

Soft skills as the most important predictor of getting job: Evidence from using new measurement tool

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1. Purpose, context and problem statement

There is a serious problem with measuring of soft skills, such as communication, cooperation, flexibility etc. Empirical literature approximates them usually by general psychological traits, which are not specific enough for their capturing, or job tasks, where the perfect match of job characteristics and worker's skills is assumed. The aim of this paper is making a contribution to the discussion on soft skills measurement by introducing entirely new tool capturing individual's readiness for using particular soft skills called Soft Competencies Colour Association Diagnostics (SCCAD) and comparing its predictive power on employment with those of Freiburg Personality Inventory (FPI-K), which provides information on individual's personality traits.

2. Conceptual framework

Measuring of soft skills, i.e. work-related non-cognitive skills such as cooperation, consumer orientation or leadership, is very difficult, because there is no test for their objective assessment. Empirical literature usually approximates them by

- personality of an individual (see e.g. Fletcher 2012; Mueller, Plug 2006; Nyhus, Pons 2005),
- particular psychological trait (see e.g. Drago, 2011; Mocan, Tekin 2009; Semikyna, Linz 2007; Bowles, Gintis, Osborne 2001),
- job tasks (see e.g. Bacolod, Blum 2008; Borghans, Weel, Weinberg, 2008; Black, Spitz-Oener 2007),
- past behaviour approximating given skills (see e.g. Weinberger, 2011; Kuhn, Weinberger, 2005).

This paper uses two different measurement tools and compare their predictive power on getting a job:

Freiburg Personality Inventory (version FPI-K)

It represents standard and proven psychological test. Based on 76 items questionnaire, it measures 12 personality dimensions (at scale of 1 to 9): Psychosomatic disturbance, Spontaneous aggressiveness and emotional immaturity, Depressivity and life dissatisfaction, Excitability and sensitivity to instigation, Sociability, Low strain, self-confidence and ability to handle stress, Dominance, reactive aggressiveness and assertiveness, Inhibitedness and avoiding contacts, Frankness and self-criticalness, Extraversion, Emotional lability, Masculinity.

Soft Competencies Colour Association Diagnostics (SCCAD)

It is on-line diagnostics introduced by "SoftSkillers", a programme for soft skills development, in Autumn 2014. This 134 items diagnostics measures readiness of consciousness for activation/use of 15 soft skills (at scale of 0 to 100): Communication, Cooperation, Entrepreneurship, Flexibility, Customer orientation, Efficiency, Independence, Problem solving, Planning and organization, Life-long learning, proactive approach, Stress resiliency, Exploring and orientation in information, Leadership and Influencing others

(see <http://softskillers.com> for definitions of particular skills). However, this paper employs only 12 of them - it does not work with Communication, Customer orientation and Life-long learning - as these skills were not measured by SCCAD in 1Q/2015 when data was gathered.

The SCCAD diagnostics is based on Colour-Association Method, which is combined projective technique using calibrated sets of words and a palette of eight colours. A word provokes an immediate association, i.e. activation of particular neuronal junctions and synapses, to which the person is instructed to react via colours. Evaluations of these word-colour associations and their comparison with the corresponding norm enables description of the psychological characteristics of individual's associations quite precisely. As the colours represent very important concept in the CA Method, it should be emphasized that the method does not work with the symbolic of colours, but use them in detecting associations and their psychological dynamic in a complexly structured psychological field as each colour represents a part of physically and exactly measurable frequency field of colour radiation. As the associations cannot be rationally influenced or interrupted CA Method belongs among methods focused on measuring and evaluating "authentic uncensored associations". More information on CA Method, including its validity and reliability can be found at www.camethod.com/en

3. Research questions and design

Longitudinal data on technical high-school graduates (see Section 4 for more details) was used for estimating the probability of being employed (at the beginning of September 2015) depending on education, work experience, soft skills (approximated by either FPI-K or SCCAD), job preferences, physical traits (all measured in 1Q/2015), participation in employment policy measures (during 1Q and 2Q/2015) and conditions on local labour market approximated by NUTS 4 regions. Results of this probit model enabled answering following question:

What tool is more convenient for measuring soft skills as an employment predictor? Is it Freiburg Personality Inventory (FPI-K) measuring personality traits or Soft Competencies Colour Association Diagnostics (SCCAD) measuring readiness of consciousness for activation of particular soft skills?

4. Data collection and analysis

Longitudinal data on representative sample of 268 technical high-school graduates from Moravian-Silesian Region, Czech Republic were employed in this paper. All observations in the sample satisfy following conditions:

- live, studied and graduated in Moravian-Silesian Region (NUTS 3), the biggest industrial agglomeration in the Czech Republic,
- graduated in years 2014 or 2015,
- their field of study was Information technology, Engineering, Electrical engineering and ICT, Food processing and food chemistry, Wood processing, Construction and civil engineering or Interdisciplinary technical studies (these fields of study represented 89.6 % of all unemployed high-school graduates with technical education in April 2014),
- age under 21 years,
- had no employment in 1Q/2015,
- had no interest in further studies.

Data were gathered in two waves: January-March 2015 (individuals who graduated in 2015 were students yet) and August-September 2015. Data on individual characteristics (level and field of education, work experience, soft skills, job preferences and physical traits) were gathered in the first wave by on-line questionnaire (it took c. 50-55 minutes). The second wave of the survey gathered data on actual status of respondents on the labour market (employed vs. unemployed) and match of their education and occupation in case of employment. It was done through on-line questionnaire and phone interviews.

Respondents were invited to the survey in cooperation with Public Employment Services (respondents graduated in 2014) and high schools providing technical education (respondents graduated in 2015). Employment Services invited to the survey all registered high-school graduates, who matched above stated conditions (N=224). Unfortunately, only 48.7 % of them really participated. Seven biggest technical high schools in the region (at least 1 high school in each NUTS 4 region) ensured a participation of all students in last grades (N=399, i.e. 9.8 % of all students in selected field of studies in Moravian-Silesian Region), but not all met the required characteristics (e.g. 93 of 399 students planned to continue in studies). Based on these activities data on 395 participants corresponding to above stated criteria were gathered. Unfortunately, second wave of the survey led to the significant erosion of the sample to 268 respondents (38 participants decided to continue in studies and 89 participants were not contactable neither by e-mail or phone because they provided invalid contact information). It is noteworthy that the sample of 268 graduates is representative according to sex, education level and field of education to unemployed high school graduates with technical education at the level of Moravian-Silesian Region, Czech Republic (MPSV, 2014).

5. Results

54.5 % of technical high school graduates in the sample got a job as per September 2015. (Although the share seems low, it is necessary to mention that 40.7 % of a sample consists of graduates from a year 2014 who have not found stable job since their graduation and the rest of respondents graduated in May/June 2015, which means that they had 3 months for finding a job). It raises few interesting questions: Have soft skills any influence on a probability of being hired? Is it better to use SCCAD or FPI-K for their measuring? What soft skills help the most in getting a job? In order to answer these questions, the probability model of getting a job was estimated (see Table 1).

Model using Freiburg Personality Inventory (FPI-K) identified Spontaneous aggressiveness as the only statistically significant predictor of being employed (statistically significant at 0.05 level). As this characteristic is connected with impulsivity, activity and need for change, it can be assumed that individuals with its higher level are more active in job searching. Also employers can appreciate the activity or other behaviour connected with this characteristic, but identification of particular aspects of this behaviour useful at work is difficult. Model using Soft Competencies Colour Association Diagnostics (SCCAD) found that the probability of getting a job is closely related to individual's Independency, Efficiency and Cooperation. However, the results identified also negative and statistically significant impact of individual's potential for Influencing others on the probability of being hired. Unfortunately, authors have no explanation for this result.

As a specification of the model did not change with an exemption of soft skills variables, it is possible to compare predictive power of FPI-K and SCCAD related to labour market outcome. Pseudo R^2 (0.244 vs. 0.319) indicates that model measuring soft skills by SCCAD have higher predicting power. It suggests that SCCAD, which measures readiness to use particular soft skills, is more convenient for predicting labour market outcomes than FPI-K, which measures general personality traits. Re-estimation of these models by OLS method (not shown here) provides the same results.

The comparison of standardized beta coefficients (OLS estimation) of statistically significant education and hard skills variables (Graduation 0.291, Vacation job 0.116, Promise of a job 0.104) and soft skills variables (Independency 0.259, Efficiency 0.195, Cooperation 0.164) suggests that soft skills belong among very important employment predictors.

Table 1: PROBIT model estimations

VARIABLES	Employed in 09/2015	Employed in 09/2015
Soft skills approximated by SCCAD		
Cooperation	0.014*** (0.005)	
Entrepreneurship	0.009 (0.016)	
Flexibility	-0.005 (0.005)	
Efficiency	0.015*** (0.005)	
Independency	0.030*** (0.011)	
Problem solving	0.004 (0.007)	
Planning and organizing	-0.004 (0.005)	
Proactive approach	-0.000 (0.010)	
Stress resiliency	-0.007 (0.009)	
Exploring and orientation in information	-0.003 (0.005)	
Leadership	0.007 (0.005)	
Influencing others	-0.044*** (0.011)	
Soft skills approximated by		
Psychosomataical disturbance		0.039 (0.071)
Spontaneous agresivity, emotional immaturity		0.172** (0.075)
Depresivity, life dissatisfaction		-0.056 (0.093)
Excitability, sensitive to instigation		-0.038 (0.067)
Sociability		0.011 (0.057)
Low strain, self-confidence, ability to handle stress		-0.078 (0.053)
Dominance, reactive agresivity, assertivity		-0.070 (0.057)
Inhibitedness, avoiding contacts		0.010 (0.067)
Openness, frankness, self-criticalness		-0.008 (0.059)
Extraversion		-0.049 (0.068)
Emotional lability		-0.002 (0.089)
Masculinity		0.066

		(0.086)
Education and hard skills^I, Job preferences^{II}, Employment policy measures^{III}, Physical traits^{IV}, Region (NUTS 4), Control variables^V.	YES	YES
Constant	1,288.003* (673.663)	30.424 (591.456)
Wald Chi ²	118.82	98.04
Pseudo R ²	0.319	0.244
Observations	243	268

Source: Author

Note 1: Robust standard errors in parentheses

Note 2: *** p<0.01, ** p<0.05, * p<0.1

Note 3: I. Level of education, Field of education, Graduation, Driving licence, Vacation job experience, Promise of a job
 II. Net reservation wage, Work in field of study, Job security, Job flexibility, Individual's self-fulfilment, Less stressful work, Less physically demanding work, Good interpersonal relations, Good working conditions
 III. Psychological diagnostics, Career coaching, Motivation and job searching training, Employment mediation
 IV. Gender, Age, Health limitation, Height, BMI, Facial beauty
 V. Year of graduation, Period of individual monitoring (in days)

6. Conclusions and practical implication

Impact of soft skills on labour market success has begun to be examined recently. Today, there is an extensive empirical body describing their importance for employment, wage returns, socioeconomic status etc., but there are still serious problems with their measurement, which limits possibilities of economic research. This paper contributed to the discussion on soft skills measurement.

Longitudinal data on representative sample of 268 technical high-school graduates from Moravian-Silesian Region, Czech Republic were employed to test predictive power on employment of two soft skills measurement tools: Soft Competencies Colour Association Diagnostics (SCCAD), i.e. a newly developed tool for measuring soft skills, and Freiburg Personality Inventory (FPI-K), i.e. standard and proven psychological questionnaire. Estimation of probit models proved that model employing SCCAD for capturing individuals' soft skills predict the probability of being hired better than model using FPI-K. It suggests that the Soft Competencies Colour Association Diagnostics (SCCAD) is more convenient for this task than the Freiburg Personality Inventory (FPI-K).

The model with SCCAD variables also revealed that the successful graduation of high-school was the only variable, which was more important for being employed than soft skills, i.e. Independency, Efficiency and Cooperation.

These results suggest that:

- Soft Competencies Colour Association Diagnostics (SCCAD) is convenient tool for soft skills measurement.
- Soft skills represent very important determinant of graduates' employment and thus they should be developed systematically at schools.

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