Learning Styles in Foreign Language Teaching/Learning

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Abstract—**The paper deals with the teaching and learning process based on the detected student´s learning style. The teaching process is built on the needs analysis questionnaire which defines students´ individual learning styles and summarizes their experience in previous foreign language learning. These results are consequently reflected in the teaching methods and approaches to each student. The paper presents results of students´ opinions reflected in proposals of methods and activities which support the efficiency of the teaching process and students´ motivation towards learning.**

Index Terms—**e-learning, ICT, learning styles, needs analysis, university education.**

I. INTRODUCTION

Since 2010 the three-year project "A flexible model of ICT supported educational process reflecting individual learning styles" has been running at the Faculty of Informatics and Management, University of Hradec Kralove, Czech Republic. Nowadays, under the condition of information society, attention should be paid to students´awarness of thein learning styles and preferences, together with teachers´ styles of instruction. Students have different types and levels of motivation, attitudes about teaching and learning, they response differently to specific instructional practices. Felder [1] distinguishes three categories of diversity that have been shown to have important implications for teaching and learning:

- differences in students´ learning styles (i.e. characteristic ways of taking in and processing information),
- approaches to learning (surface, deep, strategic), and
- intellectual development levels (attitudes to the nature of knowledge and how it should be acquired and evaluated).

Numerous learning style models have been developed; five of them have been the subject of studies in the field of engineering education [2] :

- Jung´s Theory of Psychological Type operationalized by the Myers-Briggs Type Indicator (MBTI),
- Kolb´s Experiential Learning Model,
- the Felder-Silverman Model,
- the Herrmann Model,
- Dunn and Dunn Model.

Another approach to detecting the student´s learning styles was applied within the above mentioned research project – the Learning Combination Inventory (LCI) designed by Christine A. Johnston.

II. UNLOCKING THE WILL TO LEARN

A. The Learning Process Revisited

Johnston, Associate Professor of Educational Administration at Rowan College of New Jersey, dealt with the nurturing of real schools, students and educators through focusing on effective communication, clear understanding of the learning process, and a commitment to the student-centred classroom. The traditional learning process is based on belief that all learning occurs as part of learner´s intelligence. The greater the intelligence, the more a child can learn. Johnston attracts attention to the verb *can*, as no one says *will* learn [2, p. 16]. For decades, intelligence has been measured by examining a child´s cognitive processes based on "information input – manipulation with information – information output" pattern, and the learner´s level of cognition has been measured by the performance on standardized tests. Johnston started the process of seeking how humans learn by examining what we already know, i.e.

- what mental processes are involved in the learning process,
- how they work,
- what the motivation is and how it affects the learning process.

According to the received results she partly agrees with theories of Piaget, Jung, Skinner, cognitive psychologists etc., i.e with the tripartite theory of the mind (feelings, thoughts, behaviour) which prove in cognition (i.e. the processing self), conation (i.e. the performing self) and affectation (i.e. the developing self). The emphasis is paid to interrelationship, interconnectedness and holistic aspects of the mind. Then, another question appears, i.e. what motivates the learner to learn? Educational and cognitive psychologists have identified several elements of motivation, such as attention, interest, self-esteem, mindfulness, effort, persistence etc. which use motivation as a link between learning styles and learning environment. For centuries, the *will* has been closely aligned with the concept of motivation, being described as the passion, the energy that moves individuals to actions. Current psychologists refer to the will as the drive to act that is uniquely individual. According to Assagioli in [2, p. 27] "the will is a specific power which rises up within each of us to give the individual the inner energy to wrestle, cope with, and integrate the whole of ourself." To work effectively, the will must be supported by the *why*-question. It can show the learner whether the learning content is relevant, meaningful and applicable to real life. In other words, learners want to discover the wholeness of learn-

ing, and it will spark their will to learn. And, the will is the degree to which the learner is prepared to invest in the learning process [2, p. 29].

To describe the whole process of learning, Johnston uses the metaphor of a combination lock saying that cognition (processing), conation (performing) and affectation (developing) work as interlocking tumblers; when aligned they unlock an individual´s understanding of his/her learning combination. The will lies in the centre of the model, and interaction is the key. She compares our learning behaviour to a patterned fabric, where the cognition, conation and affectation are the threads of various colours and quality. It depends on individual weaver (learner) how s/he combines them and what the final pattern is [2, p. 39].

Johnston collected answers to three basic questions presented below from more than 4,500 students from 6 to 22 years of age within the USA and abroad:

- What makes learning frustrating for you?
- How would you like to show the teacher what you know?
- How would *you* teach students to learn?

The responses describe the schema that drives their will to learn. They are categorized into four groups and described by respondents´comments as follows [2, pp. 48-50]:

- Sequential Processors, defined as the seekers of clear directions, practiced planners, thoroughly neat workers.
- Precise Processors, indentified as the information specialists, info-details researches, answer specialists and report writers.
- Technical Processors, specified as the hands-on builders, independent private thinkers and reality seekers.
- Confluent Processors, described as those who march to a different drummer, creative imaginers and unique presenters.

III. RESEARCH DESCRIPTION

The research presented below is part of the three-year project "A flexible model of the ICT supported educational process reflecting individual learning styles". This part focuses on foreign language teaching and learning in tertiary education.

A. Main Objective

The research aims at monitoring students´experience in this field. Collected data were structured, evaluated and compared to those defined by Johnston [2, pp. 48-50] so that some recommendations could be defined and provided.

B. Research Method and Data Processing

The received data were collected from the Johnston´s LCI questionnaire. It consists of 28 statements, responses to which are defined on the five-level Likert scale, and three open-answer questions mentioned above. The results form a pattern for individual student showing which types of processors s/he prefers or avoids. The standardized content was supported by another three open-answer questions dealing with foreign language teaching and learning. The collected data were processed in two phases. First, the individual learning style of each respondent was detected

by the LCI. Then, respondents were divided into four groups according to the main (strongest) type of processor, i.e. sequential, precise, technical, confluent, and other three combinations were added when the respondents reached equal results in two types of processors (technical and sequential, sequential and precise, precise and technical). Their experience and opinions were collected and compared to those provided by Johnston [2, p. 48-50]. According to the LCI scoring sheet, responses are matched to question in a special structure which finally provides total amount of points relating to each processor. The scale, extended from 7 to 35 points, is structured into three parts:

- I avoid this scheme (from 7 to 17 points).
- I use this as needed (from 18 to 25 points).
- I use this scheme first (from 26 to 35 points).

C. Sample Group

One hundred and thirty-two students (86.4 % of men, 13.6 % of women) in the first year of the combined bachelor study programme Applied Informatics and Information Management participated in the research, i.e. all students who enrolled in the first year of these study programmes in the 2010/11 academic year.

IV. RESEARCH RESULTS

A. Detected Learning Style

Four types of single processors and three combinations were detected by the LCI within the sample group. The structure of the group is displayed in table I.

TABLE I.
RESPONDENTS: STRUCTURE OF THE GROUP

Type of Processor	I use this first %	I use this as needed %
Sequential	37.9	1.5
Precise	7.6	1.5
Technical	31.8	3.0
Confluent	3.0	1.5
Sequential/Technical	15.2	-
Sequential/Precise	3.0	-
Technical/Precise	1.5	-

B. Responses to Questions 1, 2, 3

As mentioned above the LCI includes 28 statements and three open-answer questions verifying students´ responses to the statements. The questions are as follows:

Question 1: What makes assignments frustrating for you?

Question 2: If you could choose, what would you do to show your teacher what you have learned?

Question 3: If you were the teacher, how would you have students learn?

The collected responses cover a wide scale of answers. Whether, and to what extent they correspond to those presented by Johnston [2, pp. 48-50] is the matter of deep analyses which cannot be presented within this paper. When starting the research we intended to display the whole scale of responses supported by statistic data, but finally we recognized the data proved neither significant differences, nor slight differences because the same or

very similar responses were provided by most students. Below, the responses are structured into groups according to the preferred type of processor, and questions 1, 2 and 3. Some types of processors are not included because of low number of respondents.

Sequential processors are frustrated if they do not understand the instructions, instructions are not clear, exact, complete, there is too much information to be processed, they cannot get (find) the required information, memorizing, not understanding is emphasized, writing is preferred to doing, study materials are not available in the electronic form, study materials must be searched from several sources, such learning content is required which they have mastered before, so they do not learn new things, the learning content is not clearly structured, the new knowledge is theoretical, it cannot be applied in the real life, they are disturbed by noise, music, chaos, there is a low quality of light, or air, the teacher is not well-prepared for the lesson, they are tired, lazy, short of time for studying, and 11 % of students declare there is nothing which frustrates them, as they are used to adjusting to the current conditions.

Precise processors hate if they do not receive enough information and have to search it themselves, they do not understand the topic from the text in study materials, and cannot discuss the problem with the teacher immediately, they do not like the learning content which they cannot describe in their own way, they hate noisy environment and if instructions are not clear.

Technical processors do not like if instructions are not clear - they are not sure what to do and how to continue, or the instructions restrict their activities and ideas, they are disturbed from work being asked irrelevant questions, they are tired, there is noise and lack of time or motivation, the new knowledge is not useful for the real life, they cannot discover how things work, and why.

Technical/Sequential processors do not feel comfortable if instructions are exact and complete, they understand it restrictive for them, study materials are not well structured, or there is lack of them, they prefer the printed version to electronic one, they are disturbed by the teacher or other students.

Sequential processors would show what they have learned mostly in the form of written tests or essays, oral exams defending their opinions, without other students presented, in discussions with teacher who can immediately correct mistakes, in individual projects, practical examples and applications, in oral presentations.

Precise processors would prefer the same ways of presenting their knowledge, i.e. written tests, oral exams, practical doing.

Technical processors prefer individual long-time projects (the team work was not mentioned by students of any processor), they accept both oral and written exams, discussions of practical solutions with the teacher only, not been disturbed by other students.

Technical/Sequential processors emphasize the combination of tests followed by discussions, or possibility to take one topic from others which is close to their interests, solve it and present their opinions and results.

If they were teachers, the *all types of processors would have students learn* the most important topics only, which are closely related to real life, by doing. The traditional approach to instruction is accepted, i.e. theoretical explanations, examples, exercises, but strong emphasis is paid to the practical use of new knowledge. Role-playing, gaming, competitions, positive class environment, good mood, entertaining forms of work etc. are mostly proposed, but not a student presented any concrete activity which s/he involved in the described categories.

C. Responses to Questions 4, 5, 6

Three other questions were added to the standardized LCI questionnaire dealing with the field of foreign language teaching and learning. The questions are as follows:

Question 4: What is your previous experience in foreign language learning/teaching? (Which languages have you studied, how many years, what methods, types of activities, assignments did the teacher apply, did you study within the school attendance, or after-school activity? etc.)

Question 5: What do you consider the ideal way of foreign language learning/teaching? (age, number of foreign languages, methods, forms etc.).

Question 6: How do you evaluate the real conditions for foreign language learning/teaching in the tertiary education?

Similarly to Questions 1, 2, 3 the responses to Questions 4, 5, 6 were intended to be presented in groups of respondents according to the preferred type of processors. Neither in the first group of questions, nor in the second one, responses can be classified according to this criterion. No difference, much less the significant difference, was found in their responses, which followed a wide scale of experience.

Students´ responses to Question 4 included the list of foreign languages they have studied. The combination of two foreign languages, starting with German followed by English (G+E), or starting with English followed by German (E+G) belong to the most frequent ones. German (G), or English (E) only also occur. Other foreign languages include Russian, French, Spanish, Latin, and various combinations of two or more languages. The data are presented in per cent (%) and displayed in table II.

TABLE II.
FOREIGN LANGUAGES THE RESPONDENTS STUDIED

Processor/ Foreign Language	Sequential	Precise	Technical	Technical/ Sequential
G + E	16	40	19	20
E + G	28	40	29	30
G	4	0	0	0
E	40	10	29	30
Others	12	10	23	20

The results show the most students of all processors study English, either as the only foreign language, or in combination with German as the first or second foreign language. German does not belong to those foreign languages which are frequently studied these days. It appears as the first foreign language in combination with English, and the combination of English followed by German is more frequent than German followed by English. German is seldom studied as the only foreign language.

The first foreign language learning starts on the primary school level, followed by the second foreign language on

the secondary level. These are the compulsory subjects, supported by private lessons of 87 % of respondents who attended them for a year at least within the period of the primary and secondary school attendance.

All students had both positive and negative experience within the compulsory learning of foreign languages. They emphasized the role of direct communication, with teachers or native speakers, learning in small groups, working with currently spoken language, texts in journals, books, films, video-recordings podcasts etc. All these means allow practising the language and simulate the real environment. Drilling vocabulary and grammar structures was also mentioned within the list of useful practices, followed by attractive applications of the received skills during studying or staying abroad. The role of eLearning was emphasized and recommended, especially to these students who combine work and study. These were the main reasons why respondents recommended to partici-pate in study programmes and mobilities, have work and travelling opportunities abroad etc. with the aim to use the foreign language for a long period, without being sup-ported by another Czech speaking person.

V. CONCLUSIONS AND RECOMMENDATIONS

The results clearly show how the Johnston´s model really works, and how important it is to take into account the whole pattern which includes all the four types of processors in some extent. If the strongest one is applied only as the main criterion, as we did, no adequate, signifi-cantly different responses occur. So, we conclude there is no difference in the scale of students´opinions under these conditions; but the main criterion was not applied in the required way, which influenced the whole process of research. To summarize the most frequent responses, students of all types of processors do not like to be dis-turbed from work, and being short of time, they would like to have entertaining environment at schools, select such ways of evaluating their knowledge which do not

stress but motivate them to further study. The question is whether this is not the added value of the learning style application to the instruction. Gregorc [3] proved that only students with very strong preferences do not study effec-tively when another style is required. On the other side, Felder says partial mismatching supports the development of new learning strategies [4]. All the methods and forms, mentioned or recommended by students, are considered traditional ones these days, none of them is revolutionary, providing the immediate success in foreign language learning and teaching. If modern information and commu-nication technologies are implemented in the process of instruction, requirements of various learning styles can be satisfied, both in foreign language learning/teaching and other subjects because of the wide range of tools provided.

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