Title: Introspection in research on foreign language teaching and learning

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One of the key concepts and indeed a buzz word in modern language research and even more so in teacher training is reflection: reflection on language (studies in language awareness), reflection on learning (studies in learning strategies), reflection on teaching (action research projects). Reflection seems to stand at the heart of all introspective methods of research.

The pioneers of introspective methods began this work at the turn of the 20th century. Most of them used the method to investigate the contents of human consciousness (among others J a m e s, W u n d t and D o n e r s), reducing it to sensory and imaginal components reported on by their subjects. The number of studies undertaken was relatively small and they are now understood to be more anecdotal than scholarly. The first thinking aloud protocols (TAPs), which were assumed to be verbalizations of thinking processes of the subjects, were performed in psychological experiments. They were simply descriptions of what had been said by the subjects and not their actual verbalized thoughts. As a consequence, they were very selective, biased and unsubstantiated. The first protocols were used by W a t s o n (1920) to illustrate thinking processes involved in a problem-solving situation. They were very unsystematic and full of interpretative remarks (G a b r y ś 1995).

As might be expected, the use of introspective methods came to the fore as the challenge to the behaviouristic theory. Its explanation for human behaviour following the STIMULUS—RESPONSE formula deployed to explain the mechanisms and structure of cognitive processes of the

human mind purely on the basis of externally-observed manifestations of behaviour. The inadequacy of S—R explanations led to the feeling of dissatisfaction among scientists and made them look for methods that would enable them to probe the subjects' internal mental states. Data obtained in those experiments have become fundamental in psychology, although there have been many doubts raised about 'the new methods' of introspection, as it is seen to be highly speculative and subjective (Gabryś 1995).

1. Description of the method

1.1. Introspection as thinking aloud

The term *introspection* means to reflect, to look inside oneself. When formalized and applied as a research method, it means to verbalize one's own thoughts and thinking processes. It is the process of externalizing what goes on in one's brain either at a given moment, on completion of a certain action or after a time lapse.

To be able to see the validity of this method it is necessary to describe the encoding process which transforms behaviour into data and then back from data into behaviour, as a way of describing cognitive processes of human mind. Following Skinner, Ericsson and Simon (1984) see verbalized behaviour as a form of human activity that can be explained like any other behaviour by developing a model, this time a model of information processing, which would describe how data is accessed and encoded (verbalized) in response to stimuli one is exposed to at a given moment.

Each verbalization is understood as deriving from the cognitive process that underlies it. As a result, verbalization must comply with all the constraints that have been identified for cognitive processes. In turn, cognitive processes consist of a set of sub-processes, which follow one another and are being transformed under the influence of a series of information processes. Information is stored in short term memory (STM — with a limiting capacity of about 15—20 seconds) and in long term memory (LTM — with permanent storage but slow access time). Information just received is stored in STM and is easily retrieved and articulated at the time of performing a task.

Verbalization processes of which all introspective methods make use reflect cognitive processes in two ways: either directly, i.e. when the time of

the task performance is concurrent with the verbalization or indirectly, i.e. when the information is retrieved from STM or LTM after the completion of the task. In both cases verbalizations become functions of time and result in data which is by no means homogeneous.

Verbalization of cognitive processes in thinking aloud takes place on three distinct levels of thought processing. Ericsson and Simon (1984) describe them as:

1. The level of the vocalization, i.e. articulation of oral encodings, where no thinking processes take place. In self-directed verbalizations (e.g. in the case of thinking aloud protocols — TAPs), they are individual and depend on the subject's interpretation of the instruction she/he is given or on the semantic content of the task;
2. The level of description or explication of the content, which means 'labelling' information and recoding it in an idiosyncratic way, characteristic of a subject/informant;
3. The level of explanation of thoughts and ideas that rush through the subject's mind or any other, even emotional, reactions to the information (task) she/he is to solve. It involves a process of interpretation.

Level 1 verbalization is a direct process in which information encoded is vocalized (articulated), i.e. in a language task a phrase or a sentence is pronounced or read aloud by the subject with no cognitive processes taking place. Level 2 and level 3 are encoded verbalizations where the information attended to by the subject (level 1) is modified by recording processes, i.e. the subject generates a verbal representation of the information she/he has got stored in his/her mind by means of filtering it for the purposes of the task. On level 3 the subject reports his/her ongoing thinking, embracing not only its verbal aspects, i.e. word associations and interferences from L1 and L3 (for example) but also personal, emotional responses to the task.

Various studies show that the way a subject verbalizes, that is, the extent to which the above mentioned levels occur in the process of verbalization may be influenced by the type of instruction given to the subject. Here are some examples of instructions in various experiments, starting with the first TAP (thinking aloud protocol; all quotations come from Ericsson and Simon 1984):

> *Try to think aloud. I guess you often do so when you are alone and working on a problem.* ***Think, reason in a loud voice, tell me everything that passes through your head during your work searching for the solution to the problem.***

To be able to receive a complete report of a thinking process, other types of information are essential, such as are requested in the following instructions:

> *The chief thing is to talk aloud constantly from the minute I present a picture, for I want to get everything you happen to think of no matter how irrelevant it may seem.*

> *I am not primarily interested in your final solution, still less in your reaction time but in your thinking behaviour, in all your attempts, in whatever comes to your mind, no matter whether it is a good idea or less good idea or a question. Be bold! I do not count your wrong attempts, therefore speak them all out.*

> *Do not plan what to say or speak after the thought, but rather let your thoughts speak, as though you were really thinking out loud.*

> *In order to follow your thoughts we ask you to think aloud, explaining each step as thoroughly as you can.*

Each of the instructions, apart from their common intention to make the subject verbalize his or her thoughts, emphasizes a different aspect of the verbalization process. These instructions fulfil the role of a monitor in performing the tasks.

1.2. Types of introspective methods

As mentioned above, introspective comments can be made at the moment of performance of a given action, on its completion or after some time. The time criterion is the basis for the distinction made between three types of introspection: simultaneous introspection, consecutive introspection and retrospection. Simultaneous introspection requires the subject to verbalize his/her thoughts when involved in performing a given task (e.g. a language exercises or a teaching procedure). It is considered to be the most challenging of activities as it is very much influenced by personality traits, such as readiness and willingness to communicate and interact, readiness to externalize and to take the risk of being ridiculed for the types of comments made, etc. It may also be limited by the nature of a given task and degree of automaticity of the thinking processes involved in it which may not be open to verbalizations. That is why the implementation of simultaneous introspection calls for an informed (explicit) training of the subjects in verbalizations. The training should include not only a discussion of the nature of the method in its fundamental principles but also exposure to sample thinking aloud protocols to illustrate the nature of verbalizations.
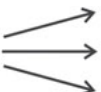
There are some well-defined stages of collecting research data by means of simultaneous introspection. The stages of collecting the project data include recording of the thinking aloud with the use of appropriate coding systems and transcribing them as thinking (think) aloud protocols, the so-called TAPs. In some cases (e.g. translation tasks) the TAPs are compared with the final product of the task (i.e. the translated text). Producing TAPs is usually a very time-consuming procedure and results in a lot of unstructured data. For the purposes of analysis, the data needs to be structured beforehand in some well-defined way, depending on the particular research focus (discussed later in the chapter). Table 1 presents the stages of simultaneous introspection implementation.

Table 1. Stages in simultaneous introspection

Stage	Objective/Focus
Training session	to develop the subjects' awareness of verbalizations to expose the subjects to sample TAPs
Selection of an appropriate task to be performed	to formulate research questions to analyse the nature of the task and its degree of openness to verbalizations to formulate instructions to the task
Preparation of the subjects	to explain the instructions to the task
Performance of the task and simultaneous thinking aloud	to record the verbalizations of individual subjects
Transcription of the verbalizations	to produce TAPs of the thinking processes

As mentioned earlier, the transcription of verbalization processes requires a well-defined system of coding, pointing up the relevant non-verbal moments in the thinking processes performed. These include: pauses in verbalizations, hesitations and fill-in gambits (non-verbal) and intonation contours (Table 2).

Table 2. A simplified TAP coding system

Coding sign	Focus
(0.5)	five seconds pause in the verbalization
(hm) (aha) (oh)	non-verbal manifestations of non-automatized thinking
	raising intonation, questioning oneself about the solution to the problem flat intonation, an ongoing thinking process falling intonation, an answer/choice is being made

Once TAPs have been transcribed, the data needs structuring, that is to say, the relevant fragments of the produced script have to be selected.

This chapter focuses on simultaneous introspection as a very well-defined method and clearly distinguished from the other types of introspection. Other types of introspective methods, namely consecutive introspection and retrospection are often used as complimentary to simultaneous one in language learning and teaching research. They can take different forms. In this book they are described in the chapters on questionnaires and interviews (examples of consecutive or retrospective tools) and also diaries and journals (retrospective methods), following N u n a n's (1993) typology. Both consecutive and retrospective methods are a genuine form of reflection, however, compared with the simultaneous method, they are prone to interpretation by the subjects as to what they did and what thinking processes were involved. They are also influenced by the processes of forgetting (time lapse in respect of commentary made by the subjects). In this way they are less reliable as a tool reflecting thinking processes. It does not mean however that they are of less significance as data collection tools. They do express the subjects' ability to reflect on and interpret their performance at different levels.

K a s p e r a n d F a e r c h (1987), in the first reliable source on introspective methods' use in second language acquisition research, classify introspective methods according to criteria other than time of performance, such as:

- Object of introspection — according to the type of information gathered: cognitive, affective or social aspects, declarative vs procedural knowledge, modality of language use (spoken vs written, receptive vs productive) or combination of the above (e.g. in translation), continuity of the process vs a discrete aspect.
- Related or unrelated to a concrete action.
- Temporal relation to action (simultaneous, immediately consecutive, delayed consecutive).
- Informant training (explicit training, exposure to a discrete sample, a trial run).
- Elicitation procedure selected (the degree of structure, media support, self-initiated vs other-initiated, the degree (presence or absence) of interaction between the informant and experimenter or between the informants themselves, integration with action (e.g. recorded discussions).
- Combination of methods (simultaneous and consecutive or simultaneous, consecutive and retrospective).

1.3. The criteria for classification of TAP data

Any researcher implementing simultaneous introspection is aware of the major difficulty in use of this type of methodology, i.e. abundance of data which is highly idiosyncratic and hence unstructured. However, there are certain procedures which will allow to overcome this obstacle. F a e r c h and K a s p e r (1987), the first and most ardent advocates of introspective methods in SLA research, propose the object of introspection (the type of information gathered) as the main data-structuring criterion (Table 3).

Table 3. The object of introspection criterion of data structuring

Type of object	Examples
1. Cognitive 2. Affective 3. Social	1. Strategies of recall 2. Comments on success and/or failure of performance 3. Asking for assistance in performance of the task
Declarative vs procedural knowledge	Comments on grammatical/lexical rules vs comments on strategies
Modality of language use: 1. Spoken vs written 2. Receptive vs productive 3. Combination of the above	 1. Verbalized comments vs those in the written text 2. Comprehension comments vs produced language solutions
Continuity of the verbalization process vs a discrete research aspect	1. Focus on pauses (as marked in TAPs) in the verbalization processes. 2. Focus only on the researched phenomena, e.g. errors, strategies etc.

2. Introspection in second/foreign language learning and teaching research

2.1. Characteristics of the data and focus of research

Research in second language acquisition (SLA) dealing with error analysis over the past decade reflects a shift of emphasis from the product (i.e. an incorrect language form) to the process which underlies generation of the latter, as well as of correct forms. Introspective reports, understood as an empirical tool of measurement of human behaviour long employed

in psychology, have gained recognition as a mode of research in SLA only recently. The emergence of cognitivism in L2/FL teaching and learning allowed the introduction of introspection as a valid and reliable method of research.

In her discussion of the object of introspection, G a b r y ś - B a r k e r (2009) points out that it may refer to various aspects of language production the experimenter wishes to investigate. His/her interest may lie in a cognitive structure of the IL (interlanguage) of the informants. In other cases, when for example L2 achievement is to be measured, an affective aspect of a language performance may be in focus. In the case of measuring affective aspects involved in L2 learning, such as motivation and attitudes, introspection becomes a complementary tool to all kinds of interviews and questionnaires administered.

When performing certain language tasks two types of knowledge are being activated by the subjects, that is, declarative knowledge, referring to the knowledge of L2 rules (competence) and procedural knowledge, referring to the actual production (performance). Introspective methods and especially TAPs make it possible to follow the processes which are being activated, be thy either in language learning and the development of receptive or in productive skills. However, it is important to note that only conscious thinking processes can be stored and verbalized in STM and transferred to LTM in the long run. It is obvious that some of cognitive processes (automatic ones) are lost in TAPs. But in most language tasks subjects are faced with certain linguistic problems to be solved, so the thinking processes operate on a conscious level, i.e. the solutions do not come automatically but require all sorts of strategies (for example, recall strategies) to be used by the subjects.

The first studies in SLA carried out by means of introspection in the early 70s entailed investigating the competence of native speakers (i.e. their declarative knowledge) concerning their intuitions about L1 (their mother tongue). They consisted of judgement tests and interviews recorded and transcribed. At the beginning of the 1980s, TAPs found their way into L2 research of reception and production (R a a b e 1982, 1986, F a e r c h a n d K a s p e r 1986, S c h n e i d e r a n d Z i m m e r m a n n 1986, 1987).

Introspective thinking aloud may focus on either the overall approach of the subjects towards the task at hand, in which the whole process of task fulfillment is verbalized, or on a specific aspect of the task under consideration, which involves question-asking and interference on the part of the experimenter. The latter is often used in the cases of lexical search performed by the subjects. A part of SLA research, namely that which deals with motivation and establishing profiles of learners, focuses on the description of a certain action or behaviour the subject is involved in when performing the task.

As described earlier, the temporal relationship to action in thinking aloud can either be:

a. Simultaneous — subjects verbalize at the moment of performance;
b. Consecutive — verbalization comes immediately after the fulfilment of the task;
c. Delayed consecutive — there is a time span or gap between the performance and verbalization.

The first type, simultaneous verbalization, is used in such tasks as listening and reading comprehension, writing or translation. The phenomenon of speech (communication strategies) can best be investigated by means of immediately consecutive reporting (STM is activated here), while delayed introspection (retrospection) makes use of diary studies or direct retrospective interviews and discussions.

Another important aspect of introspective methods is the subjects' training in verbalizing cognitive processes. Although it was claimed by Ericsson and Simon (1984) that lack of training does not influence the reports, it should be clear that it can influence its completeness. Subjects that have been exposed to the recording of thinking aloud become more conscious of what verbalization means and what aspects of cognitive processes and which emotional stages are taken into consideration. In addition, such exposure definitely reduces the stress and inhibition caused by the novelty of this method of data elicitation, which for some subjects may seem daunting.

The elicitation procedures utilized differ according to the degree of structure imposed on the informants (subjects) by the experimenter. They vary from multiple choice questions (e.g. judgement tests), open-ended questions (e.g. in interviews and questionnaires) to 'free' verbalization (e.g. in translation or cloze tasks), in the case of which subjects themselves make choices or often are straightforwardly being told to verbalize continuously everything that comes into their minds. In the case of introspection, informants are often exposed again to the stimulus with which they had performed their task for the first time, that is, an original text or a picture story they had been previously asked to reflect on — with the purpose of activating their LTM. However, some retrospective studies do without recall support.

The data elicitation sometimes involves interaction between the experimenter and the subjects or between the subjects themselves. In such cases, interpretation of the data collected becomes much more complex as extra variables such as group structure and its dynamics, personal characteristics and other social and psychological factors have been introduced and can affect outcomes (Gabryś 1995).

2.2. Introspection in translation processes and tasks

In her discussion of the types of tasks most open to verbalizations and hence, most often used in introspection-based research, G a b r y ś - B a r k e r (2009) focuses primarily on translation. Translation is a process which for the most part takes place on the conscious level and so it is accessible to verbalization.

K r i n g s (in F a e r c h and K a s p e r 1987) argues that the objections raised against concurrent (another term used for simultaneous introspection) introspective verbal reports being valuable sources of data, such as:
- the inaccessibility of certain cognitive processes for verbalization,
- the inconsistency of the actual behaviour and verbalization,
- the interfering character of verbalization, i.e. influence on the performance of an informant,
- the incompleteness of reports,

become irrelevant and inapplicable in the case of translation since translation is a conscious process of creating a text.

As mentioned above, compared with retrospective methods, introspection utilizes information stored by informants in their STM, i.e. information which is still accessible at the time of verbalization. Besides, processes verbalized do not require on the part of the informant any kind of 'selection' or 'interference' or speculation on the specific language sample, but straightforward information on what he or she is actually doing at the very moment and whatever thoughts pass through his or her mind.

The process of translation embraces two aspects of language performance: automated processes on the unconscious level and non-automated processes on the conscious level of processing. Verbal reports make it possible to distinguish between these two aspects. When verbalizing on the conscious level no distortion or change of the structure of language form received takes place, as translation, unlike non-verbal tasks, involves the use of a verbal code, so no extra encoding is necessary. It is a natural process, and so E r i c s s o n and S i m o n (1984) call it 'level 1 verbalization' (Section 1.1. of this paper).

It is often argued by those who criticize verbal reporting that verbal reports present incomplete data. It is obvious that a full report of all the mental processes involved is indeed not possible, taking into consideration the fact that a part of them is automated, and therefore unconscious. But accompanied by other experimental data, verbal reports come closer to a direct presentation and interpretation of cognitive models of language processing than any other method.

Krings (in Faerch and Kasper 1987) and other researchers who have used translation tasks in collecting verbal report data all stress the low degree of structure of the reports, and Krings argues that it is important to establish categories of analysis, which need to be refined gradually. In the case of a translation task, the basic categories are those of translation problems (the first category) encountered by the informants and strategies (the second category) that are used to solve them. Translation problems can be caused either by comprehension problems at one end and production ones at the other.

For the first category (translation problems), further differentiation at the level of features can be offered for both translation problems and strategies employed by the informants. It may include:
1) the number of problems encountered (for the purposes of comparison of the informants);
2) identification of areas of difficulty (often very individual, showing idiosyncratic use of both L1 and L2);
3) successful (correct) solutions of translation difficulties vs unsuccessful (incorrect) ones.

The second category focuses on retrieval strategies, i.e. the ways in which informants perform lexical search. Retrieval diagrams have been drawn up to demonstrate step by step strategies verbalized in TAPs. It is especially in this category that thinking aloud gives a lot of information, compared with pure performance data (product) analysis of a translation handed in.

The above categories refer to structuring data received in TAPs that can be identified in verbal protocols. Apart from the two mentioned above, other types of information can be gathered, for example, the informant's attitude towards the solutions of the problems he or she has arrived at — ranging from full acceptability to full dissatisfaction, or partial justification for certain choices made.

Krings (in Faerch and Kasper 1987) emphasizes the importance of minimal interference by the experimenter, i.e. no pressure to verbalize should be put on the informant since it could cause certain distortions of the naturalness of the translation process. Data received in TAPs can easily be triangulated with data obtained and validated by means of other methods, such as word-association tests and judgement tasks.

The results received in verbal reports that are based on translation can obviously be used for a description of translation processes, but at the same time they give a valuable insight into retrieval strategies, production problems and make it possible to identify areas of difficulty encountered by the subjects at various level of language advancement (Gabryś 1995, Gabryś-Barker 2009).

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3. An overview of sample studies

3.1. Examples of studies and their focus

Table 4 presents examples of studies of different aspects of foreign/ second language performance when the whole variety of introspective methods and their combinations was deployed.

Table 4. Introspection-based SLA studies (source: Gabryś-Barker 2009)

Research focus	Studies
Learning strategies	Naiman 1975, Stevick 1981, Wenden 1982, Cohen 1984
Reading in a foreign language	Cavalcanti 1982, Serrano 1984
Translation	Gerloff 1986, Krings 1986, Schneider and Zimmermann 1986, Schneider and Zimmermann 1987
Lexical search	Schneider and Zimmermann 1986, Haastrup 1987, Williams and Hammarberg 1998, Herwig 2001
Spoken language	Schwartz and Flower 1980, Dechert, Mohle and Raupach 1980/1984, Cohen and Aphek 1981, Faerch and Kasper 1987
Writing in a foreign language	Hayes 1983, Raimes 1985
Language transfer	Dewaele 2001, Jessner 2003

The whole variety of learners' language and language-related behaviours can be observed on the basis of TAPs received in the studies enumerated in Table 4:

a) the way learners attend to language input they are exposed to when performing a language task,
b) the way they arrive at spoken utterances (the process of speech production),
c) the way the text is being processed (reading comprehension, the reading process in L2 itself),
d) the way the text is being generated (the writing process),
e) the way lexical items are learnt at the stage of input (inferring and guessing using other languages or other compensation strategies),
f) the way lexical items are retrieved from memory (the use of recall strategies).

The presentation in Table 4 is by no means exhaustive, however, the studies quoted above are the earliest or the most recent or the best-known ones in

language learning research. It should be stressed that research by means of introspective methods has only become significant, and gained the status of a scientific research tool relatively recently.

3.2. **Multilinguality researched by introspection**

To exemplify the use of the theoretical framework of introspective methods in research, both in language learning and teaching and SLA, the practical part of this chapter outlines the way in which simultaneous (concurrent) introspection has been used in studies on multilinguality, or more precisely on the mental lexicon of multilingual language users (Gabryś-Barker 2005).

The research projects presented here have been selected from my book-length study on multilingual processing because they most accurately reflect the local context of research in this area. The issues were explored with the aid of simultaneous introspection, in which the complexity of multilingual language interaction in the mental lexicon was observed from various perspectives (Table 5).

Table 5. Simultaneous introspection in SLA studies (source: Gabryś-Barker 2009)

Study	Type of language tasks used	Research focus	Year
1	Cloze task (in L2 English) Translation from L1 (Polish) into L2 (English)	— retrieval strategies of restricted collocations — metaphoric interpretations — psychotypology — learner profiles	1993
2	Translation from L2 (English) into L3 (Italian) (English/Italian)	— language transfer at the level of lexis and syntax — transfer of training — language competence in language transfer	1998
3	Translation from L1 (Polish/Portuguese) into L2 (English) Translation from L2 (English) into L3 (German)	— lexical search processes — acquisition vs learning — transfer of training	1999
4	Translation (as above)	— the influence of the language of input (L1 vs L2) on the TL output — implicit vs explicit processing — lexical transfer	2005
5	Translation (as above)	— inner/private speech — activation of individual languages — levels of metalinguistic awareness	2005

The transcripts of the verbalizations in the form of TAPs demonstrate the ways multilingual language users access their mental lexicon(s) and what processing mechanisms can be observed. The data stressing the importance of individual factors in multilingual processing, such as for example learning history or transfer of training, for example are examined in Studies 1, 2 and 3 (Table 5).

In Study 4, different approaches to the language task are presented, depending on the language of input (L1 or L2) the subjects were exposed to in performing a translation task. The data exemplify different types of retrieval strategies used by the subjects in their verbalizations. Incorrect lexical solutions are observed, classified and discussed. Study 5, on the other hand, focuses mainly on the language of thought and language activation/inhibition in different types of comments (e.g. cognitive vs affective ones) produced by the subjects when performing thinking aloud during a multi-language translation tasks (see Table 5).

Having analysed the results of the above studies, it became apparent that the phenomenon of multilinguality, and in this case multilingual lexical competence, is very much determined by the language awareness of the subjects in general, and by lexical awareness in particular. Additional survey studies were carried out to determine the subjects' perceptions of the phenomenon and their ability to use their linguistic knowledge in the practice of multilingual lexical development. It was assumed that this form of data collection (questionnaires) would adequately and explicitly show the subjects' language awareness. The data demonstrated that their awareness was at a surprisingly low level.

As I say in the concluding chapter of my book (Gabryś-Barker 2005), these studies investigate the enormous complexity of multilinguality, and specifically lexical multilinguality — not only how words and phrases are stored but also how they are accessed and retrieved from memory. The observations on the processes involved in the tasks of lexical retrieval (search) were recorded and discussed on the basis of thinking aloud protocols (simultaneous introspection) and retrospective comments by the subjects. They demonstrated that lexical search processes are not only lexical in nature; they also involve syntactic and phonological processing as important elements in lexical competence. TAP data also allowed me to formulate possible explanations for types of relations between languages that were observable in language processing recorded and retrieved from ST memory. They are:

- an L3 acquisition mechanism is different from that of L1 — learning L3 involves a similar mechanism to be activated as is the case with L2 (based on learning and not acquisition),
- activation of the mechanisms leads to activation of the language itself,

- suppression of L1 as *non-foreign* and recourse to *another foreign language* (for example, L2) as a learning/processing strategy.

3.3. Describing learner profiles (sample data)

The following examples come from the study conducted in 1995 (G a b r y ś 1995 and quoted in G a b r y ś - B a r k e r 2009), which aimed to demonstrate the type of data accessible by means of simultaneous introspection. The following table presents both excerpts of a selected TAP and possible object of analysis (Table 6).

This data recovered in TAPs 1 to 4 can allow both the learner and the teacher to establish a learner's profile in terms of his/her language competence (broadly understood) in:
- attendance to input, holistic or fragmentary and erratic;
- cross-linguistic consultations between the languages the learner is in possession of (L1, L2, L3);
- memory and cognitive strategies of recall used in creating the translation of the text;
- perceptual styles activated in the task;
- sources of language interference and typology of errors, positive and negative transfer;
- strong and weak points of a learner, both on the level of declarative and procedural knowledge;
- degree of internalization of rules and their (in)completeness in individual languages activated;
- automatization of recall as evidence of internalization of rules;
- transfer of learning, that is, the use of strategies used in every consecutive language learnt and taking advantage of it;
- transfer of training, in other words, the influence of teaching methods on language learning and performance.

As to the affective level, on the basis of verbalized comments, the learner's profile can be described in terms of:
- his/her attitude to the language task performed,
- motivation to perform,
- autonomy in language production, in other words self-reliance in using strategies based on the learner's own knowledge, no request for assistance made.

Table 6. Various TAPs with exemplary points to analyse

TAP 1		
Task	Sample data	Object of analysis
Translation of the text from L2 (English) into L3 (Italian), L1 — Polish	*- ah - I'll read it first - przeczytam (czyta)* When Albert ... I've won the big prize *- kurcze nie wiem - hm hm - czasy - (czyta)* When Albert entered the office *- (pisze)* Quando Alberto *- enter - entrare - entered - entre - o - r - a - entrato in - past definite - czyli simple past - czyli - passato prosimo - entered - (pisze)* entrare *-* entrato in *- l'oficio - l'uficio - nel'oficio - (pisze)* nel'oficio *- double f - (powtarza)* officio-officio-officio ...	— attendance to input: holistic vs fragmentary — the use of metalanguage and consciously acquired rules — automatic recall of nominal phrases — importance of accuracy in grammar and spelling
TAP 2		
Translation of the text from L2 (English) into L3 (Italian)	*(reads)* Nobody was working *- to będzie czas ciągły - (powtarza)* nobody was working *- czas ciągly czyli imperfetto czyli a - work - lavoro - (pisze)* nessun *- tylko czy to będzie tak jak po angielsku - was working - working - liczba pojedyncza - nikt nie pracował - (pisze)* nessun *- nie wiem czy to bedzie podwójna negation - bo jak w polskim - (pisze)* nessun lavorava *- napiszę - a* tutti impiegati.	— examples of transfer between L1, L2 and L3 — focus on grammatical accuracy — verbalisation exclusively in L1
TAP 3		
Translation of the text from L2 (English) into L3 (Italian)	*(czyta)* ... were still talking about the lottery *- and - znowu będzie imperfetto - to zresztą podają poniżej - parlare di - parlavano - (pisze)* impiegati parlavano *- vamo - di lottery - lotterija - to bedzie po hiszpańsku - no to ja muszę sprawdzić w słowniku -* loteria *- parlavano di lotteria - czyli będzie (pisze)* della lotteria *- della lotteria.*	— grammar focus (again) — use of grammatical rules — references to Spanish (L4): perceived language distance
TAP 4		
Translation of the text from L2 (English) into L3 (Italian)	*(czyta)* Jules *- jak to się będzie wymawiało - po włosku -* Jules *- nie - (czyta)* his best friend *- I - il - migliore - miglior - (pisze)* miglior amico *- il suo miglior amico - a jeszcze zapomniałam - (czyta)* impiegati parlavano *- still still - to jest - nie - ancora - nie pamietam - musze sprawdzić - still ancora - nie wiem czemu mi sie skojarzyło z już - yet - still -* impiegati ancora parlavano *- nie wiem czy będzie przed parlavano ...*	— focus on word order (L2/L3 language transfer) — need of assistance (dictionary) in lexical search

As can be seen from this very limited data presentation (short excerpts of TAPs), the array of learner features exemplified by him/her

in verbalizations is quite extensive. Any study undertaken would need clearly specified research questions and hence, some focus on the selected fragments of TAP data.

4. Methodological recommendation

The success of verbalization processes, and as a consequence the type and richness of data retrieved, is very much determined by the initial training of the subjects. It entails exposure to introspective methods and thinking aloud materials in an overt manner preferably with discussion and comments. In many cases warm-up exercises are used to attune the subjects to the verbalizations or to give them some initial practice. Such exercises allow the researcher to intervene to help the subjects in their verbalizations by stopping them from lapsing into silence. Some training also constitutes a form of monitoring the subjects before they perform verbalizations proper on their own, without the intervention of a researcher. However, the extent to which pre-training is given should depend on the informants, their personal characteristics and on the nature of the task to be performed.

5. Discussion and tasks

The following are the questions to be considered as recapitulation and discussion of the method presented. The tasks included in his section of the chapter are to give the reader some practice in using simultaneous introspection as a research tool in a FL teaching as well as learning.

Q.1. Say what you think the advantages of introspective methods in developing reflective teaching and learning are?

Q.2. What are the drawbacks of simultaneous introspection and how can they be minimized in actual research?

Q.3. What are the possible areas of research in foreign language teaching that simultaneous introspection can contribute to?

Task 1. Go back to the fragments of a TAP (TAPs 1—4) presented in the chapter and on the basis of the transcripts comment on the learner profile.

Task 2. Read an excerpt from the protocol below and think of possible objectives of the project in which the transcript will constitute a source of data.

L2 input task: translation of a short newspaper article from English (L2) into German (L3), L1— Portuguese

(subject 3)
(reads) at the inauguration of Jorge Teixeira as the new president - hm - of the Dão region Vinters Commission - ok - Gestern wahrend - hm - não sei - die Inauguration - I don't know - Inauguration - von Jorge Teixeira als - als- dativ - no accusativ - als(..) als(..) what - so, als neuen - não - eh- Präsident - hm - der komition - how should I know - der komition des Vitners Dão Gegend (laughter) - hm - CVRD - komma - in Viseu der - hm - der what- what's he called - Stäats hm Sekretar für Landwirtschaft und Essen - essen - ok - und essen - Cardodo Leal (.x) so where was I - Landwirtschaft und Essen cardoso Leal - call attention (twice) must nach (laughter) hm - I don't know - hm - called attention - Attention - nein - pass auf - nein - (.x) - pointed out - called attention (laughter) say it the other way - hm - hat gesagt das es war - ne es ist (.) sehr wichtig - hm - neu - como se escreve - how do you write neu - neu markets - I don't know - neue - neue - kaufen

Platz - Platze - Kaufen platze - zu bauen oder so was (.3) so (reads) Jorge Teixeira who is well known in - der - den - hm- I don't know - der - well known - is important - hm - recognized - hm - den - berühm in PS ist (reads) has promised to continue the work (.) promised - God - promise - verspr spre - versprachen - ok - Jorge Teixeira hat versprechen - ne - hat - has promised to continue the work started by his prede - hat versporchen - das ein - die werk - main dein sein sein - predecessor whatever - I don't know how to say that - die werk sein - hm - weiter fuhren - hm- hat versprochen - das die werk sein - etwas - wieter führen - wurde (.) werde wurde werden nein - dass es die werk sein predecessor wieterführen - werd wird - no it is past - has promised to continue - present perfect - to continue the work started by his predecessor - hm (writes) die werk sein predecessor weiter fuhren - let's say wird - oh I forgot something here - hat versprichen - dass es die werk sein (.3) predecesor (.) Alvaro de Figueiredo weiter führen wird mit (laughter) aggressive marketing - right - I don't know - it is probably marketing in German as well - mit aggressive - stark - mit stark marketing (twice) - it's international - isn't it - hom predecessor (laughter) Jorge Teixeira again - als Präsident - der den die - how should I know - Komition die probably - als Präsident (.1) CVRD (reads) will now be one of three representatives (.1) hm (.1) wird jetz ein der - ein oder - ein der (.10) where was I - I lost myself - where am I - will now be one of the three representatives - ein der drei - drei drei - representatives don't know - für die regierung - regierung - I don't think it is Regierung - whatever - God - für die regierung - für die cooperatives - und privat Sektoren (.1) hm producers - I don't know Produktoren - so für die cooperatives and private (.4) oh - für die - hm - und privat Sektoren der - I don't know - der Dão Wein Produktores - (reads) the inauguration ceremony - ceremony - ceremony - I don't know - Zeremon (laughter) the inauguration hm (.1) ersten Tag - I don't know (.1) really really really don't know - let's say inauguration ceremony of the new president of the CVRD (writes) the inauguration ceremony für den neuen Präsident der CVRD (source: Gabryś-Barker 2005: 214).

Task 3. Explore how simultaneous introspection works for you. Think what the objective could be (e.g. language transfer, strategies used, etc.). Select an appropriate language task (e.g. a short translation or a cloze exercise), perform it and simultaneously record your thoughts. Make a TAP and reflect upon your performance.

Additional reading

Since this chapter is only an outline of the basics of simultaneous introspection (SI) as a research method, it is worth looking more extensively at both the (contested) theoretical assumptions underlying its principles and its practical use in teaching and learning foreign languages. The most detailed and in-depth analysis of how SI works can be found in K. Ericsson and M. Simon (1984) *Protocol Analysis: Verbal Reports as Data*. One of the first and still most comprehensive discussion of SI as a research method used in SLA research is presented in K. Faerch and G. Kasper (1987) *Introspection in Second Language Research*. D. Nunan (1992) *Research Methods in Second Language Learning* also gives valuable examples of the use of the method in the context of L2 learning. As mentioned earlier, the studies quoted in this chapter are fully described as projects in D. Gabryś-Barker (2005) *Aspects of Multilingual Storage, Processing and Retrieval*.

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Danuta Gabryś-Barker

Introspekcja jako metoda badawcza w nauczaniu i uczeniu się języka obcego

Streszczenie

Rozdział niniejszy prezentuje metody introspekcyjne oraz możliwości zastosowania ich w prowadzonych przez nauczyciela zarówno w klasie, jak i poza nią badaniach nad uczeniem się/przyswajaniem języka obcego. Główny wątek stanowi tu opis metody introspekcji symultanicznej, która jest stosunkowo mało znana, pozwala jednak na bliski wgląd w procesy myślowe uczniów, ich strategie zapamiętywania i uczenia się języka obcego. Autorka dokonała przeglądu najbardziej znaczących (spośród przeprowadzonych w ostatnich latach) badań nad przyswajaniem/uczeniem się języka z zastosowaniem omawianej metody. Introspekcja symultaniczna, będąca metodą niezbyt rozpowszechnioną, wymaga treningu tak ze strony prowadzących badania, jak i tym badaniom poddających się osób. W rozdziale przedstawione zostały przykłady badań, typu danych oraz sposobu ich analizy. Rozdział uzupełnia zestaw pytań badawczych i zadań dla nauczyciela (bądź studenta) z zastosowaniem metody introspekcji symultanicznej.

Danuta Gabryś-Barker

Die Introspektion als eine Forschungsmethode im Fremdsprachenunterricht und Fremdsprachenerlernung

Zusammenfassung

Das vorliegende Kapitel stellt introspektive Methoden und deren Anwendung in den von dem Lehrer sowohl in der Schulklasse, wie auch außerhalb der Schule durchgeführten Forschungen über Fremdsprachenunterricht und Fremdsprachenerlernung dar. Zum Hauptfaden wird hier die simultane Introspektion, eine wenig bekannte Methode, die jedoch einen Einblick in Denkprozesse der Schüler und in die von ihnen angewandten Strategien, sich eine Fremdsprache einzuprägen und zu erlernen, möglich macht. Die Verfasserin führt uns in bedeutsamste, in den letzten Jahren angewandte Methoden der Forschungen ein. Die simultane Introspektion bedarf sowohl von dem Forscher als auch von Versuchspersonen eines entsprechenden Trainings. In dem Kapitel finden wir auch Musterforschungen, Datentypen und Datenanalysemethoden. Alles wird mit der bei simultaner Introspektion ausgenutzten Forschungsfragenkombination und mit den Aufgaben für den Lehrer (oder den Studenten) ergänzt.