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# THE IMPLICIT AND EXPLICIT ATTITUDES TOWARD PERSONS WITH DISABILITIES AMONG STUDENTS WHO ARE EDUCATING FOR DIFFERENT PROFESSIONS

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## ::ABSTRACT

**The purpose of the study was to examine the relation between implicit and explicit attitudes toward persons with disabilities among two groups of students. Results have shown that in average all students had moderate negative implicit attitudes (measured with Implicit Association Test) toward persons with disabilities, while no correlation was found between their implicit and explicit attitudes (assessed with a self-report scale). The group of students who are educating for the professions primarily oriented to improve people's well-being expressed less negative implicit attitudes toward persons with disabilities and more positive explicit attitudes compared with the other group. Both the explicit and the implicit attitudes predict student's choice of profession. Students who were well informed about the living conditions of persons with disabilities, and who have close contact with them demonstrated more positive explicit attitudes. The knowledge about the living conditions of persons with disabilities significantly predicted only the explicit attitudes.**

**Keywords: implicit attitudes, explicit attitudes, persons with disabilities, students**

***POVZETEK***

*IMPLICITNE IN EKSPLICITNE DRŽE DO INVALIDOV MED ŠTUDENTI, KI SE IZOBRAŽUJEJO ZA RAZLIČNE POKLICE*

*Namen pričujoče študije je raziskati razmerje med implicitnimi in eksplicitnimi držami do invalidov med dvema skupinama študentov. Rezultati so pokazali, da študenti do invalidov v povprečju izkazujejo implicitno negativno držo (glede na test implicitnih asociacij), ni pa bila ugotovljena nobena korelacija med implicitno in eksplicitno držo (glede na njihovo samoocenjevanje). Študenti, ki so bolje seznanjeni o življenjskih pogojih invalidov in ki so v tesnem stiku z njimi, izkazujejo bolj pozitivno eksplicitno držo. Poznavanje življenjskih pogojev invalidov občutno vpliva le na eksplicitne drže.*

*Ključne beside: implicitna drža, eksplicitna drža, invalidi, študenti*

## ::INTRODUCTION

Every individual is exposed to many challenges and obstacles in his/her life, which may have inhibiting effect on the personal growth and development. Such challenges and obstacles become even more salient and more difficult if you are one of the billion people in the world who have some form of disability. In general, if you are a person with disability, it is certain that more often than not, you will come across different obstacles and problems in your surroundings, more often you may find yourself encountering problems in getting adequate healthcare and you will have less possibilities for education; you will face problems in exercising your right to employment and you will be more dependent on other people in performing everyday activities compared to persons without any form of intellectual or physical disability (World Health Organization and World Bank, 2011).

The recent several decades witnessed the adoption of international declarations and conventions which define the legal framework for securing equal and equitable treatment of persons with disabilities and their inclusion in all areas of societal life. In accordance with these documents, many countries, including the Republic of Macedonia, have drafted relevant strategies and programs for accomplishment of the clearly proclaimed objectives related to the rights and freedoms of persons with disabilities. However, in order to be able to accomplish these objectives, it is necessary to remove, or at least, significantly reduce the existing psychological barriers many people have in relation to acceptance and equal treatment of persons with disabilities. These barriers are usually determined by the people's attitudes towards persons with disabilities, which puts them at the center of researchers' interests, trying to understand and explain why people engage in stigmatization, avoiding behavior, and even discrimination against these persons.

The studies so far have presented different ways of demonstrating negative attitudes towards persons with disabilities. For example, Park, Faulkner, and Schaller (2003), suggest that encountering persons with disabilities not only results in compassion, empathy and the need to help, but often, induces negative emotions, such as disgust and discontent, assigning personal responsibility for their disability and demonstrating, more or less, subtle forms of non-verbal behavior which implies a tendency to avoid physical contact with persons with disabilities. Negative attitudes may result in social isolation, social rejection, and maintenance of higher levels of social distance towards persons with disabilities, and reduced self-esteem (DeLoach, 1994; Olkin & Howson, 1994; Wright, 1983; Chen, Ma, & Zhang, 2011). McCaughey (2009), examined the individual and situational factors related to the social

barriers for persons with disabilities, and concluded that the social distance towards persons with disabilities varies depending on the type and level of disability, also there is greater social distance in cases when the disability is more visible and perceived as a more severe and dangerous. Therefore, according to Grames (2010) some authors (Harasymiw, Horne, & Lewis, 1976a, 1976b), when considering the existence of different attitude towards persons with different disability, use the term hierarchy of stigma.

In most of the studies, the attitudes towards persons with disabilities are measured using a direct method, i.e. with attitude scales which provide identification of the explicit attitudes towards these persons. People's explicit attitudes are established in awareness, and they can easily express them when asked about their thoughts, feelings and actions towards a particular individual. However, according to Antonak and Livneh (2000), measurement of explicit attitudes towards persons with disabilities is subject to a number of threats to the validity of the obtained data. One of these threats is the so called reactiveness of respondents, which includes their awareness of being subjected to a survey and the tendency of providing different response compared to what they truly think, feel or do. Reactiveness may be the result of interaction of different motivation factors, among which, the most influential is the need of socially desirable responding. This is often emphasized in cases where people are asked to openly express their opinion on socially and value-sensitive topics, which include the attitude towards persons with disabilities, on an individual and societal level. In addition, it is considered that the applicability of attitude scales as self-report measures may be questioned in cases when the introspective access to the subject of measurement is limited (Gawronski, 2010).

In order to reduce the possibility of socially desirable responding, some researchers have directed their attention to identification of the implicit attitudes towards persons with disabilities. A characteristic of implicit attitudes is that they are automatically activated when people face the attitude object, and as opposed to explicit attitudes, they cannot be controlled or intentionally altered. Implicit attitudes may sometimes be consistent with the explicit attitudes, and sometimes be different regarding extremity or direction. Implicit attitudes have been measured by the Implicit Association Test (IAT) (Greenwald, McGhee, & Schwartz, 1998), which, as an indirect or implicit measure is relatively resistant to artifacts of self-presentation (Greenwald, Nosek, & Banaji, 2003). Also, it does not depend on the introspective approach to associations whose strength is subject to measurement (Greenwald et al., 2002), and it is easily adjusted for measuring a wide range of socially relevant associations. Reviewing the results of 13 studies which applied the

Implicit Associations Test for measuring the attitudes towards persons with physical disability, Wilson and Scior (2014) concluded that participants in the studies generally demonstrated moderate to strong negative implicit attitudes. Furthermore, part of the studies, which also examined both explicit and implicit attitudes, suggests the existence of positive explicit attitudes and negative implicit attitudes towards persons with disabilities at the same participants (Pruett & Chan, 2006; Chen, Ma, & Zhang, 2011).

Hence, although explicit and implicit attitudes may sometimes be congruent, the results from the studies which simultaneously used the Implicit Association Test and the attitude scales show that there may be no correlation between these attitudes or, if there is any, it is small. This raises the question about the nature and stability of the relationship between explicit and implicit attitudes. In other words, is it a structural disassociation, i.e. coexistence of explicit and implicit attitudes towards an object or is it just an empirical disassociation which arises from the possibility and motivation to control the response during measurement?

In the study of attitudes towards persons with disabilities, the researchers are not only focused on the relationship between explicit and implicit attitudes, but, also, on other relevant issues, such as the ways in which they are established, altered or demonstrated in different contexts, whether there are any differences in attitudes in different groups of people and what is their relation to different social, situational and psychological factors.

In line with the research efforts so far for identification and understanding of the nature, distinctiveness and the relation between explicit and implicit attitudes towards persons with disabilities and their relationships with several types of factors, in this study, conducted on a sample of the student population in the Republic of Macedonia, we ask the following questions:

- Is there a relationship between the implicit and explicit attitudes of students towards persons with disabilities?
- Are there any differences in the extremity of implicit and explicit attitudes towards persons with disabilities in students who are educated for different professions?
- What is the predictive power of the implicit and explicit attitudes towards persons with disability regarding the students' choice of profession?
- How well are students informed about the conditions and the rights of persons with disabilities, what is the closeness and frequency of encounters with such persons and what is the predictive power of these factors regarding implicit and explicit attitudes towards them?

## ::METHOD

### ::Participants

A total of 191 undergraduate students – 122 women and 69 men - from two faculties at the University of Ss. Cyril and Methodius in Skopje (the Faculty of Philosophy and the Faculty of Philology "Blaze Koneski") participated in the study. The mean age of participants was 22 years old. Having in consideration the vocational orientation of the students, they were divided in two groups, depending on whether they attended education for professions primarily oriented towards helping and improving people's well-being or professions not oriented to that purpose. The first group were students of psychology, special education and rehabilitation, and social work and policy ($n$=108), and the second group were students of history, classic studies, defense, sociology, German, English, Italian and French language ($n$=83).

### ::Instruments

Data were collected with the Implicit Association Test and the Questionnaire which included (a)an attitude scale towards persons with disabilities, (b) questions related to several socio-demographic characteristics (sex, age, faculty/study group, year of studies, place of permanent residence and parents' education), (c) questions about the level of knowledge about the circumstances and the living conditions of the persons with disabilities and about their rights, and (d) questions about closeness and the frequency of encountering persons with disabilities.

The implicit attitudes towards persons with disabilities were measured with **the Implicit Association Test – IAT** (Greenwald, McGhee, & Schwartz, 1998), which is a computer-based measure for the relative strength of automatic associations between two pairs of concepts, conventionally determined as categories and attributes, derived from the response time in two tasks of simultaneous categorization. IAT is based on the presumption that the speed and accuracy of the response depend on the strength of the association between the evaluated category (i.e. the attitude object) and certain attribute for evaluation.

The categories used in IAT were *persons with disabilities* and *persons without disabilities*, and they were not presented in the study in words, but through symbols. Each category was presented with five symbols. Persons with disabilities were presented with symbols for physical disability, impaired vision or hearing, while persons without disabilities were represented with symbols

showing persons in movement and without any form of disability. This collection of symbolic stimuli has been developed by Nosek and co-workers, 2007, and for the purposes of this study, it was amended by adding a symbol for hearing impairment. The attributes for evaluation were *good* and *bad* and they were represented with the following words: Joy, love, wonderful, pleasure, excellent, i.e. evil, anger, terrible, rotten, and disgusting. These words represent a standardized collection of verbal stimuli used in IAT (www.projectimplicit.com).

IAT is comprised of seven groups of tasks denominated as blocks, which have the function of practice or a test, and which are presented to participants on a computer monitor. Before the beginning of each block, the instruction for responding is presented on the monitor, and then the categories (*person with disability* and *person without disability*) and/or the attributes (*good* and *bad*) are shown in the upper left corner and the upper right corner and the stimuli (*symbols* and *words*) in the middle of the screen. The stimuli appear successively in intervals of 250ms. Participants are asked to connect the stimuli with the relevant target category or attribute as fast as possible and if they make a mistake, they must repeat the task until they give the correct response. Responses are given by pressing key "E" and "I" on the computer keyboard, whereas, key "E" is pushed when the stimulus is to be connected with the category and/or attribute in the left corner of the screen, and key "I" when the stimulus is to be connected with the category and/or attribute in the right corner of the screen. The first block shows the attributes and words, and the second block, categories and symbols, and participants should make the adequate connection. The third and fourth block present attributes and categories together, i.e. the left upper corner presents attribute *good* and the target category *persons without disabilities*, and the right upper corner presents attribute *bad* and the target category *persons with disabilities.* Words and symbols which should be associated with them are presented in random order. Associating an adequate word with the attribute *good* or the adequate symbol with the category *persons without disabilities* is done by pushing the response key "E". Key "I" is used to connect adequate words or symbols with the attribute *bad* or the category *persons with disabilities.* The fifth block shows only categories, same as the second block, but here, their positions on the screen have been changed – on the left is the category of *persons with disabilities*, and on the right the category of *persons without disabilities.* The last two blocks again show attributes and categories together, as it was with the third and the fourth block, but here, the combination is different. The attribute *good* is presented together with the category *persons with disabilities* in the left corner of the screen, and the attribute *bad* together with the cat-

egory *persons without disabilities* in the right corner. Response key "E" is used to associate an adequate word or a symbol with the attribute or category in the left corner, and key "I" to associate the attribute or category in the right corner. In the fourth and seventh block, participants make forty associations, and twenty associations in all other blocks. In order to control the order of placing combinations of tasks to the blocks, for half of the participants the position of the second, third and fourth block has been changed with the position of the fifth, sixth and the seventh block.

The relative strength of automatic associations assessed with IAT is determined by D-score (IAT effect) using the algorithm developed by Greenwald et al. (2003) based on the difference in the average response latency between blocks six and three, and blocks seven and four. D-score is the index of the implicit attitude, since it is assumed that the speed of response in blocks six and three, i.e. seven and four depends on the strength of the association between the category and the attribute of evaluation which share the same behavioral response. IAT is a comparative measure, which means that it cannot measure the strength of association only between one category and one attribute of evaluation. D-score ranges from -2 to +2, and a positive score is a stronger association of the category *persons with disabilities* with the evaluation attribute *bad*; i.e. a stronger association of the category *person without disabilities* with the attribute *good*, which is interpreted as a negative attitude (or implicit bias) towards persons with disabilities compared to persons without disabilities. The reverse combination results in negative score.

The **attitude scale**, which was developed for the purpose of this study, was used to measure the explicit attitudes of the participants towards persons with disabilities (i.e. persons with physical disability, and persons with impaired vision or hearing). Some of the items (statements) comprising this scale have been created by the authors of this study, and some of them have been taken and adapted on Macedonian language from several scales created by other authors (Yuker, Block, & Campbell, 1970; Antonak, 1981; Gething & Wheeler, 1992). The internal consistency of the scale was checked twice, the first time based on data obtained during its preliminary assignment on 173 students ($\alpha$ = .82), and afterwards according to data obtained during this study ($\alpha$ = .84). The attitude scale towards persons with disabilities consists of 24 items (statements) to which response is given by selecting one of five offered alternatives, which denote a different level of agreement or disagreement (from "I completely agree" to "I completely disagree"). The responses to the items were scored on a 1 to 5-point scale, or 5 to 1, depending on whether the item was negative or positive statement (most of the items in the scale were negative). The minimum possible score on the scale was 24, and the maximum

was 120. Higher scores on the scale indicate a more positive attitude towards persons with disabilities.

## ::Procedure

The study was conducted at the Faculty of Philosophy in Skopje, during the summer semester of 2014. Appointments for the data collecting sessions were done in agreement with each of the participants, who orally expressed their agreement to participate in the study. All sessions were performed in the presence of a person appointed to conduct the sessions and they lasted for 30 minutes. There were two students in each session, who were given an oral instruction for the course of the session. Participants first responded to the Implicit Associations Test, and afterwards they completed the Questionnaire. The Implicit Associations Test was developed in PsychoPy v1.80.01 (Pierce, 2014) and displayed on two lap-tops with 15.6" monitors, with resolution of 1024x768. The order of presenting the instruments was identical for all participants.

## ::RESULTS

### ::Extremity of the implicit and explicit attitudes towards persons with disabilities and the correlation between them

The basic statistical indicators about the extremity of the implicit and explicit attitudes of participants towards persons with disabilities are presented in Table 1. The IAT effect, measured through *D*-score varies within the range from -0.62 to 1.30, and it is significantly different from zero ($M$ = 0.47, $SD$ = 0.18), ($t(190) = 15.77$, $p < .01$). According to the average magnitude of the IAT effect ($D$ = 0.47), participants had moderate negative attitudes towards persons with disabilities. Additionally, the average score of the explicit attitudes was $M$ = 87.63 and it also indicated moderate attitudes, but in positive direction.

[t]Table 1 near here [/t]

Exploring the relationship between the measures of implicit and explicit attitudes towards persons with disabilities by calculating the Pearson correlation coefficient showed no correlation between these two attitudes ($r$ = .02, $p > .05$). Also, the same result is obtained when the correlation between the measures of the attitudes is calculated within each of the two groups of participants. On the other hand, the assessment of the significance of the differences between the means of the scores of the measures of implicit and

explicit attitudes in both groups of participants showed that participants of the first group, i.e. students who are educated for professions primarily oriented to improve people's well-being have a less extreme negative implicit attitudes ($M_I$ = 0.42 и $M_{II}$ = 0.54; $t(189) = -1.99$, $p < .05$) and a more positive explicit attitudes ($M_I$ = 89.89 и $M_{II}$ = 84.70; $t(172) = -2.79$, $p < .01$) compared to the participants of the second group, i.e. students with different professional orientation.

## ::Prediction of the students' choice of profession based on the implicit and explicit attitudes towards persons with disability

In order to explore whether it is possible, based on the explicit and implicit attitudes, to predict the choice of profession belonging to the category of professions primarily oriented to helping and improving people's well-being and the choice of profession belonging to the category of professions without such orientation, we applied the hierarchical logistic regression analysis. According to the established tendencies in the differences between the two groups of students regarding the extremity of the explicit and implicit attitudes, the explicit attitudes were introduced in the first step of the analysis, and the implicit attitudes in the second step, to establish whether it explains the additional variance in the criterion. Table 2 presents the results of the hierarchical logistic regression analysis.

[t]Table 2 near here [/t]

The Model which contains only the explicit attitudes as a predictor is significant ($\chi^2(1, N = 191) = 7.77$, $p < .01$), explaining 5% (Nagelkerkeke $R^2$) of the variance of the criterion and classifies 62% of the cases. Introducing the implicit attitudes in the second step of the analysis statistically significantly increases the predictive power of the model ($\Delta\chi^2(1, N = 191) = 4.25$, $p < .05$). The final regression model containing the explicit and implicit attitudes as predictors is significant ($\chi^2(2, N = 191) = 12.02$, $p < .01$), and according to the results of the Hosmer & Lemeshow test, the observed variations are not significantly different compared to the predicted variations based on the model ($\chi^2(8) = 2.48$, $p > .05$). Introducing the implicit attitudes increases the percentage of the explained variance in the criterion to 8% (Nagelkerkeke $R^2$), but reduces the percentage of correct categorization of the participants from 62% to 60%. Both the explicit ($b$ = 0.03, Wald $\chi^2(1) = 7.58$, $p < .01$) and implicit attitudes ($b$ = -0.76, Wald $\chi^2(1) = 4{,}10$, $p < .05$) significantly predict whether a student has selected a profession primarily oriented to helping and

improving people's well-being. According to the odds ratio, if other factors are constant, increasing the score of the explicit attitudes for one unit shall mean increasing the possibility for selecting a profession primarily oriented to helping and improving people's well-being for 1.03 times. While increasing the score of the implicit attitudes for one unit, reduces the possibility for this choice for 0.47 times. Hence, the choice of profession primarily oriented to helping and improving people's well-being is more probable if the participant has a more positive explicit attitude (higher score of the measure), i.e. a more positive implicit attitude (lower score of the measure).

## ::The knowledge about the conditions and rights of persons with disabilities, the closeness and the frequency of encounters with them, and their relationship with the implicit and explicit attitudes

The knowledge about the conditions and rights of persons with disabilities was assessed based on the responses to two questions: "How well are you informed about the condition of the persons with disabilities in the Republic of Macedonia and about their living conditions?", and "How well are you informed about their rights in the Republic of Macedonia?". Participants responded to these questions by selecting one of four offered alternatives which denoted different levels of information: I am not at all informed; I am little informed; I am somewhat informed; I am very informed; Most of the participants responded that they are little or somewhat informed on the matter. To be more precise, 35.6% of the respondents said that they were little informed, and 50.8% responded that they were somewhat informed on the matter. On the second question, 42.9% of the respondents said that they were little informed, and 40.8% responded that they were somewhat informed on the matter. The analysis of the relationship between the knowledge about the conditions and rights of persons with disabilities and the attitudes towards them, by calculating the Spearman's correlation coefficient, showed significance of only one of the four possible relationships. It is the correlation between the knowledge about the condition of persons with disabilities and the explicit attitudes towards these persons ($\rho = .19$, $p < .01$). The comparison between the two groups of students regarding the knowledge, using the Mann-Whitney test showed that students from the first group are significantly more informed compared to the students from the second group, regarding the conditions ($U = 2676$, $z = 5.26$, $p < .01$, $r = .38$), and the rights of the persons with disabilities too ($U = 2577$, $z = 5.45$, $p < .01$, $r = .39$).

The closeness of contacts with persons with disabilities was assessed based on the responses to the following questions: "Do you have a friend, colleague,

acquaintance, who is a person with disability?" and "Do you have a member of your close and extended family who is a person with disability?" Participants responded to these questions with "yes" and "no" answers. According to the frequency of responses to these questions, most of the participants have a friend, colleague, acquaintance, who is a person with disability (63.9%), and fewer responded that they have a member of their close or extended family who is a person with disability (26.2%). There are no significant differences in the extremity of the implicit attitudes of participants who responded affirmatively and participants who responded negatively to these questions. There are only differences regarding their explicit attitudes: participants who responded that they have a friend, a colleague or acquaintance who is a person with disability ($M$ = 89.06) have a more positive explicit attitudes ($t(189)$ = 2.06, $p < .05$) compared to the participants who stated that they do not ($M$ = 85.10); on the other hand, participants who have a member of their close or extended family who is a person with disability ($M$ = 90.74), also showed a more positive explicit attitudes ($t(189)$ = -2.00, $p < .05$) compared to participants who do not have such family member ($M$ = 86.53). The comparison between the two groups of students regarding the frequency of the responses to these questions showed that there were no differences from the above mentioned tendency in their responses.

The frequency of encounters with persons with disabilities was identified with the question "How often do you meet persons with disabilities in your daily life?" Participants responded to this question by selecting one of the five offered alternatives (almost never; rarely; sometimes; often; very often) and according to the frequency of their responses, 42.9% responded that they sometimes meet such persons, 27.2% responded with often, and 12.6% very often meet such persons. According to the results of the applied correlation analysis, the frequency of encounters of these persons is not related to the extremity of either the implicit, or the explicit attitudes of the students towards these persons. Yet, when we consider the comparison between the two groups of students of how often they meet persons with disabilities, the students from the first group responded that they meet such persons more often compared to the students from the second group ($U$ = 3252, $z$ = 3.43, $p < .01$, $r$ = .25).

Given the fact that the correlation analysis revealed that the knowledge about the living conditions of persons with disabilities in the Republic of Macedonia, and the closeness of the contacts with them is significantly related to the explicit attitudes of the participants (however, not with their implicit attitudes), we applied multiple regression analysis, to examine what is the predictive power of the knowledge and closeness of contacts with persons with disabilities regarding the extremity of the explicit attitudes towards them.

[t]Table 3 near here [/t]

The results of the multiple regression analysis are presented in Table 3. The regression model is significant ($R^2 = .07$, $F(3, 187) = 4.57$, $p < .01$) and predicts 7% of the variance in the explicit attitudes. Furthermore, the only significant predictor of the explicit attitudes is knowledge about the living conditions of persons with disabilities ($b = 2.88$, $t(187) = 2.219$, $p < .05$), but not the closeness of contacts with them. Increasing the knowledge for one degree, results in increasing the score of the explicit attitudes for 2.88 units, if the other two indicators of closeness are maintained constant.

## ::DISCUSSION

This study is part of the systemic effort to pervade into the complex nature of the relation with persons with disabilities, through identification of the implicit and explicit attitudes towards these people. Actually, the study examined the attitudes towards persons with physical disability and persons with impaired vision or hearing in students who are educated for professions primarily oriented to helping and improving people's well-being and those who are educated for different professions.

The results that were obtained regarding the extremity of the attitudes towards persons with disabilities show that students, in general, have a moderate negative implicit attitudes and moderate positive explicit attitudes towards these persons. The existence of negative implicit attitudes towards persons with disabilities is in accordance with the findings of other studies, which have also applied IAT for measuring the implicit attitudes. The implicit attitudes varied in these studies from moderate negative to strongly negative attitudes (Aaberg, 2012; Rojahn, Komelasky, & Man, 2008, according to Wilson & Scior, 2014; Archambault, VanRhee, Marion, & Crandall, 2008; Chen, Ma, & Zhang, 2011). The same applies for the explicit attitudes, since other studies have discovered existence of moderate positive explicit attitudes towards persons with disabilities (e.g. Chen, Ma, & Zhang, 2011)).

Regarding the relationship between the implicit and explicit attitudes of students towards persons with disabilities, the results of the applied correlation analysis show no significant correlation. The disassociation between the implicit and explicit attitudes, which has been also established in other studies (for example, by Chen, Ma, & Zhang, 2011; Pruett & Chan, 2006), implies a possibility for distinctive empirical constructs with different behavioral manifestation. In the explanation of the disassociation between the attitudes, one should take in consideration the motivation to control their expression

and the conceptual (non)correspondence of the constructs about the attitude object of the implicit and explicit measures, as moderators of the relationship (Gawronski & LeBel, 2008; Hofmann et al., 2005). Self-reporting for the attitudes towards persons with disabilities is probably subject to giving socially desirable responses. In addition, IAT, as a measure for the implicit attitudes has been a greater representative of the affective than the cognitive relation to the attitude object (Hofmann et al., 2005), and it is a comparative measure in the sense that the extremity of the implicit attitudes towards persons with disabilities is profiled according to the attitudes towards persons without disabilities, while the measures of self-reporting do not include that.

The comparative analysis of the responses of both groups of students given to both attitude measures presented that students who are educated for professions primarily oriented towards helping and improving people's well-being have less extreme negative implicit attitudes and more positive explicit attitudes compared to students with different professional orientation. On the one hand, this finding suggests that the first group of students, become more aware and more sensitive to the issues related to equal opportunities and rights of the people through the study curricula, and accordingly, about the need for acceptance and inclusion of persons with disabilities in all areas of the societal life. Yet, on the other hand, this finding may also suggests a possibility that persons who choose to educate themselves in such professions had more positive attitudes towards persons with disabilities even before they had enrolled in such studies.

There are findings from other studies which may be stated to support the first suggestion. For example, according to Getachew (2011) some authors (Antonak, 1981; Hunt & Hunt, 2000) found that students who had studied for professions or activities primarily oriented to helping (rehabilitation, work therapy, pedagogy, counseling, and health) had a more positive attitudes towards persons with disability compared to students who had studied business management. Furthermore, according to the same author a study completed by Semmel and Dickson (1996), found that students who had subjects in special pedagogy demonstrated more positive attitudes towards persons with disabilities compared to students who had only subjects in general pedagogy. A more specific is the finding of Chan and colleagues (2002), who discovered that the attitudes towards persons with disabilities of postgraduate students in rehabilitation after completion of the first year of their studies had become more positive, while the attitudes of students of business management had become more negative.

The relevance of the second possibility is suggested by the results of the logistic regression analysis which was used to examine whether we may pre-

dict the choice of profession belonging to one or the other group of professions based on the explicit and implicit attitudes. The analysis showed that the choice of profession primarily oriented towards helping and improving people's well-being is more probable if participants would have more positive explicit attitudes or, more positive implicit attitudes.

Given that attitudes towards persons with disabilities may be determined from the knowledge people have about them, as well as the closeness and frequency of encountering these persons, part of the questions in the study are related to these possibilities. Considering the knowledge about the conditions and the rights of persons with disabilities, the results suggest that students, in general, are less or somewhat informed. Another indication is the finding that only the knowledge about the conditions of these persons (and not their rights) is positively associated with the students' explicit attitudes, but not with their implicit attitudes. Furthermore, it appears that students who stated that have close contact with persons with disabilities, i.e. have a friend, colleague or a member of their close or extended family who is a person with disability have more positive explicit attitudes. The relationship with the explicit attitudes is absent only regarding the frequency of encounters with persons with disabilities. At first glance, this result may be interpreted as a discrepancy from what could be expected, however, if we take in consideration the type of question, in that case the absence of association seems understandable. The question only records the frequency of encounters with persons with disabilities in everyday life, and does not determine the quality of contact with them.

In addition to the previous finding related to the differences in the extremity of the implicit and explicit attitudes between the two groups of students, it is necessary to mention that there are differences between them regarding the knowledge they have about the condition and the rights of the persons with disabilities and the frequency of encounters with them. According to the expectations, students who are studying for professions primarily oriented to helping and improving the people's well-being are more informed about the condition and the rights of persons with disabilities compared to students with different professional orientation. The same difference appears for the frequency of the encounters with persons with disabilities, which is understandable, since part of the first group of students establish contacts with these persons in the course of certain study activities they attend. As opposed to this, students from the second group meet such persons more accidentally or occasionally.

The last question of this study is related to the predictive power of the knowledge, the closeness and frequency of encounters with persons with disabilities regarding the implicit and explicit attitudes of students towards these persons. In order to answer this question, we applied multiple regression

analysis, which, based on the results of the correlation estimates, is limited only to the manifestation of the students' explicit attitudes, and not their implicit attitudes. The analysis showed that even though students with close contact with persons with disabilities (i.e. those having a friend, colleague or member of their close or extended family who is a person with disability) have more positive explicit attitudes compared to students without such contacts, yet, only the knowledge about the condition of these persons appears as a significant predictor of the explicit attitudes towards these persons. Thus, if the knowledge about the condition of persons with disabilities is controlled, there is not a significant correlation between the closeness of contacts and the explicit attitudes.

The fact that in this study close contacts with persons with disabilities does not predict the explicit attitudes is probably due to the general and undifferentiated assessment of the closeness of contacts with these persons. This finding does not correspond to the usual emphasis on the importance of contact (defined as personal interaction with persons with disabilities) for development of positive attitudes towards these persons (Amsel & Fichten, 1988; Krahe & Altwasser, 2006; Maras & Brown, 1996; Mpofu, 2003). However, it must be mentioned that this does not happen always, and that there are studies which do not demonstrate correlation between the level of contact and the attitudes towards persons with disability (Getachew 2011).

In general, the obtained results from this study are an additional evidence of the complexity of relation towards persons with disabilities. On the one hand, the incongruence of implicit and explicit attitudes explains to a certain extent the contradictoriness of the increasing awareness about the challenges faced by persons with disabilities and proclaiming egalitarian values, and on the other hand, the marginalization and indiscernibility of these persons. Apparently, the discrimination of persons with disabilities is more subtle than open, in the form of physical avoidance and/or psychological distance.

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