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Instructional design guidelines to accommodate a diversity of students' learning styles

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Summary

This project explored the issue how the concept of learning style can be considered in instruction. Among vast numbers of learning styles theories there are three which are considered as most influential. These are Kolb's Experiential Learning Theory, Myers-Briggs Type Indicator and Apter's Reversal Theory. Based on these learning styles theories the instructional design guidelines were developed. In order to show how all of them can be considered in instruction, the instructional design guidelines were implemented in the 4C/ID model. The key idea of these guidelines is to provide students with different learning experience when their learning style is matched and mismatched that they become able to fulfil practical tasks regarding learning material. In the second part of the project the effectiveness of the suggested guidelines was investigated. Considering the limitations of the study which was based only on two cases, it can be concluded that suggested guidelines implemented in 4C/ID model are effective.

Keywords: learning style; cognitive style; instructional guidelines; instructional model; instructional design.

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1. Introduction

A lot of people are labelled as untalented and/or not motivated to learn by teachers. However, do teachers provide equally valuable and suitable instruction for everyone? Do they consider individual differences of learners? Do they have instruments for it? The answer to all these questions is “no”. In order to improve the situation, we have to find out what the essential characteristics are that makes the learning of different people different and how we can take into account the diversity of them. It seems that the concept of learning style includes all necessary ingredients to understand how different people learn.

1.1. *Relevance of the research*

Most of the researchers who attempt to review existing models reported that this field of studies is characterized by high level of ambiguity and debate (e.g. Cassidy, 2004; Coffield, Moseley, Hall & Ecclestone, 2004a, 2004b; De Bello, 1990). Different theorists developed very different models. They considered different learners’ characteristics and indicated the relation between them differently. Hence, their suggestions for teaching practice are very diverse. Then the logical question is which model to choose as basic to consider learning styles in instruction. There is no answer on this question yet and that makes it very difficult to consider students’ diversity in instruction. Thus, the project, seeking the answer on questions, which learner’s characteristics should be considered in instruction and how, are highly relevant for improvement of teaching practice.

1.2. *Purpose of the research*

The current research project is aimed to contribute in the field of practical application of learning style concept. Thus, there are two research questions (with sub-questions) to answer:

- 1) *How can learning styles be considered in instruction?*
 - a) What learning styles exist among the human population?
 - b) What are the instructional design guidelines for a variety of learning styles for adult learners (+16) which will make the learning effective, efficient and with pleasure? Effective means achieving the learning result and efficient – achieving it in an optimal way without wasting resources of any nature: time, physical energy, mental efforts and money.
 - c) How can different approaches to instructional design for different learning styles be implemented in instruction for a miscellaneous group (where there are people with a variety of learning styles)?
- 2) *How effective is the instruction designed according to the instructional guidelines?*
 - a) Can the workshops be considered as conducted according to the implemented in 4C/ID model instructional guidelines?
 - b) How is the instruction perceived by students?
 - c) Have all students learnt effectively from the instruction?

The purpose of the research project is to provide practitioners with systematic instructional design guidelines how a diversity of learning styles in a miscellaneous group can be considered from the theoretical point of view. The second goal is to study these guidelines in two case studies in order to get some insights, which practice usually can tell to theory, in order to improve the model.

1.3. Research approach

To answer the first research question, the literature regarding learning styles is systematically studied and the instructional design guidelines are conceptually derived from the description and pedagogical implications of the most influential learning styles models.

To answer the second research question, two cases are studied how the instructional design guidelines work in a real classroom of teaching foreign language groups. The sub-question 2c) is answered by conducting a pre-test and a post-test. To answer other research sub-questions (2a) – 2b)) there will be several sources of data. Creswell (2009) mentioned the importance of multiple sources of data for a qualitative research. Observations, questionnaires and video recordings are used to collect data for the first case. In addition, it is supported by standard measurement of learning style: The Kolb Learning Style Inventory. For the second case, observations, questionnaires and Kolb's Learning Style Inventory are used to collect data. The results of this research provide some insights on how instructional design guidelines work in real classroom: what is good and is ready to use and what is needed to improve and how the improvements can be done.

1.4. Overview of the thesis

The project is based on the theory which is described in the chapter two. The following is presented:

- Systematic review of learning styles field including the description of the most influential models: Kolb's Experiential Learning Theory, Myers-Briggs Type Indicator and Apter's Reversal Theory of motivational states (part 2.1.);
- General guidelines to consider a variety of learning styles described in the models are presented in section 2.1.7.
- Instructional design guidelines implemented in the instructional mode are presented in part 2.2.

The design according to the developed instructional guidelines for a language group is presented in the third chapter.

The fourth chapter is devoted to the methodological issues. Research design, context, participants, methods of collection data, its analysis and procedures are systematically described.

The first case and the second cases are described in the fifth chapter which is organized around elements of instructional design guidelines and data is presented from all sources and discussed.

Conclusions, suggestions for further application and questions for future research are presented in the sixth chapter.

2. Theoretical framework

In order to accommodate a diversity of students' learning styles in instruction there is a need to bring together the concept of learning style and instructional design model. The results of it are instructional design guidelines where students' learning styles are considered. The field of learning styles models and the most influential models are presented in paragraph 2.1, as well as general guidelines for instruction to accommodate learning styles. Instructional design guidelines implemented into the instructional model, which is used as a base, are presented in paragraph 2.2.

2.1. Learning styles models

A wide range of learning styles models have been developed by different researchers. For example, in their recent review Coffield et al. (2004a, 2004b) stated that during their project of reviewing learning styles models they came across seventy-one models.

2.1.1. Concerns of the field

Within the field of learning styles several debatable issues are identified by different researchers (Cassidy, 2004; Curry, 1983; 1990; Rayner & Riding, 1997; Riding & Cheema, 1991; Coffield et al., 2004a, 2004b). These issues and how they are dealt in this research are described below.

Firstly, there are a lot of different definitions of the term 'learning style'; every theorist seems to have defined its own term. Since this research is going to deal with the practical implication of learning style concept, a general definition proposed by De Bello (1990) will be adopted, "Learning style is the way people absorb, process, and retain information".

The second issue is that of how stable learning style is over the time. However, for teaching practices the issue of stability of learning style is not important because it cannot be changed in a minute or one hour, or even weeks or months. Teachers need to know what kind of learning style a student has at the moment of the instruction and how to deal with it. Thus, it is essential to know the variety of styles and how to deal with them in the context of instruction.

The third concern of the field is 'weaknesses in reliability and validity of measurement' (Curry, 1990, p. 50). Coffield et al. (2004a) describe minimum psychometric standards for any instrument: internal consistency, test-retest reliability and construct and predictive validity. They found only one instrument of Allinson and Hayes which meets all four criteria. Since there is a problem with psychometric characteristics of the instruments to measure learning styles, it becomes very difficult to use them in practice to assess students' learning styles. Hence, there should be a way to consider learning style in the instruction without direct measuring it. This approach will be used in this paper.

The fourth problem of learning styles models is identifying the most style relevant characteristics in learners, which are forming a particular learning style, and instructional settings which will facilitate each learning style (Rayner & Riding, 1997; Curry, 1990; Coffield et al., 2004a, 2004b). Partially, it is a problem of disagreement between theorists about the set of characteristics that learning style concept consists of. The second part of the problem arises from a lack of research on the instructional implication of learning styles. Thus, one of the main goals of this project is to contribute to this problem: understand what characteristics learning style consists of, what kind of instruction is needed

to fit the needs of a particular learning style; develop instructional design guidelines that a variety of learning needs of different students can simultaneously be met in a miscellaneous group and study the effectiveness of this guidelines.

2.1.2. Criteria to select the most influential models

The following criteria for selecting and rejecting particular models to base the instructional design guidelines on are described below.

The criteria for selecting learning styles models:

1. The theory has proved to be productive. This means that it has led to further researches and/ or usage of practitioners. This criterion helps to select theories which are widely accepted by researchers and practitioners.
2. The learning styles model is grounded on an explicit theory and empirical researches. This criterion is essential because the information regarding learning styles of students which the instructional design guidelines will be based on should be from a reliable source.
3. The theory should not emphasize differences in abilities (intellectual or others) in order to avoid labelling and categorising.

The criterion for the rejecting of models from the description is that conceptually the model is very close to another one that is already in the selection.

Based on these criteria three learning styles model are chosen:

- Kolb' Experiential Learning Theory (ELT)
- Myers-Briggs Type Indicator (MBTI)
- Apter's Reversal Theory of motivational states

2.1.3. Kolb's Experiential Learning Theory

Description of the model

Experiential Learning Theory (ELT) of Kolb (1984) originated from the works of Dewey, Lewin and Piaget. Based on these authors, Kolb proposed six essential characteristics of experiential learning.

1. Learning is conceived as a process, not as an outcome.
2. Learning is a continuous process of deriving from one's experience and testing it out.
3. The process of learning requires resolving a conflict between two dialectically opposed modes (in one dimension) of adaptation to the world. The first dimension consists of two opposites: concrete experience (CE) and abstract conceptualization (AC); the second one – reflective observation (RO) and active experimentation (AE). The learner constantly chooses between these learning abilities in a specific learning situation and over time he/she develops a preferred way to resolve the conflicts among the dialectically opposed modes. One to be an effective learner needs to have four different abilities.

4. Learning is a holistic process of human adaptation to the social and physical environment.
5. Learning involves transaction between the learner and the environment.
6. Learning is the process of creating knowledge which occurs during transactions between one's personal knowledge and social knowledge.

Summarizing these six characteristics Kolb (1984) suggested the following definition of learning: 'learning is the process whereby knowledge is created through the transformation of experience' (pp. 38).

According to Kolb (1984), 'knowledge results from the combination of grasping experience and transforming it' (pp. 41). The ELT suggests that four abilities are involved in the process of learning and two pairs consists of polar opposites. While grasping experience, some people perceive information via **concrete experience (CE)**, tangible things. Others tend to take information via **abstract conceptualization (AC)** – by analyzing, thinking about or systematizing the information. Similarly, transformation or processing the experience of some people tends to carefully observe others and reflect on observation results – **reflective observation (RO)**, others prefer to do things – **active experimentation (AE)**. Considering that there are two dimensions: grasping and transformation and each consists of two dialectically opposed forms, four elementary forms of knowledge construction exist which are involved in a four-stage learning cycle (see Figure 2.1.).

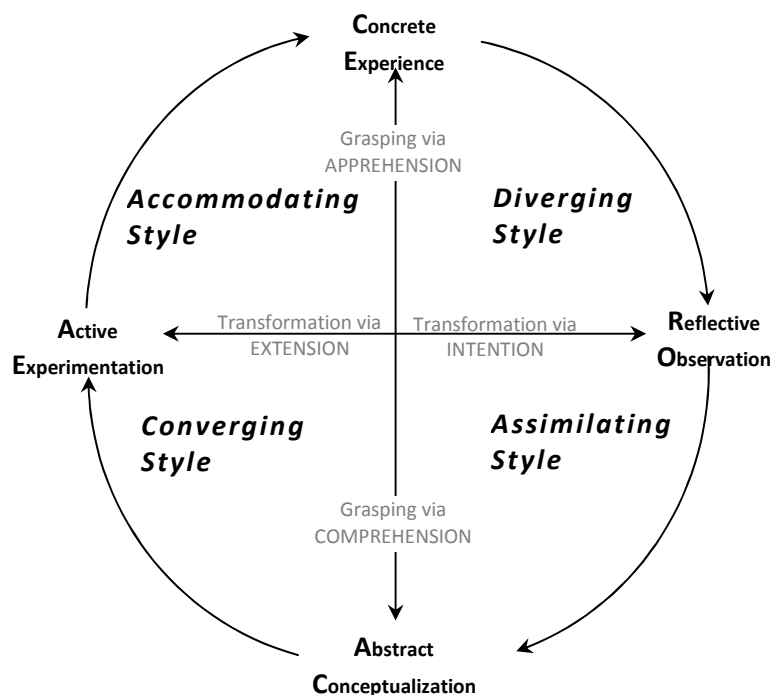


Figure 2.1. Four-stage learning cycle of Kolb (1984) and four learning styles.

Based on the four-stage learning cycle Kolb derived four learning styles as a preferred way of adaptation to the world. Having a certain learning style means that some of the learning abilities are emphasized over others. According to Kolb (1984) and Kolb, Boyatzis & Mainemelis (2001), these four basic learning styles are:

Diverging Style (concrete experience (CE) & reflective observation (RO)). People with this learning style are able to see concrete situations from many points of view. They are good in situations of idea-generation, and they have broad cultural interests and like to gather information. According to research, people with diverging learning style are imaginative, emotional and interested in other people. In formal learning situations, such people prefer group work, listening with an open mind and receiving personalized feedback.

Assimilating Style (reflective observation (RO) & abstract conceptualization (AC)). People with this learning style easily understand a wide range of information and organize it in a logical and compact form. These people are more concerned with ideas and abstract concepts than with people. For these people it is more important that ideas are logically sound than practical. In formal learning situations people with the assimilating learning style prefer reading, lectures, analyzing models and having an opportunity to think through the material.

Converging Style (abstract conceptualization (AC) & active experimentation (AE)). People with this learning style are best at applying ideas and theories in practice. They easily get problems solved and make decisions. These people prefer to solve technical problems and tasks rather than with social issues. In formal learning situations people with the converging style prefer to make experiments in a laboratory, simulations and apply theory in practical assignments.

Accommodating Style (active experimentation (AE) & concrete experience (CE)). People with this learning style are doers, prefer to carry out plans and involve themselves into new experiences. This type of people usually acts fast and solves problems in trial-and-error manner. In formal learning situations people with the accommodating learning style prefer group work and like to set goals, participate in the field work and testing different approaches to complete the project

The second-order learning styles are so-called northerner, easterner, southerner and westerner (Abbey, Hunt & Weiser, 1985; in Kolb et al., 2001) which were named so because of their spatial location on the learning cycle of Kolb. The **northerner** learning style integrates RO, AE dimensions and specializes in CE, thus it combines the characteristics of two styles: diverging and accommodating. Then the **easterner** style specializes in RO and flexible in CE, AC modes. Consequently, people with the **southerner** learning style specialize in AC and flexible in RO, AE dimensions. Finally, **westerners** integrate the CE, AC learning modes and specialize in AE (Hunt, 1987; in Kolb et al., 2001).

The third-order learning styles are **balanced styles** when people are able to use the abilities of the four modes depending on the situation. Kolb et al. (2001) describes three types of balanced styles: the one when CE-AC dimension is more emphasized; the second one is when RO-AE dimension is stronger and the third style when all directions are equally emphasized.

To measure learning styles Kolb has developed the Learning Style Inventory (LSI), the first version of which appeared in 1976; the second – in 1985 and the third – in 1999. The LSI (See Appendix 1) is based on forced-choice questions; and consists of twelve sentences and four possible endings for each sentence. The four endings refer to four learning styles and individuals rank them according to how they learn (e.g. ‘4=most like you’; ‘1=least like you’). For example, the sentence ‘*When I learn...*’ has four possible endings: ‘*...I am happy*’, ‘*...I am careful*’, ‘*...I am fast*’, ‘*...I am logical*’ which have to be ranked. The four scores measures the preferences of someone for the four modes: AC, CE, AE and RO and also there are two dimensional scores which indicate the relative preference for one of two opposites for each dimension.

Regarding the issue of psychometric characteristics of Kolb's LSI, the first two versions were criticized for its weaknesses (Coffield et al., 2004a), but there is evidence that reliability of the third version (which is used) is significantly improved (Veres, Sims & Locklear, 1991: in Coffield et al., 2004a). Kolb claims that construct validity is sufficient in the third version, but there is no independent research on this issue. Predictive validity of LSI is low, but it was not developed as a predictive test.

Implication for instruction

There were a lot of studies aimed to provide a list of activities for each learning style and/or dimension (AC, CE, AE and RO) of Kolb's model. The first were Fry and Kolb in later 70s (Fry, 1978; Kolb, 1976: in Kolb, 1984). Jonassen & Grabowski (1993) systematically summarized previous research on Kolb's ELT and supplemented them and as a result provided activities and strategies which capitalize and compensate on Kolb's learning styles. McCarthy (1990) developed the 4MAT system based on Kolb's learning cycle. This system prescribes to have eight types of activities in instruction which are related to four learning styles. Svinicki & Dixon (1987) provided four lists of activities for four dimensions: AC, CE, AE and RO and organized them in lines from the most passive role of students to the most active.

Based on the contribution of all above mentioned studies the preferred activities for each learning style are identified in Table 2.1 which will be used further for the integration into instructional model.

Table 2.1. Preferred activities for Kolb's learning styles.

Divergers	<i>Creating an experience and reflecting on it.</i> Possible activities: <table><tr><td> <i>Experience</i> – direct experience activities – recall of experience – laboratory observations – simulations – providing examples – generating examples </td><td>+</td><td> <i>Reflection</i> – logs – journals – discussions – individual thinking on thought questions </td></tr></table>	<i>Experience</i> – direct experience activities – recall of experience – laboratory observations – simulations – providing examples – generating examples	+	<i>Reflection</i> – logs – journals – discussions – individual thinking on thought questions
<i>Experience</i> – direct experience activities – recall of experience – laboratory observations – simulations – providing examples – generating examples	+	<i>Reflection</i> – logs – journals – discussions – individual thinking on thought questions		
Assimilators	<i>Reflection on what was observed (or read, or presented) and analyzing the information and developing conceptual models.</i> Possible activities: <table><tr><td> <i>Reflection</i> – logs – journals – discussions – individual thinking on thought questions </td><td>+</td><td> <i>Analyzing</i> – organisation of the information gathered during the reflection process – analyzing the information – developing conceptual models </td></tr></table>	<i>Reflection</i> – logs – journals – discussions – individual thinking on thought questions	+	<i>Analyzing</i> – organisation of the information gathered during the reflection process – analyzing the information – developing conceptual models
<i>Reflection</i> – logs – journals – discussions – individual thinking on thought questions	+	<i>Analyzing</i> – organisation of the information gathered during the reflection process – analyzing the information – developing conceptual models		

	– testing theories and ideas – refining theories
Convergers	<i>Practicing concepts or theories and adding practical recommendations.</i> Possible activities: – practicing concepts – using theories in practical situations (case studies or simulations) – experimenting with new ideas
Accommodators	<i>Analyzing application of the theory and applying it in real-life situation with complex interrelations of variables.</i> Possible activities: – applying the theory in professional situations – applying the theory in the situations where objectives vary – applying the theory where the personal involvement is needed – applying the theory in the situations where leading or influencing others is needed

2.1.4. The Myers-Briggs Type Indicator

Description of the model

The Myers-Briggs Type Indicator (MBTI) was developed by mother and daughter: Katherine Cook Briggs and Isabel Briggs Myers and is based on C.G. Jung's theory of personality types. Based on Jung's typology, Myers identified the following dichotomies (Myers & McCaulley, 1990):

- The attitudes Extraversion (**E**) – Introversion (**I**).
- The preference of Judging (**J**) – Perceiving (**P**), which was implied, but not described by Jung.
- The perceiving function Sensing (**S**) – Intuition (**N**).
- The judging function Thinking (**T**) – Feeling (**F**).

Extraversion – Introversion dimension indicates the direction of energy flow: outward-turning or inward-turning. Extraversion is described as the attitude in which energy is drawn out to the environment. The following characteristics are expected from extraverts: ease of communication, sociability, impulsivity, the willing to interact with people, orientation towards action. Introversion is the attitude when energy is taken from the environment and drawn to the world of ideas. The following characteristics are associated with introversion: enjoyment of privacy, reflective thinking, contemplative detachment, clarifying ideas and concepts, relying on clear concepts rather than on transitory external events.

Judging – Perceiving dimension refers to the orientation to the outer world. It indicates whether person's extraverted behaviours reflect the perceptive function (S or N) or the judging function (N or T). The J-P scale helps to identify the dominant and auxiliary functions. However, in any situations it is important to function in perceiving mode (to see everything, be curious and interested) and then in

judging mode (when someone has seen enough, he is ready to judge). The following characteristics are associated with perceiving: flexibility, complexity, autonomy, impulsivity, rebellious, seeking for changes, etc. The characteristics associated with judging include rule-bound, self-control, organized, etc.

The four functions: sensing (S), intuition (N), thinking (T) and feeling (F), of mental processes build blocks of type.

Sensing – Intuition dimension refers to two different kinds of perceiving. Sensing refers to perception of the senses. Somebody with a sensing type is realistic, has good memory for details, practical common sense, ability for observations of the present moment, economic interests, conservative, etc. Intuitive refers to perception of intangible. A person with intuition type of perception sees future possibilities, meanings symbols, abstractions, associations. The following characteristics are typical: preference for complexity, individualistic, artistic, creative, theoretical, resourceful, etc.

Thinking – Feeling dimension refers to two different kinds of judging. Thinking judging is the process of reaching logical impersonal conclusions. The following characteristics are expected from a person with thinking preference: objectivity, critical judgement, scepticism, analytical skills. Feeling is the process subjective judging when conclusions are reached by weighing values and the merits of things, ideas, people, etc. Such person is characterized by appreciation, empathy, understanding of other people and concern for them, desire for harmony, etc.

The interrelation between four dichotomies leads to sixteen types shown in the Table 2.2.

Table 2.2. MBTI types and dominant, auxiliary, tertiary and inferior functions for each type.

(Source: Myers & McCauley, 1990).

ISTJ		ISFJ		INFJ		INTJ	
Dominant	S (I)	Dominant	S (I)	Dominant	N (I)	Dominant	N (I)
Auxiliary	T (E)	Auxiliary	F (E)	Auxiliary	F (E)	Auxiliary	T (E)
Tertiary	F (E)	Tertiary	T (E)	Tertiary	T (E)	Tertiary	F (E)
Inferior	N (E)	Inferior	N (E)	Inferior	S (E)	Inferior	S (E)
ISTP		ISFP		INFP		INTP	
Dominant	T (I)	Dominant	F (I)	Dominant	F (I)	Dominant	T (I)
Auxiliary	S (E)	Auxiliary	S (E)	Auxiliary	N (E)	Auxiliary	N (E)
Tertiary	N (E)	Tertiary	N (E)	Tertiary	S (E)	Tertiary	S (E)
Inferior	F (E)	Inferior	T (E)	Inferior	T (E)	Inferior	F (E)
ESTP		ESFP		ENFP		ENTP	
Dominant	S (E)	Dominant	S (E)	Dominant	N (E)	Dominant	N (E)
Auxiliary	T (I)	Auxiliary	F (I)	Auxiliary	F (I)	Auxiliary	T (I)
Tertiary	F (I)	Tertiary	T (I)	Tertiary	T (I)	Tertiary	F (I)
Inferior	N (I)	Inferior	N (I)	Inferior	S (I)	Inferior	S (I)
ESTJ		ESFJ		ENFJ		ENTJ	
Dominant	T (E)	Dominant	F (E)	Dominant	F (E)	Dominant	T (E)
Auxiliary	S (I)	Auxiliary	S (I)	Auxiliary	N (I)	Auxiliary	N (I)
Tertiary	N (I)	Tertiary	N (I)	Tertiary	S (I)	Tertiary	S (I)
Inferior	F (I)	Inferior	T (I)	Inferior	T (I)	Inferior	F (I)

Myers, as well as Jung, believed that nature determines the basis of the type and the environment such as family, culture, society, influences the development of the type by facilitating it or disconfirming.

Everyone uses all preferences, but not equally. One of the functions: sensing, intuition, thinking or feeling is dominant and it is balanced with the auxiliary function which is from another dichotomy (e.g. if a dominant functions is perceiving (sensing or intuition) then the auxiliary is from judging dimension (thinking or feeling)). They appear in different attitudes – if one provides adaption to the inner world (I), then the second one – to the outer world (E) (See Table 2.2.). Thus, everyone is able to deal with the environment and with the inside world and also take in information and make decisions. There are also tertiary and inferior functions which are less developed and are the powerful source for growth.

There are several forms of MBTI instrument: G (126 items), M (93 items), F (166 items), K (131 items), J (290 items) (McCaulley, 2000). Forms F, G, J, K include research questions which are not scored for type, but are in the test for studying individual differences within the type. All items in all forms are in forced-choice format within each dichotomy (E or I, S or N, T or F, P or J). The test produces eight numerical scores which are interpreted as four pairs. The score which is larger in each pair indicates the preferred pole. Finally, someone is classified as one of sixteen possible types shown in the Table 2.2. Then four continuous scores should be identified by making calculations from two numerical scores for each dimension.

Implication for instruction

Lawrence (1993) summarised in his book available research on activities which are preferable for groups of MBTI and for different dimensions (E – I; S – N, etc.). Activities, which are suggested for the types by quadrants (IS, IN, etc.) and types by mental processing (ST, SF, etc.), correspond with those for Kolb's learning styles. However, considering the dimensions of the MBTI separately can contribute in the development of the instructional design guidelines where a diversity of learning styles taken into account (See Table 2.3.).

Table 2.3. Instructional activities and/or characteristics to consider the MBTI dimensions.

Extraversion	Introversion
– Discussion	– Working individually
– Working with a group	
Sensing	Intuition
– Information is provided in small pieces and their sequence is ordered	– Information is provided as a whole
Thinking	Feeling
– Logical organisation of the course	– Warm and respectful climate in the group
Judging	Perceiving
– Practical elements	– Playful elements

2.1.5. Apter's Reversal Theory of motivational states

Description of the model

Reversal theory was developed in 1970 by Apter and Smith and was later extensively elaborated by Apter. There are four metamotivational pairs developed in the theory. The term of metamotivational states or pairs was introduced by Apter. These states are not particular motives themselves, but

interpretation of general aspects of motivation. For example, the motive to spend the week-end in Amsterdam can be to see sightseeing places and visit museums, which corresponds to paratelic mode (the first pair) and is a general aspect of motivation. The key idea of the theory is that reversals exist between two states of pairs and that everyone can be in one state at one moment of time and then reverse in another state.

First, the **telic- paratelic** pair (See Figure 2.2.) was developed. In the telic state low arousal is experienced as pleasant (relaxation) and high arousal – as unpleasant (anxiety), which can be characterized as an arousal-avoidance state. In the paratelic state the opposite is true. High level of arousal is perceived as pleasant (excitement) and low level – as unpleasant (boredom), which can be characterized as an arousal-seeking state (Apter, 1984). A person in the telic state is goal-oriented, serious and has an intention to attempt the goal. To be in the paratelic state means that a person is spontaneous and playful and prefers to feel that he/she is doing. The goal of the activity is on the background, but that doesn't mean that the person isn't aware about the goal (Potocky & Murgatroyd, 1993). Each metamotivational state within a pair is exhaustive and mutually exclusive which means that a person can be in one state or another and never in both of them at the same time. According to reversal theory, people switch between states in the pair quite often during a day.

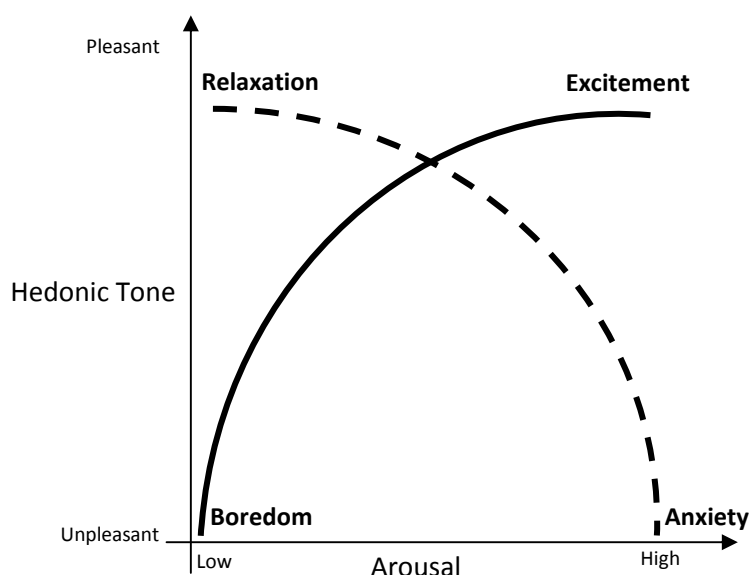


Figure 2.2. The first pair of Reversal theory.

(Source: Apter, 1984).

The second metamotivational pair is the **conformist-negativistic** pair (Potocky & Murgatroyd, 1993) which reflects our relationships towards rules. The conformist state is when people want to conform to a social or personal rule. In this state people feel compliance, cooperation and agreeableness. The negativistic state is when people want to break the rule. This state is characterized by feelings of rebelliousness, defiance and stubbornness.

The third and the fourth pairs are transactional pairs. They indicate the experience of emotions which that arise from transactions with other situations or people: the **mastery-sympathy** pair and **autocentric-allocentric** pair. In mastery mode the orientation to interpersonal transaction is felt in

terms of power, strength and control. A person focuses on if he/she is strong or weak and if he/she is controlling or controlled. In contrast, in the sympathy mode a person considers interpersonal transactions in terms of caring and nurturing. The main goal of mastery mode is to feel strong; in sympathy mode it is to be liked and sympathized. In the autocentric mode a person concerns with him/herself and pleasure or displeasure comes from what is happening with him/herself; in allocentric mode it comes from what is happening with other people who the person identifies with.

According to Apter (1984), three factors can bring about or facilitate reversals between metamotivational modes. Firstly, it is *contingent events* in which an internal or external stimulus triggers the reversal. Secondly, it can be *frustration* of not being able to attain satisfaction in the current mode. The third type of factor is *satiation* which is an innate dynamic to change. After a person spends quite a lot of time in one state he/she reverses to another one even in absence of frustration or contingent events. Reversal theory states that reversals are involuntary, but people can place themselves in situation, or such a condition can be set up, that will expedite the reversal.

In the Table 2.4. the characteristics of people when they are in a certain mode for the four pairs of modes are summarized. It is important to note that at a certain moment of time a person is in a particular combination of modes (one mode from each pair). In addition, according to reversal theory there is no one-to-one correspondence between metamotivational mode and behaviour of a person. Two people can be engaged in similar activities but be in different modes at this time and vice versa. Continuing the example with going to Amsterdam for a week-end, one can go there to have fun (paratelic mode) or to go for spending the week-end with business partners (telic mode). At the same time if someone is in a paratelic mode, he/she can go to Amsterdam or spend time with friends in his/her hometown.

Table 2.4. Characteristics of people for metamotivational states.
(Source: Potocky & Murgatroyd, 1993).

Telic • Arousal-avoiding • Goal-oriented • Serious-minded • Future-oriented • Planning ahead • Prefer important activity • Attempt to complete activity	Paratelic • Arousal-seeking • Sensation-oriented • Playful • Present-oriented • Spontaneous • Prefer unimportant activities • Attempt to prolong activity
Conformist • Desire to comply to rules • Compliance • Cooperative • Agreeable • Sometimes unaware of rules	Negativistic • Desire to break rules • Rebellious • Stubborn • Angry

Mastery • Competition • Struggle • Control • Toughness • Strength	Sympathy • Harmony • Unity • Caring • Tenderness • Sensitivity
Autocentric • Concern with self	Allocentric • Concern with other(s)

Implication for instruction

There are two questions which are important for integration ideas of Reversal Theory into the instructional design guidelines. First is which metamotivational states are needed for productive learning? Second is how reversals between two states can be facilitated?

According to Apter & Carter (2002), the mentee should be most of the time in paratelic (playful) and autocentric states in order to learn, that he/she feels free to think and is not be afraid to make a mistake and at the same time is focused on his/her own process of learning. However, while learning, a student has to experience the full range of metamotivational states. Hence, the following states are also needed during learning process: conforming and challenging, competitive, and affectionate, telic, and allocentric. In addition, Apter & Carter stressed that everyone should be involved in mentoring or teaching others, even mentees which facilitates reversals into allocentric mode.

The activities, which can facilitate reversals between states, are logically derived from the description of the metamotivational pairs and presented in the Table 2.5.

Table 2.5. Activities to facilitate reversals between metamotivational states.

Telic • Referring to the implication of learning experience for real life, achieving personal and/or organisational goals, etc.	Paratelic • Ice-breakers • Brain games
Conformist • Tasks with scripts how to fulfil them and explanations the reasons behind each step	Negativistic • Open-ended tasks with a lot of flexibility how to fulfil them and without rules
Mastery • Competition between groups and/or individuals	Sympathy • Group work with orientation on the common goal

Autocentric	Allocentric
• Situation of learning • Competition between groups and/or individuals	• Teaching peers • Group work with orientation on the common goal

2.1.6. Approach to consider a diversity of learning styles

Regarding the question of the approach to considering learner's diversity, it is important to say that there are several approaches. Jonassen & Grabowski (1993) identified the following types of considering learners' traits: three types of matching (preferential, remediation and compensatory) and deliberate mismatching. Preferential matching is when learners are taught using instructional methods, which are oriented on learners' already possessed traits or processing skills. The negative side of this type of matching is that learners do not develop other skills and learning strategies which they lack. Remediation matching is when the instruction of target material is accompanied with the instruction how to use specific learning strategies or skills. This type of instruction is beneficial for learners who do not have particular learning strategies which are explained, but at the same time learners who are experienced in presented strategies are bored with the instruction because of a lot of repetitions. Compensatory matching is when the instructional method supplants the deficient ability of learners. Deliberate mismatching means that the instruction challenges learners using methods which are different from preferable in order to allow them to acquire new learning strategies. All these approaches are doubtful, for example, Coffield et al. (2004a) reported about nine studies in favour of matching techniques and nine studies in favour of mismatching. Since all these approaches appeared having strengths and weaknesses, the suggestion of Hadfield (2006) to vary teaching techniques (like it is proved successful with modalities) seems more than reasonable. Thus, the approach of varying teaching methods in order to match sometimes and also provide mismatching is used for developing guidelines for considering a diversity of learners.

2.1.7. General guidelines for instruction to accommodate learning styles

There are three ideas which are the prerequisites for the instructional design guidelines:

- All learning styles proposed in the models (Kolb, Apter, MBTI) have to be considered at some moments of instruction or in the whole instruction;
- Students have to experience a variety of teaching techniques (matching and mismatching for their learning styles and personal characteristics).
- There is no standard measurement for learning style which can be easily used in teaching practice.

To answer the research question 1b) the instructional design guidelines are developed based on three learning styles models.

I. There should be three types of tasks in instruction: (a) preferred activity; (b) activity, which contain all activities of Kolb's Learning cycle; (c) project-based task .

According to Kolb, there are four steps in learning cycle: concrete experience, reflective observation, abstract conceptualization and active experimentation. To learn effectively one has to go through all

steps of the cycle, but can start from any (usually preferable). Hence for the first type of tasks students should experience the activity which they prefer; for the second type of tasks they should experience all activities which relate to certain steps of Kolb's cycle. The third type of tasks is a practical project where students can practice their own approach for real-life task. The third type of tasks is also aimed to consider Judging type of MBTI which needs to see practical application of knowledge in order to learn effectively. In addition, real-life practice will facilitate reversal into telic state, while during all other parts of instruction student should be in paratelic mode.

Example: There can be four types of activities developed for the first task. These activities relate to four different learning styles of Kolb. For example, if it is a language class it can be translation and providing all nuances for diverging type; creating a procedural scheme how to use theory for assimilating type; generating examples to demonstrate theory for converging type; create a practical dialogue from given sentences for accommodating type. Students are free to choose one of these activities. Then, for the second task students have to experience all these activities one after another based on another content material. Finally, as a project, there can be a task to write a letter to a friend.

II. Presentation of target knowledge should consist of several parts: theory; examples to demonstrate different points of theory; procedure how to apply theory and examples; and practical application of the theory.

Target knowledge should be presented from the point of four learning styles of Kolb (Diverging, Assimilating, Converging, Accommodating) that all types of people could find starting point which is preferable for them and at the same time get information from the point of other learning styles. For Diverging type it is examples; for Assimilating – theory; for Converging – procedure; and for Accommodating – practical application.

Example: The presentation can be done by students after they already fulfilled the first task which is organized for different styles according to Kolb. If during this task everyone gets acquainted with target knowledge through the preferable task (different Kolb's learning styles), then students can present their findings from this task. If each activity was chosen by at least one student then the presentation will contain all points.

III. A block of instruction should start from short relaxing activity.

According to Apter & Carter (2002), most of the time students need to be in paratelic mode to learn effectively. In order to bring students into this mode instruction should start from a relaxing activity.

Example: Instruction can start from ice-breaker which has playful elements and relates to the content.

IV. Students should experience teaching others.

Normally students are in autocentric mode when they are in the situation of learning. According to Apter, they have to experience different modes to learn effectively. In order to facilitate reversal into allocentric mode students have to experience teaching others.

Example: After students learnt from different activities, they can teach each other their findings.

V. Students should experience structured and ill-structured tasks.

Structured tasks will facilitate reversals into conformist mode and ill-structured – into negativistic. Since according to Apter students have to experience all modes, there should be both types of tasks included.

Example: In the beginning of the instruction there can be structured tasks (1st and 2nd type) and project-based task is most probably ill-structured.

VI. Students should experience situations where they have to help each other and where they compete.

In order to facilitate reversals into sympathy mode (Apter), students have to experience situations of helping each other. On the contrary, situations of competition will facilitate reversals into mastery mode (Apter). Since students have to experience all Apter's metamotivational states there is a need to create both types of situation during instruction.

Example: In one task students may work in mini-groups and the instructor should encourage them to help each other. During another task there can be competition between groups and/or individuals. Situation of summative assessment also facilitates reversal into mastery mode.

VII. Instruction should refer to achieving personal and/or organizational goals.

In order to facilitate reversals into telic mode (Apter) instruction should refer to real life, to personal and/or organizational goals of participants. It is better to have this element in the end of section of whole instruction because then there is no need to facilitate reversal into paratelic mode. If this element is in the middle of instruction, then there is a need in ice-breaker or another relaxing and playful activity.

Example: A real-life practical task can be such element which refers to personal or organizational goals. It also can be a reflective activity in the end of instruction where everyone should think what was useful for his/her life in the instruction.

VIII. Instruction should contain playful elements.

Perceiving type (MBTI) needs to have playful elements in instruction in order to learn effectively. In addition, playful elements help to facilitate reversals into paratelic state and maintain students in such condition.

Example: If there is a need that one team out of three performs the task, lottery can be used to choose the team. Role plays are also playful elements.

IX. All elements of instruction should be organized logically.

According to MBTI, the Thinking type needs strong logic to learn effectively. Thus, to consider this type it is essential to organize all the elements of instruction, such as presenting target knowledge, tasks, etc. logically.

Example: The presentation of the theory is organized in tables and procedural scheme and there is no logical inconsistency in the theory.

X. Students should experience two organizational forms in instruction: group and individual.

According to MBTI, there are two types of attitudes: Extraversion and Introversion. To consider these personal characteristics students should have an opportunity to work individually and in a small group.

Example: Some activities should be done in a group and other activities – individual.

XI. Information should be presented as a whole and then explained step-by-step. It should be accompanied with visual materials and explanation should refer not only to logic, but also to feelings.

Intuition type (MBTI) needs information presented as a whole and, on the contrary, Sensing type prefers to get information step-by-step. In order to consider both types, any information should be presented as a whole and then step-by-step all elements. In addition, there should be visual materials accompanied by explanations which refer to feelings and logic. This will help to consider VAKT modalities.

Example: Firstly, the whole idea should be presented with visual materials and explained orally during not more than in 3-5 minutes. Then each element should be explained step-by-step, connection with the whole should be established. The explanation should be logical and contain metaphors to give students the feeling of phenomenon.

XII. Instruction should be linked to practical application of knowledge.

Judging type (MBTI) needs to see practical application of knowledge to learn effectively. For this type it is essential to show practicality of target knowledge and skills.

Example: Project-based task is a real practical task.

XIII. Classroom climate should be warm and respectful.

Feeling type (MBTI) needs to learn in warm climate and feel respect from a teacher and peers. Thus, to consider

Example: Feedback should be provided in a respectful manner and underline strengths and weaknesses equally and objectively. The ways for improvement should be suggested.

2.2. Instructional design guidelines implemented into instructional model

2.2.1. Instructional design model

The instructional design guidelines are implemented in 4C/ID model (van Merriënboer, Clark & Croock 2002). The reason, why the 4C/ID model is chosen, is that Van Merriënboer & Kester (2009) reported about several studies that whole-task practice is generally more effective to acquire complex skills (e.g. Wightman & Lintern, 1985; Detweiler, 2000: in van Merriënboer & Kester, 2009). Probably, 95% of skills acquired by adults (+16) are complex. Thus, it seems reasonable to choose the instructional model which is oriented on acquiring complex skills. In addition, 'the superiority of a 4C/ID approach over other approaches was confirmed' in several studies (e.g. Lim & Reiser, 2006; Sarfo & Elen, 2005, 2006: in van Merriënboer & Kester, 2009, pp. 453).

Van Merriënboer et al. (2002) defined 4 components of the 4C/ID-model: learning tasks, supportive information, procedural information or just-in-time information and part-task practice (See Figure 2.3.)

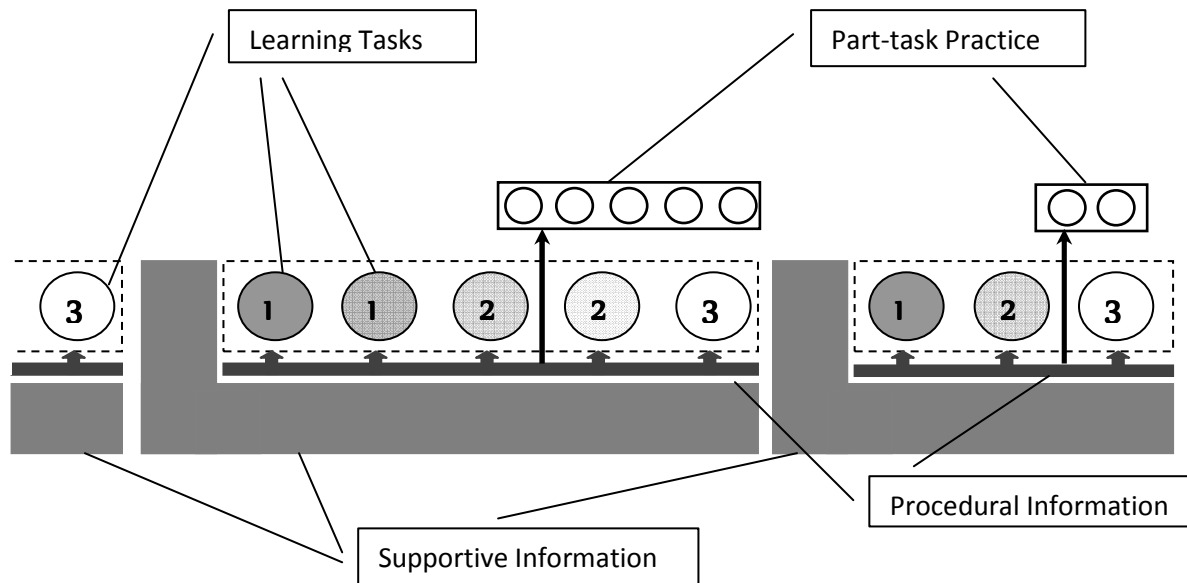


Figure 2.3. 4C/ID model and its main elements.
(Source: van Merriënboer et al., 2002).

Learning task is a concrete, authentic whole-task experience. Learning tasks are organized in the task-classes, where tasks vary gradually from simple to complex (on the Figure 2.3. it is shown by gradually changing colour, where the darkest colour is the task with high level of instructor support). Each learning tasks class is based on the same supportive information, which is needed to perform the tasks. **Supportive information** consists of theories, concepts, cognitive strategies, etc. to support the learner. **Procedural information**, as it is clear from the name, provides information regarding procedures and is prerequisite to the learning and performance of routine aspects of learning tasks. **Part-task practice** provides additional practice for routine parts of learning tasks, which have to be automatized.

2.2.2. Instructional design guidelines implemented in 4C/ID model

To answer the research question 1c) instructional design guidelines are implemented in 4C/ID model. The key question is how to consider all thirteen guidelines in one instruction. In other words – how these guidelines interact with each other; and which strategy and when to use. There are the following principles how to implement thirteen guidelines in instruction:

- 1) If there is a need to match an activity to the learners' characteristics, they should be offered a choice between the variants which relate to all possible characteristics of the range. For example, if it is needed to provide match activity according to Kolb's learning styles, there should be a choice offered between activities related to Diverging, Assimilating, Converging and Accommodating learning styles.

- 2) If there is a need to mismatch an activity, then the element of instruction contains accommodation to all possible characteristics of the range. For instance, if we continue with the example of Kolb's styles, then there should be activities which are matching for four learning styles of Kolb. Then at one moment of instruction a student will experience match and at another mismatch.
- 3) Each element of instruction contains accommodation to three models (to all styles or to some characteristics from the model).
- 4) The difficulty of tasks depends on two variables: the extent to which the activity is matching and the content of the task.
- 5) Accommodation to Kolb's learning styles (guidelines **I** and **II**) should be made in all elements of the instruction (excluding the relaxing activity in the beginning), but it should be more explicit in the beginning of the instructional module where knowledge is acquired than in the end where skills are practiced.
- 6) While accommodating to Apter's metamotivational states, it is better to facilitate reversals into paratelic, sympathy, conforming modes (guidelines **III**, **V** and **VI**) in the beginning of the instructional module and then close to the end facilitate reversals into mastery, negativistic and, finally, telic state (guidelines **V**, **VI** and **VII**). The reason for this is that mastery and negativistic modes require some knowledge and skills as prerequisites. Time for being in telic state should be relatively short. The reversal into allocentric mode can occur at any time of instruction.
- 7) Characteristics of MBTI (guidelines **VIII** – **XI** and **XIII**) should be accommodated in instruction continuously. The only exception is the guideline **XII** related to Judging type which should be accommodated discretely. The reason for this is that practicality (Judging type) seems to be related to Accommodating style of Kolb, which cannot be considered continuously because there are other styles to consider.

The modification of 4C/ID model with implemented instructional design guidelines is presented on the Figure 2.4.

Learning tasks class consists of three types of tasks (indicated on the Figure 2.3. with numbers and on the Figure 2.4. with different shapes) and may contain 3, 5 or 7 tasks and is based on the same supportive information. The complexity of learning tasks increases gradually. The simplicity of a task depends on two variables: content and if the task is preferable for a person according to his learning style. The first one is when learners are able to experience preferable teaching methods and the complexity of content of the tasks increases gradually. The second type is in the middle of instruction and learners experience different teaching techniques (preferable and non-preferable) for different learning styles (according to the learning cycle of Kolb). The complexity of content within the second type of tasks also increases. The third type is a project-based task which is the most complex regarding the content and consists of preferable and non-preferable activities.

Supportive information is acquired during the presentations of the group after the first type of learning tasks. Students have to be instructed to present information in different modalities (VAKT) and also for intuitive and sensing types.

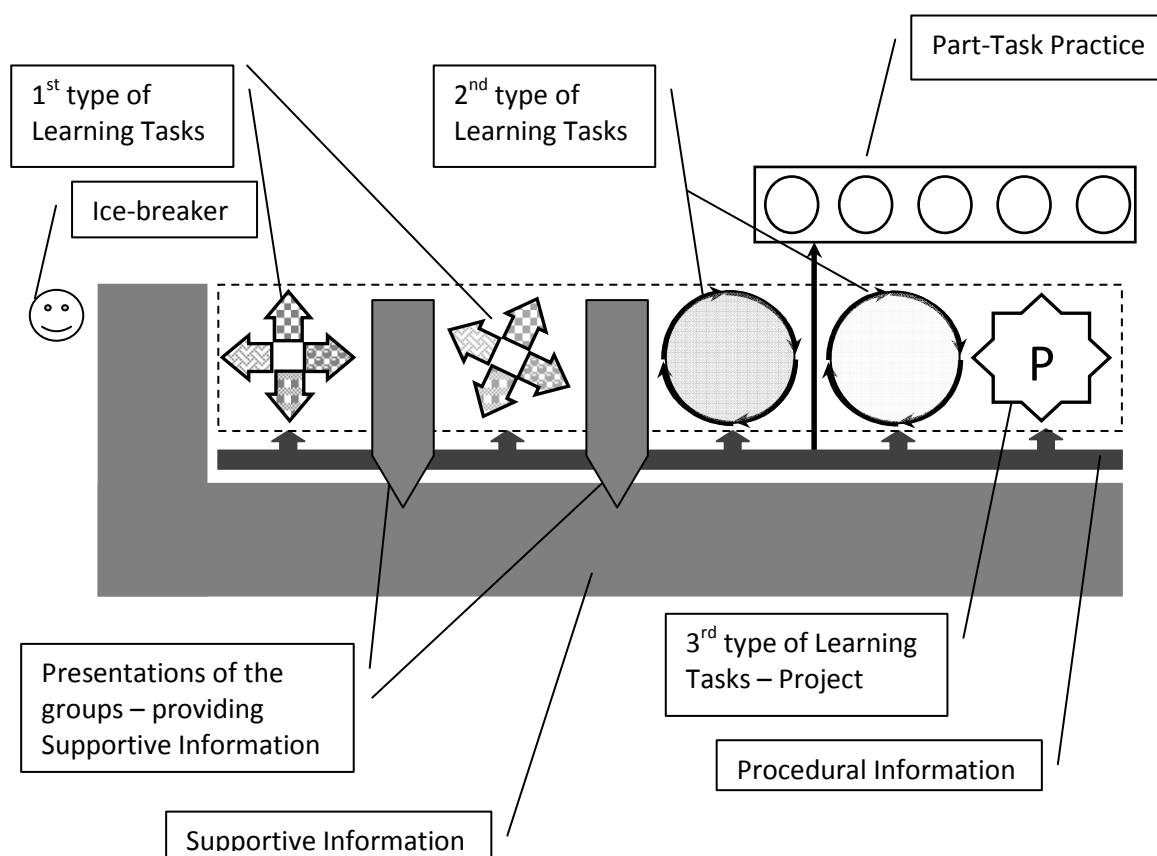


Figure 2.4. 4C/ID model with implemented instructional design guidelines to consider a diversity of learning styles.

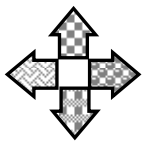
Procedural information is also presented in several modalities (VAKT) and for different types of perceiving (sensing-intuition).

Since **part-task practice** has the aim to make certain skills automatic, there will be no diversity in acquiring them, however, teachers have to consider that people with different learning styles need different amount of repetitions. Thus, there should be flexibility in the amount of part-task practice.

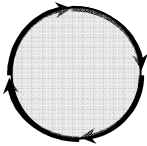
The sequence of instructional elements, detailed explanations, characteristics of learning styles addressed and its correspondence to the instructional design guidelines are provided in the Table 2.6. For each element there is a difference in priority to consider one or another guideline. In the fourth column instructional design guidelines are listed for each element in the order of decreasing importance to consider in instruction.

Table 2.6 The sequence of instructional events and explanations how a diversity of learning styles is considered.

Element of the model	Explanations how to consider a variety of learning styles	Characteristics of learning styles addressed	Instructional design guidelines considered
	(1) The ice-breaker is a short activity which contains a playful element and	(1) Paratelic state (Apter)	III. A block of instruction should

Ice-breaker	relates to the content of instruction. The ice-breaker is used in the beginning of the instruction in order to facilitate reversal to paratelic state (Apter), which is important for learning. Ice-breakers or brain-exercises can be used in the middle of the instruction too, if a teacher needs to facilitate a reversal into paratelic state. Since ice-breakers are usually constructed as games and students are supposed to play them, they will facilitate reversals into playful mode. (2) This also helps to consider Perceiving type (MBTI) because this type needs to have playful elements in instruction.	(2) Perceiving (MBTI)	start from short relaxing activity. VIII. Instruction should contain playful elements.
 1st type of learning tasks	(1) Presenting the first type of tasks a teacher offers four different activities designed for four different learning styles, according to the Table 2.7. (Kolb's learning styles and correspondent activities), but having similar learning goals. Learners can choose one of the activities which probably will be the preferable one according to their learning style. (2) Students are grouped (for extraverts) or working individually (for introverts) according to their preferable tasks. If there are a lot of people with the same learning style, two or more groups can be made. The effective size of working group is 3-4 people. (3). Students are working in a playful mode (Apter's metamotivational modes) because the reversal into this mode happened during the ice-breaker. Students are also into sympathy mode, if they work in a group because they are supposed to help each other and fulfil the task as a team. Students, who work	(1) Diverging, Assimilating, Converging, Accommodating learning styles (Kolb) (2) Extraverts – Introverts (MBTI) (3) Paratelic, Sympathy, Autocentric states (Apter)	I. There should be three types of tasks in instruction. V. Students should experience structured tasks. VI. Students should experience situations when they have to help each other. X. Students should experience two organizational forms in instruction: group and individual.

	individually, are in their preferable mode (mastery or sympathy). All students are in autocentric mode since they are in learning situation. The instructor provides necessary support to students; however, the amount of support can be reduced if it is the second or third task among the group of first type.		
 Supportive information – presentations of groups	(1) When the task of the first type is finished, students form one group for each type of the four activities (if there were several groups or some people worked individually, they create a group (2) for preparing the presentation), that means one group for each learning style (Kolb's model), and present their findings from the task to the rest of the group. (3) With this activity students reverse from autocentric state, which is natural for learning situation to allocentric because they are teaching other students. It is the way for students to receive supportive information from the other learning styles points of view. (4) Students have to be instructed to present information for different types of perception. For example, for sensing type the information should be present step-by-step and for intuition – as a whole. (5) They also should present information for different types of modalities (VAKT). This may come naturally if there are different types of perception in the group or should be facilitated by the instructor.	(1) Diverging, Assimilating, Converging, Accommodating learning styles (Kolb) (2) Extraverts (MBTI) (3) Allocentric state (Apter) (4) Sensing-Intuition (MBTI) (5) VAKT	II. Presentation of target knowledge should consist of theory; examples; procedure how to apply theory and examples; and practical application. IV. Students should experience teaching others. XI. Information should be presented as a whole, step-by-step and with visual materials. X. Students should experience two organizational forms in instruction: group and individual.
 Part-task practice	Part-task practice follows the first type of tasks or is between several tasks of the second type. Students are offered to choose how many practice		

	they need for this type of tasks. The type of activity is the same for all styles. This type of tasks can be omitted if there is enough practice in the learning tasks for routine parts.		
 2nd type of learning tasks	(1) For the second type of learning tasks students are working in new groups (2) that there is a diversity of learning styles (according to Kolb's model) in a small group and the task consists of activities which are preferable for different styles (Kolb), that everyone experiences both preferable and challenging methods (See Table 2.7). (3) Students receive guidelines how to approach different activities (procedural information) which are written in different modalities and for both types of perception. (4). Students are working in groups in conforming mode (if there are clear instructions how to fulfil it) or negativistic (if a task is open-ended). (5) Students are working in paratelic mode, since it was facilitated by ice-breaker and maintains by other tasks. If a teacher sees that there was a reversal into telic mode there can be other ice-breakers done in the middle of instruction. Students are in sympathy mode because they work in groups and help each other. In addition, it is possible to expect reversals between autocentric and allocentric modes when one student helps others to fulfil the activity which is preferable for him/her. (6) The implication for practice should be made explicit in this type of tasks in order to consider Judging type (MBTI).	(1) Diverging, Assimilating, Converging, Accommodating learning styles (Kolb) (2) Extraverts (MBTI) (3) Sensing-Intuition (MBTI); VAKT (4). Conforming/Negativistic state (Apter) (5) Paratelic, Sympathy, Autocentric states (Apter) (6) Judging (MBTI)	I. There should be three types of tasks in instruction. VI. Students should experience situations when they have to help each other. XII. Instruction should be linked to practical application of knowledge. V. Students should experience structured and ill-structured tasks. X. Students should experience two organizational forms in instruction: group and individual. XI. Information should be presented as a whole, step-by-step and with visual materials.

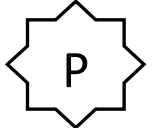
 3rd type of learning tasks	The third type is a project-based task can be fulfilled both individually (for introverts) and in small groups (for extraverts) (2) which are competitors to each other. This is a practical real-life task which considers the Judging type (1) (MBTI). The guidelines (procedural information) how to approach the project are provided for different learning styles (according to Kolb (3)) and are written for different types of perception (4). (5) This task facilitates reversals into negativistic (since it is ill-structured and open-ended real task) and mastery mode (there is a competition between groups or individuals). Students stay in autocentric mode since they are in learning situation. (6) When the task is finished the instructor invites students to make conclusions about what is important for real life practice. This final activity facilitates reversal into telic state.	(1) Judging (MBTI) (2) Extraverts – Introverts (MBTI) (3) Diverging, Assimilating, Converging, Accommodating learning styles (Kolb) (4) Sensing-Intuition (MBTI); VAKT (5) Mastery, Negativistic, Autocentric states (Apter) (6) Paratelic/Telic states	I. There should be three types of tasks in instruction. XII. Instruction should be linked to practical application of knowledge. V. Students should experience ill-structured tasks. X. Students should experience two organizational forms in instruction: group and individual. VI. Students should experience situations when they compete. VII. Instruction should refer to achieving personal and/or organizational goals. XI. Information should be presented as a whole, step-by-step and with visual materials.
Instruction in general	The instructor has to organize the tasks and presentation of information logically to consider Thinking type according to the MBTI (1). At the same time the climate in the group should be warm, helpful and respectful to facilitate learning for Feeling type (2). There should be some playful elements included to address Perceiving type (3).	(1) Thinking (MBTI) (2) Feeling (MBTI) (3) Perceiving (MBTI)	IX. All elements of instruction should be organized logically. XIII. Classroom climate should be warm and respectful. VIII. Instruction should contain playful elements.

Table 2.7. Kolb's learning styles and correspondent activities.

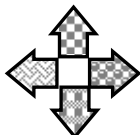
Style	Possible matching activities
<i>Diverging style</i>	• Experience directly related to target knowledge practice and then discuss it or think and provide findings. • Recall experience related to target knowledge and then discuss it or think individually. • Observe in laboratory a phenomenon and create an observation journal. • Experience through simulations and create logs, discuss or think individually about the findings. • Discuss or think individually on provided practical case. • Generate a list of conclusions from provided practical case. • Other variants of <i>combination experience and reflection</i>.
<i>Assimilating style</i>	• Analyzing findings coming from practice. • Organisation of the information coming from reflection process. • Developing conceptual models. • Developing procedural schemes. • Reorganizing theory. • Testing theories and ideas. • Other variants of <i>organizing information</i>.
<i>Converging style</i>	• Using theory to solve practical situations in case studies or simulations. • Practicing theory. • Generating new ideas how to use theory in practice. • Other variants of <i>connection theory and practice</i>.
<i>Accommodating style</i>	• Solving professional situations (cases, real-life ill-structured tasks, etc.). • Solving situations where objectives vary. • Solving situations where leading and/or influencing others is needed. • Solving situations where personal involvement is needed. • Other variants of <i>connection practical application of theory and real-life practice</i>.

3. Design for a language lesson

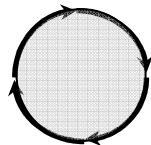
One of the variant of design the workshop for a language class is presented in the Table 3.1. The workshop is organized around one unit of supportive information which consists of grammar element and optionally a certain topic of vocabulary. While preparing a lesson, teachers, who use this design, should, firstly, answer on two questions: which grammar construct/element will be the target knowledge and if it will be linked to a certain topic of vocabulary. There were two groups taught according to these guidelines in this research: Russian and French. For example, for the Russian group the choice was to teach verbs of motion and vocabulary on the topic of holiday and vacation (See Appendix 2). For the French group, the target material was pronouns, COD, COI, but there was no a certain topic for vocabulary (See Appendix 3).

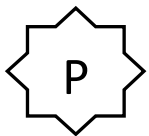
The elements to conduct study to answer on the research question 2) are included in the table. The duration of the workshop is approximately 2 hours 40 minutes.

Table 3.1. Design of workshop for a language group

Element of instructional model	Elements of the lesson	Time
The Kolb Learning Style Inventory		15 min
Questionnaire # 1-1		1 min
 Ice-breaker	The task is to recall as much known words as possible. There can be variants that students have to recall one word for each letter of the alphabet, etc. The task also can be limited with the topic for advanced students as it was done in the case of the Russian group, or it can be general task to recall known words if students are beginners like it was in the case of the French group. This activity is a start of the instruction and helps to facilitate reversals into paratelic mode (Apter) and consider perceiving type (MBTI).	10 min
Questionnaire # 1-2		1 min
 1 st type of learning tasks	There are four types of activities for four different Kolb's learning styles (Diverging, Assimilating, Converging, Accommodating) which are offered to students. They are free to choose one of them which they like more. In addition, they are free to choose if they do this task in a group or individually, which helps to consider introverts and extraverts (MBTI). These activities are:	23 min

	1. For Diverging type: translate some sentences from target language into English (sentences contain grammar points). Provide the exact meaning and understand all nuances. 2. For Assimilating type: knowing the theory, develop a procedural scheme how to choose the correct grammar construct (e.g. steps, how to choose the correct from of pronoun or verb). 3. For Converging type: knowing the grammar theory and some examples, generate more examples to illustrate all points of the theory. 4. For Accommodating type: having some sentences (which contain grammar points) in target language, generate a practical dialogue which may occur in real life. Four types of activities should be written on the blackboard in a shortened way in English and an instructor should read them loudly, give necessary explanation on both languages: target and English. The examples of materials for these activities are provided in the Appendix 2 – for the Russian group and in the Appendix 3 – for the French group. Students should feel free to ask clarifying questions and express their opinion which will help to maintain them in paratelic mode (Apter). Students who are working in groups are encouraged to help each other to facilitate reversals into sympathy mode (Apter).	
Questionnaire #2		2 min
 Presentation of groups – Supportive information	Students are grouped (to consider extraverts) according to four types of activities, which they fulfilled in the first task, to create a presentation about what they have learned from the first task (theory, examples, dialogue, etc.) for their peers. Hence, they are in the situation of teaching others which will facilitate reversals into allocentric mode (Apter). In addition, they will present the information from different activities which were for different learning styles (Kolb) and, hence, other students will get information also from the points of different learning styles. If there is a situation when one or two activities were not chosen during the first task the presentations for these activities have to be done by the teacher. Students are instructed to present information for different	10 min for preparation + 18 min

	types of perception (sensing – intuition) and for different modalities (VAKT): present firstly the whole picture, then go step-by-step into details; while giving a presentation use different verbs: to see, to hear, to feel, to understand, etc; and present some information visually. The teacher has to help students to reach the level of presentation for different types of perception.	
Questionnaire #3		2 min
Break		15 min
 2nd type of learning tasks	The second type of tasks is based on the text in the target language which contains grammar points and vocabulary on the topic of workshop, if applicable. For example, for the Russian group there was a text about a tourist in Moscow with a variety of usage of verbs of motion (See Appendix 2). For the French group, there were several sentences which contain COD, COI (See Appendix 3). Students are working in groups (to consider extraverts) which are organized so that in one group there will be people with different learning styles (which are identified based on their choice of the first task). This is an ideal situation, but in practice it can be that there are no students with one or another style in the group. However, groups should be diverse as much as possible. Such organisation of groups allows having at least one strong student for each activity who will be able to help others. It will help to facilitate reversal into sympathy mode (Apter). Students have to fulfil four activities in the task which are designed for different learning styles (Kolb). A teacher explains what they have to do (write and draw the task on the blackboard, repeat it into two languages: target and English). This helps to consider Sensing and Intuition types of perception and VAKT: 1. Read text and translate it into English. Students should work as a chain (a teacher draws a scheme of chain on the blackboard): 1st student reads the first sentence; the 2nd translates it and then read the second sentence and the 3rd student has to translate the second sentence and read the third one, etc. Students help each other if there are difficulties. (Diverging type). 2. Classify constructions of studied grammar in the text according to the theory and explain them. Students work	35 min for the task + 10 min for performance

	as a chain. (Assimilating type). A teacher provides students new topic which is similar to one in the text. 3. Generate similar examples for a new topic, using new theory and words (optionally). Students work as a chain. (Converging type). 4. Using the examples, create a dialogue which may occur in real life for this new situation. Students work as a team. (Accommodating type). This activity also helps to consider Judging type (MBTI). By using a lottery the teacher chooses one of the groups to present the dialogue. This is a playful element to consider Feeling type (MBTI). An instructor maintains the atmosphere where students feel free to ask different questions related to the task and express their ideas and opinions. This helps to keep them in paratelic mode (Apter).	
Questionnaire # 4		3 min
Post -test	Paper grammar test	10 min
Questionnaire # 5		5 min
 3rd type of learning tasks	This is a practical task to consider Judging type (MBTI). Students are working in pairs or individually (extravert – introvert (MBTI)). They have to construct a dialogue which may happen in real-life. The situation or topic for this dialogue is given by a teacher and should be different from one in the 2nd task, but where students also can use grammar and vocabulary studied. For example, for the Russian group it was a situation when a student was speaking with his Russian friend about how he spent his last vacation: where he was, what he has seen, how he used public transport, how he asked for information, etc. French students talked about his house. The task is ill-structured which facilitates reversal into negativistic mode (Apter). Strong link to real life facilitates reversal into telic mode (Apter). If the task is going to be graded it facilitates reversal into mastery mode (Apter).	Homework

4. Methodology

This chapter is focused on the research design to answer the research question 2), context and participants of two case studies, instruments for data collection and analysis. In addition, the procedure of conducting the project is described.

4.1. Research design

The case study design was chosen because it allows exploring in depth how the process is going on in practice (Stake, 1995; Creswell, 2009). In this study, how the instructional design guidelines implemented in 4C/ID model, presented in the section 2.2.2 work in practice, is studied by case study of two language groups. The following characteristics of case study are important to provide answers on the research question: natural settings of real classroom; the importance of participants' meanings on the issue; emergent research process when plan, research question, data collection procedures, etc. can be changed during any of the phases of the study; and that the researcher is making interpretations of what she sees, hears from participants and understands.

There are two cases studied. There are two workshops for language groups which are designed and conducted according to the instructional design guidelines. The first group is a group of students learning Russian and the second is a group of French students.

To answer the research question 2), how effective the instruction designed according to the instructional guidelines it is, firstly, needed to answer on the sub-question 2a), if the workshops are conducted according to these guidelines. Creswell (2009) mentioned the importance of multiple sources of data for a qualitative research. To answer the sub-question 2a), there are structured observations conducted, video recorded and standard measurement of learning style: the Kolb Learning Style Inventory used to collect data for the first case of Russian lesson. For the second case the data will be collected from observations and the Kolb Learning Style Inventory.

To answer the research sub-question 2b), how the instruction is perceived by students there will be questionnaires distributed after the key elements of the instruction. The results will be analyzed if they are aligned with the implemented guidelines (presented in 2.2.2) and results of observation.

In case, if the answer on the research sub-question 2a) is yes, it is worth to seek for the answer on the sub-question 2c). To answer the research sub-question 2c), if all students learnt effectively, the pre-test and post-test of students' knowledge and skills on the content of the lesson is needed. For the first case, the content of lesson is out of the curriculum of this group and, hence, we can assume that students know little or nothing about the material which will be taught. Considering this only post-test is conducted for the case of Russian group. For the French group, both pre-test and post-test is conducted. In addition, the level of prior knowledge of students can play a significant role in learning and hence in the results of post-test. Thus, the level of prior knowledge will be assessed through marks of tests which were taken during the semester.

In order to provide qualitative reliability Yin (2003: in Creswell, 2009) suggests to document procedures and as many of the steps of the procedures as possible. Thus, rich descriptions are used to present findings from the cases.

In order to provide qualitative validity multiple sources of data are used.

According to Greene & Caracelli (1997: in Creswell, 2009) the value of qualitative research is particular descriptions developed in the context of the site. However, for the research question of this paper qualitative generalizability becomes important because this would allow speaking about effectiveness of the guidelines in general and in some similar contexts. For this purpose the second case is studied.

4.2. Context of cases and participants

The participants of the first case are 5 students of a Russian class (2nd year) in “CVO Leuven-Landen volwassenenonderwijs”. The age of students is between 20 and 70. The workshop was conducted in a classroom of approximately 40 m² equipped with a blackboard, 15 desks for students and 1 - for a teacher and 32 chairs. A video camera was brought by the researcher to record the workshop. Also flipchart paper sheets were used during the instruction.

The participants of the second case are 7 students of French class (1st year) in “CVO Tervuren”. The age of students is between 40 and 50. The workshop was conducted in the classroom of approximately 20 m² equipped with a blackboard, 9 desks for students and 1 - for a teacher and 20 chairs.

4.3. Data collection and analysis

The study is structured around the key elements of the instructional guidelines implemented in the 4C/ID model: ice-breaker, 1st type of tasks, presentation, 2nd type of tasks. Organisation of instruments for collecting data for the research sub-questions is shown in the Table 4.1.

Table 4.1. Organization of instruments.

Workshop elements	Research sub-questions		
	2a) if the workshop is conducted according to the instructional guidelines	2b) perception of the students	2c) effectiveness of the instruction
Before the workshop	The Kolb Learning Style Inventory		Pre-test
Ice-breaker	Observations & Video	Questionnaire #1	
1 st type of tasks	Observations & Video	Questionnaire #2	
Presentation	Observations & Video	Questionnaire #3	
2 nd type of tasks	Observations & Video	Questionnaire #4	
After the workshop		Questionnaire #5	Post-test

The Kolb Learning Style Inventory (LSI) is presented in the Appendix 1.

The structure of collection data from observations, video and questionnaires is organized around key elements of instruction (See Table 4.2.).

Table 4.2. Structure for collecting data from observations, video and questionnaires.

Workshop elements	Observation	Questionnaire	Explanations
Ice-breaker	Telic – paratelic states (Apter) before and after the ice-breaker.	Readiness to participate in activities before and after the ice-breaker.	Since the main goal of this element is to facilitate reversals into paratelic state, different signs which indicate state are observed and asked in the questionnaire.
1 st type of tasks	How the choice of activity is made. How difficult is the chosen activity How students like the organizational form of work (individual or group). Apter's metamotivational states.	If students liked the chosen activity. The perception of the progress.	Observations regarding the activity are aimed to show if it was match or mismatch activity according to Kolb's LSI for a student. Questionnaires will also contribute to this issue. Observations regarding individual and group work are conducted to understand how introverts and extraverts are considered in practice. Apter's metamotivational states show if students experienced all modes or not.
Presentation	Activity of students during different parts of the presentation. Apter's metamotivational states including allocentric state.	What students have learnt during different parts of presentation.	Observations and questionnaires regarding how students are active during different parts of presentation show how they absorb information. It shows which modes students experienced and particularly regarding allocentric mode.
2 nd type of tasks	The level of activity during each of the four activities of the task.	Students have to rank different parts of the task on how difficult they are.	Observations and questionnaires regarding how the task is done show how learning cycle of Kolb was going on and how it was perceived by

	How difficult is each of the four activities	Perception of the task. Perception of the progress.	students. It shows which states students experienced during this part of instruction.
Related to the whole workshop	Effectiveness of the materials – assessed by the observer from the points of Sensing-Intuition types. Practicality – assessed by the observer. Climate in the group – assessed by the observer. How interesting was the workshop – assessed by the observer. Logical organization – assessed by the observer.	Effectiveness of the materials – assessed by students. Practicality – assessed by students. Climate in the group – assessed by students. How interesting was the workshop – assessed by students. Logical organization – assessed by students.	These elements are assessed by the observer and students to understand how MBTI types were considered in the instruction.

The operational relationship between concept observed and measures are presented in the Table 4.3.

Table 4.3. Operationalization table for observation

Workshop elements	Observation	Measures
Ice-breaker	Telic – paratelic states (Apter) before and after the ice-breaker.	Telic state – serious face, no smile, strained, annoyed if the activity is perceived as unimportant. Paratelic state – enthusiastic, relaxed, calm, smiling, laughing.
1 st type of	How the choice of	Hesitation – takes 5-10 minutes, there are questions from

tasks	activity is made.	students what the activities are about and/or there is discussion between students. Fast decision – 1-2 minutes, no questions, no discussions
	How difficult is the chosen activity	Difficult – sometimes puzzled face, questions which demonstrate that the task is unclear, it takes more time than it is supposed according to the design, a student cannot start, there are mistakes and they are conceptual. Medium difficulty – some of the measures of ‘difficult’, there are some mistakes. Easy – a student works fast, may have some questions to clarify issues, questions which demonstrate deep understanding, a student started immediately after he/she has received the task, is concentrated and/ or has a happy face, there are no mistakes, or just 1-2 and they are not significant.
	How students like the organizational form of work (individual or group).	Students like the form of work – they are calm and/or have happy faces, smiles, easy manners, active participation (group work) and/ or absorption in thoughts (individual). Students dislike the form of work – strained face, no smile, attempts to communicate with other student or a teacher (for individual work), no participation in group work.
	Apter’s metamotivational states.	Telic state – serious face, no smile, strained, annoyed if the activity is perceived as unimportant. Paratelic state – enthusiastic, relaxed, calm, smiling, laughing. Master – in a competition with others, demonstrates power, tends to control. Sympathy – cares about relationships with other people, try to reach harmony, sensitive. Conformist – is ready to follow rules, agreeableness, fulfils the task without any attempts to escape. Negativistic – is ready to break rules, stubbornness, rebellious, does not want to do the task.
Presentation	Activity of students during different parts of the presentation.	Passive – silence, no ideas. Active – keep talking, a lot of suggestions, involved in the group work, asks questions to clarify.
	Apter’s metamotivational states including	Telic-Paratelic – the same as during the previous element. Mastery-Sympathy – the same as during the previous element. Conformist-Negativistic – the same as during the previous

	allocentric state.	element. Allocentric state – concentrating on others, helping others to understand something. Autocentric state – concentrating on oneself learning process.
2 nd type of tasks	The level of activity during each of the four activities of the task.	Passive – silence, no ideas. Active – keep talking, a lot of suggestions, involved in the group work, asks questions to clarify.
	How difficult is each of the four activities	Difficult – Medium difficulty – Easy – the same as in the 1 st task.
	Apter's metamotivational states.	Telic-Paratelic – the same as during the previous element. Mastery-Sympathy – the same as during the previous element. Conformist-Negativistic – the same as during the previous element.
Related to the whole workshop	Effectiveness of the materials – assessed by the observer from the points of Sensing-Intuition types.	From the point of Intuition type – it is possible to grasp the whole idea from the brief look on the materials. There are schemes and/or pictures. From the point of Sensing type – all elements of theory are explained.
	Practicality – assessed by the observer.	During some elements of instruction there was an explicit connection with practice: real-life task or thought questions how to use obtained skills in practice, etc.
	Climate in the group – assessed by the observer.	Everyone listened to his/her peers, students communicate with each other and the teacher as with equals, students are willing to help each other and there are no conflicts.
	How interesting was the workshop – assessed by the observer.	Students were involved in the tasks and motivated. They smiled; their faces looked interested and happy.
	Logical organization – assessed by the observer.	There is a clear logic between all elements of the instruction: tasks, theory, etc. and what the instructor is doing.

The form for collecting data from observations and video is presented in the Appendix 4.

The data collected from observations and questionnaires will be analyzed if it is consistent with the instructional design guidelines implemented in 4C/ID model, which are presented in the section 2.2.2. Observations regarding the activities designed according to Kolb's Experiential Learning Theory will be compared with the results of Kolb's LSI.

The questionnaires distributed during the instruction are presented in the Appendix 5.

The pre-test and post-test of students' knowledge consists of paper based grammar test and assesses understanding of the material. The post-test for the Russian group is presented in the Appendixes 6. The pre-test and post-test for the French group are presented in the Appendix 7. The pre-test and post-tests are analyzed in order to conclude how much students have understood and learnt. Only mistakes for target grammar points will be counted. Other mistakes as well as grades from previous tests will be analyzed in order to assess prior knowledge of students which are essential for learning.

A general form (See Appendix 8 – for Russian group and Appendix 9 – for French group) to combine data from different sources: Kolb's inventory, observations, video recordings, questionnaires and pre- and post-tests is developed according to steps of the instruction. This form is structured according to the key elements of the instructional guidelines: ice-breaker, 1st type of tasks, presentation, 2nd type of tasks. The data is analyzed according to the research sub-questions 2a) – 2c). The findings from all sources are present in the form of rich descriptions in the chapters 5 for both cases.

4.4. Procedure

The first case is the workshop for Russian group. It was conducted on the 18th of May for the group of five adults according to the design presented in the chapter 3. Materials for it are presented in the Appendix 2.

The researcher had a double role of instructor and observer during this workshop. The lesson was recorded on the video (mini-DV cassettes) and then transferred to the PC of the researcher. In the beginning students filled in the Kolb Learning Style Inventory. Then students were given five small questionnaires (See Appendix 5) during particular moments of instruction:

- Before and after ice-breaker;
- After the first type of tasks;
- After the presentations;
- After the second type of tasks;
- After the workshop is finished.

In the end of the lesson there was a post test of students' knowledge: a paper grammar test (See Appendix 6).

The second case is the workshop lesson for the French group. It was conducted on the 28th of May for the group of seven adults according to the design presented in the chapter 3. Instructor's guide and materials for it are presented in the Appendix 3.

The lesson was conducted by the instructor Katrien Cuypers (a female teacher, around 40 who has been giving several kinds of language lessons to children and adults during the last 7 years). There were two meetings of the researcher and instructor to give the instructor the idea of the instructional guidelines. During the first meeting the key elements and the idea in general were discussed. Before

the second meeting the instructor's guide, which was used for the first case with some small changes, was provided to Katrien. During the second meeting particular activities and elements of the workshop were discussed including content details.

During the second case the researcher acted as observer and Katrien was an instructor. The Kolb Learning Style Inventory was used; five questionnaires (See Appendix 5) were distributed during particular moments of the instruction as in the first case and observations conducted.

5. Report of the cases and discussion

In the following sections two workshops are described by elements: ice-breaker, the first task, supportive information and the second task. The descriptions are given firstly for the Russian group and then – for the French group that a reader can easily compare two cases.

1st case – Russian group.

There were 5 students who participated in this workshop (names changed):

- Hercules,
- Muriel,
- Tabor,
- Robert,
- Jerome.

There was a blackboard in the classroom and desks were placed in three lines. Jerome was sitting in the middle line on the first desk; Muriel and Tabor – on the second desk of this line; Hercules and Robert were sitting on the first desk of the first line close to the window.

The general form with initial data is presented in the Appendix 8. It can be considered that students' answers on questionnaires were not influenced by the researcher-instructor because it was the first time they met each other (except one student who helped with organization).

2nd case – French group.

There were seven students participated in the workshop. They were sitting in the one line in the classroom. The sequence from the left to the right was the following (names changed):

- Tanja,
- Janet,
- Beatrix,
- Magda (was 40 minutes late),
- Lizka,
- Emma,
- Ruth.

There were also a blackboard in the classroom and a desk for a teacher.

The general form with initial data is presented in the Appendix 9. It can be considered that students' answers on questionnaires were not influenced by the researcher because the instruction was conducted by another person and students did not know the researcher before.

5.1. Ice-breaker

The aim of ice-breaker is to facilitate reversal into the paratelic state (Apter) and to consider Perceiving type (MBTI) by including some playful elements. Thus, it is important to look how states of students changed during this exercise.

Starting condition

1st case – Russian group.

When students came in the classroom all of them were smiling, they asked some questions and chose the place for sitting which they liked. These signs can be interpreted that students were in the paratelic state.

This is also supported by questionnaire 1, part 1 (See Appendix 5), where students indicated their readiness before ice-breaker to participate in all activities of the instruction. Muriel indicated 70%, Tabor – 75%, Robert – 79 % and Jerome – 96 %. Jerome was even too much excited about the instruction. Hercules did not have time to fill in the questionnaire, but before the workshop started he seemed to be relaxed since he was talkative, making jokes and was not afraid to make any comments about future instruction and so on.

One more signal that students were in paratelic mode is that a small joke of the instructor during the mini-introduction (where the instructor presented herself) made them laugh.

2nd case – French group.

The lesson was started when there were 5 students in the classroom: Janet, Beatrix, Lizka, Emma, Ruth. They were calm, some of them smiled. They looked quite relaxed. Tanja came five minutes after stated and looked very serious and strained. It was probably because she was in hurry. These signs show that all students were in paratelic mode, except Tanja, who most probably was in telic mode.

This is also supported by the results from the questionnaire 1, part 1. Five students, who were form the beginning in the classroom, indicated quite high level of readiness: Janet – 79%, Beatrix – 74 %, Lizka – 70%, Emma – 88%, Ruth – 83 %. Tanja indicated 65%.

During the ice-breaker

1st case – Russian group.

The task of the ice-breaker was to recall as many as possible known words related to travelling and holiday. During the ice-breaker Muriel and Robert recalled 4 words each – they were more active. Tabor, Jerome and Hercules provided two words each – they were less active during the ice-breaker.

2nd case – French group.

For this activity students were divided into two groups. The task of the ice-breaker was to recall one word for each letter of the alphabet. And then two groups matched their words to make collocations. Students were equally active during it.

After the ice-breaker

After the ice-breaker students filled in the questionnaire 1, part 2 (See Appendix 5), where they indicated their readiness to participate in the activities after the ice-breaker. A high level of readiness probably means paratelic mode. In order to see how the ice-breaker worked it is worth not only look on the indicated percentage after it, but also on changes of percentage in comparison with the state before.

1st case – Russian group.

The results of the questionnaire 1 are presented in the Table 5.1:

Table 5.1. *The results of the questionnaire 1 for Russian group.*

	Hercules	Muriel	Tabor	Robert	Jerome
Before	-	70%	75%	75%	96%
After	6%	70%	85%	85%	89%

These results are considered that the aim of the ice-breaker was reached because three students indicated the same or higher level of readiness. The decrease in Jerome's percentage is considered as he reached optimal level of excitement for instruction. He became more concentrated, but still had calm face. It seems that the ice-breaker which was related to the content made him more concentrated on what he was going to learn.

2nd case – French group.

The results of the questionnaire 1 are presented in the Table 5.2:

Table 5.2. *The results of the questionnaire 1 for Russian group.*

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja
Before	83%	88%	70%	74%	79%	65%
After	92%	87%	80%	95%	95%	85%

The results are considered as the aim of ice-breaker reached because students indicated an increase in their level of readiness. In addition, the observer saw smiling and relaxed faces.

General remarks about the process of the instruction

1st case – Russian group.

It seems that Hercules had irrelevant expectations from this meeting. He expected to communicate with a Russian girl and thought that it would be interesting since he is very interested in Russian culture. He also wanted to express his opinion about Russia, Russian language, etc. and he expected to find the audience in the Russian girl. In terms of Apter he was most probably in negativistic (rebellious), sympathy and autocratic mode. Hence he did not want to follow the rules which exist during any instructional event. He did not want to have a lesson, but wanted to chat, discuss, have a speech in front of other people and so on.

2nd case – French group.

There are no remarks.

Conclusions

It can be concluded that in both cases (Russian and French) the element of the instruction was conducted according to the guidelines.

To clarify the guidelines it is important to notice that the most important thing from this part of the workshop to be concluded is that students may come in the classroom in three types of states: telic, when they are very serious and strained; paratelic when their level of excitement is medium (70-80%)

and students are opened to perceive and process new information as well as participate in different activities; and paratelic when students are too excited (~100%) because of any reasons. The ice-breaker is supposed to deal with different initial states to bring people in optimal level of excitement which is effective for participation in instructional events. It should have such nature that some people who are very excited become a bit more oriented on the content and serious people become at the same time more playful.

In addition, the situation with Hercules (Russian case) has brought the idea of creating a set of instruments or methods how to facilitate reversals between metamotivational states of Apter in extreme cases when a person is in a very negativistic mode or telic, or mastery, etc. However, this is the task for future research.

5.2. *First task*

The aim of the first task is to consider different Kolb's learning styles by giving students the choice between different activities which correspond to the four learning styles:

- 1) Translate sentences from target language into English and provide the exact meaning – for Diverging type;
- 2) Develop a procedural scheme how to use theory – for Assimilating type;
- 3) Generate more examples for provided theory – for Converging type;
- 4) Generate a practical dialogue from given sentences – for Accommodating type.

To understand if students choose matching or mismatching activities and how it works, the choice of activities and how students worked on it were observed and asked in the questionnaire and compared with the results of Kolb's LSI.

In addition, extraverts and introverts (MBTI) should be considered by giving them the opportunity to work individually or in a group and students should be maintained in the paratelic and conformist modes (Apter).

The process of group and individual work of students was observed in order to understand consideration of extraverts and introverts. Different signs of Apter's metamotivational states are also observed to understand which modes students experienced.

Choice of activities

1st case – Russian group.

The results of Kolb's Learning Style Inventory for students are the following:

- Hercules - Converging type (close to Southern type);
- Muriel - Converging type;
- Tabor - Converging type;
- Robert - Diverging type (close to Eastern type);
- Jerome - Converging type (close to Western type).

Their results on learning style type grid look as it is shown on the Figure 5.1

Hercules asked if the theory would be given in the second activity (Assimilating style). As an answer on this question the instructor provided explanations which information would be given for different

activities. Hercules had chosen the third activity (Converging style) and also according to Kolb's Inventory he is a Converging type (close to Southern type).

Muriel asked if they were going to fulfil all four activities and when she understood that only one, she started to make suggestions to Robert about choosing the second (Assimilating style) or the third (Converging style) activity. This shows her preference, which is supported by the results of Kolb's Inventory - a Converging type. At this time the instructor clarified that everyone was free to choose any task and it should have been their own choice. After this Muriel immediately chose the second task which is aligned with her results of Kolb's Inventory. She is a Converging type (close to Southern type) which means she is good in abstract conceptualization.

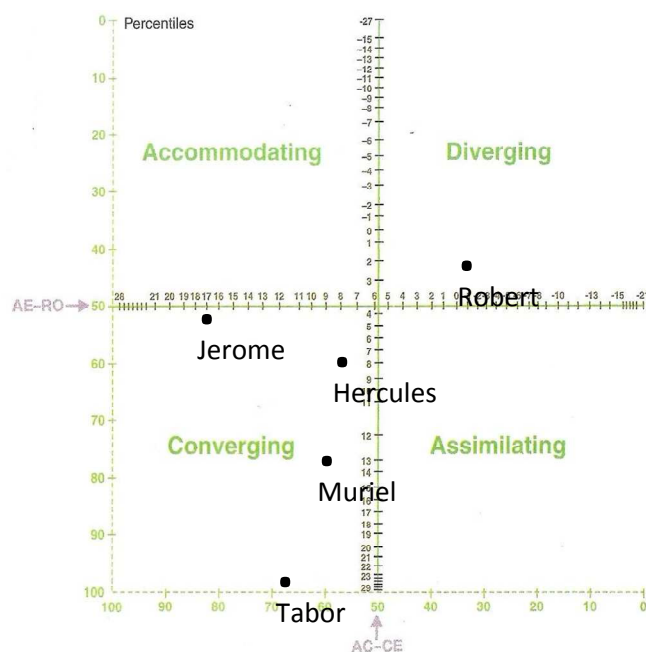


Figure 5.1 Learning style type grid for Russian group.

Robert suggested to Muriel to choose the fourth activity (Accommodating style) and then confirmed this choice. This is not consistent with his results of Kolb's LSI (Diverging, close to Eastern type).

In the beginning Tabor made a comment that the fourth activity (Accommodating style) is the most difficult in his opinion which correlates with his results of Kolb's Learning Style Inventory where he appeared as a Converging type (close to Southern type) with very often employment of strategies related to abstract conceptualization and avoiding activities related to concrete experience (See Figure 5.1). Then Tabor said that he was going to take the third activity since they could not have the same as Muriel. The instructor repeated that it did not matter and everyone was free to choose any activity. Then Tabor changed his mind and also chose the second task.

Jerome did not ask any questions and had chosen the first activity which was a mismatch for his learning style according to Kolb's Inventory. He is a Converging type (close to Western type). After

the workshop the researcher asked him why he made choice in favour of activity which did not suit well their preferences. He replied that strongly believed that translation of sentences is a very useful task and helps to learn languages at least from his experience of learning other foreign languages and that they did not do such tasks during regular classes. Thus, it was a deliberate mismatch.

In sum, Tabor, Muriel and Hercules had chosen the activity which reflected their learning style according to Kolb's Style Inventory; Jerome chose intentional mismatch; and reasons behind the mismatching choice of Robert are not very clear for the researcher. The serious approach of students to the choice of task probably indicates that they liked the idea to choose the activity for learning.

2nd case – French group.

The results of Kolb's Learning Style Inventory for students are the following:

- Ruth - Accommodating type;
- Emma - Northern type;
- Lizka - Assimilating type;
- Beatrix - Diverging type;
- Janet - Accommodating type;
- Tanja – Converging type;
- Magda – did not fill in the Kolb's LSI.

Their results on learning style type grid look as it is shown on the Figure 5.2

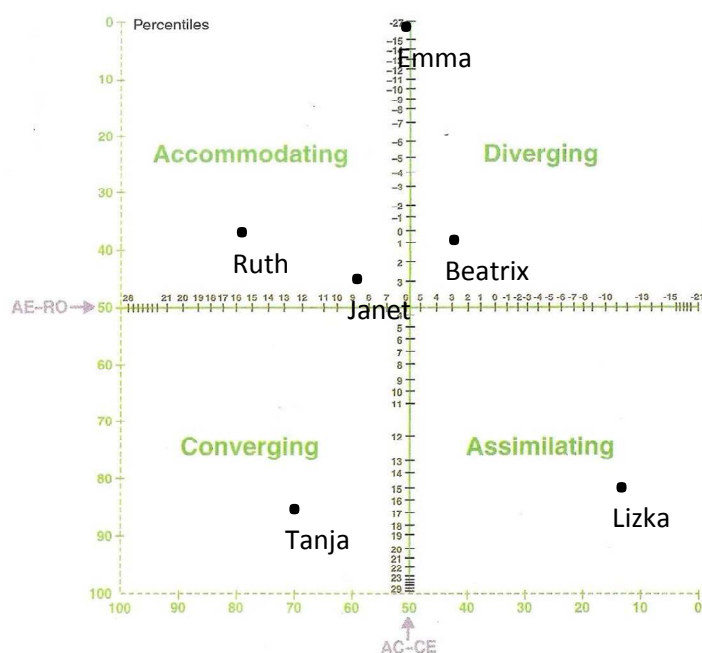


Figure 5.2 Learning style type grid for French group.

Students, firstly, chosen to work in mini groups of three people: 1) Ruth, Emma & Lizka; and 2) Beatrix, Janet & Tanja. Then they started to discuss which type of activity to choose.

The first group quite fast came to the decision that they want the first task. This choice was mismatch for all of them. The reasons behind it are not clear. However, it can be that some members of the group were influenced by others because they discussed their choice.

The second group hesitated and could not reply to the instructor when she asked them which activity they preferred. Then they heard that the first group chose the first activity and also said that they prefer the first one. It looked like they repeated the choice after their more confident and deliberate colleagues. This choice was match for Beatrix and mismatch for Janet and Tanja.

During the task

1st case – Russian group.

It appeared that for different students the level of difficulty of activities was different. This was concluded from observation of the process: how many questions students asked and what kind of questions and the amount of mistakes.

- Muriel could not understand the task and asked for explanations. The instructor explained the theory to her and she asked a lot of different questions about the content and related every construct to the examples, which indicates her Converging type.
- Tabor had a few questions and looked as he was processing the information. It seems that he was able to understand the theory quite easily and he was the one who contributed significantly in the creation of procedural scheme of choosing the correct grammar construct. This correlates with his preference towards abstract conceptualization according to Kolb.
- Robert was puzzled in the beginning because he could not see the link between provided sentences. Then the instructor gave him a hint what the dialogue could be about and he easily fulfilled the task.
- Hercules also needed some explanations, but not so much. The task was quite easy for him. He was so engrossed in this task that did not want to stop and seemed a bit annoyed when he had to do it. This also could be a reason that he indicated that he did not like the task so much.
- Jerome asked some small questions. The task of translation was not very easy for him, but clear: he knew that he needed to find unknown words in the dictionary and then translate the whole sentences.

Muriel, Tabor and Jerome indicated that they progressed well during this task (7 or 8 points) and this probably shows the value of match or deliberate mismatch of learning activities. Robert indicated sufficient progress (6 points) which may show the effect of mismatch when it is not deliberate. Hercules indicated 4 points for progress, but this can show not his real progress, but that he believed that he could progress more if he would not have limited time.

In addition, it is worth to note that most of people (except Hercules, he gave 6) liked the chosen activity (8 or 9 points) as they indicated in the questionnaire 2. This can be interpreted as that either match or deliberate mismatch perceived as useful and meaningful.

Jerome, Robert worked individually and looked quite happy with it. There were no signs of internal conflict regarding it like nervousness, attempts to attract the attention of other people by speaking with them or asking questions, etc. Tabor and Muriel fulfilling the second activity formally worked in the group, but their group work was very often a silence study of the material and just sometimes they spoke a bit. This probably indicates that both of them are introverts. Hercules worked individually but

looked quite nervous and it is interpreted by the researcher that it he is an extravert and this characteristic of him was not possible to consider because of limited size of the group.

Students felt free to ask questions, make comments, express their ideas, etc. during the task. From this it can be concluded that they were in paratelic mode. All students were in conformist mode to the extent that they followed the instruction, except Hercules who were in negativistic mode. Most of students were in mastery mode since they worked alone. Only Tabor sometimes reversed into sympathy mode when he explained something to Muriel. All students were in autocentric mode which is normal for learning situation.

2nd case – French group.

While working on the task students asked the instructor questions. The amount of questions from both groups was approximately the same. It seemed that the task had medium difficulty for all students. It was also noticed that Tanja was not really interested in the activity and this had influence on the work of the second group (Beatrix, Janet, Tanja).

In the questionnaire 2 students from the first group (whose choice was deliberate) indicated sufficient level of progress and that they more or less liked the task (5, 6 or 7 points). However, the fact that they evaluated their progress as medium can be interpreted as a result of mismatch activity.

Students from the second group indicated their progress as 5 points and that they didn't like task. This is probably the result of mismatch as well as irresponsible choice which was made by this group.

It is difficult to say if students are introvert or extravert, but they have chosen to work in small groups and were happy with this choice because it gave them an opportunity to help and consult each other.

The fact, that students were calm, not afraid to ask questions and make comments, probably means that they were in paratelic state during the task. While working in groups ladies helped each other, which is an indicator that they were in sympathy mode towards each other. Most of students (except Tanja) were also in conformist mode to the extent that they followed the instruction. However, Tanja did not want to fulfil the task which may be interpreted as negativistic mode and the result of mismatch to her learning style.

General remarks about the process of the instruction

1st case – Russian group.

There are several remarks about Hercules' behaviour which can help to understand what has happened with his learning process. Firstly, he wanted another activity from the beginning; he wanted to talk, discuss and express his ideas. Secondly, he did not have the possibility to choose between individual and group work because he was the only student who chose the third activity. However, it seems that he would prefer to work in a group because according to his behaviour patterns he was perceived as an extravert by the researcher. This can explain his perception of the instruction in general.

2nd case – French group.

Close to the end of the first task Magda – the seventh student entered the classroom. She joined the second group and tried to understand the activity by communicating with her colleagues.

Conclusions

It can be concluded that the first case was conducted according to the guidelines. The second case was conducted according to the guidelines partially.

In the second case it has happened that most of students fulfilled a mismatching activity. Comparing mismatch, which was in the first case (Jerome) and in the second case, the only difference was deliberate or not choice of the activity. Hence, it can be concluded that deliberate choice of students of the activities is very important for their process of learning. In order to facilitate it the following should be done by an instructor:

- The free choice of everyone should be accentuated.
- Students, firstly, have to choose the activity and only then individual or group work because consideration of Kolb's learning styles has higher priority than consideration of introvert-extravert attitudes.
- It is worth to note for students that there would be no problem, if all students choose different tasks or the same task.
- The students have to be provided with the information that with different tasks the same grammar point and vocabulary is studied, but the tasks are different because different people have different learning style and this will give them an opportunity to study new material fulfilling a preferable activity. In other words, there should be a hint for students based on what they should make their choice (aiming at their metacognition).

All mentioned above things also probably will help to facilitate reversals into conformist mode for students who are in extreme negativistic mode.

It also appeared that in small groups it may be difficult to consider extraverts who prefer to work in a group. This mismatch may be annoying for them, but on the next stage of the instruction (which is presentation) there would be a match for extraverts (group work and discussion) and mismatch for introverts. Thus, this should not affect learning in negative way.

5.3. Supportive information

The aim of supportive information is to provide students with target knowledge from the perspectives of different styles (according to Kolb), in the form which is suitable for sensing and intuition people at the same time and for different types of modalities. In addition, this should be the only moment of the instruction when students should reverse into allocentric state because they are teaching each other. During this element, it is important to understand if students absorb information from the perspectives of different learning styles and if they reversed into allocentric mode.

Starting condition

1st case – Russian group.

According to the guidelines, there should be four presentations of groups fulfilled different activities during the first task. However, since this group consisted of only 5 people there was a group discussion of all activities. All students received the theory on paper at that time. However, Muriel, Tabor and Hercules (2nd and 3rd activities) had this theory for longer time because they needed it for the first task.

2nd case – French group.

After students finished the activity #1 of the first task, which was chosen by all of them, students presented their works. Then the instructor presented all supportive information because all students did the first activity.

During the task1st case – Russian group.

The discussion was started from **the first activity** which was done by Jerome. He read loudly the English version of sentences and his translation into Russian. Muriel, Tabor and Hercules could judge if he translated correctly, but Robert was studying the theory. The discussion of examples was useful for everyone. Students corrected translation if it was needed and tried to explain why a certain verb was used in every case. They indicated in the questionnaire 3 (See Appendix 5) that they have learned some words and expressions and a bit about the theory from the discussion of the first activity.

Regarding to **the second activity**, Tabor wrote on the blackboard the scheme how to choose a correct verb of motion in Russian sentence. This part of discussion students indicated as useful and that they learned necessary theory.

Hercules read new examples (**the third activity**) and they were discussed according to provided theory and scheme. From this other students got more examples for studied grammar constructs. Some of them indicated in the questionnaire 3 that they have learned new examples, but for example for Jerome it was not very useful.

Then Robert read his dialogue (**the fourth activity**), but he was embarrassed and tried not to pronounce words carefully, etc. in order to hide possible mistakes. Such behaviour can be interpreted as Robert is an introvert. Probably because of it most of students did not learn a lot from this part and they indicated this in the questionnaire 3.

To conclude, the most useful part of presentation was the one when Tabor presented the scheme how to choose the correct verb and its form from the table provided. This may be additional evidence about students learning style that they are seeking for abstract conceptualization. However, there is a need that students get something from all parts of presentation.

At the time of discussion the first activity Muriel and Tabor were in allocentric mode because they helped Robert and Jerome to understand the theory provided. It seems that Robert and Jerome did not reverse into allocentric mode because they did not have opportunity to teach others. Hercules also stated in autocentric mode.

The theory was presented in such a way which was convenient for both intuition and sensing types and also visual (papers), auditory (the examples and theory were pronounced and explained in words) and kinesthetic (the instructor tried to provide the feeling of different verbs as well as the understanding of the concept) preferences were addressed.

2nd case – French group.

The instructor wrote the theory on the blackboard and explained it (**the second activity**). Students were listening and writing everything down. Janet and Magda asked clarifying questions. The

instructor provided examples for grammar points explained (**the third activity**). For some grammar points the instructor provided students with practical application of grammar (**the fourth activity**).

Students indicated in the questionnaires that they have learnt the theory with examples and understood the correct usage.

No one from students made reversal into allocentric state because they were not in the situation of teaching others.

The instructor presented the theory as a whole and then started to explain step-by-step all points which was convenient for both types: sensing and intuition. There were visual materials: blackboard and handout for visuals, explanations of the instructor for auditory and also the instructor addressed kinesthetics by referring to emotional component of the theory.

General remarks about the process of the instruction

1st case – Russian group.

There was some resistance from Hercules to fulfil the task. In the beginning he kept silence. By the time when he had to present his examples, he started to tell that this task was useless. The possible reason for this was that he understood theory already and he had all examples (provided by the instructor and his own); and being in autocentric mode he did not feel the need of other people to obtain the same amount of information. At that time he wanted to make a speech about how Russian language considers two concepts of time and movement. The instructor forced him to make his presentation.

General comment of students was that it was a difficult, but very interesting task (they meant the first task and presentation of supportive information).

2nd case – French group.

There are no remarks.

Conclusions

This element was conducted differently in the two studied cases, but still according to the guidelines.

As an additional conclusion it appeared that the activity should be structured differently for big groups and small groups. For big groups (8 people and more) it can be a presentation for each activity, but for small groups it is better to organize a discussion of the findings from the four activities.

In order to facilitate reversals into allocentric state there have to be some sharpening for the guidelines considered during the instruction:

- The sequence of presentations should always start from the theory (2nd activity); then follow examples from the 1st and 3rd activities; and then how these can be used in practice should be presented (4th activity); and finally the group should reflect on the presented practical dialogue.
- The task should be presented to students as they have to teach each other their findings from the first task and the reason for this that it helps to understand better and learn something new from others should be emphasized.

5.4. Second task

The aim of the second task is to give students an opportunity to make the whole learning cycle according to Kolb (concrete experience, reflective observation, abstract conceptualization and active experimentation). This cycle for language groups consists of the following four activities: read and translate the text from target language into English; classify constructions in the text according to the provided theory; generate similar examples for a new topic; and create a practical dialogue from these examples. The task should maintain students in paratelic mode and facilitate reversals into sympathy mode. During this element it is important to observe how the learning cycle of Kolb was going on and hence we are looking on how active students were during different activities, how they perceived the difficulty of the activities and their progress, objectively how many mistakes they have done. In addition, signs of metamotivational states of Apter are observed.

During the task

1st case – Russian group.

Students worked at the same time on activity 1 (read and translate) and activity 2 (explain constructs) as a chain. So, when one student reads, the next one translates and explains this sentence and read the next one and so on. In the beginning three students (Tabor, Muriel and Jerome) were sitting in the “involved” position (close to the table, looking on papers), then because of the chain organisation that everyone should participate, Robert changed his position and became involved in the task. Hercules sat in the resting position (as he was lying on the beach).

It can be concluded that most of the students were involved in the fulfilling first two activities. They asked questions about the meaning of some words and were interested in the nuances of meaning. They tried to explain verbs of motion based on the provided theory. Students were active, but quite slow. The researcher noticed that the process of reading was a bit boring for all students, but then translation and explanation were very interesting. This most probably shows their group learning style which is grouped in the third quadrant of the Kolb’s grid (Converging type).

In the questionnaire 4 (See Appendix 5) students indicated the difficulty of these two activities differently. For example, Tabor indicated that the reading was easy, but translation and explanation – quite difficult, when Muriel indicated opposite. Jerome indicated these two parts as easy and Robert – as the most difficult.

Then students started to fulfil the third and the forth activities (generate examples and create a practical dialogue). Everyone was involved. Hercules changed his position and started to work. Students worked actively: they asked different questions about the meaning of words or how to express something in Russian. However, there were signs that they wanted to escape from the activity: they tried to make the dialogue shorter and finish it as soon as possible. They also switched to the discussion of details. The dialogue was about how to get from Brussels to Leuven’s central library in Belgium and students started to discuss which trains go from Brussels in the direction of Leuven. The researcher interpret this as that the activity was mismatching and hence difficult for all students.

In the questionnaire 4 Jerome, Tabor and Muriel indicated that the creation of a dialogue (mismatching activity) was the most difficult part of the task. Hercules indicated all parts of the task as difficult. Robert indicated that generating examples and creating a dialogue were the easiest parts, which correlates with his choice of the fourth activity in the task 1.

Students indicated their progress as good (7-8 points or in words: “a lot”) except Hercules, who indicated 1 point for progress and wrote that stayed on the improvisation level.

The data from the observation and questionnaire 4 shows that most of students perceived all activities (matching and mismatching) as useful. General comments of students about this task are that it was difficult, but exciting; it was probably what they have to know; they have learnt a lot and liked it.

Students stayed in the paratelic mode. They felt free to ask questions, were not afraid to make mistakes while creating the dialogue and even laughed a bit. All of them reversed into sympathy mode because they helped each other during all parts of the task.

Judging type according to MBTI was also considered by providing practical part: creation of the dialogue. The remark of one of the students, that this was something what they probably need to know, supports it.

2nd case – French group.

Students started to fulfil the first activity individually. When they finished they started to work as a chain and read, provide the meaning and explain according to the grammar sentences. They looked that it was quite easy for them they gave their answers very fast and almost always correct. This perception of the observer is supported by the questionnaire 4, where most of students indicated these two activities as the easiest.

For the third and fourth activities students worked in mini-groups: 1) Ruth, Emma & Lizka; 2) Beatrix & Magda; and 3) Janet & Tanja. Students looked that the third activity (generate examples) is more difficult for them. They asked questions and on their faces there was confusion. They did not start to fulfil the task immediately which is also an indicator that they were puzzled. However, the first group started actively to do the activity. In the second group Magda was very active and was the only student who felt that this task is easy, but for Beatrix it was not easy at all. The third group were quite passive. Most of the students (except Magda) indicated this task as difficult in the questionnaire which supports the data gathered during observation.

The fourth activity seemed to be the most difficult for students. It was concluded because they needed more time to start it and they asked several general questions to get more ideas how to start to fulfil it. This conclusion is also supported by the questionnaire where most of students indicated this activity as the most difficult (rank 4) and Ruth gave it rank 3.

Students indicated the progress during this task on the level 5, 6 or 7 points or in words “significant” and the most common comment on this task was “difficult”. This happened most probably because of mismatching of some activities.

Students were free to ask questions and were not afraid to show that they could not do something or make mistakes. These are the indicators that they were in paratelic mode. They also were in sympathy mode because worked in groups and helped each other.

Judging type was also considered and students who indicated in the questionnaire 5 that they prefer practicality over interesting instruction, appreciated this task by giving positive comments in the questionnaire 4.

Conclusions

This element of the instruction was conducted in both cases according to the guidelines.

However, from the French case it appeared that students need more support for mismatching activities from an instructor. The instructor always can understand if the activity is mismatching by looking on facial expressions and gestures.

5.5. Information related to the whole workshop

In order to assess how personal characteristics, such as perceiving or judging, or feeling or thinking type (MBTI), of students were considered during the instructions there was questionnaire 5 (See Appendix 5) distributed and observations conducted.

1st case – Russian group.

The results of students' perception are presented in the Table 5.3.

Table 5.3. Perception of the instruction for Russian group from the point of view of different types.

	Minimum	Maximum	Average
How is instruction interesting? (considered only students who prefer interesting instruction over practical) – relates to the Perceiving type.	7	9	8
How is instruction practical? (considered only students who prefer practical instruction over interesting) – relates to the Judging type	9	9	9
Logical organization (considered only students who prefer logic in instruction over warm climate) – relates to the Thinking type	7	10	8.5
Warm and respectful climate (considered only students who prefer warm climate in instruction over logic) – relates to the Feeling type	9	9	9
Effectiveness of the materials for students who prefer to get information as step-by-step – relates to the Sensing type	6	8	7
Effectiveness of the materials for students who prefer to get information as a whole – relates to the Intuition type	9	9	9

These results show that during the instruction all types were considered according to the guidelines. This coincides with the results of observation that the workshop was interesting and practical, logically organized and with warm and respectful climate. Distributed materials were effective.

To conclude in general from all collected questionnaires, the instruction according to the instructional design guidelines was perceived by students positively.

2nd case – French group.

The results are presented in the Table 5.4.

Table 5.4. Perception of the instruction for French group from the point of view of different types.

	Minimum	Maximum	Average
How is instruction interesting? (considered only students who prefer interesting instruction over practical) – relates to the Perceiving type.	2	7	4.75
How is instruction practical? (considered only students who prefer practical instruction over interesting) – relates to the Judging type	4	8	6
Logical organization (considered only students who prefer logic in instruction over warm climate) – relates to the Thinking type	4	7	5.33
Warm and respectful climate (considered only students who prefer warm climate in instruction over logic) – relates to the Feeling type	5	10	7.5
Effectiveness of the materials for students who prefer to get information as step-by-step – relates to the Sensing type	4	7	5.71
Effectiveness of the materials for students who prefer to get information as a whole – relates to the Intuition type	-	-	-

These results can be considered as moderate. The observer also noticed that the instruction was less interactive and dynamic as it could be and that the workshop was a bit boring. Regarding consideration of these types, the workshop was conducted only partially according to the guidelines.

From questionnaires it appeared that not all elements of the French workshop were perceived positively. Probably, it is the result of conducting the workshop only partially according to the guidelines.

In addition, from the whole second case it can be concluded that training to conduct instruction according to the guidelines is needed for teachers before they start to use them. This could bring them solid understanding of the key ideas and concepts behind these guidelines.

5.6. Assessment of obtained knowledge

1st case – Russian group.

Since the first case was conducted according to the guidelines, its effectiveness can be assessed with students' results from the post-test.

Students did not study the topic of verbs of motion during their regular classes, hence their knowledge about it can be considered as close to zero. The results of the post-test which show what they have learnt are presented in the Table 5.5 together with their scores of prior knowledge (average score from previous tests during current semester).

Table 5.5. Results of post-test and prior knowledge for Russian group

	Hercules	Muriel	Tabor	Robert	Jerome
Post-test out of 10	8.75	8.25	6.75	6	5.75
Prior knowledge out of 10	6.8	8.8	7.6	7.0	4.1

Considering the prior knowledge of students in Russian, it can be concluded that learning already occurred after the second task. It is interesting to note, that Hercules who indicated the least progress during the instruction performed the best. Jerome performed a bit less than 6, but considering his prior knowledge it is a good result. Fulfilling the homework (the third task of the guidelines) will help students to master in this topic.

2nd case – French group.

The second case was only partially conducted according to the guidelines: the first task and consideration of characteristics of personality had quite moderate connection with the guidelines. Thus, the effectiveness of the guidelines can be assessed with some assumptions.

The results of the pre- and post-test which show what students have learnt are presented in the Table 5.6). Regarding the issue of prior knowledge, all students scored not less than 80% on last tests.

Table 5.6. *The results of the questionnaire 1 for French group.*

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda
Pre-test out of 10	1	9	4	6	3	1	Did not write
Post-test out of 10	6	9	9	4	9	9	9

It can be concluded that learning occurred.

6. Conclusions

The purpose of this research project was to contribute in the field of practical application of learning style concept. The field is characterized with a high level of ambiguity and a number of issues which are limitations on the way of practical application of the concept. For example, weaknesses in reliability and validity of the instruments developed by different theorists are the obstacles for identifying learning style of everyone and providing prescriptions how students should learn. Because of it, developed guidelines do not suggest using any instrument to measure learning styles of students. Another problem is the disagreement between theorists which characteristics of personality build learning style. There are almost as many ideas about it as models. The researcher has found three models the most influential: Kolb's Experiential Learning Theory, Myers-Briggs Type Indicator and Apter's Reversal Theory. Based on them the instructional design guidelines were developed and implemented in the 4C/ID design model. They are the answer on the first research question, how learning styles can be considered in instruction. The key ideas behind the guidelines are

- to accommodate instruction for different learning styles at the same time – make it universal;
- to provide students with a variety of teaching techniques: matching and mismatching which are a good base for development not only skills, but also learning abilities.

The key characteristics of the developed guidelines are that, firstly, students are free to choose the preferable activity; then they have to deal with a task where matching and mismatching activities are included and, finally, they have to be involved in solving practical problem or fulfilling a practical task – project. This rotation of activities is organized around Kolb's learning styles. At the same time other characteristics of task and instruction in general consider learning styles according to other models. Students work individually and in mini-groups, teach each other, discuss problems, perform or present their results and so on. These help to consider Apter's metamotivational states. Playful elements and at the same time logically organized instruction with practical implication, and respectful climate are characteristics which consider MBTI types of personality.

In the second part of the research project the issue of effectiveness of developed guidelines in the practical situations was explored. It can be concluded that two workshops were conducted according to the guidelines implemented in the 4C/ID model and students have learnt the material from such type of instruction.

Moving on to the question how the instruction in general and some elements were perceived by students, it is worth to provide information organized around the elements.

The ice-breaker was accepted positively and warmed up students. Study of the cases allowed sharpening the guidelines that an ice-breaker should deal with different states of students.

The perception of the first task and reaction on it depends on how the activity was chosen. Students who chose it deliberately perceived it as interesting and useful for learning. If the choice is irresponsible, then the perception of activity depends on chance. To facilitate a deliberate choice of students the following refinements should be made in the guidelines:

- Free choice of everyone should be underlined and that there will be no problem if some students choose the same or different activities.
- The emphasis should be put on awareness of students about learning styles and why four activities are offered.

- Firstly, students have to choose the type of activity and only then a form of work: individual or group.

Presentation of supportive information is perceived by students as a useful part of instruction. However, it is worth to notice that suggested in the guidelines form: presentation of different types of activities from the first task, is very good for big groups when for each activity there are several students. It was noticed that for small groups it is better to provide supportive information through discussion of findings from the first task. The study of two cases also allowed clarifying in the guidelines the sequence of elements of supportive information: theory, examples, practical application.

The second type of the task, where students experienced matching and mismatching activities, was perceived by most of the students as difficult, but interesting and inspiring. They progressed during this task significantly. The feeling of difficulty is related to mismatching activities and for some students it appeared as a stress. To reduce this stress some students need more support from the instructor during mismatching activities.

From the experience with the second case when the workshop was conducted by the instructor who did not have deep understanding of the ideas behind the guidelines it can be concluded that the issue of training teachers will be crucial for implementation of the guidelines.

From one point of view the study of the two cases allowed the researcher to make conclusions how effective are the theoretically developed guidelines. On the other hand, generalization of findings is limited by the context of study: only language groups, amount of cases and amount of students. The guidelines are also limited by implementing ideas only from three learning styles models.

From this the directions for further research can be formulated:

- 1) Prove effectiveness of the guidelines in a variety of contexts and subject matter areas.
- 2) Explore relationships between the guidelines and implication for pedagogy from other learning style models.
- 3) Explore the correlation between the choice and perception of different activities during the instruction conducted according to the guidelines and results from different standard measurements of learning styles.
- 4) Conceptually and/or empirically derive special recommendation for different subjects.
- 5) Explore necessary conditions for implementation.
- 6) Explore changes in attitudes towards instruction when students experienced such type of instructions several times and got used to it.
- 7) Explore how efficient the guidelines are.
- 8) Explore if students learn with pleasure with instruction designed according to the guidelines.
- 9) Conceptually or empirically create methods to facilitate Apter's reversals when a student is in the extreme mode.

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Appendix 1. The Kolb Learning Style Inventory

The Kolb Learning Style Inventory

Example:

When I learn

2
I am happy

4
I am careful

1
I am fast

3
I am logical

1. When I learn

I like to deal with my
feelings

I like to think about ideas

I like to be doing things

I like to watch and listen

2. I learn best when

I listen and watch
carefully

I rely on logical thinking

I trust my hunches and
feelings

I work hard to get things
done

3. When I am learning

I tend to reason things
out

I am responsible about
things

I am quiet and reserved

I have strong feelings
and reactions

4. I learn by

feeling

doing

watching

thinking

5. When I learn

I am open to new
experience

I look at all sides of
issues

I like to analyze things,
break them down into
their parts

I like to try things out

6. When I am learning

I am an observing person

I am an active person

I am an intuitive person

I am a logical person

7. I learn best from

observation

personal relationships

rational theories

a chance to try out and
practice

8. When I learn

I like to see results from
my work

I like ideas and theories

I take my time before
acting

I feel personally involved
in things

9. I learn best when

I rely on my observations

I rely on my feelings

I can try things out for
myself

I rely on my ideas

10. When I am learning

I am a reserved person

I am an accepting person

I am a responsible person

I am a rational person

11. When I learn

I get involved

I like to observe

I evaluate things

I like to be active

12. I learn best when

I analyze ideas

I am receptive and open-
minded

I am careful

I am practical

Keys for the Kolb Learning Style Inventory

Example:

When I learn

2
I am happy

4
I am careful

1
I am fast

3
I am logical

1. When I learn

CE
I like to deal with my feelings

AC
I like to think about ideas

AE
I like to be doing things

RO
I like to watch and listen

2. I learn best when

RO
I listen and watch carefully

AC
I rely on logical thinking

CE
I trust my hunches and feelings

AE
I work hard to get things done

3. When I am learning

AC
I tend to reason things out

AE
I am responsible about things

RO
I am quiet and reserved

CE
I have strong feelings and reactions

4. I learn by

CE
feeling

AE
doing

RO
watching

AC
thinking

5. When I learn

CE
I am open to new experience

RO
I look at all sides of issues

AC
I like to analyze things, break them down into their parts

AE
I like to try things out

6. When I am learning

RO
I am an observing person

AE
I am an active person

CE
I am an intuitive person

AC
I am a logical person

7. I learn best from

RO
observation

CE
personal relationships

AC
rational theories

AE
a chance to try out and practice

8. When I learn

AE
I like to see results from my work

AC
I like ideas and theories

RO
I take my time before acting

CE
I feel personally involved in things

9. I learn best when

RO
I rely on my observations

CE
I rely on my feelings

AE
I can try things out for myself

AC
I rely on my ideas

10. When I am learning

RO
I am a reserved person

CE
I am an accepting person

AE
I am a responsible person

AC
I am a rational person

11. When I learn

CE
I get involved

RO
I like to observe

AC
I evaluate things

AE
I like to be active

12. I learn best when

AC
I analyze ideas

CE
I am receptive and open-minded

RO
I am careful

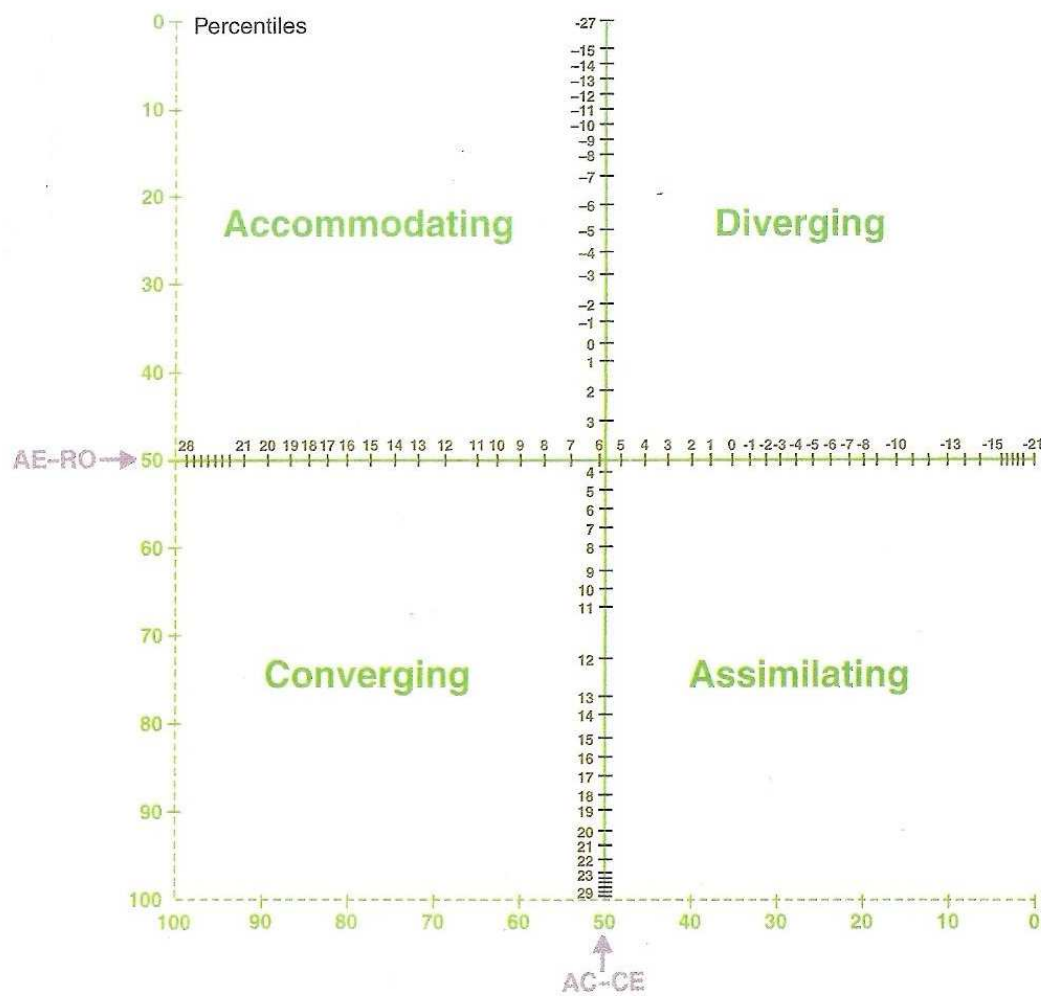
AE
I am practical

Learning style type grid

AC-CE = AC - CE

AE-RO = AE - RO

The closer data point is to the centre of the grid, the more balanced learning style is.



Appendix 2. Materials for Russian lesson

1st type of learning tasks.

1 – Translate Sentences into English. Provide the exact meaning and understand all nuances. Pay special attention to verbs.

Елена ходит в театр каждую неделю.

Сейчас Владимир идёт домой.

Мы пришли на урок.

Мы вышли на перерыв.

Друзья приехали в Москву.

Он приезжает на вокзал в 9 утра.

Он улетает в 12 часов из Домодедово.

Официант несёт еду и напитки клиентам.

2 – Knowing the theory, develop a procedural scheme how to choose verbs of motion in sentences

Verbs of motion

There are three types of verbs of motion in Russian language:

- Iterative (relates to simple tense: *I go...*)
- Progressive (relates to continuous tense: *I am going...*)
- Perfective (relates to perfect tense: *I have gone...*)

	Iterative		Progressive		Perfective	Examples
	НСВ	НСВ	НСВ	НСВ	СВ	
<i>go on foot</i>	Ходить	Входить	Идти	Войти	Войти	Елена ходит в театр каждую неделю.
	Present Хожу Ходим	Выходить	Present Иду Идём	Выйти	Выйти	Elena goes to the theatre every week.
	Ходишь Ходите	Приходить	Идёшь Идёте	Прийти	Прийти	Я вхожу в аэропорт
	Ходит Ходят	Уходить	Идёт Идут	Уйти	Уйти	I am entering the airport.
	Past Ходил (-а, -о, -и)	Переходить	Past Шёл, шла (-о, -и)	Перейти	Перейти	Сейчас Владимир идёт домой.
<i>go, travel in a vehicle</i>	Future Буду ходить	Проходить	Future Буду идти	Пройти	Пройти	Vladimir is going home now.
				Пойти	Пойти	Мы пришли на урок.
				Сходить	Сходить	We have come for the lesson.
	Ездить	Въезжать	Ехать	Приехать	Приехать	Друзья приехали в Москву.
	Present Езжу Ездим	Выезжать	Present Еду Едем	Уехать	Уехать	Он приезжает на вокзал в 9 утра.
	Едишь Едите	Приезжать	Едешь Едете	Проехать	Проехать	
	Едит Едят	Уезжать	Едет Едут	Доехать	Доехать	
	Past Ездил (-а, -о, -и)		Past Ехал (-а, -о, -и)	Поехать	Поехать	
	Future Буду ездить		Future Буду ехать	Съездить	Съездить	

<i>go by air, fly</i>	Летать Present Летаю Летаем Летаешь Летаєте Летают Летают Past Летал (-а, -о, -и) Future Буду летать	Вылетать Прилетать Улетать	Лететь Present Лечу Летим Летишь Летите Летит Летят Past Летел (-а, -о, -и) Future Буду лететь	Вылететь Прилететь Улететь	Он улетает в 12 часов из Домодедово.
<i>bring, take, carry</i>	Носить Present Ношу Носим Носишь Носите Носит Носят Past Носил (-а, -о, -и) Future Буду Носить	Приносить Уносить Относить	Нести Present Несу Несём Несёшь Несёте Несёт Несут Past Нёс, нёсла (-о, -и) Future Буду нести	Принести Унести Отнести	Официант несёт еду и напитки клиентам.

Meaning of the most important prefixes to make verbs of motion

В (о)-	Go in, enter	До-	Reach (go as far as)
Вы-	Go out, exit	За-	Drop in
При-	Arrive, come	О(б)-/обо-	Go round
У-	Leave	Под(о)-	Approach (go up to)
Пере-	Cross, move over	По-	Set off
Про-	Pass through, go by	С-	Go and come back
От(о)-	Move away from		

3 – Generate more examples with verbs of motion. Try to illustrate as many points as possible.

Verbs of motion

There are three types of verbs of motion in Russian language:

- Iterative (relates to simple tense: *I go...*)
- Progressive (relates to continuous tense: *I am going...*)
- Perfective (relates to perfect tense: *I have gone...*)

	Iterative		Progressive		Perfective	Examples
	НСВ	НСВ	НСВ	НСВ	СВ	
go on foot	Ходить	Входить	Идти	Войти	Войти	Елена ходит в театр каждую неделю.
	Present Хожу Ходим	Выходить	Present Иду Идём	Выйти	Выйти	Сейчас Владимир идёт домой.
	Ходишь Ходите	Приходить	Идёшь Идёте	Прийти	Прийти	Мы пришли на урок.
	Ходит Ходят	Уходить	Идёт Идут	Уйти	Уйти	Мы вышли на перерыв.
	Past Ходил (-а, -о, -и)	Переходить	Past Шёл, шла (-о, -и)	Перейти	Перейти	
	Future Буду ходить	Проходить	Future Буду идти	Пройти	Пройти	
				Пойти	Пойти	
				Сходить	Сходить	
go, travel in a vehicle	Ездить	Въезжать	Ехать	Приехать	Приехать	Друзья приехали в Москву.
	Present Езжу Ездим	Выезжать	Present Еду Едем	Уехать	Уехать	Он приезжает на вокзал в 9 утра.
	Едишь Едите	Приезжать	Едешь Едете	Проехать	Проехать	
	Ездит Ездят	Уезжать	Едет Едут	Доехать	Доехать	
	Past Ездил (-а, -о, -и)		Past Ехал (-а, -о, -и)	Поехать	Поехать	
	Future Буду ездить		Future Буду ехать	Съездить	Съездить	

<i>go by air, fly</i>	Летать Present Летаю Летаем Летаешь Летаєте Летает Летают Past Летал (-а, -о, -и) Future Буду летать	Вылетать Прилетать Улетать	Лететь Present Лечу Летим Летишь Летите Летит Летят Past Летел (-а, -о, -и) Future Буду лететь	Вылететь Прилететь Улететь	Он улетает в 12 часов из Домодедово.
	Носить Present Ношу Носим Носишь Носите Носит Носят Past Носил (-а, -о, -и) Future Буду Носить	Приносить Уносить Относить	Нести Present Несу Несём Несёшь Несёте Несёт Несут Past Нёс, нёсла (-о, -и) Future Буду нести	Принести Унести Отнести	Официант несёт еду и напитки клиентам.

Meaning of the most important prefixes to make verbs of motion

В (о)-	Go in, enter	До-	Reach (go as far as)
Вы-	Go out, exit	За-	Drop in
При-	Arrive, come	О(б)-/обо-	Go round
У-	Leave	Под(о)-	Approach (go up to)
Пере-	Cross, move over	По-	Set off
Про-	Pass through, go by	С-	Go and come back
От(о)-	Move away from		

4 – *Generate a real life dialogue using written below sentences.*

Елена ходит в театр каждую неделю.

Сейчас Владимир идёт домой.

Друзья приехали в Москву.

Он приезжает на вокзал в 9 утра.

Он улетает в 12 часов из Домодедово.

Официант несёт еду и напитки нам.

2nd type of learning tasks.

Text (for activities 1 and 2)

Меня зовут Том. Я прилетел в Москву из Брюсселя во вторник. Я приехал, чтобы посмотреть этот город. В Шереметьево я прошёл пограничный контроль и поехал в город на электричке.

В справочном бюро я спросил, как проехать в мой отель:

- Скажите, пожалуйста, как я могу доехать до гостиницы «Кузьминки»?
- Вам нужно войти в метро, проехать по серой ветки 3 станции, до станции «Чеховская», там пересесть на фиолетовую линию и ехать до станции «Кузьминки». Потом Вам нужно выйти на улицу из последнего вагона и сесть на автобус 611 и ехать до остановки «Гостиница».
- Спасибо.

Когда я вошёл в отель, портье отнёс мои вещи в номер, а я оформил регистрацию. Я сказал ему, что хочу съездить на Красную площадь и Арбат. Он рассказал, как туда добраться:

- Вам нужно доехать до метро. Там сесть в поезд, который едет в центр. Потом выйти на станции «Кузнецкий мост» и перейти на станцию «Лубянка». Проехать ещё одну станцию, до «Охотного ряда», и там выйти в город. Вам нужно будет пройти около 100 метров, и Вы увидите Красную площадь и Собор Василия Блаженного.

Так я увидел две главные достопримечательности Москвы. За 10 дней я видел ещё много всего интересного. В четверг я улетел обратно домой. Надеюсь, я ещё прилечу в Москву. Это интересный и красивый город! Ещё я хочу съездить в Санкт-Петербург.

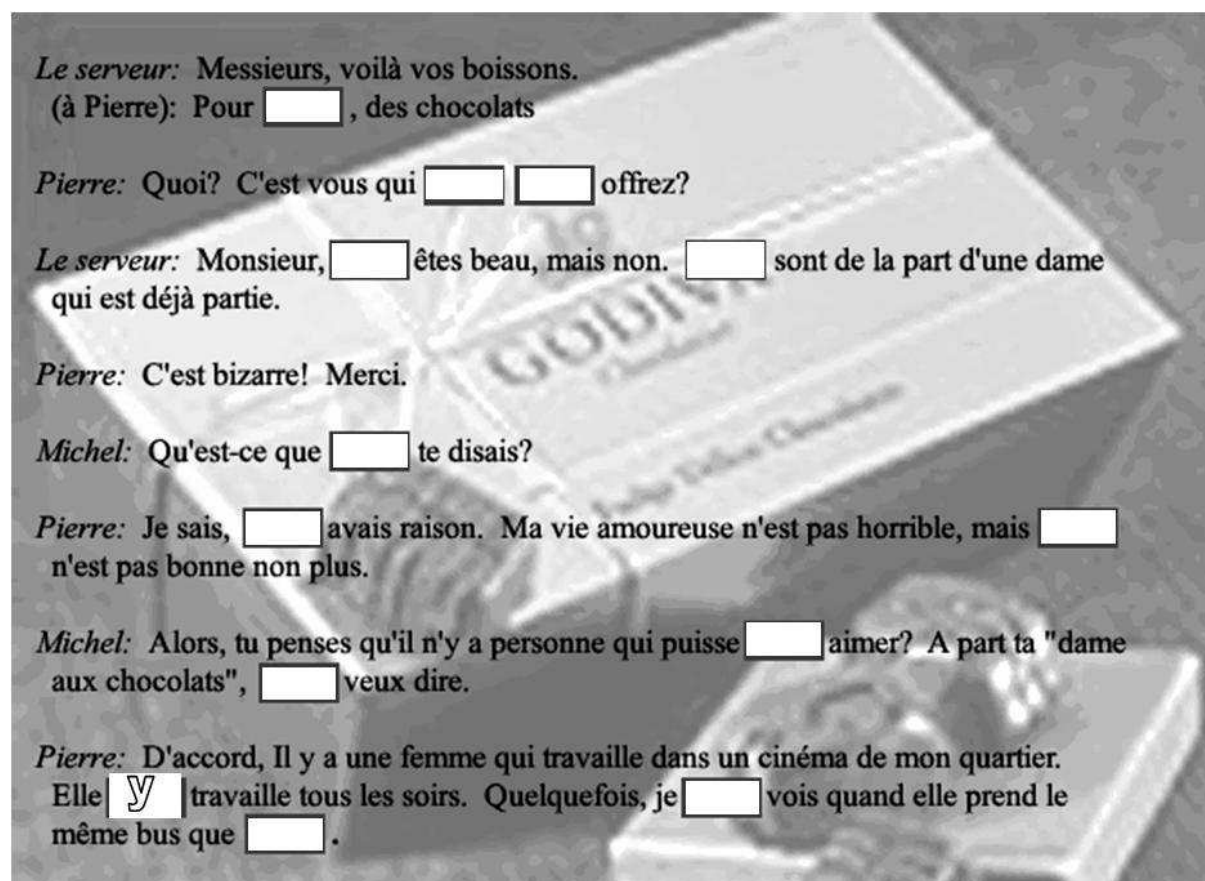
New topic (for activities 3 and 4)

On the central station in Brussels Russian tourists ask you how to get Central library in the city of Leuven.

Appendix 3. Materials for French lesson

1st type of learning tasks.

1



Le serveur: Messieurs, voilà vos boissons.
 (à Pierre): Pour , des chocolats

Pierre: Quoi? C'est vous qui offrez?

Le serveur: Monsieur, êtes beau, mais non. sont de la part d'une dame qui est déjà partie.

Pierre: C'est bizarre! Merci.

Michel: Qu'est-ce que te disais?

Pierre: Je sais, avais raison. Ma vie amoureuse n'est pas horrible, mais n'est pas bonne non plus.

Michel: Alors, tu penses qu'il n'y a personne qui puisse aimer? A part ta "dame aux chocolats", veux dire.

Pierre: D'accord, Il y a une femme qui travaille dans un cinéma de mon quartier. Elle travaille tous les soirs. Quelquefois, je vois quand elle prend le même bus que .

elle ils je je

la moi me les t'

tu vous vous

2, 3

complément d'objet direct

1	me il me voit Elle m'appelle	nous elle nous voit
2	te elle te rencontre Elle t'appelle	vous ils vous attendent
3	le la Je vois Julie => Je la vois Je vois Jules => Je le vois Je l'appelle	les J'écoute Julie et Jules Je les écoute

la forme tonique

1	moi C'est moi	nous tout ça, c'est pour nous
2	toi il t'aimes, toi	vous C'est vous que je vois
3	lui elle	eux elles Je les voit, eux (elles)

complément d'objet indirect (à)

1	me il me donne un cadeau il m'offre un cadeau	nous tu nous donnes un verre
2	te elle te pardonne Elle t'offre une fleur	vous Il vous manque
3	lui Je parle à Julie => Je lui parle Je parle à Jules => Je lui parle	leur Je parle à Jules et Julie Je leur parle

1	à moi	à nous
2	à toi	à vous
3	à lui à elle	à eux à elles

Les pronoms

pronoms personnels sujet

	sg	pl
1	JE je parle j'attends	NOUS nous appelons
2	TU tu vas	VOUS vous dites
3	IL ELLE il achète	ILS ELLES ils racontent

Forme de politesse : VOUS

pronom personnel réfléchi

	sg
1	ME je me réveille je m' appelle
2	TE tu te lèves tu t' appelles
3	SE il se rappelle il s' appelle

les pronoms possessifs

singulier

1	mon chien ma poule	mes animaux
2	ton ami ta copine	tes amis / amies
3	son livre sa porte	ses crayons

pluriel

notre chien / poule	nos animaux
votre copain	vos amis
leur fleur	leurs écoles

attention aux mots féminins qui commencent par une voyelle!

mon/ton/son AMIE

4

Tu m'appelles quand tu vois son chien.

Elle lui téléphone tous les soirs, mais elle utilise toujours mon telephone.

Il aime bien offrir des fleurs, mais il les prend dans mon jardin.

2nd type of learning tasks.

Mme Binet et son fils (5 ans)

Elle lui permet tout.

Elle ne le quitte jamais.

Elle ne le critique jamais.

Elle lui donne toujours raison.

Elle lui obéit.

10 ans plus tard : le fils et sa mère .

Il lui donne des ordres.

Il ne la comprend pas.

Il la critique toujours.

Il ne lui donne jamais raison.

Il ne lui demande jamais pardon.

Un père idéal avec ses enfants.

Il les tient dans ses bras.

Il leur raconte des histoires.

Il ne leur permet pas tout.

Il les embrasse souvent.

Il leur donne beaucoup d'amour.

Appendix 4. Observer's form for gathering data for interpretations

	Name	Name	Name	Name	Name	Name	Name
Ice-breaker							
Observation/ Video	Rank in which state students are: telic (<i>calm, serious face, no smile, strained, annoyed if the activity is perceived as unimportant</i>) paratelic (<i>enthusiastic, relaxed, smiling, laughing</i>)						
Before:							
After:							
Notes:							
1st type of tasks							
Observation/ Video	How is the activity chosen? hesitation OR fast decision						
	How easy is the chosen task (<i>he/she is doing it fast, without big questions and with pleasure OR struggling with it</i>)						
	Questions of participants: - How many? - Is there understanding of the activity and content?						
	How many mistakes do students make?						
Notes:							
	telic /paratelic	telic /paratelic	telic /paratelic	telic /paratelic	telic /paratelic	telic /paratelic	telic /paratelic
	master. / sympat.	master. / sympat.	master. / sympat.	master. / sympat.	master. / sympat.	master. / sympat.	master. / sympat.
	<i>Master (in a competition with others, demonstrates power, tends to control) / Sympathy (cares about relationships with other people, try to reach harmony,sensitive)</i>						

	Name	Name	Name	Name	Name	Name	Name
	confor. / negativ.	confor. / negativ.	confor. / negativ.	confor. / negativ.	confor. / negativ.	confor. / negativ.	confor. / negativ.
	<i>Conformist (is ready to follow rules, asks for rules, agreeableness) / Negativistic (is ready to break rules, stubbornness, rebellious)</i>						
Supportive info							
Observation/ Video	How is a student active during the presentation of others? passive (silence, no ideas) . . . very active (keep talking, a lot of suggestions)						
	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.
Notes:							
2nd type of tasks							
Observation/ Video	The level of activity during 4 phases of the task: passive . . . very active						
I							
II							
III							
IV							
	Questions of participants:		- How many?	- Is there understanding of the activity and content?			
	How many mistakes do students make?						
Notes:							

	Name	Name	Name	Name	Name	Name	Name
	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.	telic /paratelic master. / sympat. confor. / negativ.
<i>After the lesson</i>							
Observation/ Video	Effectiveness of the materials: Practicality: Climate in the group: How interesting was the instruction: Logical organisation:						

Appendix 5. Questionnaires for students to fill in

Name:

1 Before and after ice-breaker

Please indicate with a tick your readiness to be inside the process of the lesson, participate in all activities, give spontaneous reactions, etc?

1) 0 % ●—————● 100 %

2) 0 % ●—————● 100 %

Name:

2 After the first type of tasks

1. I have chosen the task # _____

2. I worked ...

☐ - individually

☐ - in a group

3. I liked the task ...

least most
1 2 3 4 5 6 7 8 9 10

4. I think I progress during this task ...

Insignificantly Significantly
1 2 3 4 5 6 7 8 9 10

Name:

3 After the presentation

I have learned from the presentation of the group # ____ ...

<write 2-3 words about new words, constructions, examples, etc.>

Group #1	Group #2	Group #3	Group #4

Name:

4 After the second type of the task

1. Rank the parts of the task from the easiest one (1) to the most difficult (4)

- 1. ☐
- 2. ☐
- 3. ☐
- 4. ☐

2. I think this task is ... <write 2-3 words what you think about it>

3. I have made progress after this task in my learning.

Insignificant												Significant
	1	2	3	4	5	6	7	8	9	10		

Name:

5 After the lesson

For each question below, choose one answer which is the most suitable.

1. The most important for me in learning is
 - ☐ - to have interesting instruction
 - ☐ - to see the practicality of the materials and instruction
2. The most important for me in learning is ...
 - ☐ - to see logical organization of the material and tasks
 - ☐ - to feel that the teacher and students are willing to help me and treat me respectfully
3. I prefer ...
 - ☐ - to grasp information as a whole
 - ☐ - to get it step-by-step in the logical order

For each question below, circle the response, that best indicates your opinion.

4. How effective were the materials:

Min.	Max.										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">10</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	
1	2	3	4	5	6	7	8	9	10		

5. How practical was the lesson?

Min.	Max.										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">10</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	
1	2	3	4	5	6	7	8	9	10		

6. The climate in the group during the lesson was warm and respectful.

Untrue	True										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">10</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	
1	2	3	4	5	6	7	8	9	10		

7. How interesting was the lesson?

Min.	Max.										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">10</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	
1	2	3	4	5	6	7	8	9	10		

8. The tasks and the content were organized logically during the lesson.

Untrue	True										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">1</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">4</td> <td style="padding: 2px 5px;">5</td> <td style="padding: 2px 5px;">6</td> <td style="padding: 2px 5px;">7</td> <td style="padding: 2px 5px;">8</td> <td style="padding: 2px 5px;">9</td> <td style="padding: 2px 5px;">10</td> </tr> </table>	1	2	3	4	5	6	7	8	9	10	
1	2	3	4	5	6	7	8	9	10		

Appendix 6. Post-test for Russian group

Grammar Test

Name

Translate sentences from English into Russian

1. I have arrived at Zaventem today at 9 o'clock.

.....

2. He usually goes to the park in the evening.

.....

3. Students come for a lesson on Thursdays.

.....

4. He has entered the office at 6.

.....

5. She has left to Paris this morning.

.....

6. We are travelling to Namur.

.....

7. A waiter has brought a cup of coffee.

.....

8. He is flying to Moscow right now.

.....

9. I travel to work in Brussels on Tuesdays and Fridays.

.....

10. She often carries heavy bags.

.....

Appendix 7. Pre- and Post-test for French group

Pre -test

Le serveur: Messieurs, qu'est-ce que je sers?

Pierre (au serveur): Un jus d'orange pour moi et un coca pour mon ami.

(à Michel): Je suis content de pouvoir rencontrer cet après-midi.
Alors, ça va avec Sandrine?

Michel: Comme ça. Je vois tous les weekends. Je ai
téléphoné hier soir et elle a dit qu'elle aimait. Je ai dit sans
réfléchir que moi, je aimais aussi.

Pierre: Alors, ce n'est pas vrai?

Michel: Je ne sais pas. Mais maintenant elle pense que nous sommes
comme fiancés et elle est en train de préparer un voyage à Montpellier,
où ses parents habitent. Elle voudrait que je rencontre! Oh là là!

Pierre: Oh c'est pas tellement grave! Tu as de la chance! Moi, je suis nul
avec les dames.

l' la les lui

lui m' m'

nous vous

Post -test

TEST: les pronoms

ex: Jean – se réveiller – sonner – le réveil de Jean

Jean se réveille quand son réveil sonne.

- toi – se lever – le matin
- Christian – offrir un cadeau – (à Claudia)
- Juliette – donner – (les fleurs) – à (...)mère
- vous – appelez – (lui)

mettez le pronoms possessif correct

Julie aime	chien
Tu ré pares	vélo
Je prends	crayons
Nous les offrons	biscuits
Vous pensez à	devoir
Ils mangent	chocolats

Appendix 8. General form for Russian group

	Hercules	Muriel	Tabor	Robert	Jerome	The question indicates ...
Kolb's LSI	CE - 32 RO - 20 AC - 40 AE - 28 AC-CE = 8 AE-RO = 8 Converging	CE - 15 RO - 34 AC - 28 AE - 43 AC-CE = 13 AE-RO = 9 Converging	CE - 19 RO - 22 AC - 45 AE - 34 AC-CE = 26 AE-RO = 12 Converging	CE - 31 RO - 28 AC - 33 AE - 28 AC-CE = 2 AE-RO = 0 Diverging	CE - 26 RO - 23 AC - 30 AE - 41 AC-CE = 4 AE-RO = 18 Converging - western	Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
Ice-breaker						
Observ./ Video	Rank in which state students are: telic (<i>serious face, no smile, strained, annoyed if the activity is perceived as unimportant</i>). . . . paratelic (<i>enthusiastic, relaxed, calm, smiling, laughing</i>)					Paratelic state (Apter)
Before:	Smiling, talkative, relaxed	Relaxed	Smiling, relaxed	Smiling	Smiling	
After:	Relaxed, smiling	Relaxed, smiling	Enthusiastic	Enthusiastic	Calm	
Notes:						
Questionnaire	Please indicate with a tick your readiness to be inside the process of the lesson, participate in all activities, give spontaneous reactions, etc?					
Before:	-	70	75	79	96	
After:	6	70	85	82	89	
1st type of tasks						
Observ./ Video	How is the activity chosen? hesitation OR fast decision					
	Asked if the theory will be given in the	Hesitation. Liked the 2nd and 3rd activities.	Hesitation. Liked the 2nd and 3rd activities.	Preferred the 4th activity.	Kept silence.	Diverging, Assimilating, Converging,

	Hercules	Muriel	Tabor	Robert	Jerome	The question indicates ...
	second activity.					Accommodating learning styles (Kolb)
	How easy is the chosen task (he/she is doing it fast, without big questions and with pleasure OR struggling with it)					
	Quite easy	Medium	Easy	Quite easy	Medium	
	Questions of participants: - How many?		- Is there understanding of the activity and content?			
	Two	A lot of	Some	One	Several	
	How many mistakes do students make?					Apter's states
	some	no - because of task	no - because of task	some	some	
	paratelic Sympathy (wanted to communicate)	paratelic mastery	paratelic Sympathy (helped Muriel)	paratelic mastery	paratelic mastery	
	Master (in a competition with others, demonstrates power, tends to control) / Sympathy (cares about relationships with other people, try to reach harmony,sensitive)					
	negativistic	conformist	conformist	conformist	conformist	
	Conformist (is ready to follow rules, asks for rules, agreeableness) / Negativistic (is ready to break rules, stubbornness, rebellious)					
Notes:						
Questionnaire	I have chosen task # ____ .					Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
	3	2	2	4	1	
	I worked ____ . individually OR in the group					
	individually	group	group	individually	individually	
	I liked the task ____ . (1) least . . . (10) most					
	6	9	8	8	8	
	I think I progress during this task ____ . (1) insignificantly . . . (10) significantly					
	4	7	8	6	7	
Presentation						

	Hercules	Muriel	Tabor	Robert	Jerome	The question indicates ...
Observ./ Video	How is a student active during the presentation of others? passive (silence, no ideas) . . . very active (keep talking, a lot of suggestions)					To understand how students absorb information.
	In the beginning silent than a bit rebellious	Very active	Active	Medium	Medium	
	paratelic sympathy autocentric negativistic	paratelic sympathy allocentric conformist	paratelic sympathy allocentric conformist	paratelic mastery autocentric conformist	paratelic sympathy autocentric conformist	Apter's states
Notes:	There were two parts: 1) when students did 1 and 2 activities; 2) when students did 3 and 4 activities.					
Questionnaire	I have learned from the presentation of the group # __ <2-3 words about new words, constructions, examples, etc.>					To understand if such presentation is an appropriate means to provide supportive information.
#1	"My process of learning is much slower than a blind of an eye."	a little bit	examples of grammar	vocabulary	some words, expressions	
#2		good	grammar	theory	theory, flowchart	
#3		examples, very good	tried to understand	examples	-	
#4		0	tried to understand the examples.	-	-	
2nd type of tasks						
Observ./ Video	The level of activity during 4 phases of the task: passive . . . very active					Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
I	Quite passive	Very active	Active	In the beginning passive, then active	Active	
II						
III	Active	Very active	Very active	Very active	Very active	
IV						
	Questions of participants: - How many? - Is there understanding of the activity and content?					
	They asked a lot of questions about the meaning of words and how to translate some of them.					

	Hercules	Muriel	Tabor	Robert	Jerome	The question indicates ...
	How many mistakes do students make?					Apter's states
	They did some mistakes.					
	paratelic sympathy negativistic	paratelic sympathy conformist	paratelic sympathy conformist	paratelic sympathy conformist	paratelic sympathy conformist	
Notes:						
Questionnaire	Rank the parts of the of the task from the easiest one (1) to the most difficult (4)					Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
	All parts of task were very difficult.	translate and explain-1 generate examples -2 read -3 create a dialogue -4	read -1 generate examples -2 translate and explain-3 create a dialogue -4	create a dialogue -1 generate examples -2 read -3 translate and explain-4	read -1 translate and explain-2 create a dialogue and examples -3	
	I think this task is ... <2-3 words>					
	I stayed on the improvisation level.	very interesting task. I like more	difficult but I have learnt much	very useful	exciting, but difficult	
	I have made _____ progress after this task in my learning. (1) insignificant (10) significant					
	1	A lot	7	7	8	
After the lesson						
Observ./ Video	Effectiveness of the materials: Materials were effective. 9/10					Intuitive/ Sensing (MBTI)
	Practicality: The workshop was practical – 8/10.					Judging (MBTI)
	Climate in the group: Climate in the group was respectful and warm. However, Hercules felt a lack of attention.					Feeling (MBTI)
	How interesting was the instruction: The instruction was interesting.					Perceiving (MBTI)

	Hercules	Muriel	Tabor	Robert	Jerome	The question indicates ...
Questionnaire	Logical organisation: The instruction was organized logically.					Thinking (MBTI)
	The most important for me in learning is ____ . to have interesting instruction / to see the practicality of the materials and instruction					Perceiving/ Judging (MBTI)
	Interest-g instr.	Interest-g instr.	Interest-g instr.	Interest-g instr.	Practicality	
	The most important for me in learning is ____ . to see logical organization of the material and tasks / to feel that the teacher and students are willing to help me and treat me respectfully.					Thinking/ Feeling (MBTI)
	Logic	Logic	Logic	Logic	Respect	
	I prefer ____ . to grasp information as a whole / to get it step-by-step in the logical order					Intuitive/ Sensing (MBTI)
	As a whole	step-by-step	step-by-step	step-by-step	step-by-step	
	How effective were the materials:					Sorted for students who prefer to get info step-by-step and as a whole.
	9	7	7	6	8	
	How practical was the lesson?					Considered only students who prefer practical instruction over interesting.
	-	-	-	-	9	
	The climate in the group during the lesson was warm and respectful. (1) untrue (10) true					Considered only students who prefer warm climate in instruction over logic.
	-	-	-	-	9	
	How interesting was the lesson?					Considered only

	Hercules	Muriel	Tabor	Robert	Jerome	The question indicates ...
	9	7	9	7	-	students who prefer interesting instruction over practical.
	The tasks and the content were organized logically during the lesson. (1) untrue (10) true					Considered only students who prefer logic in instruction over warm climate.
	10	7	8	9	-	
Pre-test	There was no pre-test because the topic is out of the curriculum of the group.					
Post-test	8.75	8.25	6.75	6	5.75	
Prior knowledge	6.8	8.8	7.6	7.0	4.1	

Appendix 9. General form for French group

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
<i>Kolb's LSI</i>								
	CE - 27 RO - 25 AC - 27 AE - 41 AC-CE = 0 AE-RO = 16 Accommodating	CE - 43 RO - 26 AC - 19 AE - 32 AC-CE = -24 AE-RO = 6 Northern (Accommodating & Diverging)	CE - 20 RO - 38 AC - 35 AE - 27 AC-CE = 15 AE-RO = - 11 Assimilating	CE - 25 RO - 33 AC - 26 AE - 36 AC-CE = 1 AE-RO = 3 Diverging	CE - 23 RO - 31 AC - 26 AE - 40 AC-CE =3 AE-RO = 9 Accommodating	CE - 20 RO - 25 AC - 37 AE - 38 AC-CE =17 AE-RO = 13 Converging	Did not fill in the LSI	Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
<i>Ice-breaker</i>								
Observ./ Video	Rank in which state students are: telic (<i>serious face, no smile, strained, annoyed if the activity is perceived as unimportant</i>) paratelic (<i>enthusiastic, relaxed, calm, smiling, laughing</i>)							Paratelic state (Apter)
Before:	Quite serious	Calm	Calm	Smiling	Calm	Serious, strained	Was not in the classroom	
After:	Smiling	A small smile	A small smile	Smiling	Smiling	Enthusiastic		
Notes:								
Questionnaire	Please indicate with a tick your readiness to be inside the process of the lesson, participate in all activities, give spontaneous reactions, etc?							
Before:	83	88	70	74	79	65	Did not fill in	
After:	92	87	80	95	95	85		
<i>1st type of tasks</i>								

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...	
Observ./ Video	How is the activity chosen? hesitation OR fast decision							Was not in the classroom	Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
	Student, firstly, chose that they work in mini groups.						This group hesitated and then finally also chose the activity one after the first group. It looked that they just repeated the choice. It was not their choice.		
	This group chose the first activity very fast.								
	How easy is the chosen task (he/she is doing it fast, without big questions and with pleasure OR struggling with it)							Came when students almost finished the task. Worked with the second group.	
	Medium			Medium					
	Questions of participants: - How many?			- Is there understanding of the activity and content?					
	Several questions			Several questions					
	How many mistakes do students make?								
	A few mistakes			A few mistakes					
	paratelic sympat.	paratelic sympat.	paratelic sympat.	paratelic sympat.	paratelic sympat.	paratelic sympat.	telic ?	Apter's states	
	Master (in a competition with others, demonstrates power, tends to control) / Sympathy (cares about relationships with other people, try to reach harmony,sensitive)								
	confor.	confor.	confor.	confor.	confor.	negativ.	?		
		Conformist (is ready to follow rules, asks for rules, agreeableness) / Negativistic (is ready to break rules, stubbornness, rebellious)							
Notes:	The group calmly fulfilled the task without any questions why we need to do it, etc. They looked quite inside the process. They helped each other. They asked some questions sometimes.			They tried to fulfil the task, but also spoke about something which is not related to the content with Tanja.		In the beginning looked very puzzled, then started to make notes which are not related to the task.	Looked very tired and strained.		

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
Questionnaire	I have chosen task # ____ .							Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
	1	1	1	1	1	1	-	
	I worked _____ individually OR in the group							
	group	group	group	group	group	group	group	
	I liked the task ____ . (1) least (10) most							
	6	5	7	3	3	1	-	
	I think I progress during this task ____ . (1) insignificantly (10) significantly							
	6	5	7	5	5	1	-	
Presentation								
Observ./ Video	How is a student active during the presentation of others (the instructor)? passive (silence, no ideas) very active (keep talking, a lot of suggestions)							To understand how students absorb information. Apter's states
	Students wrote down what was on the blackboard and explained by the instructor. Their activity was limited by this. They asked several questions to clarify some points.							
	? telic /paratelic autocentric	? telic /paratelic autocentric	? telic /paratelic autocentric	? telic /paratelic autocentric	? telic /paratelic autocentric	? telic /paratelic autocentric	? telic /paratelic autocentric	
	? master./ symp. confor.	? master./ symp. confor.	? master./ symp. confor.	? master./ symp. confor.	? master./ symp. confor.	? master./ symp. confor.	? master./ symp. confor.	
	Notes: Students are not very active. They listened and wrote down what the instructor has presented on the blackboard.							
				Asked some clarifying questions		Asked a question about complex point		
Questionnaire #1	I have learned from the presentation of the group # __ <2-3 words about new words, constructions, examples, etc.>							To understand if such presentation
	-	-	-	-	-	-	-	

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
The instructor (#2, 3, 4)	take the right form understand the right usage	COD, COI	difference between COI & COD	I have learnt “pronom réfléchi” and the importance of the “tonique” using.	possessive pronouns with examples	it's mine - conversation usage	complement of object- direct and indirect	is an appropriate means to provide supportive information.
2nd type of tasks								
Observ./ Video	The level of activity during 4 phases of the task: passive . . . very active							Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
I	Students fulfilled the task individually.							
II	They functioned as a chain. Read and gave meaning of the sentences and at the same time classified pronouns according to the theory. It was quite easy for them and they were quite active							
III - IV	There were three groups for the 3 and 4 activities: Ruth, Emma & Lizka; Beatrix & Magda and Janet & Tanja. In the beginning of the 3 activity students looked puzzled. It seemed that it was difficult for them.							
	Worked very actively.			Medium activity	Worked , but were quite passive	Worked actively. looked that it was easy for her.		
IV	They looked that it was difficult for them.						Looked that it was easy for her.	
Questions of participants: - How many? - Is there understanding of the activity and content?								
Some			Some	Some	Some			
How many mistakes do students make?								
There were no mistakes because they clarified all unclear questions before.								

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
	paratelic sympat. confor.	paratelic sympat. confor.	paratelic sympat. confor.	paratelic sympat. ? confor./ negat.	paratelic sympat. ? confor./ negat.	paratelic sympat. ? confor./ negat.	paratelic sympat. confor.	Apter's states
Notes:				Tended to work with Janet and Tanja.			She was supposed to work with Beatrix, but in fact they worked separately. It looked that she has some strains in relationships with the group.	
Questionnaire	Rank the parts of the of the task from the easiest one (1) to the most difficult (4)							Diverging, Assimilating, Converging, Accommodating learning styles (Kolb)
	read & give meaning -1 classify - 2 dialogue - 3 generate examples - 4	read & give meaning -1 classify - 2 generate examples - 3 dialogue - 4	read & give meaning -1 classify - 2 generate examples - 3 dialogue - 4	read & give meaning -1 classify - 2 generate examples - 3 dialogue - 4	read & give meaning -1 classify - 2 generate examples - 3 dialogue - 4	read & give meaning -1 classify - 2 generate examples - 3 dialogue - 4	generate examples -1 classify - 2 read & give meaning - 3 dialogue - 4	
	I think this task is ... <2-3 words>							

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
	Good for understanding.	Difficult.	Confusing, difficult.	This task is difficult and not a real help for the exams.	This task was too difficult for our level, especially part 3 and 4.	Difficult and demoralizing for our confidence.	It was difficult.	
	I have made _____ progress after this task in my learning.						(1) insignificant (10) significant	
	6	7	6	5	5	5	significant	
After the lesson								
Observ./ Video	Effectiveness of the materials: Materials were effective. 8/10							Intuitive/ Sensing (MBTI)
	Practicality: The workshop was practical – 7/10.							Judging (MBTI)
	Climate in the group: Climate in the group was respectful, but not warm.							Feeling (MBTI)
	How interesting was the instruction: The instruction was quite boring.							Perceiving (MBTI)
	Logical organisation: The instruction was organized logically.							Thinking (MBTI)
	The most important for me in learning is ____ . to have interesting instruction / to see the practicality of the materials and instruction							Perceiving/
	Practicality	Interest-g instr.	Interest-g instr.	Interest-g instr.	Practicality	Interest-g instr.	Practicality	Judging (MBTI)
	The most important for me in learning is ____ .							Thinking/ Feeling (MBTI)
	to see logical organization of the material and tasks / to feel that the teacher and students are willing to help me and treat me respectfully.							
	Respect	Logic	Logic	Logic	Logic	Logic	Respect	
Questionnaire	I prefer ____ . to grasp information as a whole / to get it step-by-step in the logical order							Intuitive/ Sensing (MBTI)
	step-by-step	step-by-step	step-by-step	step-by-step	step-by-step	step-by-step	step-by-step	
	How effective were the materials:							Sorted for students who prefer to get info

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
	6	6	7	7	4	4	6	step-by-step and as a whole.
	How practical was the lesson?							Considered only students who prefer practical instruction over interesting.
	7	-	-	-	4	-	5	
	The climate in the group during the lesson was warm and respectful. (1) untrue (10) true							Considered only students who prefer warm climate in instruction over logic.
	10	-	-	-	-	-	5	
	How interesting was the lesson?							Considered only students who prefer interesting instruction over practical.
	-	6	7	4	-	2	-	
	The tasks and the content were organized logically during the lesson. (1) untrue (10) true							Considered only students who prefer logic in instruction over warm climate.
	-	6	7	8	4	5	-	
Pre-test	1 / 10	9 / 10	4 / 10	6 / 10	3 / 10	1 / 10	Did not write	
Post-test	6 / 10	9 / 10	9 / 10	4 / 10	9 / 10	9 / 10	9 / 10	

	Ruth	Emma	Lizka	Beatrix	Janet	Tanja	Magda (was about 40 minutes late)	The question indicates ...
Prior knowledge	~80%	~80%	~80%	~80%	~80%	~80%	~80%	