VALIDATION STUDY OF A MODEL FOR THE ASSESSMENT OF THE POTENTIAL IN ITALIAN YOUNG PROFESSIONALS

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Introduction

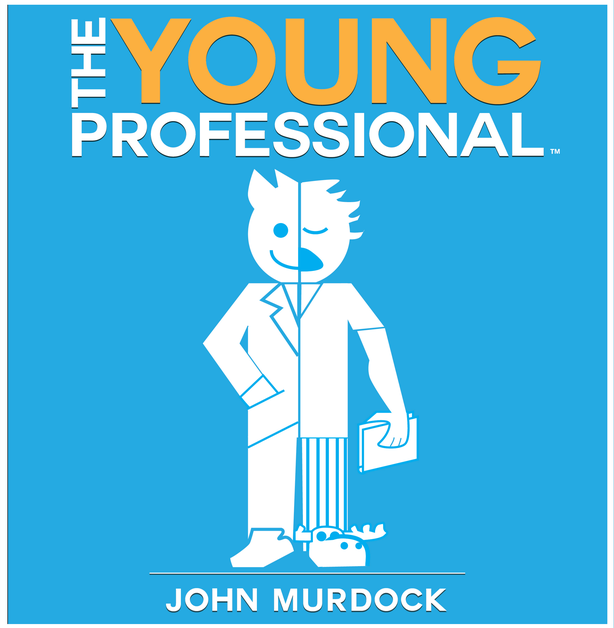
The term "potential" refers to the contribution that workers could give in the future when filling different positions from their current one. The expression "assessment of potential" means to carry out activities, structured and designed for the purpose, aimed at delivering a judgement, both qualitative and quantitative, pertinent to the potential not expressed by those workers on which companies might want to invest in an organizational development perspective (Rao, 2010). The methods considered more valid and reliable when assessing potential are those of the Assessment Center and Development Center (Gaugler, Rosenthal, Thornton, & Bentson, 1987; Klimoski and Brickner, 1987). "Young Professional" describes a person who, usually with a university degree, has worked for the company for at least three/five years, carrying out tasks that require the possession of professional skills and the gradual acquisition of a high know-how. The number of skills observed in a potential assessment process depends on the observation/assessment grid and it varies according to the organization. With respect to the number of skills contained by each grid it is interesting to wonder whether all those included are equally "necessary", as they are truly predictive for the potential, or not. In fact, determining the predictive effectiveness of the skills to assess maximizes the possibility of making correct managerial choices in the use of potential data (Highhouse, 2002).

Research objectives and hypotheses

1. **Collect empirical evidence on how many and which skills, among the various ones used for the assessment of potential in Italian Young Professionals, are actually related to the potential;**
2. **Reach a model for the assessment of potential in Italian Young Professionals that includes the minimum possible number of truly predictive potential skills.**

Participants

1068 Italian Young Professionals, who underwent an assessment of potential, took part in the study.



Tools and procedure

The operations for the potential assessment of the participants were conducted by means of observing the behavior in controlled (validated and standardized) situations (through group and individual tests). Each participant was assessed on a variable number of 15 to 20 skills in the context of assessments of potential using Assessment Center and Development Center. Each skill was evaluated on a scale of 1 (= very low score) to 5 (= very high score), half points included. The initial database included 48 skills that subsequently merged into 26 on the basis of two criteria, one qualitative and the other quantitative.

1. *Qualitative criterion*: analysis of the labels and of the content of each skill related to the declaration, to trace the behaviours observed for each of the different skills and identify their overlapping areas;
2. *Quantitative criterion*: correlation and factor analysis for the identification of skills that, from a statistical point of view, share a variance percentage above 49% ($r > .70$, $r^2 > .49$) and thus show that they refer, essentially, to the same feature.

The labels of the 26 standardized skills are visible in table 1. In addition to the 26 skills, the database contained the *total potential score* (the sum of the scores obtained by each person assessed for skills). Considering the sample size (N = 1068), the measurement level of variables (compatible with the interval scale) and the distribution properties (approximating the normal curve according to skewness and kurtosis indices, included between – 1 and + 1), the procedure provides for the computation of the partial Pearson r correlation coefficients between each one of the 26 skills and the total potential score to pursue objective 1. With reference to objective 2, a series of factor analyses and principal component analyses with varimax rotation were conducted. Finally, a regression analysis was conducted between the skills included in the model and the total potential score, in order to test the validity of the model in terms of prediction.

Results

Table 1 shows the partial correlation coefficients between each skill and the overall potential score (r), as well as the coefficient of determination (r2). The skills are shown in descending order with respect to the calculated coefficients. As noticed, all the correlation coefficients are positive ($r > 0$) and above .40, cut-off beyond which the correlation coefficient becomes statistically significant in the case of psychosocial research.

SKILL	Pearson r with potential	Coefficient of determination (r^2)
Guidance and management	.79	.62
Systemic thinking	.68	.46
Persuasion and Personal Authoritativeness	.67	.45
Care of Quality Performance	.66	.44
Synthesis and Pragmatism	.66	.44
Focusing on result and Energy	.65	.42
Analysis and Identification of Problems	.60	.36
Communication and Listening	.60	.36
Stress Management and Positive Thinking	.60	.36
Strategic Vision	.60	.36
Decision Making and Risk Taking	.59	.35
Initiative and Proactivity	.59	.35
Self-esteem	.57	.33
Flexibility and prompt adaptation	.54	.29
Negotiation	.53	.28
Monitoring and Control	.53	.28
Self-development and Ambition	.52	.26
Coordination, Process Management, Task Management	.52	.26
Organisational Sensitivity	.52	.26
Integration and Networking	.51	.26
Innovation and Change	.50	.25
Collaborator's Development	.45	.20
Attention to Economics and Efficiency	.44	.19
Integrity and Transparency	.44	.19
Social Intelligence and Interpersonal Sensitiveness	.41	.17
Customer orientation	.41	.17

Table 1: coefficients of correlation and determination between skills and potential.

	Components								
	1	2	3	4	5	6	7	8	9
Focusing on result and Energy	.80								
Decision Making and Risk Taking	.79								
Persuasion and Personal Authoritativeness	.68								
Synthesis and Pragmatism	.66								
Initiative and Proactivity	.66								
Social Intelligence and Interpersonal Sensitiveness		.85							
Flexibility and prompt adaptation		.69							
Integration and networking		.48							
Negotiation		.38							
Organisational Sensitivity			.75						
Customer orientation			.71						
Communication and Listening			.45						
Attention to Economics and Efficiency				.72					
Guidance and Management of People				.66					
Collaborator's Development				.45					
Care of Performance Quality					.81				
Self-development and Ambition					.68				
Monitoring and Control						.76			
Systemic Thinking						.60			
Analysis and Identification of Problems						.51			
Coordination, Process Management, Task Management						.49			
Self-esteem							.81		
Stress Management and Positive Thinking							.53		
Innovation and Change							.40		
Strategic Vision								.92	
Integrity and Transparency									.98
Explained variance	13%	8%	8%	7%	7%	7%	6%	5%	4%

Table 2: principal components analysis regarding the 26 skills (eigenvalues > 1, varimax rotation, saturation cut-off = .35)

model. It is indeed necessary that these skills will be not too correlated between one another (phenomenon indicated in statistics as *collinearity* of predictors), in order to avoid the risk of including in the model skills that share an excessive variance and therefore substantially measure the same thing.

For this reason, a series of factor analyses (common factors method) and principal components analyses were conducted on the total of 26 skills correlated with the potential. We report here, in table 2, the solution that appeared as the most stable and easily interpretable (principal components analysis, eigenvalues > 1, exploration of the Cattel scree-plot, varimax rotation, saturation cut-off = .35). It extracts 9 principal components and explains in total the 65% of the total variance (index of sampling adequacy KMO = .85, Bartlett's sphericity test statistically significant for $p < .001$).

On the basis of the correlation and determination coefficients and the principal components analysis, two models for the assessment of potential have been extracted:

Narrow Model: provides for the assessment of 8 skills deemed as "necessary" based on the results of the previous analyses (table 3);

Broad Model: provides for the assessment of 14 skills, the 8 "necessary" for the previous model plus other 6 considered "secondary" (table 4).

Both models were subjected to multiple linear regression analysis to test the predictive power of each skill on the total potential score (beta and p-value parameters in tables 3 and 4) and the goodness of fit of the model (R^2 correct).

Discussion and conclusions

The results show a positive ($r > 0$) and significant ($r > .40$) correlation between each skill assessed in the context of the assessment of potential and the total potential score. This indicates that all the 26 skills considered in this study really deal with the total potential score and each of them contributes, albeit differently, in the prevision (the determination coefficients vary between .17 and .62). Therefore none of the skills results as technically "unnecessary". However, according to the hypothesis, not all the skills contemplated for the assessment of potential in the Italian Young Professionals included in this study are equally predictive of the total potential assessment score.

Skill	r with potential	Affiliation component	Beta	p
Persuasion and Personal Authoritativeness	.67	1	.26	.001
Synthesis and Pragmatism	.66	1	.11	.001
Focusing on Result and Energy	.65	1	.26	.001
Flexibility and prompt adaptation	.54	2	.16	.001
Integration and networking	.51	2	.38	.001
Communication and Listening	.60	3	.19	.001
Guidance and Management of People	.79	4	.09	.002
Systemic Thinking	.68	6	.15	.001

Table 3: *Narrow Model*, multiple linear regression analysis (R^2 correct = .64)

Skill	r with potential	Affiliation component	Beta	p
Persuasion and Personal Authoritativeness	.67	1	.21	.001
Synthesis and Pragmatism	.66	1	.10	.005
Strive Towards Result and Energy	.65	1	.22	.001
Initiative and proactivity	.59	1	.23	.001
Decision Making and Risk Taking	.59	1	.21	.001
Flexibility and prompt adaptation	.54	2	.14	.001
Social Intelligence and Interpersonal Sensitiveness	.41	2	.09	.011
Integration and networking	.51	2	.36	.001
Communication and Listening	.60	3	.18	.001
Organisational Sensitivity	.52	3	.04	.079
Guidance and Management of People	.79	4	.07	.022
Care of Performance Quality	.66	5	.10	.001
Systemic Thinking	.68	6	.12	.001
Self-esteem	.57	7	.12	.001

Table 4: *Broad Model*, multiple linear regression analysis (R^2 correct = .69)

In fact there are differences in the probability that each individual skill has to predict it. The factor analyses and the principal components analyses carried out on the 26 skills tend to extract 9 dimensions, 7 if we exclude those that, according to literature (Comrey & Lee, 1992), may be regarded as residual (in the case of the principal components analyses reported in table 2, the last two components). This means that the 26 skills that were already the result of a previous merging can be grouped further. Besides, the number of these groupings is around 7 units. This is why it was decided to reduce the initial pool of 26 skills to a smaller pool of skills that were highly correlated with the potential ("necessary" skills, *Narrow Model*, table 3). And this is also the reason why the selected skills ("necessary" and "secondary") never belong to components above the seventh.

In the *Narrow Model* (8 skills):

1. the correlation coefficients vary from .51 to .79;
2. the determination coefficients vary from .26 to .62;
3. the components to which the skills belong vary from 1 to 6.

In the *Broad Model* (14 skills):

1. the correlation coefficients vary from .41 to .79;
2. the determination coefficients vary from .17 to .62;
3. the components to which the skills belong vary from 1 to 7.

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