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IMPLICIT MEASUREMENTS OF ATTITUDES – INNOVATIVE APPROACH IN TRAINING OF PSYCHOLOGISTS

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ABSTRACT

The paper presents the experience of team research work aimed at experimental study of attitudes by modern implicit methods. Involvement of students in the creative atmosphere creates the basis for the formation of a creative, competent and responsible psychologist who can then learn how to work in any of the areas of psychology. The results of empirical studies aimed at understanding of ethnic attitudes, hardness, gambling addiction, alcohol abuse by implicit methods and self-assessment procedures are presented.

Key words: Implicit Association Test, explicit method, unconscious affective priming, attitude

For the formation of general science, instrumental, social and personal, cultural and professional competencies graduate psychologists are involved in the research process, which is based on teamwork to research various attitudes by modern implicit methods. The purpose of this paper is to familiarize with the major trends of the

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experimental implicit research of teachers and undergraduates performed on the basis of the Laboratory of Implicit Measurements at Baltic Psychology and Management University College (Riga, Latvia). The experimental implicit research is being actively introduced into the educational process on the basis of existing courses in experimental psychology, cognitive psychology, psychological research methodology, data processing and interpretation. The researches are performed by a research team – professors and undergraduates – where each performs his/her function and has an idea of what his/her colleagues are doing. During the research, undergraduates should study mainly publications in English. After the end of work stages there is a preparation of publications, which include professors and graduates, whose contribution to the research was significant. This principle of engaging students in a creative atmosphere creates the basis for the education of a creative, competent and responsible psychologist. This creates the basis for achieving the general scientific, instrumental, social and personal, cultural and professional competencies.

A new area of research in Latvia is to study various psychological phenomena by implicit measurements both in the field of social psychology and its application areas.

Over the past years, the most commonly used implicit measurements are the evaluative priming procedure and the Implicit Association Test.

The terms “implicit” and “explicit” refer to the cognitive processes and constructs, measured using different procedures. The methods used for these measurements are usually also defined as implicit and explicit, however, some authors advocate the terms “direct” and “indirect” to define measurements (De Houwer, Teige-Mocigemba, Spruyt, Moors, 2009). Direct and indirect measurements may reflect different experience or its different aspects in relation to the object of attitude where indirect measurements do not replace but complement the results obtained by direct survey methods (Greenwald & Banaji, 1995; Wilson et al., 2000 at Rudman, 2011).

Explicit measurements are direct, controlled, and conscious. They are based on explicit knowledge about self. Not true, but socially desirable answers of participants are often revealed. Implicit measurements are indirect, automatic, and unconscious. Implicit methods are measurements of automatic (unconscious) evaluative reactions that come to mind spontaneously, with a mere presentation of the object in respect of which the attitude has been formed (Petty, Fazio, & Brinol, 2008).

Modern implicit methods are based on measuring the reaction time of participants when they perform different tasks and their attention is focused on performing these tasks, rather than on the object of attitude.

One of the implicit measurements is the unconscious emotional priming procedure, which began applicable in Latvia since 2006 for research of ethnic attitudes. In the period from 2006 to 2013 the authors (Irina Plotka, Dmitry Igonin, Nina Blumenau), together with the graduates of Baltic Psychology and Management University College (BPMUC) held six stages of experimental research.

The purpose of all stages of the research was to assess the automatic (unconscious) ethnic attitudes.

In the period of 2006-2012, there were six series of experiments, which involved 952 participants.

Four different tasks to participants were used:

Classification of target words of Osgood semantic differential scale for nouns and adjectives (2006);

Categorization of words and combinations of numbers (2008, procedures of direct and reverse priming);

Lexical decisions (identification of words and non-words – meaningless sequences of letters) (2009, 2010, 2011);

Classification of target words according to their affective valence (2012).

To determine the valence of ethnic attitudes in the experiments of 2006-2011 the method of reaction time shifts was used.

As a shift, the reaction time difference to the positive and negative target stimuli $R = T (+) - T (-)$ was used. In this case positive shifts must comply with negative attitudes, negative shifts – with positive attitudes.

In the experiment of 2012 the method for determining the valence of ethnic attitudes was changed. The authors called it a “modified method of shifts.” It proved to be more accurate and considered a “baseline”.

In each experiment explicit methods were used as well. The greatest preference was given to the method by G. Soldatova “Types of ethnic identity,” as it was the most suitable for the study of correspondence of some results

obtained with it with the results of the procedure of emotional unconscious priming. On average, there were approximately 30% percent of coincidences, the number of which depended on the SOA.

One reason for the coincidence may be related to the influence of recent autobiographical events related to the content of attitudes. In case of valence coincidence of the recent relevant event and of attitude you can expect its strengthening, in case of mismatch the inhibition of attitude can occur. These inhibitory effects may be discovered on specific time intervals from the time of prime to the moment of target stimulus presentation. This prompted to address the problem of influence of episodic and semantic memory on the reaction time in the unconscious emotional priming task. In this case, it was important to consider the interaction of episodic and semantic memory, in which the representation of attitude is implemented. It is assumed that this model will explain the difference in reaction time in the unconscious emotional priming task during implicit measurement of attitudes at different SOA.

Experiments of 2006-2013 are adequately represented in the publications of the authors. (Plotka, Igonin, Blumenau, 2008, 2009; Plotka, Igonin, Blumenau, Bambulaka, Ozola, 2010; Plotka, Igonin, Blumenau, Bambulaka, Ozola, Simane, 2011; Plotka, Blumenau, Bambulaka, 2012; Plotka, Blumenau, Igonin, Bambulaka, Ozola, Simane, 2012, Plotka, Igonin, Blumenau, & Simane, 2013).

In recent years (2012-2013) various versions of the Implicit Association Test (IAT) have been developed to examine attitudes to gambling addiction, alcohol and measuring hardness. Hereby we present the results of three experimental researches.

Experiment 1 was designed to study attitudes to gambling addiction by the Implicit Association Test and self-assessment procedures.

There is a definite shortage of measuring instruments for implicit measurements of attitudes to gambling addiction. The theoretical basis of the present research was the work of scientists from Canada, Yi & Kanetkar, University of Guelph (2010) and scientists from Belgium Brevers, Cleeremans, Hermant, Tibboel, Kornreich, Verbanck, Noël (2012) to identify the explicit and implicit attitudes to gambling.

The aim of our research was to examine attitudes to the gambling with the help of implicit and explicit measurement among problem-free social gamblers who regularly attend casinos and people who do not go to casinos.

Research questions:

Whether there is a correspondence between the results of measurements of implicit and explicit attitudes to gambling addiction?

Are there differences between explicitly and implicitly measured attitudes to gambling addiction in groups "gamblers" and "non-gamblers?"

METHOD

Participants: 50 men of 18 - 45 years old. $M = 31.5$ years. The "Gamblers": 25 participants attending the casinos no less than once a week, so-called social (problem-free) gamblers. The "Non-gamblers": 25 participants who did not attend casinos and do not consider themselves as gamblers.

Explicit method: Gambling Attitudes and Beliefs Survey, GABS (Breen & Zuckerman, 1999) can evaluate individuals who are not currently problematic gamblers, but who may have specific cognitive risk factors, indicating aspiration to become problem gamblers. Implicit method: a modified version of the Single-Category Implicit Association Test (SC-IAT) (Greenwald, 1995; Karpinski & Steinman, 2006), developed by Plotka, I., Igonin, D., Blumenau, N., Shimane, L., Lyutikova, N., Morozova, M.

IAT measures the relative associations between pairs of concepts, which are called categories and attributes. During the performance of IAT participants randomly classify stimuli relating either to categories or attributes.

Target categories were presented verbally, as "money game" and in visual form, as 5 pictures on various themes of gambling.

Attribute categories were words with positive affective meaning and words with negative affective meaning.

PROCEDURE

The research was conducted in two stages. In the first stage, using the questionnaire GABS the explicit (apparent) attitude towards gambling was revealed. In the second stage, using a modified version of the SC-IAT the implicit (latent) attitude towards gambling addiction was identified.

Results, conclusions and discussions

1. The results obtained by the method GABS have shown that explicitly measured attitudes towards gambling were more pronounced in the group "Gamblers." Explicit attitudes are well understood and amenable to human conscious control. This may indicate a "striving" to gambling and show how the individual "likes" gambling. At the moment, the pathological dependence might not be manifested, but characteristic of cognitive and motivational risk factors may present that indicate a desire to become a problem gambler.

2. Both positive and negative attitudes towards gambling addiction were identified measured by SC-IAT, as in the group of gamblers, as in the group of non-gamblers. Expressed negative attitudes towards gambling have been observed, as well, among the gamblers who had critical and high levels of gambling addiction according to the GABS procedure. Similar results were obtained in the research of Yi and Kantekar (2010) for a sample of students.

In our research the sample consisted of social problem-free gamblers and non-gamblers. It was found that both of them can have negative attitudes towards gambling addiction, measured implicitly. We can assume that the presence of negative attitudes gives a chance to get rid of even strong gambling addiction. In the research (Bravers, Cleeremans, Hermant, Tibboel, Kornreich, Verbanck, & Noel, 2013, pp.94- 96) no negative implicit attitudes towards gambling addiction among problem gamblers were found, which hinders attempts to stop gambling.

3. It has been shown that the expressiveness of implicitly measured both positive and negative attitudes is about the same as in the group of social gamblers, as in the group of non-gamblers.

According to the authors, an opportunity to measure attitudes towards gambling by implicit methods gives an idea of how high the chances of a given individual either not "to be infected" by gambling, or get rid of addiction. If the implicit attitude towards gambling is positive, according to Bravers, these chances diminish (Bravers, et. Al., 2013).

The results of this research are published in an international scientific journal (Plotka, Igonin, Blumenau, Simane, Lyutikova, Morozova, 2013).

Experiment 2 was aimed at the research of hardiness by Implicit Association Tests and self-assessment procedure in occupations associated with the risk.

Hardiness is a complex personality construct that requires theoretical understanding and selection of tools needed to measure it. Hardiness and its components: control, commitment and challenge were studied predominantly by explicit methods by Maddi (2002, 2013), Bartone (1999, 2008). However, there is a lack of hardiness research by implicit measurements.

The aim of the research was to develop a methodology for explicit and implicit measuring attitudes of hardiness and its components.

Research questions:

To what extent an experimental procedure, designed based on IAT methodology is suitable for measuring the construct of hardiness?

Is there a correspondence of measurements of hardiness and its components, obtained by experimental procedures of IAT and explicit methods?

Is there a relationship between hardiness and its components measured by explicit and implicit methods and coping strategies in stressful situations among people whose profession is associated with risk?

METHOD

Participants: 25 football players of one of the Latvia league A teams, age: 19 - 25 years, $M = 21$.

Explicit method: Dispositional Resilience Scale (DRS-15) by Dr. Paul T. Bartone.

Implicit method: specifically designed by the authors experimental procedures based on the methodology of Implicit Association Test (IAT): IAT-1 (Commitment), IAT-2 (Control), IAT-3 (Challenge), IAT-4 (Hardiness).

IAT **procedure** was carried out using a special licensed computer program (E-Prime2).

The Questionnaire Strategic Approach to the Coping Scale (SACS) by Hobfoll, Dunahoo & Monnier, 1998 was also used.

RESULTS AND CONCLUSIONS

1. Experimental procedures of IAT allow us to measure the effect of implicit preferences of verbal stimuli (that characterize parameters of behavior defined by personality traits, his/her intentional and motivational characteristics that reflect the content of the construct of hardiness and its components) and attributes that have positive or negative valence.

2. There is partial compliance of results of hardiness and its components measurement, obtained by experimental procedures of IAT and explicit methods.

3. There is a relationship between hardiness and its components (commitment, control, challenge) measured by explicit measurement and some coping strategies in stressful situations. This trend is confirmed by studies conducted by other authors (Plotka, I., Shaplavskaya, J., et al, 2009, 2011, 2012, 2013).

4. There is a positive relationship between hardiness measured by IAT experimental procedure and the SACS scale „seeking social support”.

5. The answer to the question of whether there is a correspondence of hardiness measurements (overall index of hardiness, commitment, control, call), obtained by IAT experimental procedures and the self-assessment procedure (Bartone) was partially confirmed.

Experiment 3 was aimed at the application of the unconscious evaluative priming and Implicit Association Test in the research of attitudes towards alcohol.

Theoretical basis of this research was the research of Katrijn Houben, Reinot W. Wiers (2007), University of Guelph (2010) and De Houwer (2004).

Aim of the research:

Explore attitudes towards alcohol using implicit and explicit measurements in the group of alcoholics and non-alcoholics.

Research questions:

Is there a correspondence of the measurement of attitudes towards alcohol measured by implicit and explicit measurements?

Are there any difference in attitudes towards alcohol abuse in groups “Alcoholics” and “Non-Alcoholics?”

METHOD

Participants: 63 participants aged from 24 to 57 years. Median age: 38 years. Group “Alcoholics”: 32 participants of those addicted to alcohol and being treated for alcoholism in the drug clinic by Minnesota program. Group “Non-Alcoholics”: 31 participants not being treated for alcoholism.

Explicit method: Method AUDIT (The Alcohol Use Disorders Identification Test, 1989), which determines the attitude towards alcohol ($r = .97$).

Implicit method: unconscious emotional priming procedure designed to measure attitudes towards alcohol developed by I. Plotka, D. Igonin, N. Blumenau.

The primes were an invisible word - *alcohol*, *water*. Exposure time 10 ms. Target stimuli - either positively or negatively colored words. Stimulus onset asynchrony (SOA) intervals were from 100 to 600 ms.

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Modified IAT with a single category (SC-IAT) was developed by the authors of the research based on the design of the classic IAT, using six training blocks, rather than seven, as in the classic IAT (Greenwald, 1995; Karpinski & Steinman, 2006).

IAT target categories were presented in verbal form – “alcohol” and in visual form – 7 pictures on alcohol. The attributes were the words with positive and negative affective meaning.

PROCEDURE

1. Performance of the IAT. 2. Performance of the procedure of unconscious emotional priming. 3. Completing the questionnaire “AUDIT.”

RESULTS AND CONCLUSIONS

1. It was revealed that the level of expressiveness of alcohol abuse found by the explicit method in the group “Alcoholics” is higher than in the group “Non-alcoholics.” 2. By Implicit Association Test (IAT), it was revealed that in the groups “Alcoholics” and “Non-alcoholics” there is no difference in the results of measurements. However, in both groups both positive and negative attitudes towards alcohol were found. Similar results were obtained in the research by Wiers (Wiers, 2004) among hard drinking participants. 3. There were no statistically significant differences for the RR-statistics (prime “Alcohol”) revealed by the method of unconscious emotional priming among “Alcoholics” and “Non-Alcoholics.” 4. There is some correspondence between the results of explicit and implicit measurements of attitudes towards alcohol abuse. 5. For negative attitudes, the relationship between IAT results and priming procedure in the group “Alcoholics” is fairly strong ($r = .602$; $p = .038 \leq 0.05$).

Ambivalence of results obtained by implicit measurements is confirmed by numerous works of authors (Houben, Wiers, 2007; Houben; Havermans, Wiers, 2010; Keith, Hill, Govorun, Arbuckle, 2008; Houben, 2008), who conducted research of implicit attitudes towards alcohol, which had also revealed both positive and negative attitudes towards alcohol. The obtained results do not permit any definitive conclusions about the value of Single-Category IAT. Perhaps, for more accurate measurement of implicit associations towards alcohol, in one of the future research we should directly compare the three tests: 2-Categories IAT, Single-Category IAT, and personalized IAT. The existence of negative attitudes measured implicitly, does not mean that there is no real addiction to alcohol. This suggests a high degree of probability and internal readiness to recovery from alcohol abuse. Conversely, the existence of positive attitudes towards alcohol in the group “Non- Alcoholics” may indicate a high degree of risk to become addict to alcohol under certain circumstances. Materials of researches conducted in Baltic Psychology and Management University College were presented at International Psychology Congresses. Based on the research results a number of master’s works were defended and several undergraduates continue the research using implicit methodology at doctoral programs and supported by European scholarship. Implicit research methodology is undoubtedly promising not only in social psychology and its application areas, but also in marketing, in the research of consumer behavior, in political science (behavior at the elections), in health psychology, in pedagogy (identifying creative abilities), in the study of antisocial behavior. Implicit methods are successfully used in the professional master’s program “Psychology” of Baltic Psychology and Management University College. Implicit measurements of research of social attitudes are used as research tools in the master’s and doctoral theses.

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