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Predicting professional performance of higher education teachers

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Abstract

The objective of the study is to identify the predictive validity of general intelligence and personality traits for the professional performance of higher education teachers. The sample consists in 179 teachers from a Romanian university. The measures are NEO PI-R, Raven Standard Progressive Matrices and a Behavioral Observation Scale developed for teachers’ performance appraisal by students. There is no significant correlation between teachers’ general intelligence and professional performance, but there are significant and low correlations between teachers’ personality traits and their performance. A predictive model of teacher professional performance cannot be identified.

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Keywords: general intelligence; personality traits; professional performance; prediction model; higher education teachers

1. Introduction

The quality of educational services in universities is mainly influenced by the quality of teachers. This is an essential factor for the success of universities, given the strong competition on educational service market. In Romanian higher education system, teachers’ professional selection process includes criteria such as: academic grades, content knowledge, teaching skills, scientific and research activity, educational level (PhD degree). Psychological characteristics are not assessed in the selection process.

Regarding effective teaching, many studies have identified different aspects important to teaching performance. Sutton [1], Zhang [2], Ebmeier and Ng [3], Stronge and Hindman [4] pointed out relationships between different psychological variables (such as emotion regulation, personality, cognitive abilities, social skills, and thinking style) and professional performance in teachers. Okpala and Ellis [5] have identified five qualities of effective teachers: interest and care for students and their instruction, teaching skills, content...
knowledge, interest in teaching, and verbal skills. Laursen [6] pointed out that recent approaches in teacher performance generally consider knowledge or competence as performance predictor, but there is no uniform or generally accepted model of personal characteristics included in competence.

Kane et al. [7] identified five areas that make up teaching excellence: content knowledge, teaching skills (clear communication, connections between scientific information and real life events, organization, motivation), interpersonal relationships (respect for students, empathetic and caring), research - teaching connection (integration of research in teaching) and personality (enthusiasm, passion, humor, and approachable, developing authentic relationships with others). Schaeffer et al. [8] have identified as characteristics of effective teacher, according to students’ perceptions, the following qualities: approachable, creative and interesting, supportive and caring, enthusiastic, flexible and receptive, well informed, having realistic expectations, fair and respectful.

There are significant correlations between personality superfactors and teaching effectiveness (Clayson and Sheffet [9]). Delli [10] developed “Teacher Perceiver Interview”, an instrument used in teachers’ selection process, which includes, among other characteristics, the assessment of teacher’s empathy, teacher’s ability to develop favorable relationships with students, listening, objectivity, focus, and innovation.

Salgado et al. [11] show that mental ability measures are frequently used as a selection method. In general, higher levels of general intelligence are associated with more years of education and a higher occupational status.

Simpson and Siguaw [12] indicate that students’ appraisals of teacher performance are widely used in order to improve the instruction process and to facilitate student learning.

The main objective of this study is to develop a predictive model of teachers’ performance using teachers’ general intelligence and personality traits as predictors.

2. Method

2.1. Hypothesis

The main hypothesis of this study supposes that university teachers’ general intelligence and personality traits are predictors of teachers’ professional performance.

2.2. Participants

The participants are 179 teachers from a Romanian state university with 11 faculties and approximately 500 teachers employed. A stratified sampling procedure was designed, based on three criteria: faculty, didactical rank, and gender. At the last level of sampling, the participation was based on volunteering. There are 78 (43.6%) male teachers and 101 (56.4%) female teachers in this sample. Their ages vary from 23 to 65 (m=38.62, σ=12.16). The sample includes 13 junior teaching assistants, 45 teaching assistants, 61 assistant professors, 33 associate professors and 27 professors.

1765 students’ appraisals were collected for these teachers: 601 (34.1%) appraisals from male students and 1164 (65.9%) from female students. Students’ ages vary from 18 to 66 (m=22.23, σ=4.86). 564 (32%) students are freshmen, 532 (30.1%) are sophomores and 669 (37.9%) are senior and master students. With few exceptions, each teacher has 10 students’ appraisals.

2.3. Measures

Revised NEO Personality Inventory (NEO PI-R) was used for personality assessment. This questionnaire, developed by Costa and McCrae [13], is based on the Big 5 model of personality which reduces personality to 5 superfactors or broad dimensions: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and
Consciousness (C). Each superfactor includes 6 facets. Costa and McCrae found out that internal consistency coefficients for NEO Pi-R scales vary from .56 to .90.

Raven Standard Progressive Matrices were used in order to measure general intelligence.

A Behavioral Observation Scale, developed by Ionescu [14], was used for the assessment of university teachers’ professional performance from students’ perspective. Teachers’ professional performance is conceptualized as a multiple criterion, including eight dimensions: Knowledge in specialized area, Cognitive flexibility, Communication skills, Teaching skills, Ethical conduct, Relationship with students, Emotional maturity, and Didactical technology. Each dimension contains several behavioral examples with a 5-step Likert scale. Alpha Cronbach’s coefficients for the dimensions of teaching performance vary from .783 to .912. An overall score for professional performance can be computed as a mean of all dimensions. Exploratory factor analysis showed that the 8 dimensions of the scale explain 49.64% of performance variance.

3. Results

Table 1 shows that there is no significant correlation between IQ and teachers’ professional performance, but there are significant correlations between personality traits and dimensions of teachers’ professional performance. E3 Assertiveness is the only facet which correlates with several dimensions of professional performance.

Table 1. Correlations between IQ, personality traits and dimensions of teachers’ performance

<table>
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<tr>
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<tbody>
<tr>
<td>IQ</td>
<td>-.073</td>
<td>-.154</td>
<td>-.159</td>
<td>-.105</td>
<td>.023</td>
<td>-.105</td>
<td>-.095</td>
<td>.088</td>
<td>-.106</td>
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<tr>
<td>E Extraversion</td>
<td>.024</td>
<td>.032</td>
<td>.143</td>
<td>.096</td>
<td>.041</td>
<td>.189*</td>
<td>.013</td>
<td>.088</td>
<td>.107</td>
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<tr>
<td>N2 Angry- Hostility</td>
<td>.069</td>
<td>-.001</td>
<td>-.113</td>
<td>.007</td>
<td>-.108</td>
<td>-.099</td>
<td>-.242**</td>
<td>.021</td>
<td>-.068</td>
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<tr>
<td>E2 Gregariousness</td>
<td>-.019</td>
<td>.018</td>
<td>.113</td>
<td>.076</td>
<td>.064</td>
<td>.160*</td>
<td>.049</td>
<td>.053</td>
<td>.086</td>
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<tr>
<td>E3 Assertiveness</td>
<td>.187*</td>
<td>.160*</td>
<td>.218**</td>
<td>.158*</td>
<td>.036</td>
<td>.200**</td>
<td>.038</td>
<td>.130</td>
<td>.191*</td>
</tr>
<tr>
<td>E4 Activity</td>
<td>.154*</td>
<td>.086</td>
<td>.089</td>
<td>.141</td>
<td>-.008</td>
<td>.092</td>
<td>-.079</td>
<td>.144</td>
<td>.107</td>
</tr>
<tr>
<td>O3 Feelings</td>
<td>.095</td>
<td>.124</td>
<td>.112</td>
<td>.101</td>
<td>-.001</td>
<td>.172*</td>
<td>-.010</td>
<td>.014</td>
<td>.110</td>
</tr>
<tr>
<td>A4 Compliance</td>
<td>-.177*</td>
<td>-.134</td>
<td>-.048</td>
<td>-.140</td>
<td>-.022</td>
<td>-.140</td>
<td>.068</td>
<td>-.107</td>
<td>-.122</td>
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<tr>
<td>C1 Competence</td>
<td>.002</td>
<td>.056</td>
<td>.152*</td>
<td>.026</td>
<td>.007</td>
<td>.035</td>
<td>.043</td>
<td>.071</td>
<td>.064</td>
</tr>
<tr>
<td>C2 Order</td>
<td>.115</td>
<td>.079</td>
<td>.113</td>
<td>.028</td>
<td>.055</td>
<td>.007</td>
<td>-.027</td>
<td>.204**</td>
<td>.088</td>
</tr>
</tbody>
</table>

*p<.05 **p<.01
Note. 1 - Knowledge in specialized area, 2 - Cognitive flexibility, 3 - Communication skills, 4 - Teaching skills, 5. Ethical conduct, 6 - Relationship with students, 7 - Emotional maturity, 8 - Didactical technology, 9 - Overall professional performance.

E3 Assertiveness significantly correlates with five dimensions of professional performance and with the overall score. This is the argument for selecting this facet as predictor of professional performance. The linear regression analysis indicates that Assertiveness, although it is a significant predictor of teacher professional performance (p=.01), explains only .037 (R Square) of professional performance.

4. Discussion

Regarding the absence of a significant correlation between IQ and dimensions of teachers’ professional performance, a possible explanation could be that teaching in a specific area (such as Mathematics, Psychology, Sports, Arts etc.) requires to a greater extent a specific type of intelligence, rather than general intelligence.
Landy and Conte [15] identified many research indicating general intelligence as a valid predictor of performance in various work areas, but Kaufman and Lichtenberger [16] indicated that general intelligence can explain between 4% and 25% of performance variance.

Extraversion and three of its facets (E2 Gregariousness, E3 Assertiveness, and E4 Activity) correlate with different dimensions of teacher professional performance. Clayson and Sheffet [9] show that extraversion is considered a positive characteristic of teachers and Emmerich et al. [17] indicate that assertiveness is associated with teachers’ performance. Teaching profession in higher education involves intellectual stimulation, which meets extroverts’ need for novelty and stimulation. Assertiveness is compatible with teacher’s managerial role in class, because it means a dominant, ambitious and energetic social behavior.

Knowledge in specialized area is positively correlated with E3 Assertiveness and E4 Activity and negatively correlated with A4 Compliance. Teachers with a dominant and energetic behavior, with initiative and leadership qualities, with a more intense rhythm of activity and a bigger need to do various things are rated by their students higher in knowledge area. Okpala and Ellis [5] and Schaeffer et al. [8] showed that teacher’s content knowledge is one of the main aspects of teaching profession associated with professional success. The dynamics of scientific knowledge require teachers to update all the time the teaching contents. This is supported by motivation, interest, need for stimulation and it means assessing and reassessing the scientific information, integrating new knowledge, critically analyzing and creating a personal and coherent view over the developments in his teaching area. All these are compatible with critical and independent thinking and lower level of conformity.

Cognitive flexibility, Communication skills and Teaching skills are positively correlated with Assertiveness. Assertive teachers are perceived by their students as good organizers of teaching content, as being able to deliver knowledge in a logical and structured manner, as good communicators and easily adaptable to their communication partners. Assertive teachers stimulate students’ activity and involvement, using an interactive teaching style, they encourage critical thinking and they motivate students to learn more. Newberry [18] found out that teacher’s supportive behavior is associated with students feeling more comfortable and more involved in class activities. Steele [19] indicated that effective teachers are less critical to their students and are more available to work with students having learning difficulties. Ryan and Cooper [20] showed that teaching skills are related to teacher reflective practice.

Communication skills are positively correlated with E3 Assertiveness and C1 Competence. Teacher’s sense of competence makes him/her to be less self-centered and more other oriented. To communicate means to be in connection, to be receptive, to listen, and to pay attention to the other.

Relationship with students positively correlates with E Extraversion, E2 Gregariousness, E3 Assertiveness and O3 Feelings. External orientation, preference for the company of other people, dominant social behavior and openness to emotions facilitate interpersonal relationships. O3 Feelings trait involves a diverse and intense emotional life. Authentic relationships with others mean acknowledging and validating your own emotions as well as others’. This is a premise to consider emotional intelligence an important factor in teaching effectiveness.

The correlation between Emotional maturity and N2 Angry-Hostility indicates that teachers who experience less anger and negative emotions are perceived by students as calm and nonaggressive. They express their opinions with calm and determination, they are constant in their attitudes, and they show more tolerance in disturbing situations. They are not distressed when interrupted and don’t have strong emotional reactions when contradicted by students. They are able to solve disputes with calm and are perceived as emotionally mature.

Didactical technology positively correlates with C2 Order. Well organized teachers, with a preference for order score higher on the didactical dimension of performance. Didactics requires planning, organization, and coherence in teaching and learning activities.

The general hypothesis is not confirmed. Although there is no correlation between general intelligence and teachers’ professional performance, there are several significant correlations between teachers’ personality traits and their professional performance. The correlations are low and the variance of teachers’ professional performance explained by E3 Assertiveness is insignificant.
Conclusion

Although a predictive model of teachers’ professional performance could not be created, this research showed that there are significant relationships between teachers’ personality and professional performance. The main limitations of this study are: a small number of performance appraisals for each teacher; the measure of professional performance explain only half of performance variance.

New research topics derived from this study could investigate other dimensions of professional performance for university teachers related to research and managerial activities. In order to examine relationships between teachers’ intelligence and their professional performance, a measure of multiple intelligence could be appropriate.

The main practical implication of this research regards the selection process of higher education teachers. Although the correlations between personality traits and performance are low, there is evidence of the importance played by teachers’ personal characteristics in obtaining professional success. A selection process including such attributes would increase the quality of human resources in universities.

References