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**COGNITIVE STYLE AND EI TRAINING BY COMPUTER
PROGRAM “EMOTRAIN”**

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Abstract

There are many changes in HE teaching in Kazakhstan nowadays (new standards of teaching organization and teaching delivery according to the Bologna process etc.). Emotional burnout of HE teachers happens very often, which makes teachers' achievements low. To enhance teacher effectiveness, EI training in the classroom is recommended. In spite of some advantages of EI training in the classroom there is a range of obvious limitations related to real classroom conditions, such as impossibility to train individually in terms of timing. The computer program “EmoTrain” was designed as a tool of individual EI training. The creative content of “EmoTrain” consists of exercises based on comprehension of materials such as pictures, videos, films, myths, proverbs, fairy-tales etc. Comprehension is a psychological process where cognitive styles such as Field dependence/independence according to Witkin and Equivalence range according to Gardner are important. Finding the proper solution of cognitive styles implementation into the EmoTrain program of EI development is a challenge. Cognitive styles diagnostics (making a plan of a text with mixed content), where equivalence range prevails. Findings show that 1) making a plan of a text with mixed content is a brief and effective method of field dependence/independence and equivalence range cognitive styles diagnostics; 2) it is possible to implement cognitive styles of users by using different styles of instructions to the exercises in EmoTrain program. Various forms of making instructions to the exercises in the content of EmoTrain program designs especially for HE teachers can reflect different cognitive styles of program users.

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Keywords: EmoTrain program, EI development, cognitive styles, field dependence/independence, equivalence range, comprehension.



1. Introduction

During the 25 years of the development of Kazakhstani Higher Education (HE) substantial changes have been taken place, which completely changed the HE system. The main aim of educational reforms is development of concurrent speiaists under conditions of a new social-economical environment. Quality of education is one of the main requirements for introducing Kazakhstan into fifty most concurrent nations of the world. The current HE modernization is being made within the State program of the development of Education for 2011-2020 years with priority of the development of human capital, sustainable economical growth by supporting access for quality education for everyone /16/.

The European Standards of HE have been implemented /Lysbon Convention of HE,1997; Bolonya Declaration, 2010/, which includes 3 level HE system. The credit system of HE presumes priority of self-education and creativity of students, individual trajectory and credit system of knowledge evaluation, accreditability of all components of HE system. In relation with this new professional requirements for HE teachers are designated. Among them are: doing research on the world level, accomplishing student-centered education, having good command of three languages (Kazak, Russian, English), elaborating learning programs and specific courses according to the world level both in content and technical requirements with the aim to meet accreditation standards /14,13,3/.

To evaluate readiness of HE teachers to work along with a range of these new implementations the sociological research was carried out, which shows lack of adaptation, fears of changes, problems with necessity of breaking stereotypes etc. /1/. The social-psychological survey of university teachers showed lack of satisfaction at work in more than 50% of university teachers /1/. Emotional workload of HE teachers is extremely high and leads to emotional burnout and various forms of psychological defence. Emotional burnout of HE teachers may reveal non-adaptive coping with professional stress. So, development of emotional intelligence of teachers becomes very urgent task.

2. Problem Statement

Emotional Intelligence (EI) has been important factor of professional achievements in many jobs related to human communication including teaching. EI training is recommended to enhance effectiveness of teaching / 10,17,5/. There are two different opportunities in training delivery: in real class conditions, or via internet /computer program-based training. Both have their strengths and weaknesses. Real classroom conditions may imply group discussions, business and role games, modeling of the situations of pedagogical communication. Normally there are 3-4 stages of work such as 1/ice-breaking, aquaintance of participants, creating trusting atmosphere, 2/increasing of motivation via frustration of participants, 3/exercises, constructive team-work, 4/ EI skills relating teaching. All exercises are designed to develop EI competences in group work, though their nature could be different. They could be directly aimed at the development of empathy, recognition and comprehension of emotional moods, increasing tolerance, assertive behaviour, positive and adequate self-esteem, as well as relaxation and self-regulation techniques /15/.

Another version of EI training in real classroom conditions may be based on case-study, where professional expertize of the participants is used and exercises are aimed at comprehension of mistakes and finding out the proper algorithm of problem solving of cases taken from real life. Emotional-

sufficient and emotional-insufficient versions of problem solving along with genuine style of problem-solving are analyzed at the first stage of the training. Participants may evaluate their own emotions in terms of their quality and quantity characteristics followed by non-verbal keys for evaluation of emotional moods of others. Then participants learn how emotions may influence thinking and behaviour as well as comprehension of conflict situation. Cases of conflict communication from personal experience of participants are used /11/.

For example, in the training, designed for medical specialists, discussion of difficult situations in communication with patients, (their relatives, colleagues and administration) was delivered and adaptive and non-adaptive coping strategies were analysed. As a result, less confronting coping strategies were chosen. Interesting is that classroom conditions may increase safety and support feelings too much, which result to less development of EI /11/. This is an example a weakness of real classroom training conditions. In our point of view, inspite of some advantages of EI training in the classroom there is a range of obvious limitations related to real communication in the classroom conditions, such as impossibility to train individually in terms of timing, not to say about above mentioned negative influence such as too much support and feelings of safety in the group which may lessen level of frustration needed for training effect.

Computer program “EmoTrain” was designed as a tool of individual EI training. The initial goal of EmoTrain program was helping university teachers with the development of their emotional intelligence which seems to be the important factor of coping with emotion burnout under conditions of permanent change at work. In contradiction with most of real classroom conditions training we have there development of EI in terms of ability to design personal plan of EI self-development.

The creative content of “EmoTrain” consists of exercises based on comprehension of materials such as pictures, videos, films, myths, proverbs, fairy-tales etc. Comprehension as a psychological process seems to be the basic process in the program. According to theory of comprehension /6,7/ comprehension is a macrostructuring of information. This macrostructuring is being made in two directions: vertical and horizontal. In vertical direction more general/more specific relations are comprehended. In horizontal direction synthetic/analytic relations are comprehended. In terms of cognitive styles vertical direction corresponds to H.Witkin Field Dependence/Independence cognitive style while horizontal direction corresponds to equivalence range cognitive style, according to R.Gardner. So, Field dependence/independence according to Witkin and Equivalence range according to Gardner are basic for the process of any comprehension /6/.

Field dependence/independence represents ‘a continuum along which an individual may be placed to characterize the extent to which his or her perceptions are dependent on (or independent from) cues in the environment (the ‘field’)’ /12, p.286/.

Equivalence range according to Gardner means an extent of stimuli that are sufficiently similar that they evoke the same or nearly the same response, which seems to be close to the term ‘stimulus equivalence’ /12,p.258/.

3. Research Questions

How can cognitive styles of users be taken into account in EmoTrain program?

To answer this question we need to briefly analyze the state of the cognitive styles issue relating computer-based applications in modern literature. Modern authors study cognitive styles in a various and more wide approaches, for example, considering them as visualizers/verbalizers as target users /8/. This seems to be important in establishing design and marketing strategies for computer-based applications. So, cognitive styles are considered in user preference context. We must make an accent on the user preference context as most important in modern consideration of cognitive styles relating computer-based applications. Preference context obviously is closely related to general approach of customization. For example, in the context of game-based learning, which is currently popular in educational settings, it was found that Holists might not always favor to listen to music because they frequently switched on/off music. On the other hand, Serialists did not prefer to use hints. In this study holists and serialists are quite close to groups with wide and narrow equivalence range according to Gardner /2/. The fact is that these two groups of users show strong specific preferences. Important is that modern web-based student learning is linked with the emotions, as soon as cognitive styles are taken into account /9/. Matching/mismatching instructional approach is a factor which can enable learners to feel more positive emotions and result to better learning performance. So, cognitive style preferences can be taken into account in form of different instructional approaches /4/.

We can conclude that in modern literature related to computer- or web-based technologies cognitive styles show their stability in their influence on learners, their strong link with emotions, which leads to significantly better learning performance, as well as instructional approach as a way in which they could be represented in a more efficient way. In the context of our work on EmoTrain program cognitive styles of users seem to be the factor needed in the context of program customization.

4. Purpose of the Study

Purpose of the study was to find out proper solution of cognitive styles (first of all, equivalence range) diagnostics and implementation into the EmoTrain program of EI development.

5. Research Methods

Cognitive styles diagnostics (making a plan of a text with mix content), where equivalence range is prevailed. Cognitive style's variable is number of points in the plan: 1/ 1-4 points as broad equivalence range, 2/ 8 and more points as narrow equivalence range, 3/ 5-7 points as middle zone with no clear definition of equivalence range.

6. Findings

Findings show that: 1/making a plan of a text with mix content is a short and effective method of equivalence range diagnostics as the most relevant to comprehension process cognitive style; 2/it is possible to implement cognitive styles of users by using different styles of instructions to the exercises in EmoTrain program. "EmoTrain" was created with a user-friendly interface to determine level of the teacher's emotional intelligence. The program was developed in the Visual Studio environment in the C# programming language. When installing the program are required operating system Windows version above 7 of their Framework 4.0. The program has a main form, a registration form, a form with personal

data about the user, question forms and the form of the result. During the development of the program were solved the following tasks: program design, program architecture, program logic, calculation of scores and appearance of the result. To interact with the database was used SQLite. Thanks to the architecture of the engine, it is possible to use SQLite both on embedded systems, on dedicated machines with gigabyte data arrays. As an exchange protocol are used the function calls (APIs) of the SQLite library. This approach reduces overhead, response time and simplifies the program. SQLite stores the entire database (including definitions, tables, indexes and data) in a single standard file on the computer on which the program runs.

7. Conclusion

Teaching in higher education is emotionally hard job due to enormous changes in this field and rather poor adjustment of HE teachers to new educational standards and work requirements. To cope with situations requiring different level of affective involvement and to be able to communicate according to numerous changes teachers need their emotional intelligence to be trained. More highly developed EQ could be helpful in problem solving with many professionally important situations both at work and in communication in general. Traditional way of EI development is EI training in classical classroom conditions. This approach has substantial limitations in terms of lack of individual approach regarding time conditions. Computer training program could be a good option. Computer technologies provide opportunity to assist teachers to work independently and to use their time resources more effectively.

EmoTrain Program includes is equivalence range diagnostics which is genuine to comprehension process of program users. A short and effective diagnostic methodology in the form of making a plan of a text with mix content is proposed. Various forms of making instructions to the exercises in the content of EmoTrain program designed specially for HE teachers can reflect different cognitive styles of program users.

References

- Abdirayimova G.S.,Primbyetov M.K.,Altynbyekov A.B. Reformation of Higher education system in Kazakhstan: perception of reality.-Almaty, 2012.-P.125-130. (In Russian)-880 p.
- Bouckenooghe D.,Cools E.,De Clercq D.,Vanderheyden K., Fatima T. Exploring the impact of cognitive style profiles on different learning approaches: Empirical evidence for adopting a person-centered perspective.//Learning and Individual Differences.Oct 2016,Vol.51,p299-306. DOI: 10.1016/j.lindif.2016.08.043.
- Byekishev K. Innovations in the system of the Republic of Kazakhstan.-Almaty,2013.-96 p.
- Huang Y.-M.,Hwang J.-P.,Chen S.Y.Matching/mismatching in web-based learning: a perspective based on cognitive styles and physiological factors.//Interactive Learning Environments. Sep2016,Vol24, Issue 6, p1198-2014, DOI: 10.1080/10494820.2014.978791.
- Huges M.,Thomson H.L.,Terrel J.B.Handbook for Developing Emotional and Social Intelligence:nBest Practices, Case Studies and Strategies.-Wiley,2009.-450 p.
- Kim A.M.Modern Psychology of Comprehension.-Almaty: Sagautdinova M.Sh., 2013.-272 p. (In Russian)
- Kintsch W. Comprehension: a Paradirm for Cognition.Cambridge, Cambridge University Press,1999.-461 p.
- Koc-Januchta M.,Hoeffler T.,Thoma G.-B.,Prechtl H., Leutner D. Visualizers versus verbalizers: Effects of cognitive style on learning with texts and pictures – An eye-tracking study.//Computers in Human Behavior.Mar 2017,Vol.68,p170-179. DOI:10.1016/j.chb.2016.11.028

Ku O., Hou C.-C., Chen S.Y. Incorporating customization and pBehavior. Dec 2016, Vol. 65, p359-368. DOI: 10.1016/j.chb.2016.08.040.

Matthews G., Zeidner M., Roberts R.D. Emotional Intelligence: science and myth. Cambridge, MA: MIT Press, 2004. - 718 p.

Pankratova A.A. Emotional Intelligence: patterns of developing program. // Psychological research, 2010. - #1(9). URL: <http://psystudy.ru/index.php/num/2010n1-9/289-pankratova9.html1#e3> (In Russian).

Reber A.S. Dictionary of Psychology. Penguin Books. 1995.

Sagimbayeva G.S., Darvish O.B. Peculiarities of the preparatopn of future specialists under conditions of credit system of education (on the pattern of Kazakhstan). // Current issues of science ad education. - 2014. - #6. - P. 50-54. (In Russian)

Shaimukhanova S.D., Kyenzhebayeva Z.S. Modernization of education in the Republic of Kazakhstan: current state and perspectives of the development. // Achievements of the modern science. - 2014. - #5(1). - P. 174-178. (In Russian)

Solodkova T.I. Training of Developing Emotional Intelligence as a Tool of Profilaxis and Correction of «Burnout» syndrome. // Psychopedagogy in Security. - #2(45). - 2011. - P. 55-57.

State program of the development of education of the Republic of Kazakhstan for 2011-2020 years.

Confirmed dy the Act of the President of the Republic of Kazakhartan from December the 7th 2010 #1118. - Astana: Ministry of Education and Science of the Republic of Kazakhstan, 2010-52 p. (In Russian)