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The impact of explicit and implicit power motivation on educational choices

Abstract: The aim of three studies was to examine the differences between business majors and non-business majors, in their level of implicit (measured by an Implicit Association Test [IAT], Greenwald, McGhee, & Schwarz, 1998) and explicit power motivation (measured by Power Motivation and Helping Power Motivation scales, Frieze & Boneva, 2001). It was predicted that there are no differences between these two groups in the general (implicit) level of power motivation, but that differences exist in the way it is explicitly expressed: through desire for leadership and prominence vs. desire for helping. Results of Study 1 indicated that business majors (management, $N=79$) declared a higher leadership motive and a lower helping motive than non-business majors (history, psychology, linguistics, $N=62$). Study 2 addressed question whether the above differences in power motivation stem from socialization at the university level or from pre-selection. The relationship between high school students' ($N=134$) academic major preferences and their power motivation was tested. It was found that the more they were business-oriented, the higher their scores were on leadership, and lower on helping scales. In Study 3, business majors (economics, $N=75$) and non-business majors (psychology, $N=82$) completed the same questionnaire as participants in previous studies, as well as performed the IAT. Non-business majors declared stronger explicit helping motive, while business majors expressed stronger prominence and leadership motives. Furthermore, for non-business majors, IAT results could be predicted by their helping score. Implications and possible limitations of the presented results are discussed.

Key words: power motivation, implicit attitude, Implicit Association Test, academic major

Introduction

Power motivation is expressed through a desire to exert influence over others and control one's environment (Schultheiss et al., 2005; Winter, 1973). It is generally believed that people with a dominating power motivation like to fight and compete, value prestige, and strive to achieve high positions on the social ladder. This is, however, an overly simplistic way of perceiving power motivation, which may be expressed in many different ways. According to McClelland (1973) power has two "faces". One of these faces is socially unaccepted and connected to personal domination over people. The other face is socially accepted or even desirable, and is based on acting for the greater good of others. On the basis of this theory, McClelland (McClelland, 1972; 1975; 1987) and

Winter (1973) suggested distinguishing two types of power motivation: personalized (*pPower*) and socialized (*sPower*). *Personalized power* is expressed by pursuing direct control or dominance. Those particularly motivated by personalized power both perceive life as a zero-sum game and also adopt a "me against the world" attitude (McClelland, 1975). Power holders often act with their self-interests at heart and pay little attention to the views and needs of others (Fiske, 1993). *Socialized power*, on the other hand, is defined as a possibility or capacity to affect others, even if these others would resist such influence attempts (McClelland, 1973; Winter, 1973). Recent research has suggested that power holders can behave in a more benevolent way, showing concern about others' interests or attending to them as individuals (e.g., Chen, Lee-Chai, & Bargh, 2001; Howard, Gardner, & Thompson, 2007; Overbeck & Park, 2001).

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According to Torelli & Shavitt (2010) this conceptualization of power (e.g. personalized vs. socialized) depends on culture as it may nurture different views of what is desirable and meaningful having to do with power. They showed that vertical individualism is associated with a conceptualization of power in personalized terms (i.e., power is for advancing one's personal status and prestige), whereas horizontal collectivism is associated with a conceptualization of power in socialized terms (i.e., power is for benefiting and helping others).

Hence, due to various factors, such as an influence of a cultural context, power motivation may be expressed in different ways that are not captured by the rough distinction into personalized and socialized power. Frieze and Boneva (2001) expanded the range of possible expressions of power motivation by identifying three dimensions: *leadership*, *prominence*, and *helping*. Power motivation appears to correlate with being an inspiring leader (*leadership*), succeeding as a manager, or being a political leader (Zurbriggen, 2000). Power is also based on its visible attributes, which draw people's attention and make it possible to ascertain popularity (*prominence*) (Winter, 1988, 1993). However, since overt pursuit of power is often socially frowned upon, a strong desire for power may be satisfied in a variety of more socially accepted ways. Pursuing power through voluntarily helping others (*helping*, Winter, 1993) is considered one of such ways. Making a direct connection between power and helping is intriguing, but may also provoke doubts. Not all helping behaviors are motivated by the need for power and serve as a means to fulfill this need. Van Dijke & Poppe (2006) argue that power motivation is realized by increasing one's sense of agency (personal power) and decreasing dependence on others, rather than by strivings to increase power over others (social power). On the other hand, helping in the context of interpersonal interactions can promote interdependence (Weber & Murnighan, 2008). This relates not only to individuals, but also to groups. Social dominance theory proposes that a basic part of human nature is to establish and maintain group-based hierarchies (Sidanius & Pratto, 1999). While power involves control over resources, helping may decrease inequality of resources / control and, as a result, weaken the hierarchy. However, Nadler (2002) claims that members of higher status groups may give help to members of lower status groups not only out of caring and concern, but also to maintain their social advantage. A similar process occurs at an interpersonal level – the one who is helping dominates over the other and helping behaviors create (if only temporarily) a hierarchical relation (McAdams, 1998).

The idea of a relationship between helping behaviors and power motivation suggested by Frieze and Boneva (2001), although interesting, requires further exploration, and studies on this subject have so far been sparse. Schmidt and Frieze (1997) have created a general Power Motivation scale, in which three subscales - *leadership*, *prominence*, and *helping* - were later identified (Boneva et al., 1997). It appeared (Frieze and Boneva, 2001) that the helping subscale correlates with a person's desire for a career which involves helping others. However, it would be far-fetched

to evaluate the prognostic value of this conception based only on a single correlation, since Power Motivation scale may be connected to the non-specific motivation to pursue various occupations. Hence, the issue of a relationship between the three separate power motivation expressions and behavior (in our case - educational choice) is one of the aims of the current project.

The widespread belief that choice of some academic majors (e.g. economics or management as opposed to other social sciences) is more closely related to an elevated need for power (e.g. Harrell & Stahl, 1981) may stem from mistakenly equating power with only leadership and prominence. This belief does not take into account that the need for power can be satisfied through helping, which means that business-related majors may differ from non-business majors not in the intensity of power motivation, but rather in the channeling of power. Therefore, the aim of this research was to examine whether differences exist between business majors (management, economics) and non-business majors (psychology, history, linguistics) in their level of power motivation. It was expected that there would be no differences between these two groups in the general (implicit) level of power motivation, but the differences would appear in the way power is expressed: through desire for leadership and prominence vs. desire for helping. These three power motivation expressions were measured on a declarative level through the Power Motivation and Helping Power Motivation Scales (Frieze & Boneva, 2001), and the indicator of the general level of power motivation was the Implicit Association Test [IAT], Greenwald, McGhee, & Schwarz, 1998).

Power motivation and an academic major

Winter (1988) showed that the need for power influences the choice and attainment of power-relevant careers, such as: teaching, psychotherapy, journalism, and business management. These results suggest that a generally understood power motivation may relate to a choice of both business and non-business studies. Therefore, it seems important to verify why, regardless of similar levels of general power motivation, people make different educational choices. These choices are probably connected to the specific conceptualization of power. No studies were found (apart for the abovementioned correlational research by Frieze and Boneva, 2001), which aim at a direct verification of relationship between an educational choice and the type of power motivation expression. We can only rely on the indirect cues, such as a study within a game theory paradigm performed by Frank, Gilovich, and Regan (1993). Taking part in a popular Prisoner's Dilemma Game, one can quickly understand that competitive behaviors guarantee success (understood as maximization of possible rewards) only when our partner behaves cooperatively. It occurred that the percentage of competitive choices was significantly higher among students of economics (60%) than others disciplines (39%). Furthermore, cooperation increases with academic progress in all groups of students except for economics majors. A relation between academic major and power motivation was also studied with regards

to abuse of power. Students of management appeared to be less ethical (e.g. McCabe, Butterfield, & Trevino, 2006; Nill, Schibrowsky, & Peltier, 2004) and more accepting of unethical behaviors (Segal, Gideon, & Haberfeld, 2011) than students of other disciplines.

Broadly understood, power motivation can be realized in a variety of professions, not only those that have visible power attributes (e.g. managing others; McClelland, 1987). Helping behaviors not only make it possible to influence others, but also assure a certain level of control over their future behaviors. Additionally, helping professions involve exerting influence over others, and those who exercise this influence may believe it arises from their care for others' well-being. Professions such as teacher, priest, or psychologist, strongly attract individuals having a high power motivation (Winter, 1973). Abovementioned occupations not only offer a high level of autonomy, but also create possibilities for exerting influence over others (Winter, 1996). A process of psychotherapy, in which therapists use social influence strategies on their clients, may serve as an example of such power relation (McCarthy & Frieze, 1999). In summary, it was expected that business majors (management, economics) would express their power motivation thorough *prominence* and *leadership*, in contrast to non-business majors (e.g. psychology), who would be more likely to express their need for power through *helping*.

Power motivation in women and men

In addition to occupational differences, there are also gender differences in the expression of power motivation. Men, more often than women, prefer careers that require leadership (Konrad, Ritchie, Lieb, & Corrigan, 2000) and are more likely to express their power motivation in an aggressive way. Such choices and behaviors are more socially accepted for men than when the same is done by women (Cox, Stab, & Hulgus, 2000). Women, on the other hand, are less likely than men to pursue jobs that enhance power inequalities, as in the case of executive positions (Pratto, Stallworth, Sidanius, & Sierz, 1997), and feel less interest in leadership roles than men do (Biernat, Crandall, Young, Kobrynowicz, & Halpin, 1998). According to McClelland (1975) women more frequently satisfy their need for power by choosing an occupation that is related to helping, (e.g. that of a teacher). In the course of socialization, women become more oriented towards others than men. In consequence, they are also more likely to express power motivation through helping.

Winter (1988) performed extensive studies showing that during childhood girls are more frequently subjected to responsibility training than boys. As a result, women's power motivation was more frequently channeled into *responsible nurturance*, while men's power was channeled into *egoistic dominance*. These gender differences are, at least partially explained by the fact that girls are more often involved in caring for their younger siblings and that this early responsibility practice is closely connected to development and channeling of power motivation in both men and women. In summary, also according to Winter (1988), women more often than men express their power motivation through helping.

Implicit power motivation

According to McClelland (1973, p. 302), it is not socially desirable to admit to having a strong power motivation. It is considered a good thing to care for the results of our endeavors (*need for achievement*) or for the creation of strong social ties (*need for affiliation*). It is, however, reprehensible to aim at influencing others (*need for power*) because power is often associated with being aggressive and causing harm to others. In support of this belief, persons who are motivated with power are especially prone to engaging in the so-called "wars of arguments" (Dutton & Strachan, 1987). In some environments, due to social disapproval of colloquially understood power motivation, individuals are not able to identify their need for power, are doing so inaccurately, or express it in harmony with expectations of their friends and relatives. For instance, we may expect students of psychology to judge striving for personalized power in a negative way, still they could be more positively inclined towards gaining socialized form of power, expressed through helping. However, this does not necessarily mean that their general power motivation is lower than of those who come from environments where it is accepted and expected to express power through domination over others. Studies performed by Kazen and Kuhl (2011) support this thesis. Female managers had higher explicit affiliation scores than males, whereas male managers had marginally significant higher explicit power scores than females, since – as was described above – its expression was socially approved. On the other hand, males and females did not differ in their implicit motives, which may indicate that there are no gender differences in a general level of power motivation.

Traditionally, most studies investigating implicit power motivation, both in a broad sense and limited to socialized or personalized power, use Murray's (1943) modified Thematic Apperception Test (TAT) technique (e.g. Operant Motive Test; Kuhl, Scheffer, & Eichstaedt, 2003). Studies in which modified TAT techniques were applied show little overlap with questionnaire measures that tap into people's consciously held views of themselves as being seekers of power and dominance (McClelland, Koestner, & Weinberger, 1989; Schultheiss & Brunstein, 2001). Unfortunately, the TAT technique suffers from questionable psychometric properties, e.g. low reliability (Frieze & Boneva, 2001). Methods alternative to projective tests, such as the Implicit Association Test (IAT; Greenwald, McGhee, & Schwarz, 1998), infer power motivation from reaction times to stimuli. Sheldon et al. (2007) found that the IAT correlates poorly with the TAT ($r = .17$). This could result from the use of a double-category IAT, in which power (having influence and impact upon others) was contrasted with intimacy (having close and caring relationships with others). These are not mutually exclusive categories, especially if power is understood not only in the personal sense, but also in the socialized sense, such as helping others. Because of this, in the current research both single-category and double-category IAT were used and power was juxtaposed with evaluation attributes: pleasant vs. unpleasant.

The aim of the research

Since explicit power motivation is filtered through the prism of personal values (see McCarthy & Frieze, 1999; McClelland, 1975; Winter, 1988), it can be expected to be expressed differently depending on a person's educational profile. Study 1 aimed at verifying whether business majors (management) declare higher explicit power motivation expressed through *prominence* and *leadership* than non-business majors (linguistics, psychology, history). Furthermore, it was expected that non-business majors would be more likely to express power in a socially acceptable way - through *helping* (measured by Power Motivation and Helping Power Motivation scales; Frieze i Boneva, 2001). Study 2 was performed in order to check whether these different tendencies to express power motivation are shaped through "indoctrination" at a university level or develop earlier. In the latter case, differences among students could be regarded as stemming from self-selection based on individual tendencies. Hence, prognostic validity of power motivation divided into three dimensions was explored. It was expected that those participants who declare higher explicit power motivation expressed through *prominence* and *leadership* would tend to choose business-related majors, while those who declare higher *helping* motivation, would tend to prefer non-business majors. Taking into account that the IAT is relatively insensitive to the distortions coming from social desirability, it was expected (Study 3) that there would be no significant differences in the level of implicit power motivation between business and non-business majors.

Study 1

The aim of the Study 1 was to examine whether business majors (management) differed with respect to their explicit power motivation from non-business majors (linguistics, psychology, history). Three dimensions of power motivation were taken into account: *leadership*, *prominence*, and *helping*.

Method

Research Participants. A total of 141 students of University of Warsaw (academic years 1 to 3) took part in a study, 79 of which were management students (63,3% of females) and 62 were students of other humanities and social sciences (85,5% of females; history: $N = 23$; linguistics: $N = 29$; psychology: $N = 10$). Age varied between 21 and 26 years ($M = 22.28$; $SD = .73$) among the management students and 20 and 32 years ($M = 22.06$; $SD = 2.50$) among other students.

Procedure and stimulus materials. All participants responded to 28 questions from the Power Motivation and Helping Power Motivation scales (Frieze & Boneva, 2001). Answers were marked on a Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). On the basis of these questions, three subscales, measuring different expressions of power motivation, were computed:

- *Leadership* (Cronbach's alpha = .85), e.g. "If given a chance, I would make a good leader of people,"

- *Prominence* (Cronbach's alpha = .75), e.g. "I would like to do something important where people looked up to me,"
- *Helping* (Cronbach's alpha = .85), e.g. "I would like for my ideas to help people."

Leadership and *prominence* subscales proved to be highly correlated with each other ($r = .67$; $p < .001$). Helping subscale was, however, not related to the other two subscales (prominence: $r = .003$; $p > .05$; leadership: $r = -.011$; $p > .05$).

Results

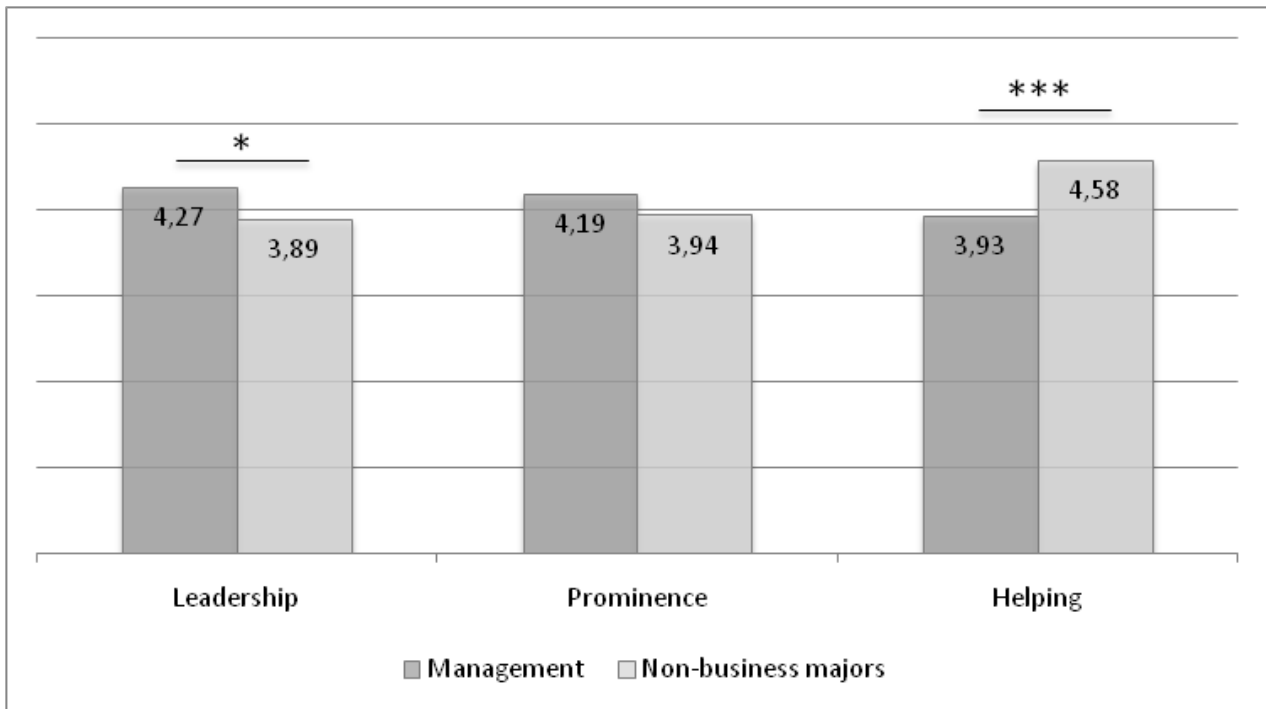
A 2 x 3 (academic major x type of motivation) ANOVA with repeated measure on the last factor and gender as a covariant was conducted in order to determine the effect of type of major on the three types of power motivation. It yielded a significant interaction effect of the two factors, $F(2,278) = 22.57$, $p < .001$, (see Figure 1, page 279) as well as the main effects of the type of motivation ($F(2,278) = 3.27$, $p < .05$) and gender ($F(1,138) = 7.45$, $p < .01$).

To follow up, a separate univariate ANOVAs for each of the three types of power motivation were conducted. For all of these analyses, academic major was the independent variable and gender was included as a covariate. Analyses indicated that management majors declared a significantly lower helping motive ($F(1,138) = 36.216$, $p < .001$, partial $\eta^2 = .208$), but higher leadership ($F(1,138) = 4.150$, $p < .05$, partial $\eta^2 = .029$) motive than non-business majors. There were no significant differences in prominence motive ($F(1,138) = 1.657$, $p > .05$). Furthermore, analyses revealed that, men expressed significantly higher prominence motive ($F(1,139) = 5.065$, $p < .05$, partial $\eta^2 = .035$). There were no sex differences in leadership ($F(1,139) = 3.187$; $p = 0.076$) or helping ($F(1,139) = 1.799$, $p > .05$) motives.

Discussion

Business majors (management) revealed higher power motivation in terms of leadership and lower power motivation in terms of helping than non-business majors. Furthermore, in accordance with our expectations, men express higher prominence motive than women. However, contrary to our expectations, there were no sex differences in terms of the declared willingness to help others. The reason for this lack of differences may be that in the present study, men showed an interest in socially powerful roles and activities due to their self-presentation needs. Indirect evidence for such an interpretation's probability stems from a study of Baumeister and Sommer (1997). Their study suggested that helping others might be motivated by person's desire to present themselves in a positive light and as a means to increase one's status in a reference group. Helping strangers in the presence of others may serve as a particular way in which such a desire can be satisfied. This type of helping behavior was more characteristic of men than women. Therefore, it could be the case that when filling in the questionnaire, men participating in our study were motivated to present themselves in a good light, which led to obtaining equally high results on the helping scale.

Figure 1. Means of the three power motives for two academic major groups



Note. * $p < .05$; *** $p < .001$

Study 2

In Study 1 business majors (management) revealed higher power motivation in terms of leadership and lower power motivation in terms of helping than non-business majors. It could be thought that these differences are a result of social modeling at the university and stem from being exposed to specific sets of values. However, in previous research (Wieczorkowska & Kuźmińska, 2012) no differences were found between students of second and fourth year of management studies. Hence, an attempt was made to check whether the described differences in power motivation expression have their roots in self-selection and, as such, exist before university education has started. Holland (as cited in Segal, Gideon, & Haberfeld, 2011) suggested that occupational and educational choice is dictated by an expression of personality, which manifests itself not only through traits, but also through vocational interests and values. He argued that people actively seek environments, which they perceive to be in agreement with their personality types and allow them to pursue their interests, satisfy their values, and develop their competencies. Indeed, many research results suggest that people choose education and career fields in which, dominating values mirror their own preferences (Tang, Chen, and Sutarso, 2008; McCabe, Dukerich, and Dutton, 1991). It appears that the decision to study law corresponds with a tendency to value equality and wisdom, while the choice of business studies correlates with valuing happiness, excitement, pleasure, and wealth (Tang, Chen, and Sutarso, 2008; McCabe, Dukerich, and Dutton, 1991; Baird i Zelin, 2007).

Study 2 was aimed at checking whether high school students who expressed different types of power motivation, also differ in their choice of college major (business, e.g. management/economic vs. non-business, e.g. history, philology, psychology, or sociology). Just as in Study 1, three dimensions of power motivation were taken into account: *leadership*, *prominence*, and *helping*.

Research Participants. A total of 134 Warsaw high school students (62.3% women) took part in the study. The average age of the participants was 18.35 years ($SD = .64$), with a range of 17 to 20 years of age.

Procedure and stimulus materials. Similar to the previous studies, participants filled in the Power Motivation and Helping Power Motivation questionnaires (Frieze & Boneva, 2001). On this basis, three subscales were computed and the following reliability coefficients were obtained: $\alpha = .73$ for *prominence*, $\alpha = .90$ for *helping*, and $\alpha = .81$ for *leadership*. Correlation analysis indicated a high level of correlation between the *leadership* and *prominence* subscales ($r = .67$; $p < .001$). Correlation between these two subscales and the helping subscale proved to be non-significant ($p > .05$).

Students were further asked to mark, on a scale from 1 (under no circumstances) to 6 (with great pleasure), how eager they would be to study at university each of 13 majors [engineering and technology, natural sciences, philology, other humanities, psychology, art, economics, management, sociology, medical and health sciences, law/administration, physical education/tourism]. Due to the

focus of this paper, we concentrated only on the comparison of preferences for business-oriented majors (management/economics) vs. non-business-oriented majors (other social sciences and humanities).

Results

Due to high correlations, academic major preferences were aggregated into two categories of majors: (1) economics/management majors ($M = 2.88$; $SD = 1.53$) vs. (2) humanities, philology, psychology, and sociology ($M = 3.14$; $SD = 1.19$). These two aggregates remained correlated ($r = .23$; $p < .01$), which may stem from measure's sensitivity to a general desire to pursue higher education. In order to test relationship between different types of power motivation and the academic major preferences, a correlation analysis was performed. Preferences for business-oriented majors were highly related to prominence and leadership motives (Table 1). On the other hand, the choice of non-business majors was correlated with the helping motive. These educational preferences were not associated with gender; therefore, it was omitted in further analyses.

Regression analysis. In order to compare correlation coefficients presented in Table 1, a new index was computed as a difference between strength of the abovementioned educational preferences. A constant was added to the obtained results, in order to get rid of the negative numbers. As a result, the higher the value of the index, the higher was the preference for business majors.

Table 1. Pearson's correlation coefficients between the magnitude of different types of power motivation and academic major preferences

	Business majors	Non-business majors
Leadership	.37***	.08
Prominence	.31***	.13
Helping	-.04	.32***

Note: *** $p < .001$

Subsequently, a multiple regression analysis was performed, in which academic major preferences served as a dependent variable and three types of power motives as the independent variables. It was found that the higher the expressed *leadership* motive ($\beta = .313$, $p < .01$) and the lower the *helping* motive ($\beta = -.309$, $p < .001$), the stronger was the preference for business majors (see Table 2). The regression model proved to be significant and accounted for 17% of the variation in students' academic major preferences, $F(3,131) = 8.89$, $p < .001$.

Although the difference index has a major drawback that it combines those who express a strong preference towards both majors with those who chose neither, two separate regression analyses in which preference for academic major categories served as dependent variables and intensity of different power motives as independent variables proved to be consistent with the analysis described earlier. Leadership motive was the only significant predictor

Table 2. Multiple regression coefficients of different types of power motives on academic major preferences

	Regression coefficients		<i>T</i>
	<i>B</i>	Beta	
Constant	5.044		
Leadership	.508	.313	-2.92**
Prominence	.046	.023	-.21
Helping	-.555	-.309	3.82***
$R^2 = .17$, adjusted $R^2 = .15$			

Note: ** $p < .01$; *** $p < .001$.

of the preference to study business-oriented majors ($\beta = .30$, $p < .01$, $F(3,131) = 7.99$, $p < .001$), while helping motive predicted a choice of non-business majors ($\beta = .31$, $p < .001$; $F(3,131) = 5.35$, $p < .01$).

Discussion

Results of Study 2 support the claims of other researchers (e.g. Bauman & Rose, 2011) who suggest that the differences between business majors and the non-business majors occur even before they enter a university. Therefore, it seems that participants' declarations regarding their *leadership* and *helping* motives do not stem from the process of socialization at the university level, but are shaped earlier – at, or even before, high school. Preferences for business-oriented majors are highly related to expression of power motivation through *leadership*, while choice of non-business majors is related to heightened *helping* motive.

Study 3

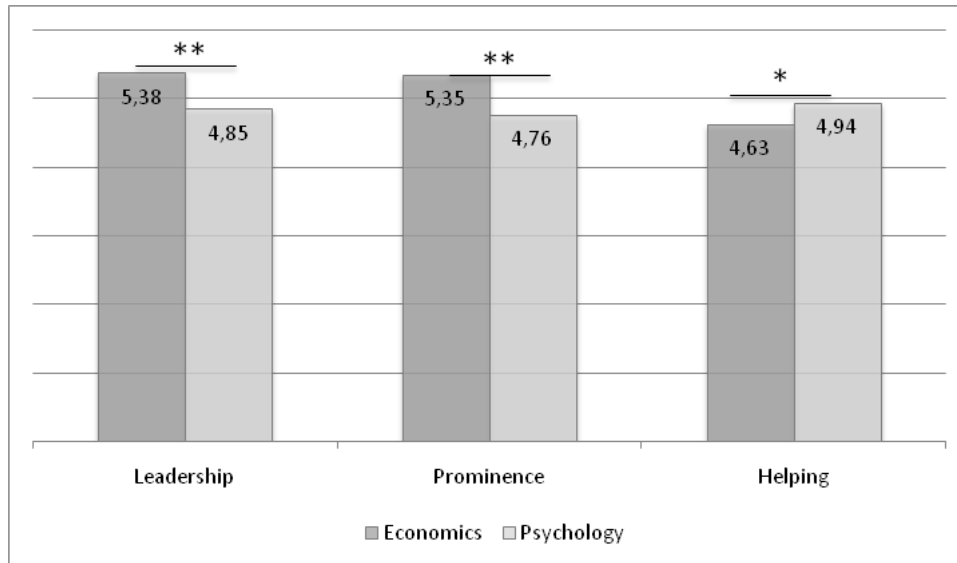
In Study 3, the Implicit Association Test score served as an indicator of the general, implicit power motivation. It was expected that there would be no significant differences in the implicit power motivation between students of economics and psychology. Additionally, the relationship between the implicit power motivation and three explicit power motivation dimensions was investigated.

Method

Research Participants. Research participants stem from two groups, which differ in their field of work or study. Among those “immersed” in the field of psychology ($N = 82$, 57.3% of women), ages ranged between 19 and 32 years ($M = 23.6$; $SD = 3.1$). Among participants working or studying in the field of economics ($N = 75$, 41.3 % of women), ages varied between 20 and 61 years ($M = 26.2$; $SD = 6.6$).

Procedure and stimulus materials. Power motivation was measured with two types of IAT (equal proportions - 50% of each): single-category and double-category IAT. Since the relationships obtained with these two measures were identical, joint results are reported. The category under investigation was power (stimuli: prestige, authority, position, control, decisiveness, leadership); which was juxtaposed with non-power for double category IAT (stimuli: subordination, imitation, compliance, yielding,

Figure2. Means of the three power motives for two academic major groups



Note. * $p < .05$; ** $p < .01$

obedience). Evaluation attributes included “pleasant” and “unpleasant” with a standard set of stimuli (Greewald et al., 1998). The test consisted of three sections. The first task involved the simple categorization of positive (e.g. vacation) and negative (e.g. sickness) words to the correct category (by pressing a key on the right or left side of the keyboard). The second and third tasks involved complex categorizations. Participants were asked to assign stimuli to one of three categories: power, pleasant, and unpleasant. Power was coupled with unpleasantness in the second task (e.g. unpleasant or POWER vs. pleasant) and pleasantness in the third task (e.g. unpleasant vs. pleasant or POWER). The order of these tasks and the side on which category labels were presented were both counterbalanced across participants in order to control for the impact of order effects on the results. Each task consisted of a series of 40 randomized trials and 30 practice trials were conducted for each task. One indicator of the implicit power motive was the IAT Effect, computed as a difference between an average of the reaction times in the second and third tasks (e.g. unpleasant or POWER vs. pleasant; unpleasant vs. pleasant or POWER).

Additionally, Power Motivation and Helping Power Motivation scales (Frieze & Boneva, 2001) were once again used. Their subscales’ reliability coefficients were as follows: $\alpha = .86$ for *prominence*, $\alpha = .81$ for *helping*, and $\alpha = .78$ for *leadership*. *Leadership* and *prominence* were once again highly correlated with each other ($r = .77$, $p < .001$) and only slightly correlated with helping (*leadership*: $r = .17$, $p = .03$; *prominence*: $r = .21$, $p = .008$).

Measurement order was counterbalanced and proved to be unrelated to the obtained results, it was; therefore, omitted in further analyses. Moreover, one person was excluded from the analyses due to a high number of mistakes (over 40%) made in the IAT.

Results

Explicit power motivation. A 2 x 3 (academic major x type of motivation) ANOVA with repeated measure on the last factor and gender as a covariant was conducted in order to determine the effect of type of major on the three types of power motivation. It yielded a significant interaction effect of the two factors, $F(2,310) = 17.33$, $p < .001$, (see Figure 3), as well as the main effects of the type of motivation ($F(2,310) = 8.61$, $p < .001$) and gender ($F(1,154) = 5.63$, $p = .019$). Furthermore, the main effect of the academic major proved to be non-significant, $F(1, 154) = 3.13$, $p = .079$, once again suggesting that there is no overall difference in power motivation.

To follow up, a separate univariate ANOVAs for each of the three types of power motivation were conducted. For all of these analyses, academic major was the independent variable and gender was included as a covariate. Analyses indicated that students of economics declared a significantly lower *helping* motive [$F(1,154) = 3.98$, $p = .048$, partial $\eta^2 = .025$] than psychology students (see Figure 2). Gender for this analysis was non-significant ($F < 1$). Furthermore, students of economics displayed higher *prominence*, $F(1,154) = 9.106$, $p = .003$, $\eta^2 = .056$, and *leadership*, $F(1,154) = 7.362$, $p = .007$, $\eta^2 = .046$, motives than psychology majors. What is more, gender was a significant factor for both *prominence* ($F(1,154) = 8.639$, $p = .004$, $\eta^2 = .053$) and *leadership* ($F(1,154) = 10.935$, $p = .001$, $\eta^2 = .066$), with men expressing higher levels of both *leadership* ($M = 5.41$, $SD = 1.00$) and *prominence* ($M = 5.33$, $SD = 1.06$) motives than women ($M = 4.79$, $SD = 1.08$ and $M = 4.75$, $SD = 1.09$, respectively).

Implicit power motivation. A repeated measures ANOVA was used in order to identify the relationship between academic major and gender on the IAT effect. The significant IAT effect was observed – participants’

reaction times were quicker when power was combined with “pleasant” ($M = 817$ ms) rather than “unpleasant” ($M = 963$ ms) evaluation attributes ($F(1, 154) = 57.4, p < .0001$, partial $\eta^2 = .27$). Gender, academic major, as well as their interaction proved to be non-significant ($F < 1, p > .1$).

In the next step, three regression analyses were performed to test a relationship between the implicit need for power and its three explicit dimensions - *leadership*, *prominence*, and *helping*. There was no significant relationship between the IAT effect and *leadership* ($F(4, 151) = .171, p > .1$) or *prominence* ($F(4, 151) = .645, p > .1$) motives, while the relationship between the IAT effect and helping motive depended on the type of education (psychology vs. economics). The regression analysis of the IAT effect on helping motive, type of education (psychology vs. economics), the interaction of *helping* motive and the type of education, and gender ($F(4, 151) = 3.146, p = .016$; $R^2 = .08$) revealed that both *helping* motive ($\beta = .237, p = .005$) and its interaction with the type of education ($\beta = -.217, p = .009$) significantly predict the IAT effect.

The shape of the interaction effect (*helping* x education type) is plotted in Fig. 3 shows that the implicit power motivation (measured by the IAT) can be predicted by the declared explicit helping motive among the psychologists, but not among the economists. For psychologists, this relationship is positive – the higher the implicit power motivation, the greater the declared helping motive.

Discussion

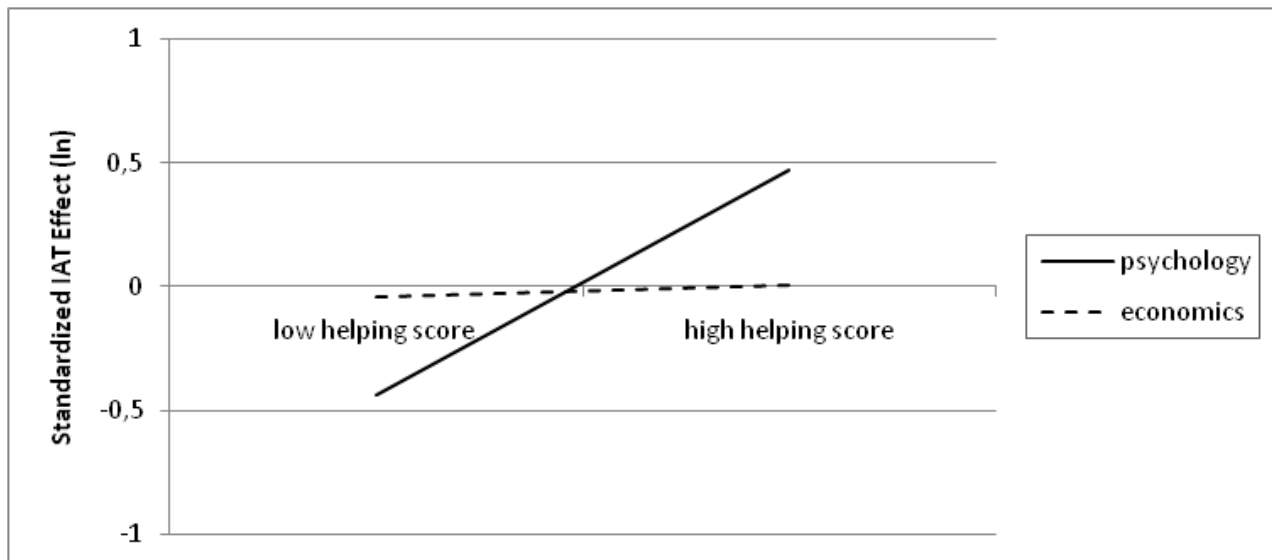
Non-business majors (psychology) declared stronger helping power motive and weaker leadership motive than business majors (economics), which replicated

the results obtained in the Study 1. Moreover business majors also displayed higher prominence motive.

According to expectations, psychology majors did not differ significantly from the economics majors when implicit power motivation was taken into account. It appeared however, that for psychology students, the IAT effect was predicted by their *helping* score. Implicit motivation is related to one’s most basic desires and early experiences (McClelland, 1987). Power motivation could be thought of as concerns to have impact on others and to manage them that are stored in memory and emerge mainly from early reinforcements and learning history (Maliszewski, 2011b, see also Winter, 1973). These past experiences predate the development of the explicit power motives, which were shaped depending on the values and social norms embraced by a person. Hence, in accordance with the presented interpretation, implicit power motivation is expressed through *helping* among the “psychologists”. It would seem that, analogically, implicit power motivation should be related to *leadership* and *prominence* among the “economists”. The observed structure of relationships suggests that there is an association between implicit and explicit power motivation when power motivation is undesirable and is likely to be repressed (Wilson et al., 2000), which might be the case for the “psychologists”.

Results pertaining to relationship between gender and need for power, obtained in the Study 1 were replicated in Study 3. As was the case in the research of Stewart and Winter (1976), there were no differences between men and women in their expressed social power motivation. These results may relate to an ongoing cultural change. Jenkins (1994) analyzed career paths of a group

Figure 3. Interaction plot for helping and education type on IAT score



of female students. Women were surveyed twice – in 1967 and in 1981. Students scoring high on the need for power scale most often declared preferences for the career of a teacher or psychotherapist. When surveyed again in the 1981, these women found their jobs of journalists or managers as equally enjoyable. Such a choice of career path suggests that differences between men and women in power motivation expression through *helping*, may become less and less pronounced. However, as was visible in Study 3, men still tend to declare higher power motivation expressed through *leadership* and *prominence*. The abovementioned cultural change, connected to the way power motivation is expressed among men and women, should be the subject of further analyses. Due to its complexity it was addressed in a separate research project (this one was aimed at the investigation of the relationship between educational choice and power motivation).

General Discussion

Results of these three studies allow for a greater insight into the process through which the need for power is shaped, as well as its relation to educational choices. The studies provide support for the hypothesis that students of business majors (as well as high school students who express preferences for these majors) are more likely to express their need for power through *leadership/visibility*. What is more, such a need is shaped early, as *leadership* proved to be a significant predictor of the choice to study business-oriented majors. The opposite results were obtained for expression of need for power through *helping*, which proved to predict the preference for non-business majors. Furthermore, students of business majors declared lower *helping* motive than students of non-business majors (history, linguistics, psychology).

Contrary to widely held beliefs (Harrell & Stahl, 1981), business majors may not be very different from non-business majors in their overall need for power. No such differences were observed in the IAT score (Study 3). However, these results may not generalize to the whole population, since our sample was not representative.

Furthermore, not only the comparison between academic majors is important in the presented series of studies, but also the exploration of the model of need for power formation, which in turn relates to one's educational choices. Under such a model, people can be characterized as having a certain general, implicit need for power. It was assumed that this need might stem from the positive/negative experiences, emerging from early reinforcements and learning history (see Winter, 1973; Maliszewski, 2011a). Such a general (implicit) need for power could be non-specific to the chosen academic major (Study 3). A conceptualization of power (*leadership/helping*) depends, among other things, on the social environment which nurtures different views of what is desirable and meaningful having to do with power (Torelli & Shavitt, 2010). This need for power may be expressed in several ways. As the results of Study 2 suggest, these expressions are shaped relatively early, at or even before the high school level.

As observed, preferences for business-oriented majors (as compared to non-business majors) were predicted by higher leadership and lower helping motivation. Business majors may be considered a path to take on a managerial position. On the other hand, majoring in psychology or disciplines related to careers in public sector (e.g. as a teacher), provide an opportunity to influence others in a socially accepted manner (Winter, 1996).

Additionally, it was observed in Study 3 that the psychology students' implicit need for power was related to *helping*. The implicit differences suggest that major-specific expressions are internalized and engraved in memory. Because non-business majors are likely to prefer socialized power, they may be more likely to engage in helping behaviors. That is, they may come to hold strong associations between power and helping. Non-business majors gain experience in socially approved helping behaviors, hence power in their minds is internalized as *helping*. As a result, non-business majors' social power associations may be more primary or chronically accessible than those of business majors.

Uncovered relationships between the implicit need for power and its three explicit manifestations call for further exploration. A question could be posed whether implicit and explicit need for power form two separate entities or maybe compose one construct, which may be measured in two ways – with the questionnaire and the Implicit Association Test (see also Fazio & Olson, 2003). Results suggest that participants engage in conscious correction of their explicitly declared needs. They may do so not only in order to fulfill social norms. Such modification could also suggest that person strives for cohesion between an involuntary desire to exert influence and an internalized value system. For instance, among non-business majors such desire could be expressed through helping, as it is congruent with their, presumably held concern about others' interests. In such case, we may think about two coexisting needs – explicit and implicit – or two separate constructs differing in the degree in which a person consciously identifies with them. Results imply that this second interpretation may be true. Observed correlations are not random, but related to values most probably held by the studied groups. This is why, for example, implicit need for power among psychology students was explicitly expressed through helping.

Limitations and Future Directions. Difference between reaction times in the two tasks on the IAT served as an indicator of the strength of person's implicit power motivation. In the IAT, reaction times are interpreted as a proxy for the strength of the association. A classical set of stimuli that form the categories "pleasant" and "unpleasant" (Greenwald et al., 1998) was used in this study. It might be more accurate to study power motivation by juxtaposing power with categories such as "I want" / "I don't want" instead of "pleasant/unpleasant". These categories were not introduced, as only one modification of the measure used by Sheldon et al. (2007) was made - we used a single (instead of double) category IAT. Contrast categories used by Sheldon et al. (2007) – power vs. intimacy – could be responsible for

lowering the measure's validity (such as already mentioned low correlation coefficients with the TAT). Although the results obtained with this version of the test confirmed our predictions and the difference between "I want" and "pleasant" in terms of association with power is probably subtle, it should be included in the further studies.

Results of the above three studies suggest that the need for power is not a homogenous construct and should be analyzed as a configuration of the following three dimensions: *leadership*, *prominence*, and *helping*. These three dimensions are correlated with each other in varying degrees, which suggests a functional (and statistical) distinctiveness of helping from the other two, highly correlated, components. Such results suggest that *leadership/prominence* could potentially be treated as one dimension of personalized power. In all three studies, *leadership* proved to be a significant predictor of the choice of a business major, however there was no significant interaction for the implicit measure between the leadership motive and the type of education (psychology, economics). These results should be subjected to further exploration.

Present research is valuable not only in a theoretical way, but also in terms of its possible applications. Results suggest that educational profile (or gender) is not a determinant of the power motivation's intensity, but significantly relates to its dimensions. Non-business majors are more prone than business-oriented majors to satisfy their need for power through *helping*, rather than *prominence* or *leadership*. Hence, failure to include the helping dimension in the study of power motivation may lead to a distorted picture. Therefore, it is worthwhile to include three dimensions of the power motivation in the practice of professional selection or management coaching. It could allow for an improved understanding of person's aspirations, as well as enabling individuals to put their goals into perspective or limit their risk of burnout.

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