sound and meaning appear to influence each other (see Figure 9).

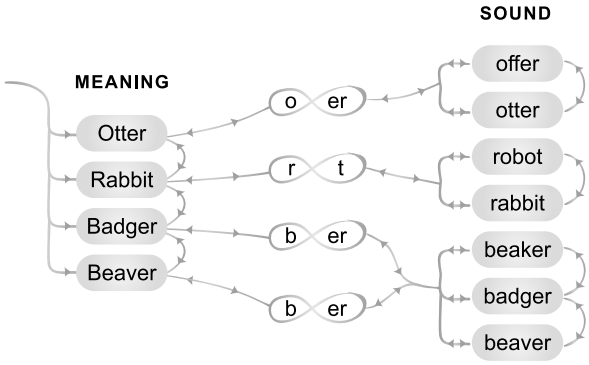

Figure 9: Interactive activation model (based on Aitchison 1987: 174)

The spreading activation model of word retrieval from the mental lexicon depicts a situation that can be likened to **electric circuitry**. This image expresses well the idea that retrieval occurs in a similar way to electricity, i.e. like a "current flowing to and fro between various points in a complex electric circuit" (Aitchison 1987: 173). This model also accounts for the fact that more frequently used words need less activation, as well as for the fact that slips of the tongue occur because topics (semantic fields) which an individual is concerned with become subconsciously activated, and once a topic is activated then the whole range of sound and meaning words get excited.

In addition, this interactive model reflects what we know about how the human brain functions. In Aitchison's words, this model supports the idea that

> the links between words are more important than their absolute location, and this also fits in with what we know about the human brain, where it seems to be impossible to locate particular brain areas with as much accuracy as we can a heart or a kidney (idem 175).

So far we have seen how **lexical access** functions, i.e. words are retrieved from the lexicon on the basis of perceptual and contextual information. At the end of this process, the retrieved word "becomes *candidate* for the identity of the current input" (Garnham 1985: 43). It needs to be noted that this activation is automatic. But this is only one side of the coin. Another procedure to be considered here is word recognition.

2.3 Word recognition

Word recognition is achieved when there is only one remaining candidate, and the input has been identified. There are a lot of questions still to be answered concerning how word recognition works. There is, however, one well known fact, namely that a lot of it is guesswork, since the physical conditions in which normal speech is perceived are not ideal for it is physically impossible to hear each phoneme because speech is too fast. Another factor influencing speech perception is the fact that

sounds are altered by their neighbours. In addition, sound segments cannot be separated out because each merges into those on either side. Furthermore, we live in a noisy world, and whole chunks of words can become modified.

There are some basic findings that demonstrate the main principle of how this guesswork is carried out in practice. These are: 1) the frequency effect, 2) word/non-word effects, 3) context effects, 4) degradation, or stimulus quality effects, 5) word-superiority effects (Garnham 1985).

As already noted above, the **frequency effect** means that more common words "are responded to more quickly in lexical decision and pronunciation tasks than are uncommon words". This is the case "even when words are matched for length – most long words are used relatively infrequently" (idem 45).

According to the **word/non-word effects**, letter strings that could not plausibly be meaningful words, such as 'xgyz' in English "produce very fast 'no' responses in a lexical decision experiment, and are probably rejected without any attempt to access the lexicon". In addition, experiments have shown that "it takes slightly longer to reject non-words, such as 'nint', that could be words but happen not to be [...] than to accept infrequent words". Another finding is that "the greater the similarity between a non-word and real words, the harder the non-word is to reject" (idem).

Context effects also influence word recognition in so far as words "are identified more quickly in context than out of context", and "simple word associations speed word recognitions" (idem).

Degradation, or stimulus quality effects, account for the fact that in written language "if a letter string is made difficult to see, either by superimposing a pattern of dots or squiggles over it or by making it faint, then lexical decision is not surprisingly slowed down" (idem 45-46). It is easy to see how the stimulus quality effect can be applied to spoken language: in the case of physical interference, such as bad voice quality or too much noise making, speech perception and the speed of lexical decision will suffer.

Word-superiority effects have an impact on how we recognise words since it seems to be "easier to recognise a letter in a word (for example, 'a' on 'bland') than a letter presented alone or in a string of Xs". The reason for this seems to be that "words are *not* recognised by identifying their

component letters, and then performing an alphabetical look-up in the mental lexicon" (idem 46).

There are several types of models that try to account for how word recognition actually works. Garnham (1985) groups these theories into direct access models and search models, Aitchison (1987) into serial models and models of parallel processing. One of the main issues concerning word recognition is whether we sort out one possible candidate after the other, or candidates are considered simultaneously. The latter seems to be more probable, although there are still a lot of uncertainties as to the exact details.

To conclude, the key issue is that words are not stored in the mind in a random way. Storage, on the contrary, is well organised in the mental lexicon, and words seem to have links to one another. These links may be stronger or weaker depending on the semantic field the word belongs to. This way storage seems to assist lexical access, i.e. the way we reach words when they are needed. Word retrieval can also be described as spreading activation, a phenomenon that builds on the associative links between words. This means that when we hear the word 'phone', it triggers a reaction which activates words such as 'cell phone', 'iPad', 'ring', 'answer' and 'dial'. This activation lasts only for a short time before it fades.

2.4 Personal lexicons and communal lexicons

The notions of personal and communal lexicons shed a new light on the content and organisation of the human mental lexicon. Clark asserts that we all have our **personal lexicons**, i.e. a stock of words we know and use more or less frequently, and that the personal lexicons of speakers of the same language differ. These differences are not random but systematic. Clark's argument is that "these differences help determine what we mean and what we take others to mean. They play an integral role in the formulation and interpretation of utterances. They bear directly on how language is structured and used" (Clark 1998: 63).

At the heart of this argument lies what Clark calls **communal lexicons**, i.e. "the vocabulary associated with a community of people – for example, physicians, football aficionados, San Franciscans – who

are distinguished by their common knowledge of a particular field of expertise – medicine, football, San Francisco". Communal lexicons have four main characteristic features: 1) they are required by the very notion of conventional word meaning, 2) they differ from each other in ways that we keep track of, 3) they are associated with communities of expertise, and 4) they mirror the communities they are associated with (idem 63-64).

Traditionally, a lexical entry is thought to be composed of two parts containing information about its form (morpho-phonological) and its meaning (lemma). Clark argues, however, that entries in our personal lexicons "must be indexed by the most inclusive community it is conventional in – by the communal lexicon it belongs to". This means that "instead of [word form, lemma] we must have [community: word form, lemma]" (idem 72). In other words, our personal lexicons are structured by the communal lexicon each entry belongs to.

Such lexical entries propose a different view of how we retrieve words from our mental lexicon. According to this view, when we speak to someone we do not select words from our personal lexicon haphazardly. Instead, we choose them after having ascertained which communities we and our interlocutor believe we are members of. We then limit ourselves to the entries indexed for those communities. This implies that "word selection and word interpretation then become social processes. They depend on judgements of shared membership in cultural communities". In addition, "we each create and maintain social profiles of our interlocutors, or we will have problems communicating. A principle ingredient in these profiles is a representation of the communities we and our interlocutors belong to" (idem).

While personal and communal lexicons are valuable notions for the study of the human mental lexicons, there are a few limitations that need to be mentioned here. First, this theory only applies to content words, and not to function words. Second, it implies that we are only able to communicate with people whose communal lexicon we are familiar with. If this were the case, a miner would not be able to communicate at all with a footballer. Third, it also suggests that any individual needs to be aware of all the existing communities of expertise. And finally, somehow this theory suggests that we only talk about specialised topics, or topics

of expertise. Without denying the fact that communication is a social act, it needs to be highlighted that one of the possible reasons why we communicate with others is because we wish to know them better and thus seek information about the different communities they belong to, their expertise and their specialised vocabulary.

3. Bilinguals

Bilingualism at first sight seems to be a straightforward notion. However, it has several dimensions: linguistic, sociological, psychological and biological, just to name a few. Hamers and Blanc distinguish between bilinguality and bilingualism. They define **bilinguality** as

> the psychological state of an individual who has access to more than one linguistic code as a means of social communication; the degree of access will vary along a number of dimensions which are psychological, cognitive, psycholinguistic, social psychological, social, sociolinguistic, sociocultural and linguistic (Hamers and Blanc 1989: 6)

Bilingualism, on the other hand, is a concept that

> includes bilinguality (or individual bilingualism) but refers equally to the state of a linguistic community in which two languages are in contact with the result that two codes can be used in the same interaction and that a number of individuals are bilinguals (societal bilingualism) (idem).

In what follows, we will be concerned with bilinguality, i.e. individual bilingualism. Hamers and Blanc summarise the different dimensions of bilinguality as follows: relative competence, cognitive organisation, age of acquisition, exogeneity, social cultural status and cultural identity.

Of these dimensions the first three are of special relevance to our topic. The dimension of **relative competence** takes into account "the relative nature of bilinguality, since it focuses on the relationship between two linguistic competences, one in each language". Accordingly, "a distinction has been made between the *balanced* bilingual who has equivalent competence in both languages and the *dominant* bilingual for whom competence in one of the languages, more often the mother tongue, is superior to his competence in the other" (idem).

As for **cognitive organisation** and bilinguality, we can distinguish between *compound* and *coordinate* language systems. Compound systems are characterised by the fact that "two sets of linguistic signs come to be associated with the same set of meaning". In coordinate systems "translation equivalents in the two languages correspond to two different sets of representations". It needs to be underlined here that "although there is a high correlation between the type of cognitive organisation, age and context of acquisition, there is no one-to-one correspondence between the form of cognitive representation and the age of acquisition". It emerges that "an individual who learned both languages as a child in the same context is more likely to have a single cognitive representation for two translation equivalents, whereas one who learned an L_2 in a different context from that of his mother tongue will probably have a coordinate organisation". Moreover, the distinction between compound and coordinate bilinguals is not absolute, which implies that "different forms of bilinguality are distributed along a continuum from a compound to a coordinate pole". This means that "a bilingual person can at the same time be more compound for certain concepts and more coordinate for others" (idem 9-10).

Regarding the **age of acquisition**, we can distinguish three types of bilinguality: *childhood*, *adolescent* and *adult* bilinguality. In the case of childhood bilinguality, "bilingual experience takes place at the same time as the general development of the child". Simultaneous early (or infant) bilinguality means that "the child develops two mother tongues from the onset of language". Consecutive childhood bilinguality occurs when the child "acquires a second language early in childhood but after the basic linguistic acquisition of his mother tongue has been achieved". It should also be noted that while "the development of simultaneous bilinguality takes place through informal, unintentional learning, consecutive bilinguality may occur informally, as in the case of the child of an immigrant family, but may also result from intentional learning, as in certain bilingual educational programs" (idem 10).

We have seen above that there seems to be a consensus concerning the fact that the left cerebral hemisphere is specialised for language in humans. This is at least the case for monolingual individuals. As for bilinguals or persons using more than two languages, the picture is less

clear, and the literature on cerebral involvement and lateralisation in language processing is difficult to summarise. The recurrent issues which have been discussed in this field such as the onset of bilingualism, cerebral lateralisation in processing meaning, handedness and lateralisation, specific biological, psychological and linguistic factors as well as sex or language-specific features. Furthermore, the findings of empirical research relevant to this issue is far from conclusive: discussions of results and conclusions are more often than not expressed in terms of 'it seems', 'it appears', 'perhaps', 'probably', etc. Empirical research involves brain imaging techniques such as EEG (electroencephalogram) or PET, finger tapping, shadowing and dichotic exercises.

4. The interpreter's brain

One of the most researched topics in Interpreting Studies is the neurological and neuropsychological functioning of an interpreter's brain. Empirical research mostly conducted during the 1990s had the objective to find out whether an interpreter's brain and the thinking processes involved differ substantially from that of 'ordinary' people. We should bear in mind that not only do interpreters perform complex mental activities, but they are, at the same time, bilinguals or polyglots. The most recurrent research topics in this field are cerebral hemispheric dominance for language, earedness, the difference between shadowing and interpretation in terms of lateralisation and the cerebral organisation of attention. This research concerns simultaneous interpretation.

4.1 Hemispheric dominance for language in interpreters

Kurz investigated cerebral processes during simultaneous interpreting using EEG mapping methods to obtain EEG probability maps, i.e. "schematic brain maps which reflect the degree of probability for the coupling/decoupling of different cerebral regions during specific mental/cognitive operations" (Kurz 1992: 201-202). The main findings regarding hemispheric involvement during simultaneous interpreting include the following aspects: 1) Both hemispheres are involved in SI – most of all the temporal regions (left more than right). 2) There are EEG differences between SI into L1 (native language) and L2 (foreign language). 3) In right-handed female individuals the right hemisphere seems to be more important for L2 than L1 (idem 206).

Regarding hemispheric specialisation, Fabbro and Gran note that the results of their experiment conducted with the participation of 14 right-handed female student interpreters of the fourth year at the School for Translators and Interpreters of the University of Trieste "did not reveal any significant difference between hands, thus suggesting that probably

simultaneous interpretation requires the involvement of both cerebral hemispheres" (Fabbro and Gran 1994: 305).

Another interesting factor has been observed by Darò regarding suprasegmental features of language during interpreted speech. The fact that interpreters possess a rapid articulation ability since they normally speak very fast when they are working, "most probably leads to a major involvement of the cerebral structures which control verbal expression, and in particular, to a greater participation of the right hemisphere in the control of speech production". Darò also takes into account in her discussion the cerebral lateralisation for speech of the human brain, and notes that

> the right hemisphere is generally known for controlling the suprasegmental features of language, therefore a higher speaking speed, as occurring during simultaneous interpretation, could be partly responsible for difficulties in controlling, say, intonation, prosody, pronunciation, etc., because of a sort of interference with or overcharge of the right hemisphere. In fact the first evident symptoms of time stress in inexperienced or student interpreters are uncontrolled prosody and pronunciation, wrong intonation coupled with an extremely loud voice. (Darò 1994: 267).

Corina and Vaid studied language lateralisation in bimodal bilinguals, i.e. hearing bilinguals who are fluent in American Sign Language and English, and they concluded that there is "a left hemisphere contribution to the mediation of sign language in hearing ASL-English bilinguals" and suggest that "language lateralisation may arise from inherent characteristics of human languages, regardless of the modality in which that language is expressed" (Corina and Vaid 1994: 246).

To sum up our discussion on hemispheric dominance during SI, there seems to be a consensus that SI is an exceptionally complex cognitive task which requires a high degree of activation of both hemispheres at the same time.

4.2 Earedness and cerebral lateralisation in interpreters

Lambert studied simultaneous interpreters' earphone habits to find out what the reason was behind the fact that they "tend to interpret with one headphone placed squarely on one ear and with the other headphone either slightly or completely off the other ear" (Lambert 1994: 319). The findings of her empirical research concluded that "subjects made significantly *fewer* errors when the message was shunted to *one* ear than to *both* ears simultaneously". Moreover, "when interpreting from L2 to L1, right-handed individuals function more efficiently with a left-ear input, and that processing incoming messages through one ear is more effective than through two ears". She offers two explanations for these results.

The first one stems from the tasks a simultaneous interpreter needs to accomplish. It means that "from a cognitive psychologist point of view, interpreters are basically involved in two concurrent activities: listening and speaking, or decoding and encoding. Both activities are verbal and hence one would expect a favouring of right-ear-to-left-hemisphere route for both tasks, which would be neurologically impossible". However, "since the results in the interpretation experiment revealed a marked preference for the left-ear-to-right-hemisphere route, it could be that interpreters favour the right-ear-to-left-hemisphere route to monitor their output". This would imply that "interpreters consciously or unconsciously use their left hemisphere (right ear) for what they consider to be the more critical of the two concurrent tasks, namely monitoring his/her own output, and the right hemisphere (left ear) for processing the incoming information" (idem 325).

The second explanation builds on the differences between bilingual and monolingual individuals as evidenced in dichotic experiments, namely the fact that "bilingual subjects make more use of their right hemisphere than monolingual individuals" (idem). This would mean that perhaps "simultaneous interpreters, as bilinguals, employ different strategies in processing verbal material such as using the right hemisphere to a greater extent, than, say monolingual individuals" (idem 326).

In her paper on non-linguistic factors involved in simultaneous interpretation, Darò also mentions earedness in connection with the cerebral organisation of attention during SI. Presenting the implication

of her empirical study, she notes that "monolinguals probably tend to process linguistic communication through the right ear, whereas professional interpreters distribute their attention towards inputs to both ears" (Darò 1994: 266). However, this observation seems to contradict the previous one, according to which one ear may be better than two in SI.

4.3 Interpreters as bilinguals / multilinguals

Interpreters are bilingual or multilingual persons since they have linguistic competence in several languages: their work consists of comprehending, decoding and encoding languages. Therefore, it can be assumed that they are highly proficient in more than one language. In general, an interpreter has one or two active languages, and they might have several passive ones. An active language is a language into which an interpreter works, whereas a passive language can be very broadly defined as a language which an interpreter understands but into which they do not work since their production in these languages is not up to the standard which is required for professional interpretation.

A high level of bilinguality, and by extension multilinguality, is considered to be a prerequisite for interpretation. However, as Hamers and Blanc note, "no conclusions can yet be drawn concerning the fact that one type of bilingual might be more suitable to perform these tasks". There are arguments according to which "a coordinate bilingual would make a better interpreter than a compound one, on the grounds that a coordinate bilingual possesses two cognitive units, one for each translation equivalent". This argument is flawed since "if the compound bilingual possesses only one cognitive unit corresponding to two translation equivalents, he can still be aware of the degree of overlap between the two translation equivalents". One might also think that, as a rule, early or infant bilinguals make good interpreters since "infant bilinguals develop very early the capacity to translate from one language into the other while retaining the meaning of the message" (Hamers and Blanc 1989: 253). However, there is no substantial empirical evidence supporting these two points, so for the time being they remain speculations.

The starting point for a further study of this issue might be the fact that although interpreters have a high level of bilinguality and bilingual competence, this is only a prerequisite for professional interpreting. The main difference between other bilinguals – either infant or adult – and interpreters, is that while the former use several languages for their own communication purposes in their private or professional life, interpreters use their bilingual competence to serve others' communicational needs. This means that interpreters are **professional bilinguals**, which has several implications for their mental lexicon, linguistic skills, language use and behaviour.

Experience in interpreter training shows that from the point of view of interpreting, natural, infant bilinguals do not necessarily have a marked advantage over late bilinguals. One of the reasons for this is that, more often than not, they are not fully aware of their languages since they usually acquired them in a non formal way and did not learn them within the framework of formal language education. In fact, interpreters need to be aware of all of their working languages, even their first languages, which they are required by their profession to use in a **conscious** way. It seems preferable to have native competence in one language which serves as a point of reference for the other language(s), and with regard to which one can build one's professional bilingual competence.

Another important point to make here is that an interpreter's professional linguistic competence needs to be cultivated and strengthened, even when it comes to their first language, for the same reason, namely because an interpreter generally uses their first language for their own communication purposes. We very rarely speak about topics such as innovation transfer, sports angling, the macroeconomics of a given country or laminated beam technology in our private lives to the extent to which we need to use the related terminology of these (and a lot of other) subjects when we work. This is also true of linguistic registers: we are required to be aware of and use registers in our professional lives that we would not otherwise use in our everyday activities.

Although interpreters can be considered bilinguals, it is very rare that their bilinguality is perfectly balanced. First of all, their linguistic skills in their different working languages vary as far as production is concerned based on whether it is an active or passive language. Second,

depending on the language of the country or family they live in, they use their languages in their non-professional life to a varying degree. There are interpreters who do not live in the country where their first language is spoken, and for this reason only use it very rarely outside their family and work domains. Very often, interpreters live in the country of their first language where they very rarely use their second language outside their work. This also means that their linguistic competence in their working languages covers different domains. It requires a lot of effort to keep up these languages to the standard of professional interpreting in such circumstances.

Moreover, they may use their second or passive languages for their own conversational purposes so rarely that they express themselves in that given language with more ease when they are working than when they are speaking on their own behalf. This of course does not mean that they lose fluency or the capacity of oral expression altogether. It only means that words come less easily when they need to articulate their own feelings, ideas, opinions or are required to participate in everyday conversation in a colloquial manner. This is due to the fact that **'interpretese'** is characterised by a certain number of panels or prefabricated chunks, a certain style, register and non specialised vocabulary that do not always correspond to everyday, colloquial language. It is also true the other way round: just because someone is very fluent and native-like in one language does not necessarily guarantee that this person will be a fluent interpreter without training since the chances that they lose their fluency when they need to speak for others are very high.

Lay persons generally associate successful interpreting with linguistic skills and presume that linguistic competence guarantees high quality professional interpreting. There is no doubt that one needs to possess the necessary language skills to become an interpreter. However, it is only the first prerequisite. In addition, interpreting involves complex cognitive and information-processing that needs to be carried out under stressful circumstances.

4.4 The mental lexicon of interpreters

The mental lexicon of interpreters is a bilingual or multilingual one. There seems to be a consensus among psycholinguists that bilingual persons possess two **separate mental lexicons** which are closely linked. Heltai (2010) provides us with a good description of the mental lexicon of translators and interpreters by comparing it to that of natural bilinguals. In the case of natural bilinguals, certain words of the source language belong to the target language's mental lexicon: these are borrowed words that bilinguals have already built into their target language's mental lexicon. The words of the two languages are kept apart by language tags, which means that the lemma of each word contains information about which language it belongs to. Interpreters and translators use language in a conscious way and know exactly to which language each word belongs. They also know which words used by the bilingual community do not belong to the standard variety of the target language. In other words, they **'administer' language tags systematically** and differentiate between the words of the source language and the target language in an exact way.

Heltai mentions another structural difference between the mental lexicon of bilinguals and interpreters/translators, namely the fact that in the case of the latter direct links are stronger since translational equivalents become increasingly stronger through frequent translation and interpretation. This results in the fact that translators and interpreters form a high number of **constant links**, i.e. word pairs belonging to the source and target language.

As for the activation of interpreters' and translators' mental lexicon, Heltai's analysis can be summarised as follows: interpreters and translators activate only the target language and make sure that the elements of the source language do not appear in their linguistic output. Regarding word retrieval, if interpreters do not find the target language equivalent, they spend more time looking for it, use a synonym or paraphrase the source language input, whereas natural bilinguals might switch codes.

4.5 Interpreting into B

Interpreting into a second language is a reality in the interpreting market, and will continue to be so. As Szabari asserts,

> interpretation into the B language is definitely in demand in the market, however, its significance is conspicuous primarily in the communication between minor languages and major languages on the one hand, and among minor languages on the other hand. Securing A language interpreters is often a financial question as in most local markets A language interpreters are few and far between, and the costs of higher fees (in the case of interpreters coming from "more expensive" countries) very often exceed the financial capabilities of organizers (Szabari 2004: 13).

However, official expert opinion has favoured interpreting into one's first language even though both working into a first language and into a second language have their advantages and disadvantages. This is due to the fact that, as Campbell puts it, these "two activities are in a way mirror images". This means that

> in translating from a second language, the main difficulty is in comprehending the source text; it is presumably much easier to marshal one's first language resources to come up with a natural looking target text. In translating into a second language, the comprehension of the source text is the easier aspect; the real difficulty is in producing a target text in a language in which composition does not come naturally (Campbell 1998: 57).

Concerning the directionality of interpreting, there are basically two schools which advocate two opposing convictions: the Paris School and the Russian School. According to the Paris School, only interpreting into one's 'A' language guarantees the high quality required from professional interpreters since natural language production is only possible in this language. The Russian School, however, supports the idea that it is into the 'B' language that interpretation can be done to the highest possible

level since comprehension is much better in the A language. The reason for this divide can be found in factors such as

> where and how the interpreter mastered the B language. If this was done in his own country within an organised framework as was probably the case in the Soviet Union, listening comprehension was probably more problematic than speaking as he had no opportunity to gain familiarity with the multitude of native speakers. On the other hand, interpreters in Western countries generally mastered their foreign languages while living or studying in the target language country, thus comprehension is not difficult for them even if a speaker has poor articulation or complicated wording (Szabari 2004: 15).

The most important challenge in interpreting into a 'B' language comes from the fact that the interpreter needs to possess a "very special variety of second language proficiency". This means that they "have to work within the limitations of their second language repertoire". A speaker using a foreign language for their own communicational needs "can hide their shortcomings by tailoring the text to suit their abilities" (Campbell 1998: 58), i.e. they can adapt the text to their mastery of the language. Another common strategy among speakers of a foreign language, in the case of uncertainties as to the correctness of what they are about to say, revolves around avoiding mistakes and reformulating their speech according to what they are able to express. When catering for the communicational needs of others, of course, this is not so obvious, and is considerably more difficult to achieve. However, experience shows that it can be learnt, and interpreters can construct their language skills through systematic training in order to possess the adequate linguistic tools for good quality interpretation into a second language (Dejean 2004, Donovan 2004, G. Láng 2004, Minns 2004, Rejšková 2004, Tyruk 2004). This is also true for the range of vocabulary (Nida 2001).

4.6 Interpreters' language use

In order to sound natural in the target language, interpreters not only need to have the necessary linguistic, communicational and cultural competence for the task, but they also need to use language in an authentic way in terms of style and terminology. With the advent of International English on the interpretation market (Horváth 2003), this raises an essential issue in terms of language used by interpreters.

First, interpreters need to adapt their output in English to the level of mastery of their audience, mainly composed of speakers of English as an international language. More often than not, this means substantially simplifying their linguistic output since the level of linguistic competence of such speakers (or listeners) is in general considerably lower than that of native speakers of English. Simplifying output has grammatical as well as lexical implications. In terms of grammar, it means using simple instead of compound. In terms of vocabulary, this would entail using basic vocabulary, avoiding idiomatic language and paraphrasing proverbs.

As for interpreting from an input in International English, it can be asserted that comprehension is sometimes very difficult regardless of whether English is the interpreter's 'A' or 'B' language. Decoding a message whose linguistic form is far from flawless in terms of grammar, pronunciation and vocabulary demands considerable effort from interpreters, who need to rely even more heavily on the situational and linguistic context as well as the micro-context of the communication event in order to be able to comprehend the message. This, of course, involves a lot of intelligent guesswork.

Another aspect linked to interpreting from a far from flawless input in International English is that of equivalence. Interpreters are expected to produce equivalent speeches in the target language in terms of language, culture and communication. If this were the case, they would need to speak with a heavy accent, sometimes using unintelligible pronunciation producing ungrammatical sentences and using a limited number of words in their 'A' and 'B' languages.

5. Conclusion and further research

In this chapter we have discussed the major neuropsychological and psycholinguistic factors and research findings concerning the linguistic behaviour of interpreters, whom we consider professional bilinguals (multilinguals). Although a lot of neuropsychological aspects have already been addressed in this field, the answers are very often inconclusive. In addition to this, there are a lot of questions that need to be asked.

As a result, there are several possible lines for further research. We have seen that professional bilingual competence differs substantially from 'ordinary' or social bilingual competence. But how exactly do they differ? In other words, can the abilities of an 'ordinary' bilingual be compared to those of a professional bilingual? Are there special training methods for natural bilinguals?

Furthermore, how passive is a passive language? What is the difference between the linguistic skills required and used for interpreting and for everyday colloquial conversation? We endeavoured to describe professional bilingualism, but it needs to be further elaborated to be able to ascertain what type of bilingualism it is.

As for the mental lexicon of interpreters, there are still unanswered questions regarding its organisation and structure when it is conceived as the mental lexicon of a professional bilingual person. Does the fact that an interpreter's language combination (and mental lexicon) consists of cognate languages make a difference? Or the number of these languages? How can we account for the distinction between active and passive languages?

Another valid research path can be measuring interpreters' linguistic competence. Would it be possible at all? Can we construct a valid and reliable test battery instead of the present 'the proof of the pudding is in the eating' practice, which means that an interpreter's linguistic competence is good enough if it survives interpreting?

CHAPTER 4
Interpreters' creative behaviour

This chapter examines how the different issues concerning creativity can be applied to interpreting in order to learn more about the psychological processes involved. Creativity should be seen as one of the principal aspects of interpreting. By gaining a better understanding of creativity, we will gain a better understanding of interpreting. While there have been very few attempts to date to describe interpreting in terms of creativity, the number of publications on translational creativity is substantially higher, probably due to the inclination to relate creativity to translation, particularly to literary translation – an inclination which we see as overly restricted. In what follows, I will strive to examine creativity in interpreting in a new light and explore its complex and manifold nature, using paradigms and methods from psychology and interpreting studies. I will then consider whether interpreting may in fact be considered a creative activity, and if so, in what respect.

1. The notion of creativity: product, process, personality

Creativity is a multifaceted and complex construct whose definitions are manifold and much debated. It seems to be easier to describe creativity than define it as it can be studied from several perspectives, and the definition will depend on the perspective one takes. The literature on creativity is rather extensive and the present chapter does not aim to review all the aspects of this concept. My objective here is merely to expose and clarify some of the creativity-related topics relevant to interpreting.

1.1 The genius view of creativity

Perhaps the most common view is that creativity is somehow linked to genius. According to this view the ruling criterion for creativity is uniqueness. The study of creativity is not new. It started with the discussion of creative individuals and renowned scientists, musicians, artists like Einstein, Mozart or Picasso and their achievements. This is the genius-view of creativity. Here the question is: what makes a genius? According to Eysenck, "works of genius depend on the confluence of certain personality variables (intelligence, creativity, persistence, etc.) and certain social conditions; Newton, Mozart and Shakespeare would not have been able to show their true genius in a primitive culture" (Eysenck 1995: 124). He highlights several conditions for excellence besides genetic components like intelligence and talent. These are socio-economic status, gender, religious denomination, home environment, intellectual stimulation, age, lifespan, season of birth, motivation and the unconquerable will, periodic variations (idem: 124-169).

Feldman studied child prodigies and found that they were the result of a rare and complex coincidence of individual, family, societal and cultural variables. He set up a three-phase model of creativity indicating the three essential aspects of creativity. First there is "the natural tendency

of the mind to take liberties with what is real, mostly in nonconscious ways". Then, the second aspect is "the conscious desire to make a positive change in something real, to, in effect, change the external world to make it conform more fully to one's wishes". The third aspect "concerns the results of previous efforts by other individuals labelled at changing the world or their environments". Finally, "the artefacts of creative work are available to the person who desires to make further changes in the world" (Feldman 1988: 288).

In their constructivist, evolving systems approach of creativity, Gruber and Davis (1988) claim that creativity is not a sudden burst of enlightenment, as we naively tend to imagine when thinking about the works of personalities like Darwin or Beethoven, but rather a slowly evolving process of reflection and discovery.

Gardner claims to take a holistic approach to creativity, which means studying individuals and bodies of work that are uncontroversially creative, and calling it the synthetic scientific approach. In his view, "creativity is a phenomenon much like prodigiousness" and he distinguishes four levels of analysis. The subpersonal level means the "biological substrate: the genetic endowment, the structure and functioning of the nervous system, various metabolic and hormonal factors, and the like" (Gardner 1988: 299). Gardner distinguishes two separate perspectives at the personal level. The one focuses on the cognitive processes, while the other on factors such as personality, motivation and drive. The third is the extrapersonal level comprising the domain-specific factors. Gardner calls the fourth level multipersonal, and it focuses on the social context of creative activity. To illustrate what it means he elaborates Einstein's example, saying that a scientist like him

> does not simply devise a theory of relativity free of supporting context. He learns about the domain of physics through conversing with physicists, reading books, taking courses, writing papers, exchanging messages and manuscripts with colleagues, attending meetings and presenting papers, and the like (idem).

1.2 Creativity as a universal human ability

Another possible way to study creativity is the **psychometric approach** that focuses on the individual in general and examines the individual differences in creativity and their correlations instead of concentrating on the achievements of acknowledged creative persons. According to this approach, every individual is creative, and creativity is seen as an inborn capacity or personality trait. Here, the product is something less important in the sense that individuals are considered creative even if they do not discover something new under the sun or if they are not the first to discover it but do it on their own without external help. Furthermore, the "products of creativity can include behaviours, performances, ideas, things, and other kinds of outputs, with any of all channels and types of expression" (Taylor 1988: 104). For Perkins, these creative products can be, for example, "scientific theories, jokes, paintings, flower arrangements, advertising campaigns, parties, or most anything else" (Perkins 1988: 378).

As a universal ability, creativity can be measured, by tests for divergent thinking, which is considered to be more creative than convergent thinking. One interesting point here is that measured intelligence does not seem to be an important aspect of creativity, because "most tests of intelligence focus on convergent thinking skills – their problems are well defined and have only one acceptable answer – [and] creative people who are divergent thinkers may find themselves at a disadvantage" (Feldman 1990: 243). (For a detailed list of tests of divergent thinking and other types of creativity test like the Figure Preference Test, see Eysenck 1995: 87-109, or Szabó 2002: 74-79.)

1.3 The characterisation of the creative personality

Although creativity is considered a basic human ability, "there are several characteristics that seem to differentiate creative people from noncreative people" (Wittig and Belkin 1990: 263-264). Torrance enumerates the eighteen skills that are involved in creative thinking. Due to lack of space and time, I only present here a shortened list of these skills: flexibility; originality, unusualness, or rarity of the response; elaboration; emotional

expressiveness; synthesis or combination; unusual visualisation; internal visualisation; humour, etc. (Torrance 1988: 66-67). Torrance also emphasises the importance of personal involvement and affect, and concludes that "the essence of the creative person is being in love with what one is doing" and that this characteristic "makes possible all the other personality characteristics of the creative person: courage, independence of thought and judgement, honesty, perseverance, curiosity, willingness to take risks" (idem 68).

A more detailed characterisation of the creative personality is offered by Gergencsik. Such a person is characterised (1) in the cognitive sphere by mental health, a desire to know, curiosity, interest, lively fantasy, intellectual activity and efficiency, independence of thought and opinion; (2) in their intellectual and practical action by a tendency to experiment and research, looking for new paths, being problem-oriented and task-oriented; (3) in the motivational sphere by the will of self-fulfilment and self-actualisation, trying out forces, the will to perfect and to change in a constructive way what already exists; (4) in their relationship to the environment by openness, lack of prejudices, a complex approach, a good tolerance of tensions and ambiguity, curiosity, playfulness and a sense of humour; (5) in their interpersonal relationships by constructive nonconformism, objectiveness, a tolerance of not belonging to a group and of loneliness, leadership in the case of group membership, independence of the opinion of others, resistance to limitations and oppression, denial of regulations and conventions; (6) in their relationship to themselves by a high level of ego strength, self-assurance, self-confidence, self-acceptance, a positive self-image, at the same time dissatisfaction with themselves, freedom of personality, psychological security regarding the acceptance of risk and danger (Gergencsik 1987: 16-17).

According to Komlósi, "the characteristics of creative persons cannot be identified with some isolated mental and motivational trait, but only with the whole personality" (Komlósi 1987: 11).

In his paper describing his comprehensive research involving 431 subjects of two different age groups and professions, Oláh concludes that 'there seems to be a generally valid relationship between the level of development of flexibility, sensibility, independence and self-assuredness as personality factors, and a high level of creativity' (Oláh 1987: 106).

1.4 The cognitive approach to creativity

The cognitive approach to creativity studies the mental processes and structures underlying creativity. One of its first representatives was J. P. Guilford, whose 1950 presidential address to the American Psychological Association is considered by many as the watershed in creativity research because it marked the beginning of serious empirical work on the topic (Barron 1988, Eysenck 1995, Osborn 1988). Guilford made an important distinction between convergent and **divergent thinking**. In convergent thinking, an individual follows established rules to solve a problem, whereas divergent thinking involves generating novel or different approaches to solving a problem.

Another way to look at the cognitive modes is to say that "the creative process can be boiled down to a generative brainstorming stage followed by an evaluative focusing stage" (Gabora 2002: 2). Namely, the first stage of the creative process

> is a suggestive, intuitive associative mode that reveals remote or subtle connections between items that are correlated but not necessarily causally related. […] The second form of thought is a focused, evaluative analytic mode, conductive to analyzing relationships of cause and effect. […] Creativity requires not just the capacity of both associative and analytic modes of thought, but also the ability to adjust the mode of thought to match the demands of the problem, and how far along one is solving it (idem).

Sternberg's **cognitive model of creativity** is also called a three-facet model as it describes the three fundamental aspects of creativity, and creativity can be found at the interface of these three aspects of the model. The intellectual facet "refers to those aspects of creativity that can be accounted for in terms of the theory of intelligence" (Sternberg 1988: 131). The most essential mental processes of the intellect underlying creative problem-solving are recognizing the existence of a problem, problem definition, formulation of a strategy and mental representation for problem solution; insight, which is a specialised form of creativity, characterised by selective encoding (sifting out relevant from irrelevant information), selective combination and selective comparison (relating

newly acquired information to information acquired in the past). This "first facet of creativity is in the application of intelligence in a creative – statistically unusual and highly appropriate – way" (idem 138). The second facet is intellectual style that "derives from the manner, or style, with which one directs one's intelligence" (idem 138). It is an essential aspect of creativity "because the style with which one uses one's intelligence is as important as the level of intelligence in determining whether or not one is creative". Sternberg illustrates this facet of creativity by what he calls mental self-government which, "like societal governments, serves the three basic political functions: legislative, executive, and judicial" (idem 139). The third facet of creativity is to be found in the personality, i.e. "certain personality attributes are more conductive to creative performance than are others" (idem 143). Among the most important personality variables in terms of creativity are a tolerance of ambiguity, a willingness to surmount obstacles, a willingness to grow, intrinsic motivation, moderate risk-taking, a desire for recognition and a willingness to work for recognition (idem 143-145).

Creative thinking, according to Szabó, is connecting things and ideas that have not been linked before. Creative thinking, as opposed to analytical thinking, is characterised by imagination. It is unpredictable and divergent. Analytic thinking is logical, predictable and convergent, i.e. it is governed by rules and is directed towards finding one solution, whereas creative thinking requires creative imagination and results in several solutions. In everyday life, we need both analytical and creative thinking (Szabó 2002: 83-85). Creative thinking processes are all thinking processes that solve problems in an original and useful way (idem 101). One of the preconditions for solving a problem is the ability to restructure it, i.e. to examine it systematically and reformulate it. Among the creative thinking methods are brainstorming, listing characteristics, morphological analysis, reverse brainstorming, creative dreams, checklists, free association, etc.

From a functional point of view, Osborn enumerated four fundamental intellectual abilities: the ability to absorb (or the skill to observe and apply our attention); the ability to register through memory and to remember; reasoning (or the skill to analyse and judge); and the creative ability (the skill to represent oneself, to foresee and produce ideas). Machines can

accomplish the first three, but it is only humans that are able to produce ideas (Osborn 1988: 1).

1.5 The adaptational view of creativity

Creativity is often seen as the capacity to adapt to new situations, environments and circumstances. Komlósi, for example, asserts that research seems to indicate that "creativity as a special adaptational process, by way of which outer and inner impulses can be utilized in a wide range, may be found not only on the level of highly organized functions but also on the level of elementary perceptual processes" (Komlósi 1987: 19).

Schank is also of this view and claims that "creativity is not mystical. It lies within the provinces of search and adaptation and is heavily dependent on reminding" (Schank 1988: 238). Barron sees creativity in a similar way saying that "creativity is the ability to respond adaptively to the needs for new approaches and new products. […] Novel adaptation is seen to be in the service of increased flexibility and increased power to grow and/or to survive" (Barron 1988: 80).

1.6 Creativity and the environment

Another important issue in the discussion of creativity is the role of the environment. Taylor distinguishes four possible approaches to creativity: (1) the environment, (2) the product, (3) the process and (4) the person. His environment approach emphasises the "climate, or situation or place" in which the creation comes about.

Csikszentmihalyi also focuses on the importance of the environment, saying that creativity results from the interaction of the field, the domain and the individual. He also affirms that "creativity exists only in special social and historical contexts" (Csikszentmihalyi 1988: 326) and that "social agreement is one of the constitutive aspects of creativity" (idem 327). In his model, he presents a dynamic view of creativity focusing on the creative process, which is not a person-centred perspective on creativity in the sense that it adopts the Copernican view, according to

which the person is part of a system of mutual influences and information. Furthermore, the "relationships shown in the [model] are dynamic links of circular causality. In other words, each of the three main systems – person, field, and domain – affects the others and is affected by them in turn" (idem 329).

1.7 The creative process

The most often cited characterisation of the creative process is Wallas's, who identified four steps of such processes: (1) preparation, which is "the sensing of a need or deficiency, random exploration, and a clarification of the problem"; (2) incubation "accompanied by reading, discussing, exploring, and formulating many possible solutions, and then critically analysing these solutions for advantages and disadvantages"; (3) illumination, i.e. "the birth of a new idea" as a result of "a flash of insight"; (4) revision, which involves "experimentation to evaluate the most promising solution for eventual selection and perfection of the idea" (Torrance 1988: 44). Wallas's four-step conceptualisation of the creative process dates back to 1926 and applies to "inventions, designs, scientific theories, improved products or methods, novels, musical compositions, paintings, or sculptures", i.e. something unique. It has been reviewed and modified by others since then and insight, for example, is nowadays considered to be the result of long, hard work by many, but it still remains the first attempt to conceptualise the creative process.

Another way of looking at the creative process is to consider it as **problem-solving**. According to Landau, a problem means that an individual wants to achieve a given goal, but does not know how to get there, i.e. is unable to use well-known specific procedures or techniques and operations. Similarity between problem-solving and creative thinking ensues from the fact that both require the individual to form and apply new strategies (Landau 1976: 76). In this sense, all problem-solving requires creativity on behalf of the individual. In situations like this, the individual uses the information at their disposal and former experiences which they unify in new structures whose configuration makes the solution of the problem possible (idem 25).

In Szabó's view, a problem is the deviation from the ideal situation.

He explains it along the same lines as above, i.e. problems arise when we set out objectives, then realise the difference between them and the real situation (Szabó 2002: 14). For him, however, it also means that every new problem is, at the same time, a well camouflaged new possibility. In a larger sense problems can serve as the basis for choosing between alternatives for the future. In problem-solving, like in decision-making, three fundamental abilities are needed: analysis (breaking down into parts), synthesis (putting the parts together to form a complex whole), and evaluation (thinking it over in terms of values and norms).

1.8 Creativity and prior knowledge

An important issue in creativity research is the role of prior knowledge in coping with novelty. As Sternberg puts it, "knowledge would seem to play an important role in creativity […] and it is impossible to have novel ideas about something if one knows nothing about it" (Sternberg 1988: 137). Weisberg refutes the fallacy of characterising insight as a sudden flash of enlightenment and also emphasises the dependence of problem-solving on past experience, saying that "truly efficient problem-solving comes about only when an individual has acquired a deep knowledge of the domain in question" (Weisberg 1988: 155). Task-relevant prior knowledge is all the more essential given that "novelty in problem-solving comes about through ordinary thought processes in interaction with the information available in the problem. As this information changes, so does the solution produced by the subject, but the thought processes remain the same" (idem 156). In Szabó's view, creativity is not the invention, nor is it the discovery of new, so far unknown facts. Its fundamental characteristic is that knowledge plays an important role on the basis of which creative persons observe unusual relations, correlations and actively search for their nature. Conscious effort and concentration also have their place in creativity (Szabó 2002: 97).

1.9 Creativity and perception

It has been mentioned above that Komlósi sees creativity as a special adaptational process. In her research on creativity, she concluded that

> under suboptimal conditions in perceptual tasks creative persons are more open to stimuli. […] Our experiment seems to support this assumption: creative persons outperformed their non-creative mates: under difficult conditions they were able to recognize neutral stimuli with greater accuracy and speed (Komlósi 1987: 19).

Kovács suggests that "a particular creative cognitive strategy can be recognized in perceptual stimulus selection, as well as in the features of processing and in response processes". She also claims that "it has been verified in several experimental studies that creative people have an open, flexible perceptual attitude and are always ready to change their viewpoint. There is some evidence for their faster information-processing and their ability to use information in elementary processes" (Kovács 1987: 49).

1.10 Creativity and the toleration of frustration

Finally, there seems to be a relationship between creativity and behaviour in frustrating situations. According to Kakas, "creative people possess such personality characteristics that can become manifest in their behaviour and serve to decrease the strain of frustration". Furthermore, research seems to suggest that "autonomy as a creative personality trait […] can be related to a need for independent solutions of the frustrating situation" and that "the creative person must possess the ability to tolerate restrictions of the environment and to surmount the obstacles of frustration". Kakas also claims that "a task that demands creativity, that is, one that needs more than a mechanical application of the person's knowledge, is itself a source of frustration" (Kakas 1987: 79). The findings of her experimental research indicate that

> it is the characteristic of low creativity persons that they are less able to solve a problem in a frustrating situation. They react either with helpless rage or with suppression. Lower creativity seems to be related to this general problem of decreasing tension which leads to the fixation of behaviour as a result of an emotional block […]. Fixation of behaviour is always maladaptive and inconsistent with the image of the creative person as revealed by research. [Her] results suggest that the control of impulses is affected by the level of creativity, as well as by intelligence, presumably, as a function of expectations (idem 84-85).

To summarise, creativity is an extremely complex construct and it seems that it is easier to describe than define it. Its characterisation depends to a large extent on the angle we examine it from: whether we consider it from the product, process or personality perspective. Not mentioned here but equally interesting research areas are the following: creativity and psychosis (Eysenck 1995, Czeizel 2004), its evolutionary view, its psychoanalytical view, hemispheric specialisation and creativity opposing right brain to left as the source of intuition, the contribution of altered states of consciousness to creative thinking, analysis of biographical material and the study of genius and creativity by generational analysis, creativity and politics, creativity and leadership (Simonton 1988, Nyström1979), or creativity and pedagogy (Gergencsik 1987, Magyari Beck 2003), and the mathematical modelling of the creative process (Gabora 2002).

The concept of creativity has been demystified in the sense that it is not considered as the characteristic feature of a few anymore, but rather as a personality or a cognitive trait that each person possesses to some degree. Uniqueness is not the only criterion of creativity anymore. The most often recurring personality characteristics linked to creativity are flexibility, originality, independence and perseverance. The fulfilment of the creative potential depends on factors like background knowledge, motivation, environment, personal developmental histories, etc. An important aspect of creativity that has been demonstrated by research is that it is manifest not only on the level of general, highly organised functions but also on the level of more elementary processes like perception.

2. Creativity in interpreting

Creativity in interpreting can be examined at three levels depending on which aspect we are focusing on: (1) the products, (2) mental processes, or (3) the behaviour of the interpreter. In the first case it is the product-view whereas in the two latter cases it is the process-view that we are taking. In all events, the interpreter's personality plays a major role.

2.1 Creative products in interpreting

As far as creativity is concerned, interpreting can be considered close to written translation despite the difference in time constraints, and the major issues touched upon in translation studies prevail for interpreting as well. One of the most essential aspects of translation (and interpreting) is that the original message is created by someone other than the translator/interpreter. For this reason – as revealed by my short survey conducted among interpreters on the subject of creativity – interpreters sometimes fail to characterise interpreting as a creative activity (Horváth 2010). In my opinion, it would prove useful to dispel the myth of creativity being equalled by producing something unique in the sense that it should be completely new under the sun, which only a few select are capable of accomplishing.

2.1.1 Literary vs. non-literary texts

According to Cho, "the concept of creativity is usually discussed in the discipline of translation when dealing with literary work". Trying to explain the reasons for this, he asserts that it "may be that researchers do not regard creativity as an appropriate research topic for practical texts that are heavy on information and comparatively light on 'peculiarity' and 'originality' – characteristics that are considered […] unique to literary writings". Nevertheless, "all texts possess these characteristics to

varying degree". Creativity in translation implies that "in the case that a translator is unable to show to illustrate the creative nature of the source text, it can be concluded that the translator has failed to produce a target text that stays true to the objective of the source text" (Cho 2006: 380). In Pagnoulle's opinion,

> the translators of non-literary texts are expected to be at least as 'creative' as those who deal with literature, though in an altogether different way. Literary translators have to be creative because their source texts […] use language creatively, and […] the form is part and parcel of the content (Pagnoulle 1993: 89).

In this respect, as we shall see below, interpreting can be compared to non-literary translation.

2.1.2 Translation as recreation

Translation is considered 'recreation' by Kussmaul (1995) as the translator is always restricted by the source message that cannot be altered. The term 'recreation' conveys well the idea that translation (and interpreting) is not simply rendering a source text into a target language in a mechanical and automated way. It is rather creating an equivalent text in a different language from the original. This perspective provides more room for manoeuvre in discussing creativity in translation/interpreting on the level of its product manifested by its linguistic form.

Here one of the most important criteria of creativity is the new nature of the product. In fact, creativity on the part of the translator means resisting the form of the original message or non-literal translation. The **target language texts** "can be regarded as creative because they are new in the sense that they differ from the source text" (Kussmaul 1995: 121). Furthermore, "considering translation as purposeful activity, it is fitting to view a translation that fulfils its purpose and at the same time, consists of new elements, as a creative product" (Cho 2006: 380). The degree of creativity, however, might vary according to the language pair in question, as Cho's empirical research "confirms that Japanese-Korean

translator creativity is restricted" (idem 378), because "the two languages' linguistic similarity prohibits translators from using their creativity and thus, may lower the quality of the target text" (idem 379).

In Wilss's view, translation is also a "re-creative linguistic activity", and "translation is never creation *ex nihilo*, but the context-bound reproduction of a given text". Furthermore, "the most competent translators possess a malleable and creative mind", and it is part of the translators' translation intelligence (Wilss 1996 cited in Niska 1998: 3).

2.1.3 Creativity in translation and the concept of 'derived message'

Wilss describes translators' creativity by introducing the notion of 'derived message', which he explains as follows:

> Translators do not commit their own ideas to paper, but reformulate the ideas given to them by the author of the original text. They do not plan, organize or express an authentic message, but a 'derived message', in which three phases can be identified: preparation, formulation and evaluation of the translation. The decisive stage is that of formulation, the quality of which depends on the translator's experience and knowledge, on his/her (re)creativity, problem-solving skills, routine and expressive abilities, perhaps even on his/her ethical approach. Translators operate in a grey zone between light and darkness (Wilss 1999: 2 cited in Fontanet, 2005: 436).

The concept of 'derived message' describes especially well the core operation in translation/interpreting and illustrates that the translator/interpreter is not simply 'parroting' the target language text but contributes actively to the creation of the target-language message.

2.1.4 Creativity and translating 'the impossible'

The aspect of translating the 'impossible' was also mentioned several times in the responses to my questionnaire highlighting one of the main issues regarding creativity in interpreting (Horváth 2010). The remarks below concerning translating the 'impossible' go for interpreting as well.

Pagnoulle shows in her paper on creativity in non-literary translation that "the duty of the translator often goes beyond mere translation" when the source text turns out to be inaccurate or awkwardly organized (Pagnoulle 1993: 79). In her view, in such cases it is acceptable to rewrite the text to some degree, or make changes to it so that it is considered to be an adaptation of the source text, in the case of, for example, advertisements or instructions, scientific studies or popular science.

Wilss also thinks that "creative translation is related to translations with unpredictable, non-institutionalized use of language" (Wilss 1988: 127 cited in Cho 2006: 380). In a similar vein, "creativity is necessary to eliminate the interference, linguistic or textual, caused by the SL and/or the source text" (Cho 2006: 381). According to Newmark, "the creative element in translation is circumscribed. It hovers when the standard translation procedures fail, when translation is 'impossible'. It is the last resource, but for a challenging text it is not infrequently called on" (Newmark 1991: 7).

2.1.5 Creating something new in translation/interpreting

One of the reasons why Gui also sees translation as fundamentally creative is because "translators have to form the source-text ideas into the structure of the target language", and he asserts that "there is no fundamental difference between the work of translators and that of painters or writers" (Gui 1995 cited in Niska 1998: 3).

For MacRae, creating something new in interpreting is not restricted to the target language form of the original message, but the interpreter may show creativity in the invention of interpretation, note-taking or preparation techniques, an interpreting style and avoiding pitfalls. Examples of the invention of preparation techniques are "methods of skimming

materials to uncover the kernel of the information […], concentration on diagrams and charts terminology […], inventing list-making techniques […]". For MacRae "creativity is seen in the evolution of an interpreter's style" and "an interpreter develops a preference for his/her own techniques for analysing information, for accomplishing the various functions of interpretation […]and selection of special schemata and formulae which become part of his/her style". Finally, in order to avoid pitfalls of, for example, "going from a V/O language (Italian, English, Spanish) to an O/V language (Japanese, German)" […], "the creative will usually have devised a way of continuing to speak without committing him or herself until s/he has the necessary information" (MacRae 1989: 152-153).

Another example of creative products in interpreting is offered by Niska in his paper on interpreting neologisms. Niska, citing Rey, defines neologisms as units

> of the lexicon, a word, a word element or a phrase, whose meaning, or whose signifier-signified relationship, presupposing an effective function in a specific model of communication, was not previously materialised as a linguistic form in the immediately preceding stage of the lexicon of the language (Niska 1998: 11).

In interpreting situations, Niska distinguishes between two types of neologisms: "the source language terms and special phrases of the speaker and […] the possible neologisms that the interpreter uses to translate either these 'new' terms or other, 'old' terms which lack a direct equivalence in the target language" (idem 12). Neologisms in the source language "can be either 'accepted' neologies in the speaker's discourse community, […] or spontaneous, idiosyncratic, created in the heat of the moment", in which case they are the products of the speaker's creativity. In an interpreting situation, however, they are always translated into the target language "in the heat of the moment", and as such their target-language equivalent can be considered to be the product of the interpreter's creativity.

To summarise, creativity as a product in interpreting has been discussed only rarely in the research literature on interpretation. However, what has been said concerning this issue in the fields of literary and non-literary translation seems to be also valid for interpreting. The creative nature of

translation can be explained by referring to the concepts of 'recreation', or 'derived message', or thinking of moments when the translator needs to render 'the impossible' into the target language. Creativity can also be explained in terms of creating new linguistic forms, inventing different interpreting techniques, or dealing with neologisms.

2.2 Creative processes in interpreting

Creative processes in interpreting can be divided into two groups: problem-solving processes and mental interpreting strategies.

2.2.1 Interpreting as problem-solving and decision-making

The creative process in general is seen as a problem-solving process closely linked to decision-making. Walter, speaking of language mediation, asserts that the

> language mediator's competence comprises much more than his knowledge of languages and the relations between them. The demands made on a translator who is meant to work with as many types of text as possible are consequently extraordinarily high. They concern his extralinguistic knowledge, his skills and his intelligence, […] his ability to recognize and solve problems of translation. […] due to this the amount of creativeness […] of a language mediator is extremely high (Walter 1988: 108).

An important concept here is the notion of **selection**. According to Walter, "creativeness in translation consists of searching for and finding of problem solutions […]". Walter also explains that "in the course of the generation of the target language texts as a permanent selection out of the means available in the target language is made by the language mediator in order to produce a target language text […]" (idem 106). She distinguishes between controlled and uncontrolled activities of selection. While the former refer to automatic 'one-to-one' equivalents,

uncontrolled selection is less foreseeable and thus demands more creativity from the language mediator. She concludes that "controlled decisions occur most frequently in the translation of highly standardized texts under standardized communicative conditions" (idem 108).

Kussmaul used Wallas's four-step **psychological model of creative thinking** in his empirical research on the translation process. On the basis of think-aloud protocols he contended that

> the following four steps or stages in the creative process [described by Wallas] were indeed present in the translation process: (1) preparation (including text analysis, interpretation; involves creative comprehension), (2) incubation (fluency of thinking, divergent thinking (involves emotions), (3) illumination (divergent production […]; shifts/transformations […]), (4) evaluation (entails convergent thinking) (Niska 1998: 10).

However, in the case of interpreting we need to distinguish between two kinds of processes: a longer one including the phases of preparing for the assignment, actually doing it and then evaluating it after it has ended, and a shorter one where only the actual interpreting act is considered. In the former case, it seems possible to distinguish between different phases or steps during the process, but concerning the actual interpreting during an assignment, I adhere to the view of those researchers who assert "that the process of creative thinking is an integrated line of thought that does not lend itself to the segmentation implied by the steps of a model" (Plsek 1996: 1). It is all the more valid for interpreting that during this process a lot of factors, linguistic and extralinguistic, come into play simultaneously under very stringent time constraints. Wilss' view on translational creativity holds here as well, according to which it is a dynamic notion. "The dynamic aspect of translation [and interpretation] creativity reveals itself not in original text production, but in the skill to develop, in simultaneous confrontation with a source text and a target code, decoding and encoding strategies" (Wilss 1996: 166).

2.2.2 Creative mental processes in interpreting

Riccardi (1998) proposes that interpreting is a creative process because, as she puts it,

> if the interpreting process is considered a problem-solving activity where the source text is the problem and the target text the solution, then it follows that it is the interpreting mode, the fact that interpreting is 'on-line', that leads to a creative process. From a limited set of cues or elements continuously unfolding, with no interruption or thinking longer than a few seconds, the interpreter has to come to a correct conclusion or be able to anticipate the message in such a way that s/he can organise his language output correctly. In doing so, s/he is not simply repeating something said by somebody else, but also engaging in a creative or productive process (Riccardi 1998: 172).

An important concept in Riccardi's citation above is **anticipation**, which is one of the basic interpreting strategies which consists of coming up with an idea concerning the possible closing down of an open meaning or structure, and as such, it implies using one's creative imagination relying on what has been said and done in the communicational situation where interpreting takes place. Anticipation is foreseeing, or predicting what is going to be said and what is going to happen next. It requires from the interpreter not only resourcefulness and ingenuity but also a certain amount of empathy, a quality closely related to creativity.

Another essential point included in Riccardi's view is coming to a **correct conclusion** during the interpreting process, as it involves both divergent and convergent thinking. Referring back to Guilford's distinction between the two cognitive modes, it is worth mentioning again that divergent thinking involves searching for alternatives in order to find several equally viable solutions to a problem, in our case the equivalent of the source text message. Selecting one solution among the several target language alternatives involves convergent thinking, which is seen as less creative. As we have seen above, being able to choose between the modes of thinking is also proof of creativity (see Gabora 2002).

What Riccardi labels as the **strategy of 'least commitment'** is a

good example of what divergent thinking in interpreting might involve, as it means exploring a multitude of possible linguistic solutions to an open problem as the source language message is still unfolding. The research conducted by Riccardi has revealed that this strategy, which she thinks is peculiar to simultaneous interpreting, enables interpreters to avoid commitment to a single solution and to conclude sentences. It means granting the greatest number of possible linguistic solutions. It is characterised, for example, by transforming a source sentence into a subordinate clause, which makes it easier for the interpreter to make corrections, or it can mean various sentence restructuring strategies such as chunking long sentences (Riccardi 1998: 178).

MacRae in her enumeration of the creative mental processes mentions abstracting, directed remembering, imagination/invention, and association. She emphasises the fact, however, that these strategies "are not intended to be all inclusive, especially when one considers that a creative individual will inevitably come up with something new" (MacRae 1989: 150). **Imagination/invention** are the mental processes that

> make the creative process original and valuable, and differentiate it from the conventional. The imaginative quality of an interpretation is seen in the selection of words and even clearly in the selection of images. […] The truest test of an interpreter's imagination and inventiveness is his or her ability to transfer a colourful joke from one language or cultural context to another (idem).

The fourth creative mental process in interpreting mentioned by MacRae is **association**.

> The seasoned interpreter […], allowing free play of the mind in the background of the interpreting process, can make associations (connections) between statements made at different times by the speaker, or by different speakers, as a result of which the interpreter must suddenly understand a concept, or relate a statement to something which has been said previously, or to something which s/he knows from previous experience (idem 151-152).

Peculiar to interpreting are time constraints under which interpreters work, as the interpreter who is in the middle of an ongoing communicative act does not have the time for long analyses and processes. This, in turn, presupposes a great amount of flexibility, fluency and originality concerning the mental processing of information involved in interpreting, characteristics of which, as it has been shown above, are closely related to creativity.

2.2.3 Creative comprehension in translation/interpreting

Interpreting conceived as problem-solving, characterised by choosing between several target-language alternatives means that it is a decision-making process, the starting point of which is comprehension. Bastin, speaking of written translation, acknowledges that comprehension can be creative if we manage to make the text ours in order to create another from it (Bastin 2003: 350). Vinonen, in his paper on literary translation, also emphasises the creative nature of comprehension, saying that "it is essential for the translator to know the logic of the source text. An adequate reading of the source text is the first act of the translator's creative behaviour" (Vinonen 1997: 113). Kussmaul goes into more detail on creative comprehension saying that "comprehension […] is not only guided by what we hear or read but also by our personal knowledge and experience. Understanding is not merely a receptive but also a productive process" (Kussmaul 1995: 41). Fontanet describes her way of understanding the source text in a creative way and asserts that her experience shows that the best strategy to adopt in order to understand the source text well consists of questioning one's own convictions without trusting evident solutions, and in paying attention to the contradictions of the text (Fontanet 2005: 438).

In their explanation of the cognitive aspects of creative understanding, Balacescu and Stefanink assert that the degree of our comprehension of a text is the result of the interaction between top-down and bottom-up processes. The former are linked to our life experiences and the engrammatic structures of our brain that condition our comprehension, while the latter are part of what Lederer (1994) calls 'cognitive context'

made up from the information gained from reading the text, kept in short-term memory and used for the interpretation of the following text segments. Unlike Lederer, whose definition of cognitive context suggests a linear approach, Balacescu and Stefanink claim that it is also used for going back, and making corrections and adjustments to the first tentative comprehension of the text. In this sense, the bottom-up comprehension process means a concentric operation based on the isotopic structures of the text (Balacescu and Stefanink 2005: 7).

To summarise, we have seen that interpreting is underlined by creative thinking characterised by such mental processes as comprehension, anticipation, and improvisation, which are seen as basic strategies, i.e. actions that are the results of conscious cognitive effort or choice. Considered a continuous process of encoding-decoding, interpreting involves constant decision-making characterised by selecting one solution out of several target-language alternatives as the equivalent of the source text. To use Torrance's definition of the creative thinking process, which is also valid for the interpreting process as a whole, it is

> the process of sensing difficulties, problems, gaps in information, missing elements, something askew; making guesses and formulating hypotheses about these deficiencies; evaluating and testing these guesses and hypotheses; possibly revising and retesting them; and finally communicating the results (Torrance 1988: 47).

This leads us to the next part of the discussion of creativity in interpreting, which takes a more global view and focuses on the behaviour of interpreters in interpreting situations.

2.3 Creative behaviour in interpreting

According to MacRae, "it is the thinking part of the interpretation process that is of most relevance in terms of creativity" (MacRae 1989: 149). This view of creativity restricting it to the cognitive strategies used by interpreters seems to be too narrow even though the importance of cognitive factors in creativity is unquestionable with regard to interpreters' behaviour.

IV. Interpreters' creative behaviour

The study of the behaviour in interpreting requires looking at the process of interpreting and taking into account the communicative situation in which it takes place. The strategies-view of the process focused on the strictly cognitive aspects, while this **situational view** reflects a wider perspective that takes into account the global context, the time frame and the participants in the act of communication, among other things. This is why Cho's view of creativity in translation does not seem to hold entirely true for interpreting. According to this view "creativity is not required for all stages of translation" because "it has been shown that a great deal of the translation process tends to become automated for professional translators depending on their familiarity with the source text's subject matter, translation experience and ability" (Cho 2006: 380). Even if a great number of mental processes become automatic in the professional career of an interpreter, the situational characteristics (place, participants, subject matter, issues to be discussed, etc.) change with each assignment, lending a novel frame to it. This, in turn, requires creativity from the interpreter as "throughout the process, there is an element of responding constructively to existing and new situations, rather than merely adapting to them" (Torrance 1988: 47). This 'responding' is what requires creativity from the interpreter. In this sense, creativity is close to flexibility and spontaneity.

In other words, it is not only the text-specific or culture-specific characteristics of the source message that require creativity from the interpreter, but also the situation-specific features of the act of communication. The communicational situation in which interpreters find themselves becomes somewhat unnatural because of their presence. They are part of this situation, but they are neither the sender nor the receiver of the message, and they are not fulfilling their own communicational needs. They are part of the situation, but they are neither partners, nor insiders (see Chapter 1). In order to be able to behave in a professional manner and still facilitate communication, they need to adapt and to respond to the situation in general and to the participants in particular on a continuous basis, which requires, as we have seen above, a lot of creativity on their part. In this sense, creativity implies **spontaneous and flexible responses** from interpreters taking into account not only the communicational aims of the participants and the setting, but also factors

like their personality, motivation, attitudes, emotions, etc. to which they need to adapt. Responding to a situation is based on adapting to the different factors simultaneously. It is true for a given assignment, but we should not forget that there is an infinite variety of interpreting situations and different modes of interpreting which also require adaptability and flexibility in a more general sense on the level of behaviour.

Interpreting is not only about making linguistic and cultural inferences but also pragmatic and situational (deictic) ones continuously. This is why creativity in interpreting cannot be restricted only to "translations with unpredictable and non-institutionalized use of language" (Wilss 1988: 127 cited in Cho 2006: 380) or "translation in which the selection of a translation variant is not rule-governed" (Alexieva 1990: 5). While in written translation, **unpredictability** is restricted to the use of language, in interpreting a lot of other things cannot be foreseen no matter how thoroughly the interpreter prepares for an assignment: the participants' personalities, agendas may be unpredictable and unforeseeable events may happen. In my opinion, this is the most important aspect when differentiating between translational creativity and creativity in interpreting. This aspect of creative behaviour in interpreting has not been discussed so far in the literature on creativity in interpreting.

To summarise, creativity in interpreting can be described at three levels: as a product, as strategies, and as the behaviour of the whole person. This latter aspect is all the more important in our discussion on creativity in interpreting as it prevails in all circumstances: even if certain strategies become automated, there are always new elements in the situation to which the interpreter has to adapt and respond in a creative, i.e. in a flexible and spontaneous way. Key concepts here are the evolving nature of interpreting and the importance of the context and the participants in the shaping of the interpreter's performance in the sense that the feedback they receive this way contributes to their interpreting. Interpreters have to rely on their creativity to be able to profit from this interaction within a given communicational situation.

3. Conclusion and further research

In this chapter, we have discussed the general question of whether interpreting can be considered a creative activity, or in other words, whether it requires creativity from interpreters. On the basis of the psychological literature concerning creativity, I think that creativity seems to be an intrinsic element of interpreting on three levels: as a product, as mental processes manifest in cognitive strategies and as professional behaviour in a given situation. What makes interpreting a special area of study in terms of creativity is not only the creative nature of the mental processes involved, but first and foremost the creativity required from interpreters on the level of their professional behaviour in a communicational situation where they are present but in which they are not natural participants. This aspect might be an interesting field of study not only for interpretation researchers but also for psychologists.

Choosing between several alternatives in a given communicational situation implies that interpreting is a decision-making process. Interpreting is not seen as out-of-context linguistic encoding-decoding, but rather it is considered as facilitating communication in a more global sense involving paying attention not only to linguistic, but also cultural and situational factors. Selection between alternatives is meant to happen in a linguistic, pragmatic and situational sense.

Interpreting can be described as a balancing act in a situation in which the communication that the interpreter is meant to facilitate takes place. To be able to find the right place in such a situation, where the interpreter is not a natural participant in the act of communication, requires a considerable amount of creativity, i.e. adaptability, responsiveness, and flexibility.

We have seen that practising interpreters seem to have only a partial view of the issue. There is an important point to make here regarding interpreter training as the better one understands the characteristics and the processes underlying interpreting, the better one is capable

of carrying out one's job. For this reason, it might prove useful to raise awareness of the creative nature of interpreting in interpreting training.

Of course, there is a great amount of further research to be done before we can assert that we fully understand creativity in interpreting. There are some basic points that would merit more careful examination such as, for example, the testable manifestation of creativity in interpreting. Other areas to research are the following: Does it automatically develop with professional experience? Does it develop during training? If so, what are the factors that seem to contribute to this development? Can creativity tests be predictors of good interpreting? Is it worth testing creativity through aptitude tests in interpreter training programs? To what extent does creativity as a variable contribute to professional success in the case of, for example, freelance interpreters who need to self-manage themselves in a given free market? Interpreters might be good subjects for researching such issues as the relationship of tolerance of frustration, or stress to creativity, or perception and creativity as their day-to-day job involves both of these. Does the degree of creativity required from interpreters depend on the language pairs involved? How is the amount of creativity required from interpreters influenced by the type of the text to be interpreted? The issues raised above offer a lot of research agendas for future work on the topic of creativity in interpreting.

CHAPTER 5
Stress and interpreter behaviour

The link between sport and interpreting might seem at first sight far-fetched or at least surprising, but we shall see in what follows that they are closely related with respect to stress and stress management. Sports psychology has a lot of potential for interpreting and interpreter training as stress seems to be one of the major psychological factors influencing an interpreter's professional behaviour. A competitive sports situation is similar to an interpreting assignment since they are both characterised by the achievement need of the performers, the athlete or the interpreter. They cannot escape from the situation, and they need to achieve what they have undertaken to do. Their performance on the day depends on external and internal factors that they need to control efficiently. First, I will present an outline of sports psychology and review the literature on the psychology of stress. Then, I will summarise the research conducted concerning stress in the context of interpreting. Finally, I will discuss the implications for professional interpreting.

1. Sports psychology

Sports psychology is a relatively recent field of study as its beginnings date back to the 1950s when psychological tools were used in sport for the first time. In South Africa, a psychologist was asked to participate in the training of a football team for the first time in the history of sport. Sports psychology is the study of the psychological factors influencing an athlete's behaviour and performance. It explores the personality and behaviour of individuals involved in sport-like physical activities.

Sports psychology has two main fields of application: it seeks to understand the effects of regular physical activity, playing and training on the personality, as well as the psychological characteristics of the persons involved in such an activity. It also examines the pedagogical role of sports and physical activity in school education. Another research agenda concerns how regular physical activity can contribute to psychological well-being and to what extent physical exercise can be used as a therapeutic tool for mental adjustment. In addition, it sets out to explore the psychology of competitive sport and it also seeks to understand the mental factors that influence peak individual and team performance in elite sport (Anshel 1994, Budavári 2007, Cox 1998, Lénárt 2002, Thomas 2002).

In this respect, the emphasis is put on psychological functions and personality traits and how these can be regulated in order to enhance performance and reach peak performance in competitive situations (Nagykáldi 2002). To achieve this, the sports psychologist explores, with the help of psychological tools, the conscious and non-conscious factors influencing human performance in sports (Budavári 2007) since the successful performance of an athlete has several components: physical (strength, stamina, speed, suppleness), psychological (clear thinking, self belief, ability to stay focused, arousal control, visualisation) and technical (sports specific factors, strategies). These components are dependent, to a large extent, on the athlete's character, as can be seen in Figure 10 (Lénárt 2007).

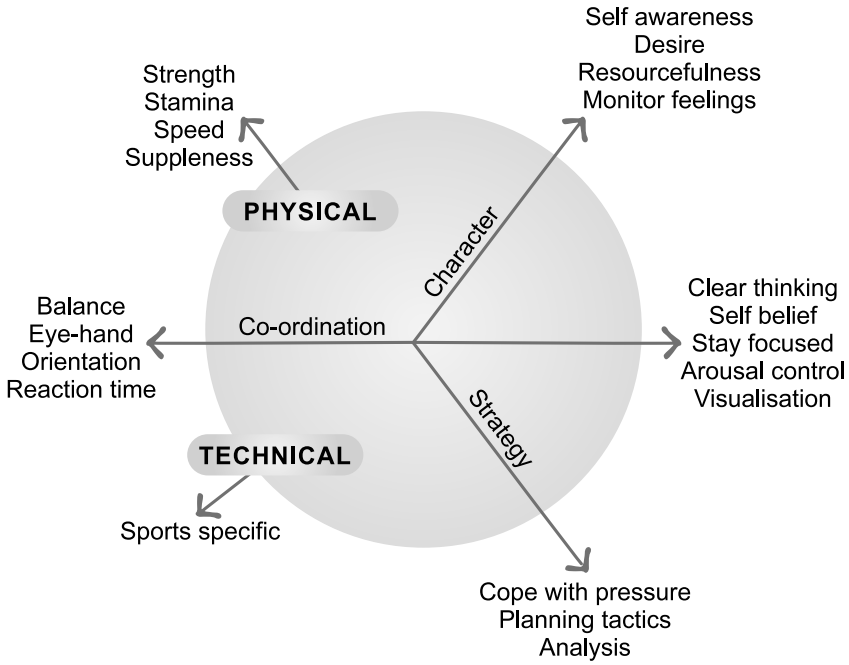

Figure 10: The components of successful performance

This means that it is not sufficient to train and prepare the body; psychological factors also need to be taken into account. Furthermore, psychological training can lead to the release of immense energy resources.

Of course, the foregoing provides little more than a summary of what sports psychology concerns itself with. However, at this point it seems to be unnecessary to provide a more detailed explanation of its scope, for our main interest lies in what it has to offer interpreters and interpreter training. For interpreting, perhaps the most relevant lessons from sports psychology are linked to stress management and mental training. Before discussing the importance of stress management in interpreting, let us first discuss the main issues concerning stress itself.

2. Stress

There have been various approaches to stress. One of the earliest studies focused on clearly defined stimuli like crises and catastrophes, or the life events approach (for an exhaustive overview, see Smith 1993). As it would be beyond the scope of this paper to present all of them, only the ones most pivotal to our purposes (i.e. to enhance our understanding of the main issues related to stress in general) are discussed.

2.1 Stress research: the beginnings

Stress has been a popular topic for research since the 1950s. At the beginning of stress research, stress was typically thought to be an unpleasant state, the ideal condition being free of any tension. One of the earliest attempts to understand the biological and psychological mechanism of stress was made by a Canadian biology researcher of Hungarian origin, Hans Selye. He shed light on stress research, for example, by stating that "stress is not something to be avoided" as "it cannot be avoided" and that "complete freedom from stress was death" (Selye 1974: 31-32). One of the most important caveats of Selye's stress research results is that "we can meet it [stress] efficiently and enjoy it by learning more about its mechanisms and adjusting our philosophy of life accordingly" (idem 33).

Another important concept in stress research linked to Selye's definition of stress is that "from the point of view of its stress-producing activity or stressor activity, it is immaterial whether the agent or situation we face is pleasant or unpleasant; all that counts is the intensity of the demand for readjustment or adaptation". This means that the same stressors like joy, sorrow, cold, drugs or hormones can "provoke an identical biochemical reaction in the body" (idem 29). Furthermore, he distinguishes between good and damaging or harmful stress and calls this latter **distress** saying that "activity associated with stress may be pleasant or unpleasant; distress is always disagreeable" (idem 31).

2.2 Psychophysiological stress research

Zeier provides a very comprehensive overview of psychophysiological stress research, in which he affirms that

> stress consists of the psychophysiological processes caused by a perceived threat or danger. From the psychological point of view [stress] has two components: (1) the experience of a threatening and strenuous situation, and (2) the uncertainty whether one is able to cope with this situation (Zeier 1997: 231).

Zeier also enumerates the most important physiological stress research methods that measure physiological responses "in order to assess subjective stress or strain associated with a particular situation" where "alterations in the time course of physiological functions are used as an indicator of emotional and mental processes". Then he goes on to explain that "as mind and body form a unity, every physiological function may be influenced in a certain way by some psychological process" (idem 234). These physiological measurements are the following:

- parameters such as cortisol, dehydroepiandrosterone, testosterone, catecholamines, immunoglobin that represent a wide variety of endocrinological and immune functions can be assessed by analyzing blood, urine or saliva samples;
- measuring cardiovascular functions by heart rate recordings or measuring blood pressure;
- body movements and physical activity can be measured using acceleration sensors or actometers (to assess heart rate increases);
- measuring electrodermal activity as "systematic activation of the sweat glands reduces the electrical resistance of the skin";
- measuring skeletal muscle tension, as "in a stress situation, muscle tension increases in order to prepare the body to perform the movements necessary for fighting or fleeing";
- monitoring the respiratory cycle putting, for example, a flexible strain gauge belt around the chest or upper abdomen;
- pupillometrics, i.e. measuring the size of the eye pupil as "physiological

> influences, such as positive and negative emotions, perceptual processes and mental activity, have very consistent effect upon the size of the eye pupil" (idem 234-238).

2.3 Transactional stress research

The transactional approach to stress and stress research studies the "interrelationship among all variables - stimuli, arousal, cognitions, and coping. It views stress not so much as a single event but as an ongoing story complete with central and peripheral characters and interweaving plots" (Smith 1993: 3). Smith distinguishes three types of stress: physical, psychological and social. The first "arises when certain demands tax or exceed the adaptive resources of the body, thus contributing to physical wear and tear, lowered resistance". It means that "heat, cold, war and worry can be all physically stressful". The second type of stress is defined as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources"; finally social stress occurs in situations when "demands tax the functioning and stability of society or a social group" (idem 6).

2.4 Coping with stress

To be able to cope with stress, it is important to become **stress literate**, i.e. to understand stress, recognise its symptoms and come up with one's own tailor-made stress management techniques. The first step towards stress literacy (a term used by Smith 1993) is the definition of stress, how one reacts to it, and why one reacts to it in a given way.

Regarding the reaction to stress, Zeier distinguishes between active and passive coping behaviour. Active behaviour consists of the fight or flight response. Both responses are associated with physical activation. Furthermore,

> [s]ituations which engender in us the fear of losing control usually elicit some active coping behaviour. However, if one loses control and does not know which active behaviour to select for managing

> a stressful situation, […] passive coping occurs. This response may range from avoidance behaviour, resignation, feelings of inferiority and lack of self-confidence to severe depression (idem 232-33).

These two coping behaviours are associated with two physiological stress response systems: the Cannon stress-axis and the Selye stress-axis (for their detailed description, see Zeier 1997: 233-34). The possible stress reactions according to the Cannon stress-axis are the increase in "blood pressure, heart rate, respiration cycle, metabolic rate, muscle activity and electrodermal activity" and a decrease in "saliva secretion and […] the temperature of the fingers and hands. Furthermore, energy stores are tapped and stored sugars and lipids are released into the blood stream. This physiological response […] prepares the organism to perform physical work". The Selye stress-axes "stimulates the secretion of the adrenocortical hormones, in particular the stress hormone cortisol" (idem 233). Another type of possible stress reaction occurs in stressful situations when one withdraws into passivity, which can result in such vegetative stress symptoms as "an upset stomach, vomiting or diarrhoea, and in the long run ulcers and other gastrointestinal diseases" (idem 234).

Selye's and Zeier's studies indicate objective physiological and psychological indicators of stress and the distinct biochemical reactions characteristic of us in stressful situations. Selye's most important contribution to modern stress research is the distinction between good (inspiring) and bad (harmful) stress. Nowadays stress is not seen as something necessarily damaging. It is actually considered to be a **potential tool** enabling us to mobilise our inner resources, and something that leads us to better performance. Stress can, of course, still be damaging to our mental and physical health if we do not learn how to use it to our advantage. Whether we can do so depends, to a large extent, on our personality, and our conscious effort to control stressful situations. Before proceeding to effective stress management, let us now address the topic of stress and interpreting.

3. Stress and interpreting

Stress is and has been for some time a widely researched topic in interpreting studies for it seems to be a fact of life for interpreters. Most of the available literature refers to simultaneous interpreting probably because this is the most frequent form of interpreting in those international institutions that employ the highest number of staff and freelance interpreters on a daily basis such as the UN or the EU. The 2001 AIIC Workload Study, for example, is a comprehensive and very interesting review of stress in SI.

However, this does not mean that the other types of interpreting are linguistically or contextually less complex, nor are they less stressful by nature. A professional situation can be perceived as threatening by consecutive or community interpreters as well, and they can be uncertain about how to cope with it, too.

3.1 The AIIC Workload Study

As the Workload Study commissioned by AIIC provides a very comprehensive summary of occupational stress in interpreting, it is worth noting some of its main points. According to the study,

> three significant factors can be recognized as having a potential impact on the stressfulness of the interpretation process as well as on the interpreters themselves. These factors are: psychological parameters (perception, attitudes, etc.), physical parameters of working conditions (i.e. air quality, noise insulation, lighting, etc. in booths), and physiological parameters (heart rate, blood pressure, etc.) (AIIC Workload Study 2001: 5-6).

Regarding these three factors it seems appropriate to say that physiological parameters such as increased heart rate and blood pressure are consequences of stress rather than a factor with an impact on the stressfulness of a

situation, i.e. they are good tools for measuring whether a given situation is stressful for the interpreter or not.

The main strength of the study seems to be its detailed analysis of how the physical working environment impacts "could induce stress and burnout, which could affect performance and satisfaction. In turn, dissatisfaction with performance can have implications for burnout" (idem 129). The physical factors that most contribute to the feeling of stress listed in the study are the following (for a more detailed description of these conditions see also Cooper *et al* 1982, Kurz 1981, 1983, 1997, Moser-Mercer *et al* 1998):

- difficulty or poor delivery of text (fast speakers, textual complexity, poor delivery, non-native speakers, speakers reading from texts, etc.);
- poor booth conditions (lack of fresh air, humidity, temperature, lighting, mobile booths, noise);
- preparation difficulties (unavailability of material in advance, etc.).

The ultimate goal of the study was to justify and substantiate the AIIC guidelines governing working conditions. The researchers did justice to the task, as the paper provides a detailed guide for interpreters, novice interpreters, students in interpreting and employers concerning the issue of reducing the external stress factors that contribute to short-term and long-term occupational stress and burnout. Although the study focuses on SI, most of its findings can also be applied to other modes (visibility, text delivery, textual complexity, temperature, preparation difficulties, etc.).

Regarding the psychological factors, however, the AIIC study is less comprehensive, which is understandable as its main goal was to justify its recommendations to employers who are concerned mostly with providing the physical environment and working conditions. Among the psychological factors influencing stress and performance, it mentions psychological issues such as job satisfaction, motivation, job prestige and such interpersonal factors as uncooperative colleagues, competition for work and relations with recruiters and employers. These are, of course, all essential issues within the scope of interpreting and stress, and there is no doubt that good interpersonal relations with the participants in

the interpretation process, a high level of motivation and job satisfaction contribute, to a large extent, to a lower level of stress experienced by the interpreters.

3.2 The psychological factors of stress in interpreting

We have seen above that stress is a result of a *perceived* danger or threat and the fear that, for some reason, one is not able to cope with a situation presumed to be dangerous. Here the question arises as to what one perceives as dangerous, which depends, among other things, on the personality of the individual. To what extent individuals experience a factor that has a stressful impact on them or their work depends considerably on their level of **self-confidence** and **self-knowledge** as well. This, in turn, has a favourable impact on their ability to cope with the situation.

Interpreters are professional language mediators, which means that they have chosen this profession deliberately. They have chosen to stay in a profession known to be stressful from a psychological and physical point of view as well. This has been confirmed not only by the findings of the AIIC Workload Study, but also by a survey conducted by Boronkay-Roe (2006) among 66 experienced, mostly professional freelance interpreters with Hungarian in their language combination as an 'A', 'B' or 'C' language.

One of the most relevant findings of this survey was that all of the respondents said they found interpreting stressful. The most important stressors they listed more or less correspond to the ones mentioned in the AIIC study. Another important result is that the answers revealed that stress remains constant throughout one's career, i.e. it is not only typical of novices since experienced interpreters find their job stressful, too. It is also true, however, that respondents felt that the level of stress tends to decrease with experience during their career. This may be partly due to one of the findings of the AIIC study, namely that variables such as **competence** and **motivation** "modify the association between stress and performance", and "highly competent [and motivated] workers are more likely to maintain a high level of performance even in the face of stressors"; simultaneous interpreters are "highly skilled and motivated

to perform well. They also cannot afford to make too many errors due to the fact that their work is monitored continuously" (AIIC Workload Study 2001: 126). Although Boronkay-Roe's research did not focus on the relationship between performance and stress, it can be assumed that experience and competence help when it comes to coping with stress during interpreting. Her study, however, did reveal another interesting point, namely that almost 90% of the respondents said that they used specific coping techniques such as mental control and attention focusing techniques. In addition, the interpreters who consciously used stress management techniques had received formal training in interpreting. This indicates an active response to stress.

3.3 Stress and burnout

Moser-Mercer and Künzli's findings on stress and burnout characteristic of interpreters show that interpreters "if put in a situation where they have to exceed their personal limits […] just could not care less after a certain time" (Moser-Mercer and Künzli 1995 cited in Zeier 1997: 246). Mouzourakis (1996) also found that there is a **defence mechanism** employed by interpreters in the face of highly stressful situations and "there seems to be some evidence of stress homeostasis whereby interpreters react to what they perceive as impossible working conditions by progressively reducing their efforts, even to the point of adopting an automatic pilot mode". This is, by contrast, a passive coping response to stress due to mental overload, which seems to be characteristic of situations when one does not have the mental (or physical) resources to respond actively.

3.4 Stress and remote interpreting

With the advent of new information and communication technologies, remote interpreting (RI) has become more frequently used in the field of professional interpreting. Moser-Mercer defines remote interpreting as "any form of simultaneous interpreting where the interpreter works away from the meeting room either through a video-conferencing set-up or

through a cabled arrangement close to the meeting facilities, either in the same building or at a neighbouring location" (Moser-Mercer 2003: 1). This, of course, poses a lot of challenges for the profession. RI has been the subject of several studies since the 1970s (for an in-depth overview, see Andres and Falk 2011).

As for stress involved in RI, Mouzourakis states that it is "also a significant feature of RI, and there is already one experiment (the ETI-ITU April 1999 test) that has produced quantitative evidence to show that RI is significantly more stressful than normal interpreting". In the same study he also asserts that

> interpreters engaged in remote interpreting have also experienced a level of psychological discomfort equal to, if not greater than, their level of physical discomfort. The vast majority of 'remote interpreters' have reported feeling a lack of participation, alienation, and loss of concentration, together with increased fatigue and reduced self-perceived quality. Moreover, there is a suggestion of potentially persistent 'after effects' in the form of mild cognitive disturbances as the result of prolonged exposure to RI [...] (Mouzourakis 2003).

Roziner and Shlesinger (2010) report on the executive summary of the 'Study Concerning the Constraints Arising from Remote Interpreting', "the largest and most comprehensive" one carried out to date on the subject of RI, which was commissioned by the European Parliament in 2004 (for the executive summary, see Mertens-Hoffman 2005). The study examines such factors as the physical properties of the work environment, the ergonomics of the work environment, eye strain, somatic complaints, psychological manifestations of stress and burnout and performance quality. They found that "it is sometimes difficult to distinguish between objective factors – e.g. environmental stressors – and subjective ones, deriving from well-known human apprehension when new patterns are to be introduced into a familiar, habitual setting". Furthermore, "no significant differences were found between the environmental conditions", "nor were there significant differences in the general stress factors". There was one exception, namely "poor visibility of the speaker and audience and lack of feedback (a factor that may be primarily psychological)"

(Roziner and Shlesinger 2010: 242). As for health concerns, i.e. "any possible damage to health in RI", the authors claim that

> no clinically significant effects were found, though complaints of headaches, of eye irritation, and of difficulties in concentration were far more numerous. In terms of [the interpreters'] sense of wellbeing, however, self-reports of burnout indicated a higher burnout rate in RI, along with longer recovery rate and greater irritability (idem).

This means that the most relevant finding is the fact that there is a "considerable gap between objective and subjective measures, both with respect to physical discomfort and with respect to perceptions of performance quality. Thus, the main 'cost' of RI in this study is psychological rather than physical" (idem).

One of the main concerns about RI that has been voiced by interpreters is reduced visibility. Vision is an essential part of information-processing and comprehension (see multimodal information-processing in Chapter 6). As Mouzourakis explains

> [h]uman vision does not work like a video camera, passively recording the details of the world. Rather, it searches for those essential features that allow it to answer specific questions. It is a problem-driven, selective and active vision. Interpreters do not merely look at a speaker; instead, the direction of the interpreter's gaze at any given moment is correlated with the kind of visual information needed to help with the processing of the meaning that the interpreter is constructing (Mouzourakis 2003).

Telephone interpreting can be considered a distinct type of RI. It is mostly used in the field of community interpreting. "It is attracting more and more attention", and "is used in medical, legal and business settings and has the advantage that it is available from virtually anywhere, at any time and in a large number of languages". Furthermore, it is particularly widely developed in the United States with ATandT Language Line Services, one of the market leaders, offering its services to courts, hospitals, the police, the fire brigade, private companies and individuals"

(Andres and Falk 2011). Telephone interpreting is characterised by even harsher environmental conditions than video-conferencing because of the complete lack of visibility, which leads, in turn, to the loss of non-verbal communication cues (Kelly 2008).

4. Sports psychology and interpreting

The reason why people choose such a stressful profession might be found, as it has already been alluded to above, in the personality traits of interpreters and of interpreting students. This brings us back to sports psychology and the motivational theories accounting for the reasons why people decide to take up or continue practising in a sport. What is even more interesting for us is to find out why some people would be attracted to hazardous sports that are seen to involve a high degree of personal danger.

4.1 Personality trait: stress-seeking

Russell's answer is that they are stress-seekers, which means that they are like those people who "on occasion act to increase rather than minimize the stress in their lives. [As in fact] some people quite deliberately seek out situations that expose them to tension-producing conflicts or risks" (Russell 1993: 19). The tendency towards stress-seeking can be defined as "behaviour designed to increase the intensity of emotion or level of activation of the organism". It is only corroborated by the fact that "those choosing a risky rather than a safe sport scored *low* on a measure of 'arousal avoidance'. Furthermore, despite the attraction to risky sports, these activities are not taken up thoughtlessly or without due regard for the possible consequences" (idem). It might sound surprising to the lay person, but stress-seekers are not reckless or impulsive. They "are rational and, despite appearances, are not deliberately tempting fate. They exhibit an ongoing interest in perfecting their skills and an intense concern with safety" (idem 20). Sport parachutists are a good example as they are "constantly practicing the reach for the rip cord on an emergency parachute". Egocentricity also characterises stress seekers, and "they may demand centre stage". Furthermore, "sport parachutists go to considerable lengths to have themselves photographed in flight" (Klausner 1968 cited in Russel 1993: 20).

Another sport that is typically considered to be hazardous is car racing. Research indicates that there is no evidence that these people "who fling themselves out of airplanes and drive cars at high speed […] are neurotic, self-destructive, uncontrolled or stupid". On the contrary, they are highly intelligent and focused as "parachuting and car-racing require great control" (Russell 1993: 22). Furthermore, they are "self-sufficient and independent free spirits who are not inclined to be strongly influenced by group pressures. […] Race-car drivers are even more motivated, more intelligent and more tough-minded" (Johnsgard *et al* cited in Russell 1993: 22).

As for what the attraction for stress-seekers is in such experiences, research has shown that it

> lies not in the heightened arousal that accompanies such experiences but in the 'drop' that follows at the conclusion of the activity. It is this arousal jag, a jump in arousal followed by a quick return to former levels that is pleasurable for the stress-seeker. […] For stress-seekers, then, the attraction of a dangerous sport lies not simply in the aversive experiences of fear, pain, or distress but in the relief that comes with the end of the discomfort (idem 19-20).

For Csikszentmihalyi the enjoyment of "sensation-seekers" who practise dangerous activities "derives not from the danger itself, but from their ability to minimize it" (Csikszentmihalyi 1990: 60).

4.1.1 Implications for interpreting

- As interpreting is an intrinsically stressful occupation and it seems that there are common personality traits characterising persons seeking out "dangerous" i.e. stressful activities, the ability to cope with stress is one of the on-the-job requirements.
- If stress-seekers can be characterised by an ongoing interest in perfecting their skills, interpreters should build on this motivational trait, which can be fostered throughout their career.
- Interpreters need to be aware of the importance of focusing their

attention on a task and of mental control as well as of continuously perfecting their interpreting skills. It is all the more essential that effective resource allocation during interpreting depends, to a large extent, on the interpreter's ability to focus their attention and to exercise mental control over their performance.

- What we perceive as dangerous in our job depends to a large extent on our personality, but the influence or the number of 'threats' can be reduced by conscious effort and preparation. Such 'threats' are unpredictable elements of content, linguistic form, last-minute changes to the programme, the list of speakers or even the interpreters' team. Interpreters can minimise these 'dangers' by thorough preparation in terms of the content, the language and the context of the conference.

4.2 Finding the right amount of stress

As we have seen above, in a psychological sense stress means disequilibrium between the physical-psychological requirements and the individual's capacity to respond. Too much stress as perceived by an athlete or interpreter might have a negative impact not only on their performance but also on their long-term mental or physical health and can lead to burn-out. Too much stress is detrimental but a certain level of adrenaline rush enhances the performance of both elite athletes and interpreters positively as it helps activate their physical and mental resources as well as focus their attention on the task, among other things. As Zeier puts it, "minor stress facilitates memory performance, because it raises the baseline level of arousal, intense stress produces anxiety and creates overarousal, which hinders cognitive functioning, including memory performance" (Zeier 1997: 243). For this reason, it is essential to control the level of **perceived** stress as unknown factors cannot be eliminated. It goes without saying that this is especially true for new modes of interpreting such as RI, which might put an additional burden on the interpreters and as such increase the stress involved in their job.

Csikszentmihalyi distinguishes between objective and subjective stress. Objective stress for rock climbers comes from "the unpredictable

physical events [such as] a sudden storm, an avalanche, a falling rock, or a drastic drop in the temperature". For him, "subjective dangers are those that arise from the climber's lack of skill – including the inability to estimate correctly the difficulty of a climb in relation to one's ability" (Csikszentmihalyi 1990: 60). It is possible to prepare for objective dangers, but they cannot, of course, be foreseen. For this reason the inner skills and preparedness of a climber (and an interpreter) play an essential role in tackling unforeseen situations.

According to Lénárt, anxiety is a human function that signals danger. Anxiety is felt most often when there is a loss in our feeling of security. This feeling of insecurity is due to the fact that we feel that our inner resources, knowledge, experience, skills, creativity, etc. are insufficient to influence or control a given situation. Such situations are when we presume that our environment has a negative opinion of us and our actions, or when we are worried that we might lose a loved person's appreciation, or that we are unable to cope with a given situation.

Much research has been carried out over the last few decades on the relationship between anxiety and performance, and not just in sports psychology. Researchers, however, have turned their attention to sport more and more owing to the fact that here correlations between stress caused by anxiety and performance are easier to prove (Lénárt 2002). For this reason, perhaps the most important lesson that sports psychology can offer interpreters can be found in the field of stress management involved in the preparation of elite athletes for competitions. Such preparation helps improve their performance by getting them to learn more about themselves and find the right level of stress, thus making it inspiring as well as a valuable source of mental energy. According to Nagykáldi (2002), sport psychologists teach athletes to recognize if there is a non-desired change in their condition such as a high level of anxiety, and then to apply the previously practised solution, i.e. tension-defusing exercises. Experience shows that the vast majority of athletes possess self-control mechanisms that make protection against anxiety possible.

Sport psychologists use stress management techniques such as **mental training**, which means the mental practice of a physical movement, mostly regarding a given phase of a movement. **Imagination** is very similar to mental training, but it concerns a longer series of movement.

For example, an athlete preparing for a championship imagines the track or the environment of a competition in detail before going through the different movements and breathing techniques involved in a long jump, for example. The same athlete does the actual exercises only after this mental preparation. Imagination helps athletes get into the mood, focus their attention and do the long jump employing the appropriate technique (Nagykáldi 2002). Imagination uses our capacity to imagine situations, actions, objects and persons, feel and change emotions while mental images turn into pictures or symbols. Imagination and symbols help us get closer to unconscious actions.

Bird and Cripe (1986) suggest several **intervention** strategies, i.e. strategies that provide the performer with skills to cope with competitive anxiety or stress. Out of these, the ones that seem to be appropriate for our purposes are the following: relaxation procedures (progressive relaxation, autogenic training, hypnosis, transcendental meditation), cognitive procedures (mastery and coping imagery), stress inoculation and the cognitive-affective stress management training.

Relaxation procedures enable the subjects to relay and appropriately focus their attention, thus reducing anxiety. According to Bird and Cripe, "relaxation procedures can systematically influence the negative effects of the fight or flight response and instigate the relaxation response". They can also "make the athlete aware of the relationship between physiological activation, attentional control and […] performance".

Mastery imagery "uses mental imagery" to increase performance through imagining and mentally rehearsing a certain event or skill. It can allow the person to "eliminate potential errors or incorrect responses". Coping imagery "refers to the process of using imagery to manage stress".

Stress inoculation is another "way to change a person's perception of threatening situations" and "to provide a repertoire of coping skills". Stress inoculation has four stages: (1) appraisal of the problem, (2) stress education, (3) relaxation training, (4) actual practice.

The **cognitive-affective stress management** training – is a comprehensive approach to stress management that takes into consideration the external situation, the appraisal of the situation and the coping ability as well as the emotional (psychological) response and behaviour in that situation. It proposes integrating coping responses

brought about by the cognitive training and training in relaxation skill (Bird and Cripe 1986: 112-146).

4.2.1 Implications for interpreting

- As part of their stress education, interpreters need to be aware of the fact that stress is not necessarily bad and that they need not be afraid of it.
- Because increased interpreting skills seem to result in a lower level of perceived danger, interpreters should be conscious of the fact that better interpreting skills lead to lower levels of anxiety and stress.
- In order to increase their stress literacy, interpreters need to learn about stress itself, its mechanisms, possible physical and psychological reactions to it and their own reactions that need to be controlled. If they become stress literate, they can learn to control stress.
- Interpreters should also learn about the different ways of controlling stress which they can use in order to be able to find the stress management methods that work best for them.
- Because the more interpreters know about their objective environment, the better control they have over it. It is important to gather as much information as possible about their working conditions, the physical characteristics of the venue and the participants. For this, interpreters can imagine the scene beforehand, which will make them feel more secure and less anxious.
- As for interpreter training, it is characterised by the fact that classroom practice is meant to simulate real life situations as much as possible. It means that students are asked to actively participate in classroom activities, for example by giving and interpreting speeches. It also means that classroom practice can often be very stressful. However, classroom stress, exam stress and on-the-job stress are different types of stress, and people might react to these in different ways. For some students, the classroom is a safe haven compared to exams or real assignments, and they perform extremely well in class; however, once on the job, they throw in the towel because they cannot endure the stress involved. The opposite case is also possible, i.e. when students

need real life stress to perform well because it spurs them to focus their attention and activate their linguistic and interpreting skills to the maximum. For this reason, students should get a feel for real life interpreting situations during training where they can see how they can cope with it. As for exam stress, intensive exam preparation might help just before the exam dates when students concentrate on the exam tasks.

- Interpreters should also know that their interpreting performance and ability to cope with stress depends, to a large extent, on their current mental and physical state. As a result, they should find the time to counterbalance the mental and physical strains their job puts on them by other activities in their private life. These can be anything from reading or going to the cinema, to sports, concerts, etc. Exercise or any physical activity after a stressful situation helps convert psychological stress into physical energy and thereby defuse it.
- In addition to specific personality traits and skills, the ability to cope with short and long-term occupational stress (both physical and psychological) witnessed by interpreters seems dependent on their on-the-job experience, too. If interpreters are aware of this, it might reassure them.
- Interpreters need to be aware of the positive effects of stress such as higher arousal level, or more concentration capacity. These are demanded by the task anyway, and it can make them accept stress and see it in a more positive light. This can, in turn, result in better stress management and control.

4.3 Internal and external locus of control

A very interesting construct that is relevant in terms of the behaviour of athletes and interpreters alike is Rotter's (1966) distinction between an internal and an external locus of control. This is a social psychological model and scale that "assesses the extent to which individuals believe they can exert a degree of control over the course of day-to-day events. Some feel they can influence events; others believe that the course of events is virtually beyond their control". This means that those with an internal

locus of control "see outcomes in their day-to-day life as partly contingent on their own actions", while those with an external locus of control "see no connection between their behaviours and subsequent outcomes [but] they see events as largely occurring as a result of external forces (e.g. luck, fate)" (Russell 1993: 172). Furthermore, an internal orientation can be acquired and maintained.

4.3.1 Implications for interpreting

- This distinction between internal and external loci of control can also be applied to professional life, which means that those who are more internal control-oriented are more likely to be able to exercise more control over their performance as interpreters and more likely to credit success or failure to their own efforts.
- Regarding stress management, it means that such persons are likely to tackle stressors more efficiently as they control themselves and their reactions to stressors better and respond more constructively to frustration.
- Recommendations for employers are very useful guidelines, but it is up to the employers' goodwill and financial resources whether they are taken into account or not. As interpreters do not have (and probably never will have) complete control over the situation and the external factors (lighting, visibility, noise, delivery of speech, accent), it is essential that they learn to control the internal factors, i.e. to have an internal locus of control.
- Enhancing internal control can help interpreters cope with the feeling of being overwhelmed, which is a common feeling in interpreting situations.

4.4 Self-control and self-efficiency

Another important issue in sports psychology concerning enhancing athletes' performance is self-control, which is closely related to self-efficiency. These two constructs seem to be relevant to interpreting, since

an interpreter's performance also depends on their resource allocation ability. The more efficiently interpreters use their mental and physical energy, the better their performance. One of the factors contributing to the wasting of one's resources might be an unnecessary or unnecessarily intensive reaction to stressors, which is energy spent unnecessarily. This can be prevented not only by more expertise but also by better stress management, the basis of which is **self-confidence** and realistic **self-knowledge**.

According to Nagykáldi (2002), good sources of self-efficiency can be, for example, past good performance or role model experiences. While self-confidence is a long-term conviction on the part of the athlete, self-efficiency is oriented towards the actual task to be performed successfully.

4.4.1 Implications for interpreting

- Interpreters need to know themselves as professional interpreters; that includes their strengths and weaknesses as well as their stress behaviour. This can be achieved through systematic reflection on themselves as persons, their learning, motivations and reaction to stress.
- During interpreter training this can be achieved through classroom activities and feedback which is organised in a way that allows for such reflection. Group work and pair work are good learning forms for such purposes, i.e. to train reflective practitioners.
- One method of reflecting on one's progress is keeping student diaries. Students should learn about the possibilities granted by keeping student logs and about their beneficial effect on their cognitive appreciation of learning.

5. Conclusion and further research

Interpreting is seen as an intrinsically stressful occupation by both practitioners (novice and experienced) and researchers. The ability to cope with short and long-term occupational stress, both physical and psychological, experienced by interpreters seems to be dependent on the on-the-job experience and skills as well as on specific personality traits and conscious cognitive effort to control the stressors in a given professional situation.

For this reason, stress is an important issue in interpreting, as the extent to which one is able to cope with it has an impact not only on one's performance but also on one's behaviour and interpersonal relations with the other participants of the interpreted communication situation.

Stress and stress management in interpreting depend partly on external factors such as working conditions, the persons involved in the process (clients and colleagues), and partly on internal factors (the interpreter's personality). Stress and burnout are closely linked, and burnout seems to be one of the possible self-defence mechanisms against mental and physical overload. Stress management in general and in interpreting in particular is about finding the right amount of stress rather than eliminating it. Stress education is an important phase of stress management. An internal locus of control is essential as far as stressor control is concerned. Another pillar of successful stress management is self-knowledge.

Stress seems to be a constant probably because during interpreting saturation is extremely complex. Furthermore, the interpreting process is so intense in terms of mental load and physical stress that it is impossible to control all the factors at play during interpreting.

The starting point for dealing with stress and stress management in interpreting is reflection on, and raising awareness of, the nature of stress, its mechanisms, the possible physical and psychological reactions to it, as well as awareness of the fact that stress in interpreting tends to remain a constant throughout one's career.

Constructive stress-related in-class feedback is one of the most important tools of stress training during interpreter training. This feedback is meant to decrease in-class stress, and to foster students' self-confidence as well as to provide help in stress management.

Much has been written about stress in general and stress in interpreting. However, a lot more needs to be clarified before we can fully understand this issue. For this reason further research is needed to answer at least the following questions: Do mental training techniques work for interpreters? If interpreters can be considered stress-seekers, should this personality trait be tested? How can all of this be incorporated into training? Are there specific teaching strategies and techniques, or is reflection and anecdotes enough? More research is needed into the reasons why novice interpreters leave the profession after gaining their qualification in interpreting: is it due to stress or other factors? Furthermore, research is needed in consecutive interpreting and stress (physical and psychological factors). Finally, more research is needed on interpreters' general personality traits with special attention to stress seeking, and into differences between exam stress and on-the-job stress.

CHAPTER 6
Cognitive flexibility and interpreter behaviour

Interpreters work with information. The raw material of their cognitive tasks consists of the message they receive. This message is composed of both acoustic and visual signals. In order to be able to render the information they receive from one language into another, they first need to process it. Thus, an interpreter as a professional must acquire, store and use information in dual information-processing. This cognitive psychologist view looks at interpreting as a process, and interpreters are seen as active users of information who seek it instead of passively receiving it. Thus, interpreting is a constructive activity in so far as interpreters do not passively receive information but are actively involved in meaning construction. This chapter looks at the different mental processes that enter into play during information-processing in general and during interpreting, such as comprehension, reasoning, allocation of attention and memory, problem-solving, and decision-making.

1. Information-processing in computers and human cognition

The information-processing view of human cognition uses the computer as a model. According to Robinson-Riegler and Robinson-Riegler the parallels between computers and humans are the following:

> Both computers and humans are general purpose information processors. Both can perform a wide variety of different tasks based on the manipulation of internal symbols and representations. Both translate incoming information into a different form [...]. Both have the capacity of executing a logical decision chain [...]. And finally, both [...] have the capacity to store programs and instructions as well as the data with which these programs work (Robinson-Riegler and Robinson-Riegler 2004: 25).

Field describes this information-processing view of the human mind as "an approach which charts the flow of information through the brain while a particular mental task is performed" and adds that the "basic idea is that raw data is acted upon stage by stage by the mind and is progressively reshaped". He illustrates this point by the following flowchart which represents the kind of information-processing when you are asked a question and want to answer it:

identify the words in the question
↓
organise the words into a syntactic pattern
↓
turn the question into a **proposition** (an abstract idea)
↓
search your memory for information
↓
retrieve the information
↓
turn the information into words
↓
utter the words

(Field 2003: 17)

Similarly, Anderson also asserts that "there is a clear s*equence* or *serial ordering* to the mental operations" and that an information-processing analysis "involves a tracing of a sequence of mental operations and their products (information) in the performance of a particular cognitive task" (Anderson 1985:11-12).

The flowchart above has the advantage of schematising the process during which information is put in and retrieved from the mind. It also details the main steps in that process. However, it suggests that information-processing is a linear activity, a clear sequence of mental operations where one operation always precedes the other, and that processing information is a strictly step-by-step activity.

A critical element missing from this chart is context, which envelops the whole communication situation and the question-and-answer sequence. Context makes the whole process more complicated in the sense that it may change, but it also facilitates information-processing by giving clues to it.

According to the communication view of information-processing, it is a term designating

> the processes by which meanings are identified and understood in communication, the processes by which information and meaning are stored, organized and retrieved from memory, and the different kinds of decoding which take place during reading or listening (Richards *et al* 1992: 179-180).

According to this view, the mental operations involved in language processing such as information storage and retrieval, decoding and encoding are viewed in the context of communication.

1.1 Information

Information is the key element to the chart presented above. It is defined by one of the dictionaries as

> raw data that (1) has been verified to be accurate and timely, (2) is specific and organized for a purpose, (3) is presented within a context that gives it meaning and relevance, and which (4) leads to increase in understanding and decrease in uncertainty. The value of information lies solely in its ability to affect a behaviour, decision, or outcome. A piece of information is considered valueless if, after receiving it, things remain unchanged. (www.businessdictionary.com, last accessed 07 January 2011)

The most important elements that emerge from this definition are meaning, context and information's impact on behaviour.

Anderson employs the following question-and-answer example to demonstrate the serial ordering of information-processing:

> Question: *Where does your grandmother live?*
> Answer: *She lives in San Francisco.*

He sees information products as mental operations. More precisely, he asserts that the term information "refers to the various mental objects operated on – the question, the representation of its meaning, the memory of where your grandmother lives, the plan for generating an answer, and so on. These objects [are] mental and abstract" (Anderson 1985: 11).

In my view these seemingly contradictory definitions of information can be reconciled, or rather, they define two kinds of information and as such they complement each other: information can take the form of raw data like figures, names, addresses and so on, but it can also refer to abstract mental objects, propositions, or meaning.

1.2 Bottom-up and top-down processing

There are two general ways of processing information: top-down and bottom-up. **Bottom-up processing** "refers to a flow of information that proceeds from the stimulus, to the neural activity driven by this stimulus, to its eventual identification". It is sometimes "termed data-driven processing, because it refers to the processes whereby the stimulus

itself (i.e. the data) leads to the sensible percept" (Robinson-Riegler and Robinson-Riegler 2004: 73).

As for the process of producing and understanding language, it "involves taking linguistic information through a series of stages (levels of representation) and changing it at each step". In the case of listening, for example, the listener "might need to build acoustic features into phonemes, phonemes into syllables, syllables into words, words into syntactic patterns, syntactic patterns into propositional (abstract) meaning". (Field 2003: 20). Thus, listening involves assembling larger units from smaller ones.

Top-down processing "refers to the processes whereby we bring previous knowledge to bear in determining what is it we see or hear, [and] it refers to the application of concepts to perception" (Robinson-Riegler and Robinson-Riegler 2004: 73). Because it relies on external information, top-down processing is also called conceptually-driven or data-driven processing. To stay with the example of listening, the listener might switch to top-down processing when the acoustic signal has been disturbed or lost and they need to make up for this loss by relying more heavily on the context.

1.3 Meaning

Meaning can be studied at several levels: at the level of words, phrases, sentences or at discourse level. The linguistic study of meaning is semantics. Linguistic **semantics** focus on the conventional meaning of the words, emphasise the objective and are less interested in the stylistic or associative meaning of a word or sentence. According to this approach, meaning in language is the result of the meaning of words.

There is, however, another way of looking at language and studying meaning, taking into account the intention of the speaker. **Pragmatics** is the study of 'intended speaker meaning' or 'invisible meaning' shaped by shared assumptions and expectations. It is the study of how language is used. As Yule puts it, the "investigation of those assumptions and expectations provides us with some more insights into how more gets communicated than is said" (Yule 1997: 127). This approach focuses

on the linguistic and physical context, presuppositions, and what the speakers assume is true or is known by the hearer.

Language users instinctively strive to extract the meaning of what other language users intend to convey. In other words, we "attempt to arrive at a reasonable interpretation" of what we read or hear. In discourse analysis, it is

> this effort to interpret (and to be interpreted), and how we accomplish it, that are the key elements investigated [...]. To arrive at an interpretation, and to make our message interpretable, we certainly rely on what we know about linguistic form and structure. But, as language users, we have more knowledge than that (Yule 1997: 140).

This knowledge comprises textual rules, i.e. the knowledge that "texts must have a certain structure which depends on factors quite different from those required in the structure of a single sentence". Cohesion, i.e. ties and connections in a text, is one of the tools that enable us to interpret its meaning. Analysis of the cohesive links (conjunctions, verb tenses, lexical and grammatical connections) gives us some clues concerning the structure of a text, possibly crucial factors in our judgements concerning its content and thus may result in certain interpretations. Another factor is coherence regarding which Yule asserts that

> the key concept to coherence is not something which exists in the language, but something which exists in people. It is people who 'make sense' of what they read or hear. They try to arrive at an interpretation which is in line with their experience of the way the world is (Yule 1997: 141).

When reading a text or listening to a speech, more often than not, the language user trying to understand it needs to fill in 'gaps' and create meaningful connections not usually expressed by the words and sentences. This is obvious in the case of badly-structured and ill-delivered texts. However, it seems to be involved whenever we try to make sense of a discourse. Moreover, when the information in a text is incomplete, readers and listeners will often fill it out with their own inferences in order to construct a meaningful representation.

1.3.1 Meaning representations

In what follows, we shall look at the cognitive processes underlying the construction of meaning and thus comprehension. One of the main concepts here is the integration of new information, which is closely related to meaning representations for, as Field puts it, "a large part of the effort of processing a text is said to lie in the need to integrate incoming information into existing representation". Thus, meaning representations are provisional and are subject to revision as new information comes in. Furthermore, when processing sentences such as 'Crusoe saw a footprint', we do it on three levels:

- surface form: the wording of the sentence
- propositional form: the literal meaning of the sentence, and
- a mental model.

This **mental model** is a "representation that includes additional information from world knowledge; it also includes inferences". So the word 'Crusoe' "gives rise to associations of name (Robinson ...)", and the word 'footprint'

> engages [our] world knowledge. The footprint is likely to be something soft: sand? snow? We infer it is human, though the text does not say so (humans have feet; animals tend to have paws, claws or hoofs). The indefinite article *a* is used, we infer that the footprint is something novel. Crusoe has not seen it before (Field 2003: 83).

Mental models are a central part of how cognitive psychologists view knowledge and behaviour. This is an approach which is in complete contrast with the earlier behaviourist view (Skinner 1957), which saw behaviour as the result of a response to stimuli. Cognitive psychologists, on the other hand, focus on mental representation, i.e. representations of stored knowledge, which are accessed if and when necessary.

This brings us to another interesting topic for our discussion of meaning and comprehension, which is that of **meaning-based knowledge representation**. According to Anderson, experiments have shown that "memory for a verbal communication retains not the exact wording but

just the meaning of the communication" and that "memory for a picture retains not the visual details but rather a meaningful interpretation of the picture". As for events, he asserts that "initial memory for an event contains both verbal and visual details. However, information about these details tends to be rapidly forgotten within the first minute following the stimulus, leaving only memory for the meaning of the event". This implies that "memory for meaning is longer lasting than memory for physical details" (Anderson 1985: 103).

1.4 Attention

One of the earliest psychological definitions of attention was offered by William James back in 1980, who asserted that

> [e]veryone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one of what seems several simultaneously possible objects or trains of thought. Focalisation, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others (cited in Norman 1981: 7).

Although James' definition is still a starting point for researchers interested in the study of attention, it seems to be more realistic to say that, in actual fact, nobody knows what attention really is since there are multiple possible ways to look at it and, as a result, to define it.

One of the ways to study attention, according to Robinson-Riegler and Robinson-Riegler, is to see it as a **monitoring process**. The argument behind this view is that "each of us is constantly being bombarded by information moving in and out of our conscious awareness" in our everyday life. For example, in an absolutely banal situation when one is searching for a restaurant, one "simultaneously registers and acts on various sensory input – avoiding other cars, calling on [one's] cell phone, listening to directions" [...]. It is easy to see that there is "a nearly constant need to monitor events occurring in our external environment as well as the 'events' in our internal environment (i.e. our thoughts and feelings)" (Robinson-Riegler and Robinson-Riegler 2004: 115).

Researchers have come up with several theories of attention over the years (for more details see Anderson 1985, Norman 1981, Reynolds *et al* 1983, Robinson-Riegler and Robinson-Riegler 2004). For our purposes, it is sufficient to characterise it and describe the processes that are linked to attention such as automaticity of attention, allocation and focusing of attention.

One of the main characteristics of attention as a monitoring process is that our "waking existence involves a continuous focusing and refocusing of what might be termed *mental effort*". Furthermore,

> attention allows for *voluntary control* of how we deal with incoming information. This feature is basis for the conceptualisation of attention as gateway on working memory; we can choose which aspect of the environment we wish to attend to or not attend to (Robinson-Riegler and Robinson-Riegler 2004: 115-116).

In this sense, attention is seen as an ability to concentrate on something, or a component of something and ignore other things, or other components.

Attention can also be seen as **capacity**, and as such, it is characterised by the fact that it "is *limited in capacity*" since "we simply cannot (effectively) monitor all of the events occurring around us simultaneously". This notion of limited capacity "serves as the basis for conceptualising attention as a reservoir of mental resources; there is a limit to the attentional resources we have to devote to performing tasks". Moreover, there is another crucial aspect that needs to be mentioned here, i.e. our capacity to divide our attention among several tasks. Since our attention capacity is limited, attention "must be allocated according to the particular demands of the situation. Some tasks require more of the attentional 'budget', leaving less attention for the performance of other tasks" (Robinson-Riegler and Robinson-Riegler 2004: 115-122).

Another issue that has been carefully studied in terms of the capacity theory of attention is whether attentional capacity is "unitary" or not, i.e. whether we have "one general type of resource" or we have "multiple specific resources" to draw on when performing attentional tasks. To summarise the findings in this field of research, we can say that attentional resources "are differentiated according to a number of factors, such as

whether the input modality is visual or auditory and whether the response required is vocal or manual". These findings seem to demonstrate that

> tasks interfere to the degree that they tap into the same pool of resources. For example, an auditory and a visual task or tasks requiring a vocal and a manual response will interfere less with each other than will two visual tasks or two tasks requiring a manual response. Take driving while using your cell phone. Since driving relies primarily on the visual modality, while using your cell phone relies primarily on the auditory modality, you might decide that these tasks will not interfere with each other. However, it is important to note that less interference does not mean no interference (Robinson-Riegler and Robinson-Riegler 2004: 122).

1.5 Stimulus-processing

Stimulus entering the cognitive system in information-processing is processed in two stages: sensation and perception. These are the two processes of registering information. Field defines sensation as "the unanalysed experience of sound meeting one's ear or light meeting one's eye". Sensation is "associated with the physiological processes that underlie information intake" (Field 2003:18).

Whereas "the term perception refers to the psychological processes involved in the immediate organisation and interpretation of those sensations. Perception can be affected by factors inherent in the stimulus as well as those not inherent in the stimulus". It implies that "what we perceive is importantly influenced by our previous knowledge, expectations, and biases" (Robinson-Riegler and Robinson-Riegler 2004: 73).

However, it would be a mistake to assert that cognitive information-processing is limited to the visual and auditory modalities. We do not detail the other sensory modalities such as touch, taste or smell, since it would be a digression from our topic.

2. Memory

Another crucial stage in information-processing is the storage of data and the different memory processes. When we come into contact with sensory data, it will be processed in three different memory stores: the sensory store, the short-term memory (STM) and the long-term memory (LTM) as it is shown in Figure 11, which is a simplified version of the model developed by Atkinson and Shiffrin (for a more detailed description see Gregg 1986).

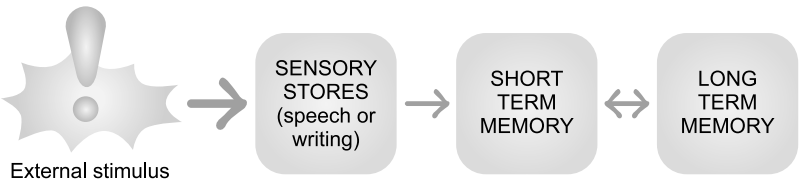

Figure 11: Atkinson and Shiffrin's three-store model of human memory (based on Field 2003: 19)

The sensory store or sensory memory is the first step in transmitting information from the outside world to the brain. Its role is to sort out information from the outside world. It is the sensory store's task to hold the exact trace of a stimulus while it is matched to a pattern.

There are two types of sensory stores: visual (iconic) and auditory (echoic). Visual sensory memory seems to have two components: "one is located in or very near the retina of the eye, and is strongly influenced by the brightness of the stimulus – the spot of light or picture. The other [...] appears to be located somewhere along the pathway between the eye and the brain, and is involved mainly in shape recognition" (Samuel 1999: 53).

Traces of auditory stimuli are stored in the auditory store in the form of an echo of the voice of the speaker. It locates the source of the sound. In both visual and auditory memory,

> the trace of the stimulus appeared to fade away quickly. It was suggested that iconic traces lasted for about 0.5 seconds; but that echoic traces lasted longer, with a first phase of about 0.25 seconds for pattern recognition and a second phase of at least 3 seconds as a back-up against which an interpretation could be checked (Field 2003: 18).

As for language, the visual trace of the stimulus may be the written form of a word and the auditory one is the voice of the speaker.

2.1 Short-term memory and long-term memory

Short-term memory (STM) is a temporary store which also functions as an **executive system** responsible for controlling cognitive processes and language operations. For this reason, it is also called working memory as this term seems to better express that it is involved not only in remembering lists of words. STM is not a simple information recycler, but is also involved in cognitive tasks such as rehearsal, or examining, considering, manipulating and responding to incoming events both internal and external.

Field defines working memory (WM) as the store which holds "information which is part of the current operation. This might be information from the environment (e.g. linguistic input which we are processing) or it might be information retrieved from Long-term Memory and held temporarily for present use" (Field 2003: 109). Unlike WM, long-term memory (LTM) holds information which is stored for long periods or permanently. As can be seen from Figure 11, there is a continuous flow of information between WM and LTM in both directions during information-processing.

To illustrate how sensory, working and long-term memory function, let us take the example of a listener hearing a word. First, the listener retains briefly the auditory trace of the word in his or her sensory store. Then, it is passed to WM, which stores information that is part of the current operation and makes a lexical search to identify the word. Since WM only holds temporary information for immediate purposes, it has

to extract lexical information from LTM. If the listener wants to store a unit of meaning they have constructed during information-processing, they transfer it into LTM.

Research into short-term memory processes resulted in the elaboration of a model of WM by Hitch and Baddeley (cited in Robinson-Riegler and Robinson-Riegler 2004). According to this model, shown in Figure 12, "working memory is actually a number of closely interacting subsystems that combine to subserve a host of higher-level mental processes, including language comprehension, problem-solving and reasoning" (Robinson-Riegler and Robinson-Riegler 2004: 149).

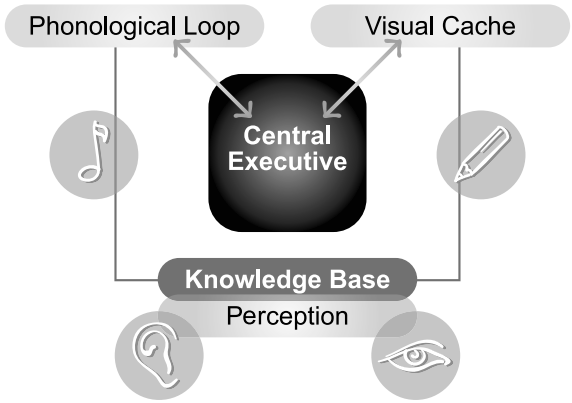

Figure 12. Working memory (based on Field 2003: 168)

The phonological loop is responsible for subvocal rehearsal and phonological storage while the visual cache (or visual-spatial sketchpad) handles imagery and spatial reasoning (see below in detail).

Ericson and Kintsch (1995) question traditional working memory theories centered around temporary storage. Ericson and Kintsch argue that such theories can hardly account for the fact that it is possible to interrupt skilled activities and resume them without major negative effects on the quality of performance. In his skilled memory theory based on expert performance he proposes another construct based on skilled usage of LTM, which he calls long-term working memory (LT-WM). In contrast to WM, information storage in LT-WM is more stable but reliable access is temporary.

2.2 The central executive

The central executive (CE) is the central controller of Baddeley's WM system. Its role consists of controlling the operation of the other two subsystems: the articulatory loop and the visuo-spatial sketchpad. According to Robinson-Riegler and Robinson-Riegler, the CE "might be conceived of as the 'gatekeeper' or 'capacity allocator' of the attentional system". It functions as follows:

> When a particular task demands extensive involvement of either the articulatory loop or the visuo-spatial subsystem of working memory, the central executive deploys the necessary resources. The central executive is also thought to be responsible for the higher-level thought processes involved in reasoning and language comprehension. Because the capacity of the attentional system is limited, the central executive only has so much to give; if a task is too demanding, the central executive's resources will be drained, and complex thinking will suffer (Robinson-Riegler and Robinson-Riegler 2004: 155).

The fact that WM has limited capacity for information has, according to Field, important consequences for the way language is processed. These are the following:

- Some language tasks (e.g. listening and speaking simultaneously) make impossibly heavy demands on Working Memory.
- We need to rapidly transform the language we hear and read into pieces of abstract information. It is easier to retain a few pieces of information than many words.
- We constantly need to transfer new information into Long-term Memory to avoid congestion in Working Memory (Field 2003: 19).

To continue with Field's arguments, limited WM memory capacity also means that there are "limits (a) to what it can store and (b) to the amount of processing it can undertake" (Miller cited in Field 2003: 113). The processing is determined by the CE. As for storing information, WM "is

only capable of holding about seven pieces of information (plus or minus two) at a time". That implies that we are

- to **chunk** information (combining smaller units into larger ones); we might remember an 8-digit phone number as 83-42-76-18 instead of 83427618;
- to shed verbatim information and replace it with abstract propositions (one complete idea instead of a number of words);
- to transfer important information into Long-term Memory before it decays (Field 2003: 113).

2.3 The phonological loop

The phonological loop has two components: the phonological short-term store and the subvocal rehearsal mechanism. The phonological store holds information temporarily, while subvocal rehearsal is used to rehearse information. The trace of a spoken word fades very quickly (in 1-2 seconds.) Research has proved that we tend to remember spoken lists of short words better than lists of long words. This "word-length effect derives from the fact that information in the phonological store is extremely limited in duration", whereas "our difficulty remembering similar-sounding items results from the subvocal rehearsal mechanism" (Robinson-Riegler and Robinson-Riegler 2004: 149).

2.4 The visuo-spatial sketchpad

The other subsystem of WM memory is the visuo-spatial sketchpad. This component is "responsible for the storage and manipulation of visual and spatial information and seems to operate (in large part) independently of other subsystems (the articulatory loop)". In other words, this means that "visual/special encoding and articulatory coding do not interfere with one another" (Robinson-Riegler and Robinson-Riegler 2004: 153).

2.4.1 Automaticity

Automaticity, or the degree to which WM processes are controlled, is another issue important to our discussion. Cognitive processes can be characterised as automatic or controlled. Nevertheless, it is probably more suitable to think of automaticity in terms of degree on a scale between totally automatic and requiring full control.

Automatic processes are defined as processes which do not require attention, while **controlled processes** need the conscious control of the individual. Automaticity develops as a result of extensive practice. In addition, automatic processes can be further characterised by three features based on Posner and Snyder's analysis (cited in Robinson-Riegler and Robinson-Riegler 2004).

> First, they occur without intention; in other words, they seem to be obligatory. Consider the motions you go through as you start your car in the morning; the movements seem to practically 'come out of you', with little or no deliberate effort. Second, automatic processes are not open to conscious awareness. That is, you do not reflect on automatic processes (indeed, you almost can't reflect on them) as they are occurring. As a result, actions performed automatically are often difficult to recollect consciously. [...] Finally, automatic processes consume very little in the way of mental resources (Robinson-Riegler and Robinson-Riegler 2004: 126).

Process automatisation has several consequences in terms of WM and language processing. When we recognise spoken or written words immediately, WM has more capacity available for other processes. And when a process is unfamiliar, it demands conscious attention and sometimes has to be performed step-by-step. Automatic processes are also faster than controlled ones.

So far we have seen automaticity in a positive light since it enables us to process information and perform different tasks more quickly, and as a result, more efficiently. Consequently it enables us to share our attention between tasks to a larger extent. However,

> there is a downside to automaticity. Automatic processes can be quite difficult to abort or modify, due in part to the fact that they involve relatively little in the way of conscious monitoring. Therefore, it's often the case that people make absent-minded mistakes when they are engaging in automatic processing (Robinson-Riegler and Robinson-Riegler 2004: 131).

Absent-minded mistakes are termed action slips by Norman (Norman 1998 cited in Robinson-Riegler and Robinson-Riegler 2004). According to Norman,

> action slips occur because their prevention and/or detection require feedback from the information-processing system about ongoing processing. Because such conscious monitoring is at a relatively low level when actions are automatic, slips are more likely to occur. Slips are prevalent in other situations that involve lowered conscious monitoring of behaviour, such as when you're tired, stressed, or doing too many things at once (Robinson-Riegler and Robinson-Riegler 2004: 133).

3. Cognitive processes during interpreting

The cognitive processes employed during interpreting are among the most discussed issues in interpreting studies. The role of memory, information-processing, attending to several sources of information simultaneously, dividing one's attention, among other things, have been extensively discussed mostly in the field of SI, since it is the mode that lends itself to such studies. However, these topics are also relevant in the consecutive mode, since it also involves all these cognitive processes. The most salient difference between the two modes is time constraints.

3.1 Information-processing in interpreting

The specificity of information-processing in interpreting is threefold. First, its aim is comprehension not only for interpreters themselves but also for the purposes of transmitting the message to another person in another language. Second, it is closely linked to language processing involving two languages. Third, it is information-processing carried out under stressful circumstances.

The first model of information-processing was developed by Moser-Mercer (1978). This model encompasses the process from the source language input to its equivalent target language output. It shows the most salient stages in the process such as auditory reception, preperceptual auditory storage, string of perceptual units, string of processed words, availability of meaningful phase for further processing, prediction, and paraphrase. It also shows the routes of feedback during the process. It takes into account different types of information stored in long-term memory: linguistic, conceptual and contextual. The strength of this model is that it highlights the complexity of the operation and endeavours to show it in minute detail. It also suggests that information-processing during SI is a sequential process.

The difficulty in describing information-processing during SI resides in the fact that some of the processes may happen simultaneously or

may be skipped altogether as different processing is needed for different types of information: figures trigger different information-processing mechanisms than complex philosophical notions.

Another aspect missing from the model is **multimodality** since it only focuses on the acoustic input received by the interpreter. It disregards visual input and does not take into account the multimodal character of information-processing. The importance of visual information input is a recurring theme in interpreting studies. It has received new attention with the advent of RI, which was made possible by the development of new technologies. One of the reasons why interpreters are reluctant to accept the eventuality of being removed from the room where the meeting is taking place is the deterioration of visibility.

The model expresses well the interaction between LTM and the different points of decision-making during the process. However, it suggests that information-processing during interpreting is simply data-driven, bottom-up processing. It is difficult to show in one schema that bottom-up and context-driven top-down processing happen simultaneously. In other words, the overall context of the speech to be interpreted influences the way meaning is constructed throughout the interpreting process, and the interpreter switches from data-driven (names, figures, document titles, extracts cited from documents, if available, etc.), to context-driven information-processing (the invisible meaning, speaker intention and goals, the effect, etc.). One of the main cognitive tasks of an interpreter is to find the fine balance between the two modes.

Information-processing during interpreting should not be broken down into well-defined, separate stages since it would be an oversimplification and would lose view of the process as a whole. In this respect, I share the standpoint advocated by Klonowicz, according to which this oversimplified view of interpreting results in describing an interpreter as a 'speaking dictionary', whose task is to perform "very tiny bits of interpretation (e.g. word by word)". She also declares that

> [t]his sham characterisation has little in common with the real demands of the task. The artificiality of this research paradigm is all too obvious. Interpretation thus conceptualised becomes a test of the most elementary switches between the two languages, but provides no

> information whatsoever on more complex mechanisms and feedback (Klonowicz1994: 215).

An alternative view is to study information-processing in terms of processing capacity and the allocation of resources. We shall come to this below, but first, let us examine other issues closely linked to our topic such as multimodal processing, comprehension, meaning and sense, memory and attentional processes in interpreting.

3.1.1 Multimodal information-processing

In interpreting, it has been advocated for reasons of quality that interpreters need to be able to see the speakers as well as to hear them. This is based on the assumption that the visual cues complement the auditory input and contribute to a better construction of meaning, and, in turn, comprehension of the message.

Jesse *et al* assert that a "large body of evidence supports the view that the bimodal [auditory and visual] presentation improves speech perception". They conducted an experiment where a text to be interpreted was presented both orally and in writing at the same time. They designed their experiment to investigate

> the question whether bimodally [visual and auditory] presented paragraphs would lead to better perception and therefore be easier to simultaneously interpret than unimodally presented paragraphs. [Their] results clearly show there seems to be no statistically significant difference between the two conditions (Jesse *et al* 2000: 111).

Although they have been unable to prove empirically that bimodal presentation of a text leads to better results in terms of interpreting, Jesse *et al* believe that "it would be helpful to arrange simultaneous interpreting situations in a way that the interpreter is facing the talker" (Jesse *et al* 2000: 112). This implicit knowledge can be explained by the fact that visual cues tend to reinforce the acoustic input during interpreting. However, we need to distinguish between two factors here: it is not the

written text that facilitates interpretation but rather the fact that the interpreter can see and thus has access to the evolving situational context of the communication act.

3.1.2 The capacity view of information-processing in interpreting

An alternative approach to the purely cognitive view of information-processing in general and interpreting in particular involves investigating it in terms of capacity.

Cowan investigated information-processing capacity with a view to the processing limits of selective attention and working memory. Although working memory processes are discussed elsewhere, it is necessary to refer here to Miller's (1956) 'magical number seven plus minus two' formula, which is the limit of the information chunks an average adult is capable of holding and processing at any given moment of time. Miller summarises his theory on the span of immediate memory as follows:

> There is a clear and definite limit to the accuracy with which we can identify absolutely the magnitude of a unidimensional stimulus variable. I would propose to call this limit the span of absolute judgment, and I maintain that for unidimensional judgments this span is usually somewhere in the neighbourhood of seven (Miller 1956: 91).

What needs to be underlined here is that Miller uses the term chunks of information and not bits of information, the latter being considered as a smaller unit. In his words,

> we must recognize the importance of grouping or organizing the input sequence into units or chunks. Since the memory span is a fixed number of chunks, we can increase the number of bits of information that it contains simply by building larger and larger chunks, each chunk containing more information than before (Miller 1956: 95).

This means that organising information input into several dimensions and into a sequence of chunks will result in an increased capacity of information-processing. A chunk is a meaningful unit that can refer to a word, an object, an idea, etc.

Perhaps the most well known model in Interpreting Studies that stems from the capacity limitation of information-processing is **Gile's effort model** (1995). The basic aim of this model is to explain the fundamental difficulty that the actual task of interpreting poses for the interpreter. Gile distinguishes three main components or efforts that compete for energy during the interpretation process: the listening and analysis Effort (L), the speech production Effort (P), and the short-term memory Effort (M). The operations involved in these efforts are seen to be nonautomatic. He models SI as a process consisting of these three efforts and a fourth one: a coordination Effort (C), required to coordinate the three other efforts. He illustrates this process by the following equation: SI=L+P+M+C.

Using the principle developed for the Effort Model of SI, Gile created the following model for CI broken down into two phases: (1) the listening and note-taking phase (2) the speech production phase. Accordingly, the equation for the first phase is: Interpretation = L + N + M + C, where L stands for listening and analysis, N for note-taking, M for short-term memory operations and C for coordination. And the equation for the second phase is: Interpretation: Rem + Read + P, where Rem stands for remembering, Read for note-reading, P for production.

3.1.3 The cognitive-pragmatic view

Setton's model of simultaneous interpretation is the result of a cognitive-pragmatic analysis of the SI process. It aims to reconcile information-processing and capacity models (Moser-Mercer 1978, Gile 1995) which divided the interpretation process into subprocesses but paid little attention to the communicational aspects of language use, and the interpretative and more general translation theories (Seleskovitch and Lederer 1984) which took a holistic approach and underline the importance of communicational context and the speaker's aim, but ignored the potential limits of speech and information-processing. In

addition, Setton's model endeavours to represent the background and contextual knowledge of the participants in the communication process as well as the interface between input/output and the language of thought (LOT). This is a model that considers the interpreter's resources, capacities and limits as well as his or her situational and world knowledge and language use required by the situation.

3.2 Comprehension and looking for meaning in interpreting

One would suppose that in order to be able to express a source language message in the target language, interpreters must first understand the meaning, including what we have termed as invisible meaning of the speech to be interpreted. Moreover, comprehension in interpreting is worthy of attention since as Bajo *et al* assert "in interpreting it is estimated that at least 80% of the effort or cognitive resources is devoted to listening and understanding the discourse and only 20% to speech production" (Bajo *et al* 2000:128).

Meaning-based interpreting is understanding the deep-structure and not only the surface structure of the input. This has been advocated by the Paris School which developed the **'théorie du sens'** (Seleskovitch and Lederer 1984, Lederer 2003) according to which translation and interpreting is impossible without grasping the complete meaning of the speaker's message. According to the interpretative model, translation and interpreting consist of

> transferring identical senses from one language to another in equivalent forms. In this type of translation, translators and interpreters become conscious of the sense of a speech or text (deverbalisation phase) and then, treating this sense as if it were their own intended meaning, they reactualise it in a new discourse in a different language (expression phase) (Lederer 2003: 229).

According to Lederer (1994, 2003), "competent interpreters [both simultaneous and consecutive] are capable of grasping the whole sense of a discourse and transmitting it" (Lederer 2003: 10). She also asserts that when at work, interpreters "must grasp all the nuances of sense and all affective dimensions of a speech" (Lederer 2003: 11).

VI. Cognitive flexibility and interpreter behaviour

One of the basic principles of the interpretative model is that interpreters arrive at the sense of a speech through **deverbalisation**, i.e. arriving at a mental representation. As Lederer (2003) puts it, deverbalisation is

> a cognitive process known to all of us: as they disappear, sensorial data become bits of knowledge divested of their concrete shape. Cognitive memory consists of acquiring a piece of knowledge, as fleeting as its retention may be. It should not be confused with the cognition of computers where all knowledge is of necessity formalised, nor with verbal memory which allows for the rote learning of a poem or a song (Lederer 2003: 13).

Lederer (2003) defines sense as "a result of deverbalisation, when language knowledge and cognitive inputs fuse together. It is a conscious state of mind and is both cognitive and affective" (Lederer 2003: 228).

Darò advances a view that refutes the claim made by the advocates of the interpretative model and calls for professional modesty by saying that

> the hypothesis that a simultaneous interpreter often does not understand the real contents of a message, though he succeeds in translating the "surface structure" of the input, is far more realistic. In fact he cannot know all the possible implications of the speaker's statements, as he is rarely expert of that precise matter. […] Neurolinguistic data supports this hypothesis, which accepts the possibility of producing a good simultaneous interpretation without understanding the contents (Darò 1994: 265-266).

Dancette is also of the view that partial comprehension is not an obstacle to translation and goes on to say that "successful translation *can* occur to a certain extent without an elaborate conceptual construction, that is with limited understanding" and goes even further and asserts that "conceptual construction as a cognitive process does not guarantee successful translation, for the main reason that the conceptual links made by the translator may be wrong, albeit coherent" (Dancette 1994: 113).

There are two points that need to be made here. First, 'théorie du sens', the principle of meaning-based rather than form-based translation,

also applies to CI (and to written translation, for that matter). Second, it should be possible to reconcile these seemingly opposing views. There is no doubt that interpreters as reflective practitioners need to be guided by the principle of trying to grasp as much of the sense of a discourse as possible. It necessitates intensive content preparation on behalf of the interpreter, which is rarely thorough enough mostly due to lack of preparation materials or time.

However, it is also true that it is impossible to completely understand the meaning of all the speeches one needs to interpret during one's professional career. It is partly the result of the fact that meaning itself is multilayered: in his book on meaning-based translation, Larson (1998) mentions connotative, emotive, figurate, implicit, organisational, primary, referential, secondary, situational and symbolic meaning.

Furthermore, sometimes the first obstacle to surmount is the linguistic form, or rather, the acoustic form of the message. Interpreters are supposed to have very high level linguistic skills, and they usually do. Nevertheless, they depend on the speaker since the speakers linguistic output is their input. It is frequently the case that speakers do not have a perfect command of the language they use during a conference. With the spread of international English on the interpretation market, this is more and more often the case (see Horváth 2003). Another problem is the content. Interpreters are very rarely experts of the subject matter they work with.

To reconcile the two views presented above, it is perhaps more realistic to say that interpreters can indeed produce a good quality interpretation of a speech whose content they do not understand completely. Nevertheless, I strongly doubt that it is possible to do so if interpreters do not understand the content at all. They need to grasp at least some of the meaning in order to be able to make up for the rest. This does not mean, of course, that the ultimate aim is not to understand the sense of the speech.

Isham conducted an interesting empirical study to find evidence both for and against deverbalisation through studying memory for sentence form after SI. His research focused on form-based vs. meaning-based interpretation and took into account the effect of the language pairs used. He concluded that "we should understand deverbalisation as one possible stage of interpretation, rather than a required one, at least when interpreting between English and French". He also notes that

> however, a strictly word-for-word transcoding of the source language is not possible, due to the differences in grammar that will be found between any two languages [...]. It follows, then, that as the difference in grammars between language pairs becomes greater and greater, the form-based approach becomes less and less an option. If true, we should expect that interpreters working between English and Mandarin Chinese, for example, have no option but to use a meaning-based strategy, and to show evidence of deverbalisation (Isham 1994: 208).

Bajo *et al* also studied the comprehension processes involved in SI. Their findings, in my opinion, seem to give a better answer as to the specificities of the comprehension abilities of interpreters. They emphasise the role of training and experience saying that

> training and experience develop as set of cognitive skills involved in comprehension. Thus, interpreters show fast and accurate reading abilities, faster access to lexical and semantic information, larger working memory capacity and a more efficient use of this capacity, so that the ability to understand and memorise a list of words is not impaired by suppression of the phonological component (Bajo *et al* 2000: 140).

WM in interpreting will be discussed below in more detail. Now let us turn to a description of what interpreters know.

3.3 Interpreters' knowledge: declarative, procedural and background knowledge

Before discussing the cognitive processes of memory, attention and anticipation in terms of interpreting, let us examine the different types of knowledge interpreters possess. To understand what declarative knowledge is we need to have recourse to what is termed declarative memory in cognitive psychology. Declarative memory is a conscious system of LTM "responsible for retention of factual information about

the world and one's personal past and serves as the basis for performance of such explicit memory tasks recalling and recognising that some events occurred earlier". As for **declarative knowledge**, i.e. knowledge based in the declarative memory, it "is sometimes informally described as 'knowing that' something is so" (Robinson-Riegler and Robinson-Riegler 2004: 239). Declarative memory "is reinforced by focusing attention during learning tasks" (Darò *et al* 1996: 102). An important characteristic of declarative memory is that it is easy to verbalise. We encounter hardly any problems when trying to tell the story of an event or a specific piece of information stored in our LTM. Declarative memory is also called explicit memory and is thought to include episodic and semantic memory.

This is what Lederer calls world or encyclopaedic knowledge ('bagage cognitive' in French) and defines it as the "body of notional and emotional knowledge acquired by individuals through

1. their life's experiences (empirical knowledge),
2. language (what is learnt through reading, education, conversations, television, etc.),
3. their own reasoning" (Lederer 2003: 231).

Procedural knowledge, on the other hand, can be described with reference to procedural or implicit memory, i.e. "non-conscious forms of memory, such as priming and the learning of skills and habits". This kind of knowledge

> can be characterised as 'knowing how' to do something [and] in contrast to declarative memory, is difficult to verbalise. [...] Examples of procedural knowledge include skills (tying your shoes, typing, swinging a golf club), the priming involved in word fragment completion, and the formation of simple associations (like a classically conditioned taste aversion) (Robinson-Riegler and Robinson-Riegler 2004: 239).

It should also be noted that, unlike explicit memory, implicit memory "does not require conscious attention focalisation during the acquisition of procedural tasks, indeed it is even impaired if attention is consciously

focused on the tasks, or parts of the task". In fact, "focussing one's attention while carrying out a procedural task would be like directing a beam of light onto a negative that still has to be developed: the effect is devastating" (Darò *et al* 1996:102).

In terms of interpreting, both kinds of knowledge are extremely crucial. Declarative world knowledge is needed for comprehension as background knowledge (or in French 'bagage cognitif pertinent'). This latter is defined by Lederer as "the relevant world or encyclopaedic knowledge which individuals can bring into their understanding of a speech or text. The depth of understanding a speech or a text is closely related to the magnitude of background knowledge". This kind of knowledge is all the more important as "[i]n the absence of this knowledge, translation becomes transcoding" i.e. linguistic translation (Lederer 2003: 231).

Interpreters' declarative knowledge involves their linguistic and cultural knowledge, as well as more profession-specific knowledge such as the different types of interpreting and clients, the rules of professional ethics, the functioning of the interpreting market, etc. Their procedural knowledge is composed of the different linguistic, cognitive skills, note-taking techniques and interpreting strategies, as well as linguistic transfer operations between languages.

3.4 Memory in interpreting

Memory and attention are two of the most widely studied subjects in interpreting studies. We have seen general characteristics of these two cognitive processes. In this part, we shall examine them in the context of interpreting with special attention to their interpreting-specific features.

One of the most important assumptions regarding memory processes in interpreting was asserted by Darò in her investigations of the non-linguistic factors influencing SI, namely that the "acquisition of the techniques of simultaneous interpretation apparently does not affect long-term verbal memory" (Darò 1994: 255). In the same paper she declares that the "gradual learning of simultaneous interpretation techniques probably has a decisive influence on verbal short-term memory with a possible reinforcement of verbal short-term memorisation strategies" (idem 267).

Bajo *et al* came to similar conclusions in their paper on comprehension processes in SI. They evidenced that simultaneous interpreters "are able to perform a series of mental tasks without the support of a rehearsal component in their working memory (the articulatory loop)". They concluded that their data "support the key role of working memory in simultaneous interpreting. Efficiency in comprehension seems to be due to better management of working memory resources" (Bajo *et al* 2000: 141).

As a result of their experimental studies, Darò and Fabbro produced a general model of memory during simultaneous interpretation of spoken languages shown in Figure 13. This model is based on the principles of working and long-term memory suggested by Baddeley and Tulving. In this model,

> the source-language input is processed in the working memory and then sent to the functional system accounting for translation from L2 into L1 and from L1 into L2. [...] At the same time, verbal information is sent to the long-term memory systems (episodic (1), semantic (3), and procedural memory (4 and/or 2)), which in turn, send the necessary information to the translation systems (7). [Their] results show that during simultaneous interpretation verbal production in the target language produces a phonological interference (8) impairing subvocal rehearsal within the working memory. The capacity of information-processing and of working memory is thus reduced, hence also long-term memorisation of simultaneously translated verbal material is less effective (Darò and Fabbro 1994: 376).

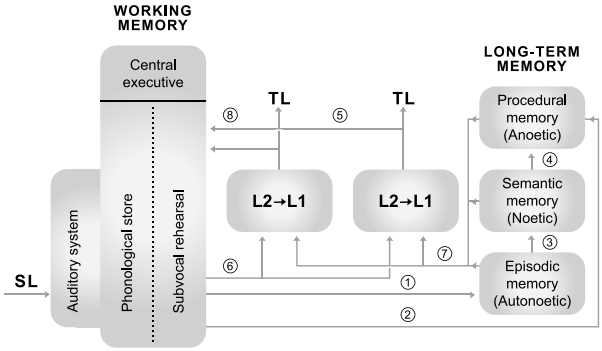

Figure 13. A general model of memory during simultaneous interpretation (based on Darò and Fabbro 1994: 376)

This model goes beyond SI since it has implications for memory processes outside the field of interpretation. As Moser-Mercer puts it,

> it presents a challenge to the working memory theory as developed by Baddeley, although one could consider most language processing to be somewhat analogous to SI, with the listener comprehending discourse while preparing a response, albeit in one and the same language having to reproduce faithfully and completely the meaning of the original discourse (Moser-Mercer 2000: 87).

An oft-researched WM phenomenon in SI studies in terms of expertise and training is ear-voice-span (EVS also called as 'lag' or 'décalage'). It is described by Shlesinger as follows:

> Unless the interpreter is party to the extralinguistic and situational knowledge assumed by the speaker, has been given advance access to the text which the speaker is about to deliver and is able to refer to it throughout, she must allow a certain amount of time to elapse between the point at which a unit of input reaches her ear and the moment when she reproduces it in the TL (Shlesinger 2000: 40).

Since EVS is dependent on the information storage and processing capacity of the interpreter, it is a good indicator of these capacities. EVS is usually shorter in novice interpreters than experts, which seems to indicate that the latter are characterised by better WM capacities and procedural knowledge.

The role of memory in SI has been a popular subject of study, which is not true for CI. Gillies in his short coursebook on note-taking in CI, mentions only that the role of memory prompts is "to reduce the amount of notes you take, in some cases radically, and let your memory take over. Notes are there to help your memory, not to replace it" (Gillies 2005: 109), but he does not specify which memory store. Nolan asserts that CI relies on LTM. However, it seems to be a rather reduced view of how the different memory stores are involved in CI as WM is involved in processes where meaning is constructed. Interpreters need to hold all the elements in their WM until sense construction is possible. This is certainly true for the consecutive modes as well (González 2007).

One of the first attempts to detail the role of note-taking in CI was carried out by Seleskovitch (1975) and Seleskovitch and Lederer (1989). They see note-taking as the tool for facilitating concentration and analysis. Note-taking is considered to be a necessary evil, as interpreters have good LTM and are able to remember not only the sense of the speaker's thoughts but also the details.

Kirchhoff asserts that CI is performed by the use of parallel strategies: the interpreters assess their memory capacities (cognitive store) and decide what they need to note down, memory prompts or part of the information they need to recall. He considers note-taking itself a material store into which elements are integrated after they have been processed and which functions selectively. The cognitive store contains global characteristics (the speaker's intention, familiarity with the situation, speech structure and aims) while the material store is made up of the main elements of the surface structure and the details. The two stores function parallel to each other, and interpreters need to make decisions throughout the speech to be interpreted as to which store they are to transfer the incoming pieces of information (Kirchhoff 1979 cited in G. Láng 2002: 126).

Gile in his Effort Model of CI mentions STM operations in terms of note-taking and states that in CI, the memory effort is "associated with the time between the moment information is heard and the moment it is *written down*, or between the moment it is heard and the interpreter decides not to write it down, or again between the moment it is heard and the moment it disappears from memory" (Gile 1995: 179).

A final note should be made about the link between memory and intelligence. Seleskovitch and Lederer point out that the main difference between memory and intelligence is that while memory is responsible for the organisation and reorganisation of past experience, intelligence enables us to structure present experiences. Citing Michaux, they assert that instead of opposing memory to intelligence, it is better to see them as two complementary constructs since there is no intelligence without memory just as there is no engine without fuel and vice versa: storing elements in memory without any selection would condemn the mind to stagnation. In other words, one needs to select the important from the secondary, the relevant from the non-relevant. Seleskovitch and Lederer underline the importance of the relevance criteria in interpreting (Seleskovitch and Lederer 2002: 244-245).

3.5 Attention in interpreting

As we have seen above, attention and the organisation of attention appear to play a crucial role when it comes to the performance of difficult cognitive tasks. Interpreting can be considered such a task, and one of the requirements of successful interpreting is the reorganisation of selective attention (Darò 1994). Furthermore, as Darò *et al* point out, attention plays a crucial role during tasks of memorisation of verbal material by asserting that

> verbal short-term memory is severely disrupted if conscious attention is not steadily focussed on the task. In fact, one of the fundamental components of working memory, i.e. the central executive system, is nothing else but a coordination mechanism of attentive functions that has to be activated during memorisation tasks. [...] Moreover, focalised attention is also of paramount importance in the process of long-term verbal memorisation (Darò *et al* 1996:102).

Darò *et al* tested the following four attention focalisation modalities: normal condition, attention focalisation on the input, attention focalisation on the output and condition with two voices in order to see whether any of these affect the number and the type of mistakes during SI. They found that

> during simultaneous interpretation, conscious attention focalisation on the input or on the output does not influence the interpreter's overall performance, however with an important exception: during active interpretation [from language 1 into language 2, i.e. from A to B] it could be useful for interpreters to focus their attention on the output, since this may help them to reduce in particular false starts, pauses, hesitations, corrections, additions and morphosyntactic mistakes (Darò *et al* 1996: 101).

Concerning attention focalisation, Chernov notes that "attention is primarily focused on those semantic components that carry new information, which is exactly what the rheme is about". Then he adds that there is plenty of experimental and analytical evidence in support of the fact that

> the interpreter's attention is focused on the rheme of the utterance. Any misperception or loss of item in the thematic, or redundant portion of the communication, can be easily restored; in the worst case it is a matter of quality of interpretation, whereas the loss of a rhematic item may easily result in mistranslation (Chernov 1994: 147).

Cowan investigated the notion of selective attention in terms of WM and its potential implications for interpreting. In his view, "working memory and attention are intricately related", and he sees working memory (see Figure 14) as an "activated portion of long-term memory and, within that activated portion, the focus of attention and control processes that direct it". He adds that the "focus of attention presumably can link activated elements to form new chunks of information" (Cowan 2000: 117).

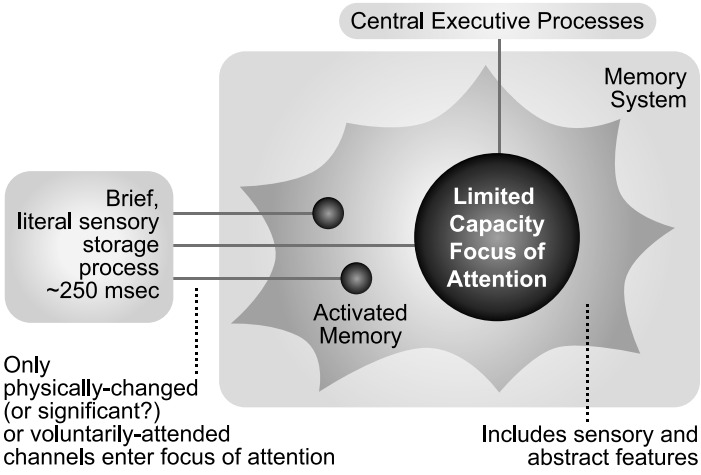

Figure 14. Cowan's memory model (based on Cowan 2000: 134)

In order to find the answer to the question of "how human capabilities can typically be so limited and yet allow the learning of special feats such as reading while taking dictation or simultaneous interpreting, which involves listening while translating", he studied the following five issues: (1) the properties of attentional filtering, (2) the properties of inhibition and attentional control, (3) the speed with which information

is retrieved from the focus of attention, (4) the capacity of the focus of attention and (5) the rapid forgetting of unattended information in memory (Cowan 2000: 125). Although Cowan does not provide us with conclusive findings in these areas, he rightly highlights that these are the main paths for further research if we want to better understand the cognitive attentional and memory processes underlying SI. This better conceptualisation would also be of great use in the field of interpreting training.

3.6 Anticipation in interpreting

Anticipation is one of the most salient strategies in interpreting. The study of anticipation in SI gained impetus from Chernov's **probability prediction model**, which regarded "the probability prediction of the verbal and semantic structure of the oral message in progress as the most essential psycholinguistic factor explaining the phenomenon of simultaneity in simultaneous interpretation". One of the key notions in Chernov's probability prediction model is **redundancy** since "only messages with an adequate degree of redundancy can be interpreted simultaneously" (Chernov 1994: 140).

redundancy factors information theory	representation in discourse by levels		philosophical essence of the phenomenon
	utterance	discourse	
repetition	iteration of semantic components and their configurations: agreement	co-reference	probability
interdependence	semantic interdependence: predicate-object and modifier relations	semantic constraints	certainty

Figure 15. Types of objective redundancy (source: Chernov 1994: 141)

Chernov distinguishes between two types of redundancy: objective (see Figure 15) and subjective, and notes that "both [...] allow for, and indeed, signify the predictability of meaning and sense in the message" (Chernov 1994: 145). Objective redundancy is also called textual redundancy, which is independent of the message recipient and consists of the iteration of the message components and their interdependencies (Chernov 1994, 2004). However, total redundancy of a text is much higher that the level of its objective redundancy since additional redundancy

> arises from interaction between the semantic structure of a discourse in progress and the cognitive store of the hearer, i.e. her knowledge of the world in general, or her familiarity with ('background knowledge' about) the present communication situation. This interaction results in a non-discrete mental representation which [Chernov calls] the *sense* of the discourse produced (Chernov 2004: 57).

In his hierarchical, multi-level redundancy model, Chernov postulates a hierarchy of speech levels as a basis for the probability of anticipation mechanism in simultaneous interpretation: *syllable – word – syntagm – utterance – discourse.* It is along these levels that the listener (i.e. interpreter) carries out message development probability anticipation. Furthermore, redundancy (vs. informativity) may be traced at each of the speech levels [...]. Each higher level brings more redundancy: not only of its own, level-specific kind but also whatever is due to additional interdependencies between levels. Redundancy at levels of the word, syntagm, and utterance is linguistic, i.e. part of the objective redundancy of a discourse. The level of the syntagm is special in this respect. Apart from being a phonetic unit with its own intonational contours, it is also a unit of sense, hence semantic aspects of the discourse start playing a greater role in the overall redundancy of the message at this level (Chernov 2004: 96).

In order to better illustrate the construct of subjective redundancy, it is necessary to mention another notion contained in Chernov's model: **inference**. Listeners make inferences about the sense of the message of verbal speech on several levels: linguistic, cognitive, situational and pragmatic. The ultimate aim of inferencing is comprehension, and generally both in ordinary communication and in SI inferencing for comprehension

can be described as a fast and subconscious process. However, this "is the case only when the redundancy of the message is sufficiently high. With low redundancy, comprehension is hampered and slowed". Moreover, comprehension begins "the moment the hearer is able to make an inference from the part of the message already communicated, through her perception of the incoming semantic components and relating them to:

- other semantic components and their configurations in the discourse (*linguistic inference)*;
- elements in her long-term memory or thesaurus of world knowledge (*cognitive inference*);
- factors in the situational context of the discourse (*deictic and situational inference*);
- the social role of the speaker (*pragmatic inference*)" (Chernov 2004: 60).

Another notion which lies at the heart of Chernov's probability prediction model is **anticipation**. Anticipation is seen by Chernov as the basic cognitive process which makes SI possible. Anticipation depends, to a large extent, on the level of text redundancy since "the higher the redundancy of the discourse, the higher the probability of correct anticipation of its development at each level. The reverse is also true: the higher the information density of the discourse [...], the lower the probability of correctly forecasting its development" (Chernov 2004: 93). Anticipation in simultaneous interpretation is also seen as a multilevel mechanism shown in Figure 16:

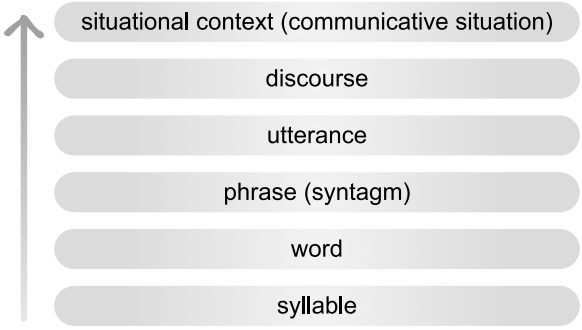

Figure 16. Levels of discourse processing (source: Chernov 2004:170)

The different levels seem to be separated in the above model, but it should be noted that these speech levels of message development are interdependent. Chernov also underlines that "all or several of the levels are involved, concurrently or sequentially as the case may be, in the perception and comprehension of SL message with a view to its immediate transference into TL". Then he adds that

> just as the redundancy in speech is multiply expressed, so does the probability anticipation mechanism operate as a multichannel device in search of informational peaks, or points of information density, which can be found at various levels, or at several and all levels concurrently, or even only at the top level, depending on the complexity of the SL discourse for a given simultaneous interpreter (Chernov 2004: 171).

To sum up, the probability anticipation of the message development is a basic mental operation in SI. It operates at a hierarchy of speech levels and depends, to a large extent, on the objective and subjective redundancy of the discourse as well as on the interpreter's inferencing ability.

4. Cognitive flexibility in interpreting

The performance of the cognitive tasks involved in interpreting requires a very high level of cognitive flexibility. Cognitive flexibility has been researched in depth in cognitive psychology. To my knowledge, it has not been studied in the field of interpreting studies except for a very recent article on interpreter training (Timarová and Salaets 2011). Nevertheless, it would be useful to explore the ways it can contribute to Interpreting Studies in order to better understand the cognitive mechanisms underlying the interpreting process as cognitive flexibility is an essential component of human behaviour in general and expert behaviour in particular. It is one of the executive (or cognitive controlling) functions and can be summarised as the ability to adapt one's behaviour to the context of the situation. Cognitive Flexibility Theory (CFT) is defined by Spiro and Jehng (1990) as

> the ability to spontaneously restructure one's knowledge, in many ways, in adaptive response to radically changing situational demands…This is a function of both the way knowledge is represented (e.g. along multiple rather single conceptual dimensions) and the processes that operate on those mental representations (e.g. processes of schema assembly rather than intact schema retrieval) (Spiro and Jehng 1990: 165).

In other words, the theory of cognitive flexibility is a "case-based approach for the development of upper-cognitive skills, particularly the ability to transfer knowledge to novel situations" (Graddy *et al* 2011: 1). CFT stems from observations of expert behaviour with special attention to the differences between the problem-solving capacities of experts and novices. Such investigations show that "experts have varying levels of *flexibility* in approaching new situations and scenarios" and "conclude that the disparity between the two groups is not due to just memory and intelligence. The extensive experience of experts affects what they *notice* and how they organize, represent, and interpret information in their area of expertise" (Graddy *et al* 2011: 1-2).

Cognitive flexibility is a construct which may be considered as a central notio of the cognitive performance of interpreters. Interpreters work in complex communicational and linguistic environments which they need to adapt to, not only in terms of communication or speech behaviour but also in terms of cognitive problem-solving. Interpreting is a complex cognitive task requiring from the interpreters the on-line performance of such cognitive operations as linguistic transfer between two different languages; task-switching between speech comprehension and speech production transfer; ignoring irrelevant information; sharing their attention among several input sources; anticipating the message of the speech; restructuring the source text content when needed for better performance; chunking and 'saussisonage' (breaking the message down into smaller chunks). At the same time, they need to perform certain metacognitive tasks such as monitoring their output, evaluating performance as well as that of the speaker. What is more, some of these tasks are overlapping and need to be performed simultaneously.

Yet, this is only one aspect of the cognitive flexibility required from interpreters. Another aspect can be found in the fact that interpreting occurs in an unfolding and continuously changing communicational situation where unforeseen events may happen. And they do! This means that interpreters often need to modify their cognitive strategies, which also requires of them a high level of cognitive flexibility as part of the decision-making and problem-solving involved in interpreting.

A third facet of cognitive flexibility required during interpreting is found in knowledge retrieval and knowledge acquisition during interpreting. Knowledge retrieval refers to the reassembling of world knowledge and knowledge acquired during the preparation phase prior to the interpreted communicational situation. This knowledge obviously needs to be activated and ready for retrieval and use by the interpreter. However, a considerable amount of knowledge acquisition happens during interpreting: no matter how well one prepares for an assignment, there is always a certain amount of new information which interpreters need to comprehend and build into their body of knowledge during the interpreting event itself. This knowledge adaptability also implies that sometimes they need to modify their assumptions and reassemble their knowledge instantaneously.

VI. Cognitive flexibility and interpreter behaviour

We have seen above the major models that have influenced research into the cognitive mechanisms involved in interpreting: Barbara Moser-Mercer's model of information-processing in SI and Daniel Gile's effort models, which describe a capacity-approach to interpreting, as well as Setton's pragmatic-cognitive model. All have been extremely valuable in Interpreting Studies and are equally relevant to our subject as interpreting is information-processing, discourse processing and, at the same time, managing one's energy or effort in a way to facilitate interpreting. However, these models describe only one side of the coin, and the link might be found in what is termed cognitive flexibility. I think this is a valid research path for the future since cognitive flexibility, i.e. flexible behaviour and breaking old habits to cope with novel situations, has already been studied in terms of working memory strength (Blackwell *et al* 2009) or bilingualism (Wodniecka and Cepeda 2007). Another theme which would merit more attention in this field is whether interpreters exercise conscious control over their cognitive strategies and attentional strategies.

Since cognitive flexibility can be developed and enhanced by pedagogical means, it is worth considering that one of the aims or outcomes of interpreter training might be to enhance students' cognitive flexibility, which would contribute to their performance in a positive way. When we see students practising interpreting and they underperform, we tend to look for reasons in terms of unsatisfactory interpreting or coping techniques, insufficient automatisation of those techniques, lack of content preparation, bad effort management, or insufficient knowledge of either or both languages used. We tend to explain interpretation breakdown the same way as well.

However, on occasions poor performance might be due to the fact that students have not become flexible enough from a cognitive point of view, and they cannot adapt fast enough to unforeseen linguistic or communicative circumstances to modify the strategy they have adopted. This makes them lose the thread of the speech and get blocked. Expert interpreters will have developed strategies, and they use them in a flexible way so as to better overcome such hurdles during interpreting. However, more empirical research is needed into how CFT can be applied to interpreting training with special attention to skills developments and procedural knowledge.

5. Conclusion and further research

Interpreting is considered to be an extremely complex cognitive task in terms of bilingual information-processing. Interpreting is also a constructive cognitive activity, i.e. it involves active meaning construction instead of passively receiving the message. The basic mental processes during interpreting are similar to those occurring in monolingual verbal communication: listening, speech perception and comprehension, attention, memory, communication planning and speech production. The most salient difference between monolingual spoken communication and interpreting is that in the case of the latter, there is a higher degree of overlap between these processes. For this reason, cognitive abilities such as reasoning, attention sharing, fast information-processing, task-switching and cognitive control are essential prerequisites for successful interpreting both in the simultaneous and the consecutive mode.

Some of these processes, such as note-taking, interlingual transfer, attention sharing or information-processing, can be automatised. However, due to the fact that interpreting takes place in a constantly evolving communication situation where unexpected and unforeseen event happen on a regular basis, one of the most relevant cognitive abilities required is cognitive flexibility. It is needed, on the one hand, for efficient on-the-job knowledge acquisition, since interpreters are regularly required to absorb cognitive content while interpreting. On the other hand, cognitive flexibility makes it possible for interpreters to modify their cognitive strategies. Cognitive flexibility is one of the mental abilities enabling interpreters to carry out such mental tasks as anticipation or creative problem-solving based on divergent thinking.

However, there is a great need for further research in this field in terms of the different modes of interpreting. Further research is also needed into the personality traits of interpreters that have an impact on cognitive flexibility. Another valid research path concerns interpreter training, more precisely the question how interpreter training can contribute to the development of cognitive flexibility. The relation between cognitive flexibility and creativity in interpreting also requires further study.

CHAPTER 7
Interpreter trainee behaviour: autonomous learning

Autonomous learning is a complex and multi-faceted construct. It can be defined as the learners' capacity to self-direct their own learning, which means taking responsibility for the decisions concerning the different aspects of the learning process. However, there is more to autonomous learning than its purely management aspect. Autonomous learning, first of all, means critical thinking, planning and evaluating learning, and reflection, a conscious effort on the part of the learner to continuously monitor the learning process from beginning to end. This is the cognitive side of autonomous learning.

1. Autonomous learning

Autonomy, in a general sense, means liberty and the right to self-government. In education, autonomy is associated with a certain form of freedom characterising the learning process and the teacher-student relationship or the school. Autonomy in education is also related to the notions of negotiation, participation in classroom decision-making, reflection and choice, independence, self-evaluation and cooperation.

Following Little's arguments, autonomous learning is not learning on one's own, without a teacher. In the classroom students are not given full responsibility for their learning. It is not a teaching method either, so it is not something you do to students. It is not an easily observable and describable way of behaviour. Neither is it a permanent and constant state reached by learners (Little 1990: 7).

According to Holec's definition, autonomous learning can be seen as the learners' capacity to self-direct their own learning, which means taking responsibility for the decisions concerning the different aspects of the learning process. In self-directed learning, learners' choices remain mainly on the learning management level, i.e. the behavioural level of learning, and self-direction relates to the practical side of learning such as selecting learning materials, methods, the place and time of learning, the partners, etc. (Holec 1981: 3). According to a more recent definition of autonomous learning, however, there is more to it than its purely management aspect.

1.1 The autonomous learner

An autonomous learner is, therefore, a **reflective learner**, a person actively involved in reflective learning. Autonomous learners take responsibility for their learning not only on the level of learning management, but also in a cognitive sense, which means, as Little puts it, they are willing to make a conscious effort to understand what, why and how they are learning (Little 1996: 4).

Generally, such learners are methodical, reflective, flexible, adventurous,

curious and motivated. Their self-image is positive; they know how to rely on others; and they possess the necessary interpersonal skills (Candy 1991: 459-466). Finally, autonomous learners are less dependent on their teachers.

1.2 The autonomous teacher

There is no autonomous learning, however, without an autonomous teacher (Benson 2001, Camilleri 1999, Fischer 1996, Little 1996). Autonomous teachers are independent, self-sufficient personalities, who assume ethical responsibility for their teaching. The primary role of autonomous teachers in the classroom is not the transmission of knowledge. Instead, they act as organisers, advisers, and sources of information.

2. Autonomous learning and interpreter training

As Cammaert (1988) points out, in addition to interpreting skills, interpreters must keep learning throughout their professional life in order to be able to do high quality interpreting. From this it ensues that permanent learning, together with good listening comprehension and language skills, is also a professional requirement. One of the prerequisites of permanent learning is that would-be interpreters must learn how to learn and must possess the necessary learning strategies that make it possible for them to meet professional requirements. For this, they must become autonomous learners and must be able to direct their learning cognitively: they must know how to plan, monitor and evaluate.

Based on the findings of my empirical research I conducted in the field of postgraduate interpreter training at the Interpreter and Translator Training Department (ITTD) of ELTE University, Budapest (Horváth 2005, 2007a, 2007b), it can be asserted that the training the students had received developed their capacity to carry out autonomous learning. In what follows, I will summarise the findings of this research.

2.1 Learner autonomy at the beginning of the training course

At the beginning of the academic year, the students could be characterised as having only participated in traditional education, which significantly influenced their expectations concerning their future studies and teachers. Their former learning experiences had been mainly characterised by individualistic goal structures and frontal instruction.

However, they were aware of the advantages of group or pair learning. Already at the beginning of the course they were reflective and conscious learners. This aspect, among others, was proven by the fact that their enrolment in the training was not the result of pure chance: they had

specific expectations, objectives and aims. They were also strongly motivated to be successful in the training and determined to obtain their degree, as well as use it in their future careers.

The students were characterised by a certain degree of autonomy as learners as far as their behaviour and thinking were concerned. Nevertheless, it was also clear from the findings that these characteristics and views had been formed in a traditional learning environment. It cannot be claimed that they had extensive experience in the fields of learning management or social learning skills.

2.2 Learner autonomy at the end of the training course

One of the most important outcomes of this research was that it revealed that the students had successfully transferred their former autonomous learning habits to the knowledge acquisition methods and learning needed for interpreting. This is all the more essential for would-be interpreters because, as G. Láng states, the information-processing needed during an interpreting assignment differs to a great extent from anything that our students have experienced so far. During their former studies they were required to gradually narrow down their fields of research and do knowledge as well as information acquisition work and become experts on a specific topic. They were allowed to do so according to their own working tempo and time schedule. In professional interpreting, however, interpreters, in order to be able to build the necessary referential framework (mental model) for the correct understanding and interpretation of the source-language text, will need to be able to select and process huge amounts of material referring to an as yet unknown field of expertise or knowledge in a very limited period of time (G. Láng 2002: 80).

The time factor is particularly important here as, according to Gile, "in interpreting, Knowledge Acquisition occurs before the conference, during the last minutes before the conference, and after the conference has started" (Gile 1995: 155). The most important changes that occurred during the academic year concerned the students' relation to learning and the realisation of the need for lifelong learning.

Students also became more conscious and active learners and took

more initiatives as far as their learning was concerned. Their social learning skills and strategies had also developed, and this made them more suitable for autonomous learning management. This led to more experience in needs analysis, planning and monitoring learning as well as evaluating themselves, their peers, their teachers and their learning environment. At the same time, professional autonomy had also formed or developed in those students who had already had practical experience working as interpreters. They also appreciated the difficult nature of the profession and considered it more challenging than discouraging.

The survey also showed that the majority of students did outside-class independent practice, being intrinsically motivated to do so. Most of them did it on a regular basis, in pairs or small study groups. This demonstrates not only that the students were aware of the fact that classroom work is only a starting point for success, but also that classroom work prepares students to carry out independent practice on their own.

The survey also revealed some of the reasons for fostering learner autonomy during the training. One of these was the structure of the training programme, which allowed students to meet professionals as their trainers, a fact was highly appreciated by them.

Another reason – in connection with the training structure – was that the students had the opportunity to participate in classroom decision-making. They had a say in choosing the topics for speeches to be interpreted. The students were also allowed and encouraged to express their opinions about different aspects of the training.

A further element that was identified as fostering learner autonomy in this particular context was the fact that classroom work was most often characterised by pair and group work, which again developed students' capacity to organise extracurricular work efficiently.

2.3 Teacher autonomy

The analysis revealed that the teachers enjoyed a high degree of autonomy. This teacher autonomy was manifested in several ways. First, the teachers had a considerable amount of freedom and responsibility concerning the contents of their teaching: there is a general syllabus, on the basis

of which they decide what kind of texts or speeches they select and use for practice. This is both facilitated and required by the process-oriented syllabus. The content of the interpreting practice classes is constructed continuously according to a given set of principles each academic year. The main characteristic of the contents is that it is based on current issues. The methods are more or less fixed. The basics are the same every year, and the syllabus is built up according to more or less the same principles each semester. However, the concrete texts and speeches that are used are always about topical issues.

The fact that the content is based on current issues requires the teachers to follow the political, economic, and social changes and topical issues. Today, it is more and more often the case that the source of the texts used for practice in class is the Internet or authentic conference speeches interpreted in real interpreting situations by the teachers. Another essential factor of teacher autonomy is that, due to the flexible structure of the training, should any learning difficulties be encountered on the part of any student(s), the teachers can initiate modifications or changes within the framework of the course or syllabus. This training programme is flexible enough to be adapted to a particular student population.

Furthermore, the head teachers also carry out research in the field of Translation Studies. The need for continuous professional development is another characteristic of autonomous teachers.

The research shed light on issues such as out-of-class independent practice, the in-class learning patterns, the students' participation in classroom decision-making, and their possibility to voice their opinions about different aspects of the training programme. As far as independent practice is concerned, the teachers agreed that it played a crucial role regarding the success of the training. They also agreed that independent practice should accompany in-class practice. It should be tailor-made to the individual needs of students but run parallel with classroom activities in order to automate the skills practised in class.

2.4 The classroom

Furthermore, the research revealed how contact hours prepared students for independent practice: by the structuring of classroom work (frequent pair and group work), the active in-class role of the students, their choosing and delivering speeches for in-class practice, and by self and peer-evaluation required from them in class. Technical and human support is provided for the out-of-class independent practice sessions.

Students could also voice their opinions about the training. It was most often done informally in the course of the training. As for classroom decision-making, the concrete in-class role of the students and evaluation, it was revealed that the students played a very active role in class. They made speeches in their mother tongue and in their foreign language practically every time they did interpreting practice as well. As far as evaluation is concerned, it was continuous and regular.

To summarise, the success of the contact hours depends to a large extent on the students. The active role they are made to play in class prompts them to take more responsibility for their learning and results in more reflective and conscious thinking. The active in-class role also prepares the students for out-of class independent practice.

The above-mentioned factors, such as pair and group work, speech selection, self and peer evaluation and the responsibility they assume help students foster certain behavioural and cognitive components of learning management (Horváth 2005). The contact hours also help students in that teachers providing guidance demonstrate the aspects of speech selection, model speech preparation and delivery as well as provide guidance for evaluation.

3. Autonomous learning and interpreter training: what makes it work?

The research confirmed the starting hypothesis of the study: interpreter training at ITTD helps foster autonomous learning. Another result is that it shed light on the main training components which contributed to this development of learner autonomy at ITTD: student-centeredness, cooperative learning, learner training and development, and out-of-class independent practice.

3.1 Students-centeredness

Interpreter training at ITTD is fundamentally student-centred, as it is characterised by the principles and practices of progressive pedagogy such as the teacher's guiding role, the active role of students, intrinsic motivation, outside class learning, the equal importance of the cognitive and affective sides of learning, attention to processes, and effective learning achieved through action (Brandes and Ginnis 1985: 13-16).

Another factor to be mentioned here is the intensive teacher-student and student-student interaction and communication observed, which are signs of a rather supportive learning environment and successful group dynamics. The learning groups at ITTD seem to be what Hadfield calls successful groups (Hadfield 1992: 10-12). This positive learning atmosphere facilitates not only in-class work but also out-of-class practice, as it is not on their own but rather with their peers that students carry out individual work. At ITTD, this positive learning environment is created and maintained not only by the factors mentioned above, but also by the common aims and the motivation of the students.

3.2 Cooperative learning

The implementation of the main principles of cooperative learning has a positive influence on learner autonomy (Benson 2001, Bolhuis 2003, Dam 1995, Ridley 1997). The training at ITTD is characterised by the principles of negotiation, a process-oriented syllabus and positive interdependence. Students and teachers negotiate the organisational aspects of learning and teaching, the content and evaluation. Although full learner participation is not assured, an element of negotiation is built into the different components of the syllabus. This is what Clarke calls a weak version of the negotiated, process-oriented syllabus (Clarke 1991).

Boekartes describes cooperative learning as goal-oriented and differentiated (Boekartes 2002: 600). These two components are also characteristic of ITTD's training as individual students' performances and ideas are welcome, and they can voice their objectives in the different phases of learning. As for **positive interdependence**, learners as members of a learning group understand that together they are more successful than alone. The group's success is considered to be an individual success and vice versa (Sapon-Shevin and Schniedewind 1992), which results in students depending on one another. This principle characterises the training at ITTD, where learning success depends to a large extent on whether students select speeches for in-class and out-of-class practice that are relevant and appropriate as far as the linguistic and content input is concerned. Success also depends on whether they present these speeches in a suitable way for interpreting practice, and whether they take peer evaluation seriously and give their fellow students useful feedback. This corresponds to Cohen's **resource interdependence**, as peers serve as a resource for practice and evaluation. Individual students contribute in an active way to the success of their peers. In this sense, in order to fulfil group aims, the students are also dependent on one another, which is the principle of **goal interdependence** (Cohen 1994: 12-13).

A teacher's role is not to disseminate academic knowledge in the traditional sense but rather to facilitate skills development. Teachers at ITTD possess a high degree of autonomy; they are flexible, responsible persons who are continuously learning. They share power in the classroom without giving up their authority. They are also practising interpreters, providing role models for the students.

3.3 Learner training and development

The third factor that has been revealed as contributing to the development of autonomous learning at ITTD is learner training and learner development. Preparing students for autonomous learning, one of whose areas is out-of-class independent practice, is not done in a traditional, i.e. 'recipe book' learner training style. Instead, "it is rather a question of developing relationships in which curricula and their goals are constantly open to criticism and negotiation and learner training […] can only work if it is based on a cycle of reflection and action where students' decisions have real consequences" (Benson 1995: 5). It is particularly true for interpreter training, where learner training makes maximum use of the individual learner's characteristics and formerly acquired knowledge. At ITTD, preparing students for autonomous and self-managed learning is not achieved prescriptively, but instead, it is based on students' reflection. Individual students are guided and supported in finding the working method that suits them the best.

When analysing student preparation for autonomous learning at ITTD, it is useful to draw on Sheerin's distinction between learner training and learner development. The former is aimed at developing certain skills necessary for self-managed learning, for example using a dictionary for language learners, whereas the latter means an affective and cognitive development resulting in students who are more aware. The aim of learner development is to increase student responsibility (Sheerin 1997: 59-60).

At ITTD, the tools of student preparation for autonomous learning are classroom-based learner training and development. Learner training is aimed at developing the following: using the technical equipment (conference room, audiovisual/IT equipment); techniques for practising speech preparation: topic search, resource search and use, selecting information, presentation; developing social learning skills: questioning, cooperation with peers and trainers, empathy, negotiation, feedback to peers, self-evaluation, common goal setting.

At the same time, learner development is achieved through the active in-class role allocated to students, which 'forces' them to take more responsibility and to reflect on their learning. One of the results of learner

development is more effective and interactive classroom work. Another is that students realise the necessity of independent practice. Because they are aware of it, they do it on a regular basis.

3.4 Out-of-class independent practice

Out-of-class independent practice is crucial to the success of interpreter training in general and at ITTD in particular. It is not an 'if-you-wish' task but constitutes an integral part of the training programme. What is interesting to note here, though, is that its completion is not checked in a traditional sense. It is voluntary, as failing to do independent practice is not sanctioned by grades at ITTD.

The fact that the vast majority of students still organise such sessions for themselves is evidence of the efficiency of the training with respect to autonomous learning. The reason for this is that out-of-class independent practice is not only the means but also the result and manifestation of learner autonomy. It also shows that students at ITTD are intrinsically motivated to do out-of-class practice.

To sum up, it can be concluded that the major components that contribute to the development of learner autonomy at ITTD are student-centeredness (non-traditional student and teacher roles, action learning, dynamic groups, attention to processes); cooperative learning (peer teaching, peer evaluation, self-assessment, pair and group work, common goal structure of the group, resource interdependence); learner training and development (non-prescriptive, individualised, relationship-based, reflective).

It is important to note here that these components manifest themselves not on an *ad hoc* but **on a regular basis**. This is not to say, however, that there are no problem areas at ITTD where improvement is needed: not every student does out-of-class independent practice on a regular basis; not every class is as interactive as it could be; teacher training is also problematic; some teachers are more student-centred than others, etc. The findings reported constitute only main trends, and the variables mutually complement or reinforce one another: a not-so-student-centred teacher's impact on learner autonomy is counterbalanced by another's personality

or the peers. Of course, there are individual differences between student groups and individual students, but the aim of the research was to give general insights into what makes autonomous learning work at ITTD.

4. The cognitive components of autonomous learning in interpreter training

Autonomous learning is manifested at two levels: the level of behaviour, i.e. the learning management and the cognitive level, i.e. the level of thought. An autonomous learner is not necessarily the one who can be considered to be the 'ideal learner in the classroom' or the 'teacher's pet', or the student who always does his/her homework and never misses a class. An autonomous learner is aware of the reasons and implications of his/her actions as a learner.

Based on my empirical research conducted with the help of students enrolled in the European Masters in Conference Interpreting (EMCI) programme at ITTC in the 2002/2003 academic year (Horváth 2005), I could identify the most important cognitive components of autonomous learning in the case of would-be interpreters as well as the interrelationship of those components. The four main cognitive components of learner autonomy in the case of interpreter trainees that emerged from the data during the content analysis procedure were reflection, self-reflection, evaluation and self-evaluation.

4.1 Reflection

Reflection, i.e. conscious thinking about the learning process, is a main characteristic of autonomous learners. Effective learning management is based on the learners' regular reflection on their behaviour. Autonomous learners, during the management of the learning process, must make decisions about organisation (where?, when?, with whom?), content (what?, why?), implementing learning strategies, evaluation and planning for the future. These decisions and choices can only be effective if they are the fruit of reflective thinking.

The students who participated in the research reflected on the different aspects of their learning process. These are the following: learning in

general, interpreting, feedback received from peers and teachers, reasons for learning problems, solutions, learning aims, tasks, and new learning strategies.

4.2 Self-reflection

Self-reflection during the learning process means that learners make a conscious effort and think about themselves as learners. Autonomous learners are capable of analysing themselves critically in the learner role. Such analysis is based on self-observation, and its aim is to give answers to certain aspects of the learning process in order to optimise it like in the excerpt below:

> To perform to the best of my abilities at school, I need to do a lot of physical exercise in order to let off steam. For this purpose the most suitable sports for me are basketball and swimming. But due to lack of time, nowadays I rarely have the chance to practise them. Instead, I go running or exercise at home (a student at ITTD).

4.3 Evaluation

Besides reflection and self-reflection, realistic and complex evaluation is another prerequisite of successful learning. Learners set objectives, find the reasons for their learning problems (and successes), set new tasks and find new learning strategies more effectively if after implementation, they are able to evaluate the different aspects of the learning process in a realistic and complex way. Reliable and situation-relevant evaluation is the basis for further development.

In the field of interpreting training, the students gave continuous and complex evaluation of the following: training, the learning tasks, the texts to be interpreted, the speakers, study visits abroad, the exams, real interpreting assignments, and expert interpreters' performance.

4.4 Self-evaluation

Regular and systematic self-evaluation on the part of the learners is also a prerequisite for successful learning. Realistic self-evaluation, like realistic evaluation, helps improve learner performance by providing a starting point for further learning.

Self-evaluation is also present in the students' thinking, and they evaluate the following aspects: their own linguistic performance, their own interpreting techniques, their own interpreting performance, and their own general development.

4.5 Self-motivational thinking

In the case of one student, a fifth cognitive component can be detected: self-encouragement, self-motivation, which plays an active role with respect to her autonomous learning. Self-motivational thinking here often refers to interpreting and self-encouragement aimed at gaining more self-confidence.

Four out of the above-mentioned five elements are a constant: the students continuously and regularly reflect on the learning process as well as themselves as learners, and evaluate the process and themselves. Reflection, self-reflection, evaluation and self-evaluation help the learners exercise the cognitive control over their learning process. All four are reflective activities, i.e. they presuppose a conscious thinking effort on the part of the learners. They are to be interpreted in the context of, and as part of the learning process. They are also goal-oriented activities, as they enable learners to enhance the effectiveness and the success of their learning.

4.6 The model of autonomous learning in interpreter training

The main topics of reflection and evaluation, and the interrelationship of the four cognitive elements are contained in Figure 17.

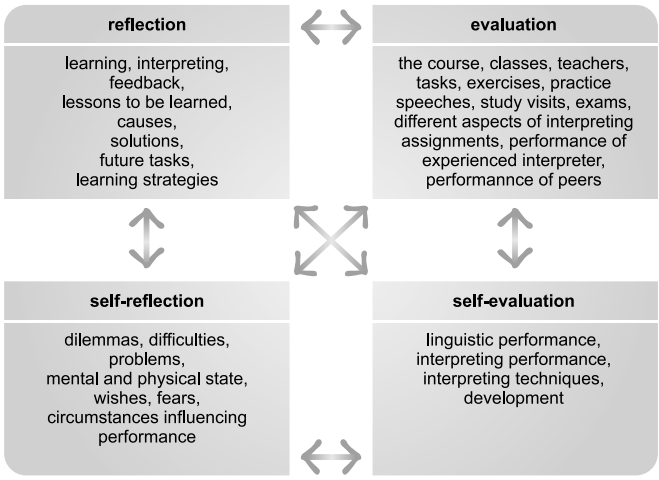

Figure 17. The cognitive components of learner autonomy in interpreter trainees and their interrelationship

Reflection, self-reflection, evaluation and self-evaluation mutually influence one another. Each component has an influence on the others, and is the basis for another, and they often cannot be clearly separated from one other. For this reason, it is often the context of the text segments taken from the diaries and the way they are interpreted that determine whether they are to be considered as reflection or self-reflection. There is no reflection without self-reflection, and vice versa, just as there is no evaluation without self-evaluation and vice versa. It also seems to be clear from the diary studies that there is no reflection/self-reflection without evaluation/self-evaluation.

The four components are continuous and cyclic activities that evolve constantly: they deconstruct what has been thought to have been achieved and then start reconstructing it again at another level, sometimes higher but sometimes lower. In the latter case, the learner returns to previous

learning events or problems to re-examine them once more, which is not to be considered regression. This cyclic character, together with the reciprocity of the four components, is in keeping with the cognitive side of the autonomous learning revealed by the content analysis of the diaries.

Figure 18 illustrates how the permanent functioning and reciprocity of the four components support the learners in carrying out decisions, managing their learning and themselves as learners, in realising their plans, selecting learning materials and partners, etc.

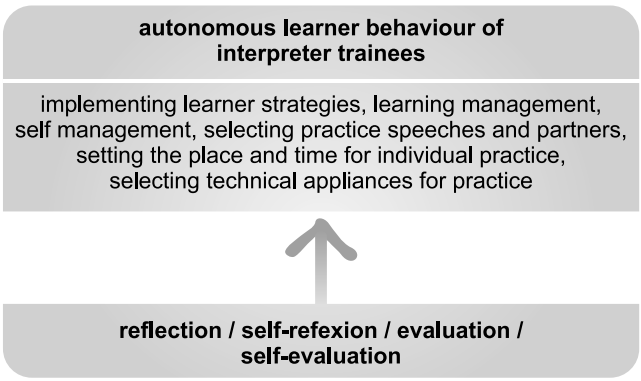

Figure 18. The relation between the autonomous learner behaviour of interpreter trainees and reflection / self-reflection / evaluation / self-evaluation

Reflection, self-reflection, evaluation and self-evaluation best support effective learning if their results are relevant to the learning process. Thus their success depends to a large extent on the students' **metacognitive knowledge**, i.e. the knowledge possessed by the students about themselves as learners and the learning process. Wenden lists three types of metacognitive knowledge: personal, strategic and task knowledge (Wenden 1998: 185). To this I have added a fourth type, the knowledge of subject matter. It is indispensable for the students to possess the most possible information of the subject they are learning in order to do realistic cognitive work concerning their learning. The interrelationship of metacognitive learning and the four main cognitive components of autonomous learning in interpreter training are illustrated in Figure 19.

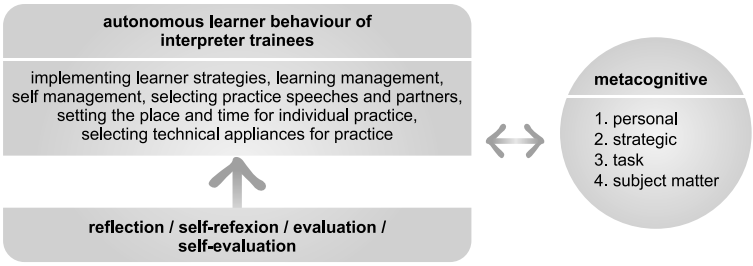

Figure 19: The interrelationship of the four cognitive components and metacognitive knowledge

In one of the cases, a fifth cognitive component could be depicted: self-motivational thinking. As self-motivational thinking could not be detected in the other cases, it does not figure among the common cognitive components of autonomous learning in interpreter training revealed by the research. However, it does not mean that motivational thinking is absent in the remaining three students. It only means that evidence for such thinking is not present in the data.

Ushioda ascribes to motivation an active functional role in autonomous learning where self-motivation is "a capacity of effective motivational thinking" (Ushioda 1996: 2-3). Motivation is without doubt a key aspect of autonomous learning, which is underlined by the fact that one of the diaries has a significant amount of evidence for self-motivational thinking. This is why it should not be ignored when we examine the cognitive components of autonomous learning. The reciprocal relationship of self-motivational thinking and the other cognitive components is illustrated in Figure 20.

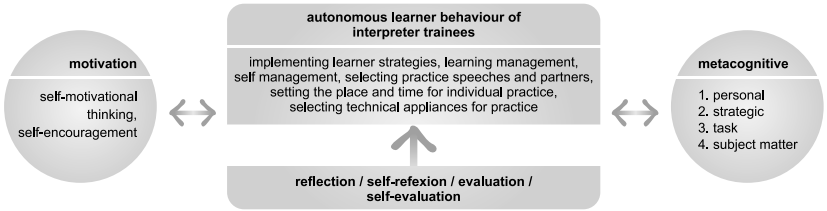

Figure 20. The interrelationship of self-motivational thinking, the four cognitive components and metacognitive knowledge

To consolidate the different aspects relating to the cognitive side of autonomous learning in interpreter trainees, I have set up a model which summarises and conceptualises our knowledge relating to autonomous learning, the thinking and behaviour of autonomous interpreter trainees. As can be seen in Figure 21, autonomous learning has two sides: the behavioural aspects and its underlying cognitive aspects.

At the same time, Figure 21 illustrates the cognitive components of autonomous learning and their interrelationship. It leads us closer to a better understanding of the cognitive level of autonomous learning, i.e. how autonomous learners think. Furthermore, the model elucidates the areas that play a predominant role in the creation and development of autonomous learning.

Although Figure 21 is based on a research project conducted in the field of interpreter training, I think my findings might have a more general scope. At the very least, they provide us with a good starting point for extending the research agenda to other fields as well.

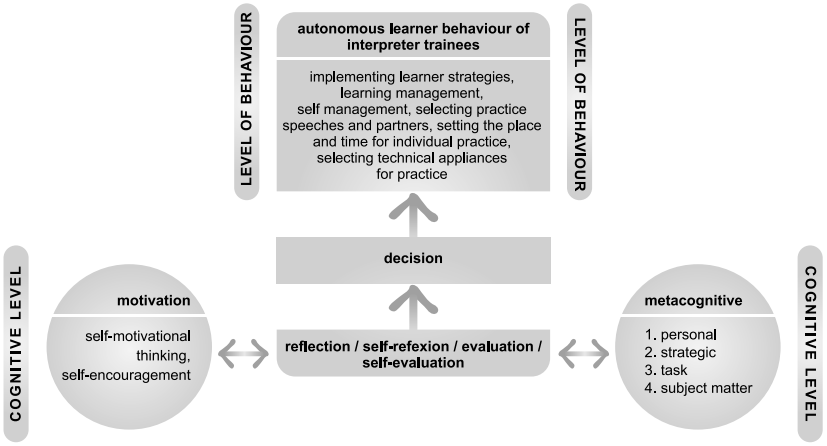

Figure 21. Autonomous learning in interpreter trainees

5. Conclusion and further research

In interpreting, continuous learning is a professional requirement. For this reason, besides interpreting skills, interpreter training also needs to develop autonomous learning skills and thinking. The major component of an interpreting training course based on autonomous learning are student-centeredness, cooperative learning, learner training and development and teacher autonomy.

Autonomous learner behaviour is based on reflective learning. The most important cognitive components of autonomous learning are reflection, self-reflection, evaluation and self-evaluation. All four are reflective activities that are permanently evolving. They are also cyclic activities, which means that they constantly deconstruct what has been achieved and then reconstruct it. The permanent functioning and the reciprocity of the four cognitive components detected support the learners in the management of their learning. In one case, a fifth cognitive component could be detected: self-motivational thinking, which also plays an active role in autonomous learning.

Further research will need to be carried out in order to establish the causal mechanisms and the exact interrelationship of these components. Another research path is to examine how these skills further develop during one's professional career.

Conclusion

This study has attempted to present the major issues which pertain to describing the on-the-job performance of interpreters from their vantage point. It has considered the interpreter as a professional communicator and service provider whose task consists of facilitating communication between interactants not speaking the same language and not belonging to the same culture. It has considered interpreters as persons who occupy a peculiar position in the communication process where they are physically present with their whole personality and expertise, but they do not contribute to the creation of the original message. It has also tried to highlight the complexity of the profession.

Interpreters are professional intercultural communicators. Their job consists of facilitating communication between individuals who do not share the same language and culture. The interpreter's behaviour in a communication process is influenced by its context, setting, participants, and the interpreter's role and place. Interpreters are not 'ordinary' participants in the communication process since it is not their person that they bring into the communication process but their professional skills as communicators. However, they are interactants in this process, which confers them a special place and role. Interpreters are not expected to contribute to the final product of the communication event in terms of the message. Their contribution is restricted to the facilitation of the communication between the other participants. This contribution is not to be undervalued, since without it, the communication event could not take place at all.

Interpreters are professional public speakers involved in 'secondary' communication since they convey the meaning of somebody else's speech and communicate other speakers' ideas in a language different from the one the speaker uses. Their professionalism is reflected in the way they speak, in their diction, and the fluency and prosody of their active languages. Their speech behaviour is a crucial facet of their communication behaviour that conveys meaning. It is an essential component of their

expertise and professional behaviour. It is a conscious behaviour fostered by correct voice use since misused voices arouse less interest in the content of interpreted speech and are less pleasant to listen to.

Interpreters are professional bilinguals. They use their bilingual competence to serve others' communicational needs. In order to be able to achieve this, they need to be aware of all of their working languages, even their first languages, which they are required by their profession to use in a conscious way. An interpreter's professional linguistic competence needs to be cultivated and strengthened even when it comes to their first language because an interpreter generally uses their first language for their own communication purposes. We very rarely speak about topics such as innovation transfer, fencing, the macroeconomics of a given country or laminated beam technology in our private lives to the extent to which we need to use the related terminology of these (and a lot of other) subjects when we work. This is also true of linguistic registers: we are required to be aware of and use registers in our professional lives that we would not otherwise use in our everyday activities. In order to sound natural in the target language, interpreters not only need to have the necessary linguistic, communicational and cultural competence for the task, but they also need to use language in an authentic way in terms of style and terminology. This often means adapting their language use to their audience.

Interpreting is a creative activity. Creativity seems to be an intrinsic element of interpreting on three levels: as a product, as mental processes manifest in cognitive strategies and as professional behaviour in a given situation. Choosing between several alternatives in a given communicational situation implies that interpreting is a decision-making process involving a high level of problem-solving and anticipation requiring divergent thinking. Furthermore, interpreting can be described as a balancing act in a situation in which the communication that the interpreter is meant to facilitate takes place. To be able to find the right place in such a situation, where the interpreter is not a natural participant in the act of communication, requires a considerable amount of creativity, i.e. adaptability, responsiveness, and flexibility from them.

Interpreting is an intrinsically stressful occupation. The ability to cope with short and long-term occupational stress, both physical and

psychological, experienced by interpreters seems to be dependent on the on-the-job experience and skills as well as on specific personality traits and conscious cognitive effort to control the stressors in a given professional situation. Stress is an important issue in interpreting, as the extent to which one is able to cope with it has an impact not only on one's performance's quality but also on one's behaviour and interpersonal relations with the other participants. Stress and stress management in interpreting depend on external factors such as working conditions, the persons involved in the process (such as clients and colleagues) on the one hand, and on internal factors (the interpreter's personality), on the other. Stress seems to be a constant probably because during interpreting saturation is so complex. Furthermore, the interpreting process is so intense in terms of mental load and physical stress that it is impossible to control all the factors at play during interpreting.

Interpreting is an extremely complex cognitive task in terms of bilingual information-processing. It is also a constructive cognitive activity, i.e. it involves active meaning construction instead of passively receiving the message. The basic mental processes during interpreting are similar to those occurring in monolingual verbal communication: listening, speech perception and comprehension, attention, memory, communication planning and speech production. The most salient difference between monolingual spoken communication and interpreting is that in the case of the latter, there is a higher degree of overlap between these processes. For this reason, cognitive abilities such as reasoning, attention sharing, fast information-processing, task-switching and cognitive control are essential prerequisites for successful interpreting both in the simultaneous and the consecutive mode. Due to the fact that interpreting takes place in a constantly evolving communication situation where unexpected and unforeseen event happen on a regular basis, one of the most relevant cognitive abilities required is cognitive flexibility. Cognitive flexibility is one of the mental abilities enabling interpreters to carry out such mental tasks as anticipation or creative problem-solving based on divergent thinking.

Interpreters are also professional life-long learners. They must keep learning throughout their professional life in order to be able to do high quality interpreting. From this it ensues that permanent learning,

together with good listening comprehension and language skills is also a professional requirement. One of the prerequisites of permanent learning is that would-be interpreters must learn how to learn and must possess the necessary learning strategies that make it possible for them to meet professional requirements. For this, they must become autonomous learners and must be able to direct their learning cognitively: they must know how to plan, monitor, evaluate and reflect on their performance.

In summary, interpreters as professional mediators accomplish a rather complex linguistic and cognitive task. Interpreting is not merely the literal translation of an input text. Instead, it is using linguistic and extralinguistic elements to create equivalent meaning between the source language and the target language. It is semantic processing in real time necessitating continuous and complex information-processing, since speech is linear but the ideas communicated are not always structured in a linear way. Thus interpreting can be summarised as making informed choices based on insights.

Interpreting requires certain personality traits and linguistic as well as cognitive expertise. It also requires a large amount of behavioural flexibility in terms of communication, speech and linguistic skills which enable interpreters to perform at a high professional level in an ongoing and continuously evolving special, temporal and social context. Keywords in this respect are knowledge adaptability, mental flexibility, the ability to concentrate, risk sensitivity, creative problem-solving and decision-making, hypothesis testing and cultural awareness. My argument is that interpreters' professionalism is made up of all these but must be reflected in their behaviour as well. Their behaviour is influenced by their interpreting skills (linguistic and cognitive). In addition, it is also impacted by factors such as knowledge of the profession, stress, fatigue, risk-sensitivity, self-confidence, linguistic confidence, emotional stability and mental strength, among others.

There exists a wealth of studies on some of these issues. The present study has tried to contribute to the scientific discourse in Interpreting Studies by taking an interpreter-centred view. It has also tried to highlight subjects for further research at the end of each chapter. In general, it can be said that any attempt to conduct research on any of those topics carries with it the need for empirical research.

List of Figures

List of abbreviations

CE central executive
CF cognitive flexibility
CFT Cognitive Flexibility Theory
CI consecutive interpreting
EVS ear-voice-span (lag, 'décalage')
L1, L_1 Language 1
L2, L_2 Language 2
IS Interpreting Studies
ITTD Interpreter and Translator Training Department (ELTE University, Budapest)
LTM long-term memory
LT-WM long-term working memory
SI simultaneous interpreting
SL source language
ST source text
STM short-term memory
TL target language
TT target text
TS Translation Studies
WM working memory

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