

Enhancing Self-Assessment and Management Potentials by Modifying Option Selections on Hartman's Personality Test

Daniel L. Clinciu, Ikrom Abdulaev, Brian D. Oscar

Abstract—Various personality profile tests are used to identify personality strengths and limits in individuals, helping both individuals and managers to optimize work and team effort in organizations. One such test, the Hartman's personality profile, emphasizes four driving "core motives" influenced or affected by both strengths and limitations classified into four colors: Red - motivated by power; Blue - discipline and loyalty; White - peace; and Yellow - fun loving. Two shortcomings of Hartman's personality test are noted; 1) only one selection for every item / situation allowed and 2) selection of an item / option even if not applicable. A test taker may be as much nurturing as he is opinionated but since "opinionated" seems less attractive the individual would likely select nurturing, causing a misidentification in personality strengths and limits. Since few individuals have a "strong" personality, it is difficult to assess their true personality strengths and limits allowing only one choice or requiring unwanted choices, undermining the potential of the test. We modified Hartman's personality profile allowing test takers to make either multiple choices for any item / situation or leave them blank if applicable. Sixty-eight participants (38 males and 30 females), 17 - 49 years old, from countries in Asia, Europe, N. America, CIS, Africa, Latin America, and Oceania were included. 58 participants (85.3%) reported the modified test, allowing multiple / no choices better identified their personality strengths and limits, while 10 participants (14.7%) expressed the original (one choice version) was sufficient. The overall results show that our modified test enhanced the identification and balance of core personalities' strengths and limits, aiding test takers, managers and organizations to better assess individual characteristics, particularly useful in making task-related, teamwork, and management decisions.

Keywords—Organizational behavior, personality tests, personality limitations, personality strengths, task management, team work.

I. INTRODUCTION

PERSONALITY as a psychological construct is very hard to identify because it varies highly and its influence on human behavior, thoughts and decision is difficult to establish [1]. Research on the use of personality instruments in meta-analytic reviews demonstrated their use for predicting work behaviors [2]. Psychometric testing is used in occupational decisions, including selection and classification of human

resources. The British Psychological Society (BPS) defines psychometric testing as "the use of any procedure on the basis of which inferences are made concerning a person's capacity, propensity or liability to act, react, experience, structure and order thought or behavior in particular ways" [3]. According to Bergh, psychometrics can be defined as the development and utilization of various types of assessment instruments with the purpose of measuring, predicting, interpreting, and communicating distinguishing characteristics of individuals [4]. Psychometric test results can be utilized for a variety of work-related purposes, such as selection decisions (hiring, promoting, or placement), enhancing work performance and development (assisting individuals in career planning and building skills and competencies), and employee counseling.

Nowadays there are various personality tests which are divided in two different types: objective and projective. Objective tests are conducted on a group basis and usually include mostly true or false questions, also called "paper and pencil tests"; objective tests can be further divided in two groups - normative and ipsative: in normative tests questions correspond to certain scales or qualities being measured; ipsative test questions ask participants to choose between two responses that measure different scales or qualities (selecting one answer over another indicates the subject scores higher on one quality and low on another). In projective tests the subject interprets ambiguous stimuli that may illicit a number of different responses [5].

In principle any physically and mentally healthy person can be taught the responsibilities of any profession. However, the practice of training indicates that the best training can be achieved in people with the necessary set of psychophysiological competencies, identifying which can be implemented by physiological selection. Therefore, it is important that in the training of an individual, assessing these competencies should be conducted to determine the persons that are most capable of maximizing the training and learning opportunities for specific tasks. This makes it possible to significantly reduce the time and inefficiencies in choosing appropriate candidates for certain tasks as well as reducing the drop-out rate of the chosen participants. Muller postulated that the rationale for using psychometric tests in the selection process lies in the purported ability of the testing instruments to accurately and objectively assess an applicant's ability to perform the work required for the job [6]. Theron concurred that the objective of personnel selection is to select only those applicants who would perform satisfactory in their designated

D. L. Clinciu is with the International School of Technology and Management, Feng Chia University, Taichung 40724 Taiwan and the College of Medical Science and Technology, Taipei Medical University, Taipei 11031 Taiwan (phone: +886-4-24517250 ext. 4280; fax: +886-4-24510409; e-mail: celdan99@gmail.com).

I. Abdulaev and B. D. Oscar are with the International School of Technology and Management, Feng Chia University, Taichung 40724 Taiwan (e-mail: drandulet88@gmail.com, bherenou@yahoo.com).

positions [7].

For this reason, the assessment of individuals' psycho-physiological qualities is an important task in business and management nowadays, especially when dealing with the increasing multicultural environments of international settings. Paterson and Uys noted the changing world of work has an impact on assessment practices. They state that in the "new" organization, the focus is on recruiting and developing employees with the ability to work flexibly and adaptively, owing to rapid changes inside and outside the organization. Well-designed selections include personality assessments for enhancing the identification of these employees [8].

Professional selection is designed to ensure high efficiency of work and to preserve health, prevent occupational accidents and errors, extend employee's duration, reduce turnover, and increase work satisfaction. Therefore, assessing individuals' strengths and limits is one important aspect related to efficiency and productivity in a firm or company. International as well as local research has demonstrated the role that psychometric assessment can play in significantly improving the selection process for both new entrants and internal promotions which can also play a part in staff development processes [9]. However, these tests should not be considered as an absolute standard for taking into account situations, the environment, and the psychological climate of the organization. Selecting staff for various tasks also depends on many other factors – the ability to perform work, motivation, compensations, the firm's organization of labor and the relationship between staff and superiors. In conditions when managers use authoritarian management styles and rigid pressure (the so-called "under stress from the boss"), employees with a lower intelligence level and abilities usually work best. However, if leaders use a democratic style – those sought should be independent, intelligent and creative [10]. Moerdyk defined this selection type as the process of "matching people to the job requirements" in order to meet organizational objectives, both current and in the longer term [11]. The special feature of professional psycho-physiological selection, in contrast with the selection process for medical reasons, physical preparedness, social data, is not only an increase in efficiency and reliability, but also a reduction in the amount of time learning specific skills, reducing staff turnover and overall costs [12].

After 1988, as federal law in USA prohibited the use of polygraphs, the use of personality tests significantly increased. Firms were looking for methods to save time and money, since wrong hiring decisions could be costly. Such tests could identify more appropriate individuals for certain positions relatively fast by screening many participants in a shorter time [13].

Many institutions and organizations nowadays use personality tests to find suitable individuals for a particular job or task within an organization and within a team. According to Black, institutions such as The United States Air Force, nuclear power plants and others use personality tests to review employees' trustworthiness and reliability [5]. Many researchers also emphasize personality tests during the

employment process and its correlation with intelligence. Schermer et al. studied correlations between employment measures and a general factor personality [14] showing that "a general factor personality" did not have robust correlations with a large set of employment screening measures. The application of personality-based adjustment taking into account the arousal value of the work situations may further improve ability to predict work performance [15]. Moutafi et al. showed in his research that personality could be a predictor of intelligence and emphasized the importance in investigating the relationship between personality and intelligence; rather than investigating them as two different measures they pointed out that personality measures correlate differently with certain types of intelligence [16].

Respondents with low honesty, integrity and morality, and high on risk taking are most likely to fake their results and likely be hired, because of their tendency to cheat and take chances. The results could be catastrophic for the company, especially if a company is hiring for high responsibility positions. Work place deviance and other unethical behavior could increase with the hiring of people who fake their personality tests [17].

According to the British Psychological Society the rise in the use of tests can be attributed to the rising number of applicants applying through the internet for positions, particularly recent graduates. The study by Chamorro-Premuzic et al. provided solid evidence of the correlation between personality and intelligence using academic performance [18]. Another important aspect is the effect of personality on the accuracy of self-estimates of intelligence, showing that inaccurate self-perceptions of intellectual ability by an individual may encourage incorrect expectations, frustration or underachievement [19]. Moreover, at the workplace, for most individuals self-evaluation of intelligence is problematic, as false self-perceptions can lead to underachievement through ineffective goal settings and self-regulation. The relationship between business success and personality characteristics is hard to determine in terms of cause and effect, especially when perception of entrepreneurial success is different for different personalities. For example, emotional stability and independence contribute as a cause not only of business success, but also to the decision to set up a company [20].

Leutner states "personality predicts entrepreneurial success outcomes beyond business creation and success, and that narrow personality traits are stronger predictors of these outcomes compared to broad traits". Moreover, Leutner concluded there is a relationship between personality, job performance and entrepreneurship [21].

Markman attempted to answer the question "Why are some entrepreneurs more successful than others? [22]" He concluded a successful entrepreneur must possess certain characteristics, skills, talents and abilities to identify opportunities and to fit the job. Depending on the type of business and management, the personality within individuals controls in great part the degree of business success. As an example, high novelty high-technology entrepreneurs are more

successful compared to low novelty low technology ones in terms of creating and identifying new opportunities and establishing necessary infrastructures to explore these opportunities; however, in short term low novelty low technology entrepreneurs are more efficient and achieve better results in terms of meeting economic and budget goals [23].

Recently, the main factors influencing personality profiling within organizations are as follows:

- 1) Structured / Formal HR Department - As HR departments become more structured and HR practitioners are becoming trained in level A & B (BPS), they are pushing best practice of implementing tests down the ranks at their organizations.
- 2) Fear of litigation (fair / ethical) - A robust test will not only be reliable and valid but will also avoid any type of discrimination against applicants. More and more organizations in an attempt to avoid litigation are reverting to fair tests as part of their selection process.
- 3) War and Search for talent / Competitive advantage - Through various tests and personality profiling, organizations have found that they can identify the most suitable candidates for the role and also candidates whose personality profile fits the culture of the organization.
- 4) Need for increasing the softer skills team building and flexibility - Employees not only need to possess the ability and skills to carry out a role, but also need to be able to lead and build teams when necessary. Through personality profiles organizations can understand to a greater extent the softer side and preferred working style of potential employees.
- 5) Diversity Recruitment - To qualify academic results of different countries' candidates or to provide evidence of different skills. With so much diversity present nowadays within the workplace it is necessary to test both soft and hard skills, not only to qualify individual abilities but also to better understand if there is a cultural fit.

II. OVERVIEW OF HARTMAN'S PERSONALITY PROFILE

The Color Code Personality Profile also known as The Color Code created by Taylor Hartman, divides personalities into four colors: Red (motivated by power), Blue (motivated by intimacy), White (motivated by peace), and Yellow (motivated by fun). Although different groups of people have different demographics, the general breakdown suggests that Reds comprise 25% of the population; Blues 35%; Whites 20%; and Yellows 20%. A 45-question test assesses one's most dominant color(s) [24]. Compared to other personality tests (e.g. Myers-Briggs, Five-Factor Model, TAT, Ink Blots) Hartman's test is the most complete and least difficult overall, as it combines personal and situational characteristics for enhancing personality strengths and limits assessment.

We hypothesize that modifying two main aspects of this test: 1) allowing more than one choice and 2) omitting a choice when applicable, this personality assessment can better identify individual strengths and limits, useful for both test takers and the company or firm interested in their personality characteristics.

III. METHODS AND PROCEDURES

A. Inclusion Criteria

Participants must be high school graduates, have good command of English (read and write) and understand the purpose of this study after being explained to them. Participants from all areas and mediums (different ages, countries, education levels, jobs, etc.) will be recruited in order to get a better pool of different opinions and inputs about the modified version of the Hartman's personality test.

B. Procedures

Participants will be asked to perform the following:

- 1) Take the original Harman's personality test with one choice per item / situation (Ex: Fig. 1 (a)).
- 2) Take the modified version of Harman's test where more than one choice per item can be selected, or omit any selection when applicable (Ex: Fig. 1 (b)). The combined test can be found at:
<https://docs.google.com/forms/d/1voyEw2jb0TUie1M9SHuos-sacDXvCUX8pAk-XA4Dik/viewform?c=0&w=1>
- 3) Compare the results of both tests and briefly describe in the comments section whether the original or the altered version of Harman's profile better helped to identify your strengths and limits and your core personality (power wilder, hard worker, peacemaker, or fun lover). Both tests can be taken on a hard copy as well.

(a) THE HARTMAN PERSONALITY PROFILE

Name: John Smith

Directions: Mark an "X" by the one word or phrase that best describes what you are like most of the time. Choose only one response from each group. After you've finished question 30, total your scores for each letter.

PERSONALITY STRENGTHS AND LIMITATIONS

- | | | | |
|---|--|---|---|
| 1 | a) <input checked="" type="checkbox"/> opinionated | 2 | a) <input checked="" type="checkbox"/> power-oriented |
| | b) <input type="checkbox"/> nurturing | | b) <input type="checkbox"/> perfectionist |
| | c) <input type="checkbox"/> inventive | | c) <input type="checkbox"/> indecisive |
| | d) <input type="checkbox"/> outgoing | | d) <input type="checkbox"/> self-centered |

(b) THE HARTMAN PERSONALITY PROFILE (MODIFIED VERSION) Name: John Smith

Directions: Mark an "X" by as many words and phrases as you find applicable. Leave blank any group if applicable. After you finished question 30, total your scores for each letter.

PERSONALITY STRENGTHS AND LIMITATIONS

- | | | | |
|---|--|---|--|
| 1 | a) <input type="checkbox"/> opinionated | 2 | a) <input type="checkbox"/> power-oriented |
| | b) <input checked="" type="checkbox"/> nurturing | | b) <input type="checkbox"/> perfectionist |
| | c) <input checked="" type="checkbox"/> inventive | | c) <input type="checkbox"/> indecisive |
| | d) <input type="checkbox"/> outgoing | | d) <input type="checkbox"/> self-centered |

Fig. 1 (a) The original version of Hartman's personality profile where one choice is selected only. (b) The modified version: 1) more than one choice or 2) no choice are selected when applicable

IV. RESULTS

The test was distributed via internet (participants received an email with the link to both online tests) and in person using pen and paper. A total of 68 participants (38 males and 30 females) with ample demographic variance (Table I) were used in this study. They completed both tests and provided indications whether the first or second version of the two tests

was more useful for them. Incomplete tests or tests with no clear indications in the comment section were excluded.

TABLE I
DEMOGRAPHIC DISTRIBUTION OF STUDY PARTICIPANTS

Category	Description	Number of Individuals	% of Total
Gender	Male	38	55.9
	Female	30	44.1
Age (years)	<18	1	1.5
	18-29	58	85.3
	30-49	9	13.2
Status	Single	56	82.4
	Married / domestic partnership	10	14.7
	Divorced / widowed	2	2.9
Origin	CIS countries		
	North America	8	11.8
	Africa	4	5.9
	Asia	35	51.5
	Europe	10	14.7
Education	Latin America	2	2.9
	Oceania	1	1.5
	High School	15	22.1
	Bachelor degree	26	38.2
	Master Degree	21	30.9
Work Experience	Doctoral Degree	6	8.8
		56	82.4

From the comments written on surveys, 58 (85.3%) of total participants indicate that allowing multiple and / or no choices can better reveal their personality strengths and limits, while only 10 participants (14.7%) indicate that one choice provides sufficient details of their personality (Table II). We display two comments from two participants in each of the above two groups: Group 1 (85.3 %) and Group 2 (14.7% respectively).

Group 1 comments first example: “Being allowed to submit multiple answers I got a more balanced result; I still maintained my core personality (white - peacemaker), but red (power-wielder) results are similar to blue (Fig. 2). This more balanced result is preferable to me as a test-taker, and shows the adaptability that I know I have. However, if I were a manager using this test, I might be interested in both, the less balanced view of the single-answer results, which may tell of where the test-taker is character-wise momentarily, and most importantly, the multiple answer option where I could see a lot more about him.”

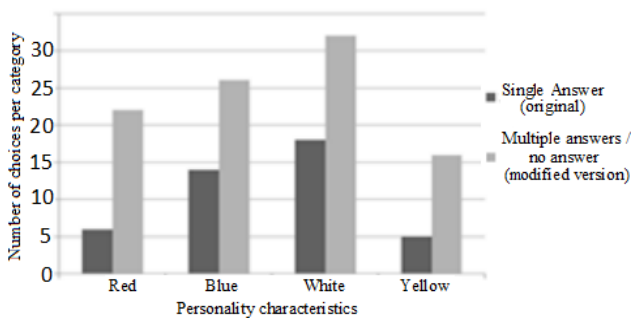


Fig. 2 Personality assessment results from a Group 1. Black bars - Hartman’s original test results; Gray bars - the modified version test results.

Second example: “The second time I took the test I was able to select all choices that applied. This was quite helpful, as when I first took the test I found myself conflicted quite a few times as to which descriptive words best suited me. Although there are other personality tests like Briggs Myers which are interesting and easy to take, I find Hartman’s a lot more explicit and detailed when it comes to what I perceive as my strengths and limitations.”

TABLE II
PARTICIPANTS’ RESPONSES AND DEMOGRAPHICS

Category		Single Answer	Multiple answers or no answer
Gender	Male	4	34
	Female	6	24
Age (years)	Total population	10 (14.7%)	58 (85.3%)
	< 18	1	
	18-29 (over 25)	9	49
Origin	30-49	0	33
	CIS	1	9
	N. America	1	7
	Africa	1	3
	Asia	5	30
	Europe	2	8
	Latin America		2
Education	Oceania		1
	High School	8	7
	Bachelor Degree	2	24
	Master Degree		21
	Doctoral Degree		6
Work Experience		3 (30%)	53 (91.4%)
	Personality change over time	3	58

Group 2 comments first example: “Taking the test a second time did not help me at all to better know my strengths and limits (Fig. 3). First test was enough, although I took several Personality Tests, which helped me a lot more than Hartman’s Personality Test.”

Second example: “The one option version was enough for me to know the strengths and limits of my personality.”

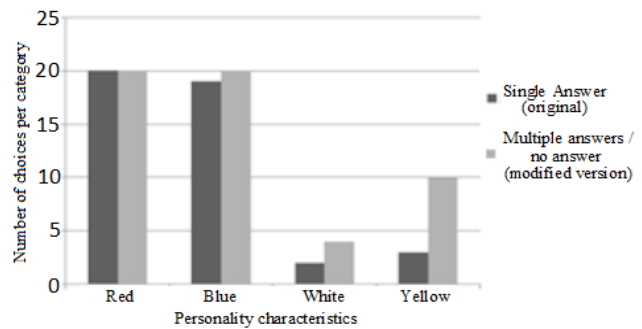


Fig. 3 Personality assessment results from a Group 2 participant. Black bars - Hartman’s original test results; Gray bars - the modified version test results

V. DISCUSSION AND CONCLUSION

Psychological tests generally aim to assess a variety of mental abilities and attributes of an individual. The purpose of this study is to investigate whether allowing multiple answers

or no answers on Hartman's personality test would be more practical for evaluating people's personality strengths and limits. Hartman's personality profile describes four categories an individual belongs to: 1) red – power motivated, 2) blue – loyal and disciplined, 3) white – peace lover, and 4) yellow – fun loving. It is accompanied by a 45 questionnaire which can determine the color dominance of a test taker. However, Hartman's test is limited by one choice per each item (Fig. 1 (a)).

After taking both versions of the test participants were asked to comment on the two different versions. A total of 58 participants (85.3%) reported that the modified test allowing multiple or no choices (Fig. 1 (b)) can better identify their personality strengths and limits as well as core personalities while only 10 participants (14.7%) expressed that the modified version did not make any / much difference (Table II). Worth-mentioning are the comments of the participants, especially in Group 1. Some participants went a step further and examined the potential of our modified version from a manager's point of view (see 1st comment from Group 1 in Results section).

This reveals that demographic characteristics of participants could play a significant role in their perception and understanding of this study as the majority of participants in the Group 1 (85.3 %) were older, had a bachelor degree or above, and also had more working experience, although they came from various places and backgrounds (Table II). More comments from the same group are also very concrete and well-explained, such as in the 2nd example from Group 1 comments, and also very detailed in all other participants from this group. Furthermore, all Group 1 participants pointed out that they were forced to make unwanted choices in the original test in order to continue the test; this did not happen in the modified version, thus, enhancing the assessment of their personality strengths and limits.

Participants in Group 2 (14.7%) provided little feedback in their comparisons of the two test versions (see Group 2 comments). Although one of the participants mentions that there are better personality tests available, he / she does not mention which ones and why they are better. All other participants provided very similar responses as seen in the 2nd example of Group 2 comments offering little perspective in how they really feel about both versions of the test. Due to the majority of comments being very similar to the 2nd example from each group respectively (see the 2nd comment in Group 1 and 2) and due to lack of space we only provided two examples from each group: one particularly different than the rest and one that resembles the majority of comments in each group. Demographics likely play a significant role as most participants from Group 2 are much younger and mostly high school graduates with little working experience, although they all come from different places (Table II).

The 85.3% of total participants which prefer the modified version of Hartman's test support our hypothesis with detailed and explicit comments. As seen in Figs. 2 and 3, more choices were selected using the modified version by both participants, although they had completely different opinions of the tests. This was the same for all participants; they all selected more

choices when taking the modified version of the Hartman test. The core personality of participants (red – power, blue – intimacy, white – peace and yellow – fun motivated) did not change when allowed to select more than one choice from each category and overall, their personality profile became more explicit and balanced when looking at the modified version results, regardless of their preferred test version. Most participants experienced a shift from a very dominant color to a more balanced and less contrast among two or more colors / personality traits (Figs. 2 and 3). Notably, a participant whose leadership capabilities were revealed by the modified version but not the original version (see Fig. 1 and Group 1 comments in Results) is more likely to benefit from this assessment and from a choice management could make based on the modified version. Some participants expressed that their behavior may be different at times, depending on the environment and conditions. Other participants felt that a good mix of the strengths and limits from all four different personality types is certainly possible, especially when aided by more flexibility in choices as observed in the modified version.

All Group 1 participants but only three Group 2 participants expressed their personality changed over time (Table II). Interestingly these were the same individuals in Group 2 with working experience. As Group 1 participants were older, more experienced and more educated it could contribute to them having more awareness of changes in personality strengths and limits over a substantially longer period of time (e.g. a 48 year old versus a 17 year old). Some test-takers emphasized the complexity of human beings and their psychological aspects as one of the weaknesses of all personality tests; however, this does not interfere with the quality of our results and overall findings.

This study reveals more clearly that an individual with a well-balanced set of personality strengths and limitations has a combination of two or more driving core motives rather than one (Figs. 2 and 3). The original Hartman test may point to a very strong core because of its rigidity and limitations; however, this is unlikely in most individuals. For example, a healthy red (motivated by power) will most likely be insensitive, but at the same time he may be judgmental and assertive when both choices will fall into the same group or category. One choice answers and particularly forced choices could either add false characteristics or miss important ones in this case.

One limitation may be the number of participants. A higher number and more diverse group (ethnicity, age, education, jobs) among test-takers might bring additional insights when comparing the results of two tests. However, that will take more time in gathering information and analyzing the results as well as getting more superficial comments (individuals that get bored with long surveys) which take longer to be sorted and thoroughly analyzed. Moreover, the length of test (over one hour long) could have caused Group 2 participants to grow impatient taking both versions one after another. No test-retest studies on Hartman's personality profile were available for comparison; our modified version is the first to provide such feedback. It would be interesting to see if the

same or different demographics play similar roles in future studies.

We suspect that different incentives (e.g. job interview or promotion) for personality tests might influence comments and response outcomes, particularly in Group 2 participants. Nevertheless, results from the modified test reveal that Group 2 also benefited from a more detailed and balanced personality profile overall (Fig. 3). Therefore, our modified version can better enable individuals to assess their strengths and limits which can benefit them personally, their co-workers and managers, and their work places.

ACKNOWLEDGMENT

We want to thank the IMBA Program at Feng Chia University and all the participants who made this study possible.

REFERENCES

- [1] Just, C. 2011. A review of literature on the general factor of personality. *Personality and Individual Differences*, 50, 765-771.
- [2] Barrick, M. R. & Mount, M. K. 1991. The Big Five Personality Dimensions and Job Performance: a Meta-Analysis. *Personnel Psychology*, 44, 1-26.
- [3] British Psychological, S. 2005. Psychological Testing Centre
- [4] Bergh, Z. C. & Theron, A. L. 2006. *Psychology in the work context*. Halfway House: International Thompson Publishing.
- [5] Black, K. R. 1994. Personality Screening in Employment. *American Business Law Journal*, 32, 69.
- [6] Muller, J. & Schepers, J. 2003. The predictive validity of the selection battery used for junior leaders training within the South African National Defense Force. *South African Journal of Industrial Psychology*, 29, 87-98.
- [7] Theron, C. 2009. The diversity-validity dilemma: In search of minimum adverse impact and maximum utility. *South African Journal of Industrial Psychology*, 35, 1-13.
- [8] Paterson, H. & UYS, K. 2005. Critical issues in psychological test use in the South African workplace. *South African Journal of Industrial Psychology*, 31, 12-22.
- [9] van Der Merwe, R. P. 2002. Psychometric testing and human resource management. *South African Journal of Industrial Psychology*, 28, 77-86.
- [10] Sullivan, P. 2005. *Psychometric Tests*. UK Financial Times Newspaper.
- [11] Moerdyk, A. 2009. *The principles and practice of psychological assessment*. Pretoria: Van Schaik Publishers.
- [12] Carretta, R. T. & Ree, M. J. 2003. *Pilot selection methods. Principles and practice of aviation psychology*, Mahwah: Lawrence Erlbaum Associates, Inc., 357-396.
- [13] Stabile, S. J. 2002. The Use of Personality Tests as a Hiring Tool: Is the Benefit Worth the Cost? *U. Pa. Journal of Labor and Employment Law*, 4.
- [14] Schermer, J. A., Carswell, J. & Jackson, S. 2012. Correlations between a general factor of personality and employment measures.
- [15] Bates, T. C. & Rock, A. 2004. Personality and information processing speed: Independent influences on intelligent performance. *Intelligence*, 32, 33-46.
- [16] Moutafi, J., Furnham, A. & Paltiel, L. 2005. Can personality factors predict intelligence? *Personality and Individual Differences*, 38, 1021-1033.
- [17] O'Neill, T. A., Lee, N. M. & Law, S. J. 2013. The impact of "non-targeted traits" on personality test faking, hiring, and workplace deviance. *Personality and Individual Differences*, 55, 162-168.
- [18] Chamorro-Premuzic, T. & Furnham, A. 2003. Personality predicts academic performance: Evidence from two longitudinal university samples. *Journal of Research in Personality*, 37, 319-338.
- [19] Jacobs, K. E., Szer, d. & Roodenburg, J. 2012. The moderating effect of personality on the accuracy of self-estimates of intelligence. *Personality and Individual Differences*, 52, 744-749.
- [20] Brandstatter, H. 1997. Becoming an entrepreneur- a question of personality structure? *Journal of Economic Psychology*, 18, 157-177.
- [21] Leutner, F., Ahmetoglu, G., Akhtar, R. & Chamorro-Premuzic, T. 2014. The relationship between the entrepreneurial personality and the Big Five personality traits. *Personality and Individual Differences*, 63.
- [22] Markman, G. & Baron, R. A. 2003. Person-entrepreneurship fit: why some people are more successful as entrepreneurs than others. *Human Resource Management Review*, 13, 281-301.
- [23] Dvir, D., Sadeh, A. & Malach-Pines, A. 2010. The fit between entrepreneurs' personalities and the profile of the ventures they manage and business success: An exploratory study. *Journal of High Technology Management Research*, 21, 43-51.
- [24] http://www.mceachernhigh.org/member/teachers/class_documents/cjr17190/Marketing%20Principles/Hartman%20Personality%20Test.pdf