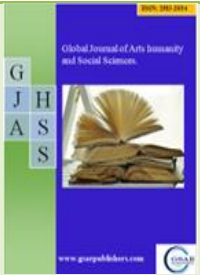
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## Modern generations and challenges in psychological analysis and human resource management

BY

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### Abstract

In terms of management understanding, employee behavior and attitudes have a serious impact on the potential of human resources, in terms of activity and efficiency, of an organization. It is of utmost importance to recognize people before hand and determine a relationship between their personalities and organizational behavior in terms of organizational development. This paper is primarily concerned with the assumption that the findings of psychological studies and neuroscience on human motivation can have a positive impact on the change processes of a company. The aim is to highlight the psychological findings and methods used in personnel development measures, taking psychological studies and neuroscientific research into account.

**Keywords:** modern generation, human resource management, psychological analysis

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### Introduction

The world is changing faster and faster, and so is the environment of a company. The time of permanent changes and the resulting complexity cause various transformation processes, which lead an organization to constant adjustments. A future-oriented company must face these adjustments and carry them out. The relevance of the adjustments is determined by the quality and quantity of their interactions with elements from the environment. These, in turn, must be adapted primarily to the leading individuals of a company, who then introduce strategic personnel development measures, primarily to promote personal development in the interests of the company.

The working world in Germany has so far been performance- and results-oriented. The increasing digitization and speed of development is forcing companies to adapt and change more quickly. This is especially true on the cultural-personal level of a company's internal process.

This paper is primarily concerned with the assumption that the findings of neuroscience on human motivation can have a positive impact on the change processes of a company. The aim is to highlight the psychological findings and methods used in personnel development measures, taking neuroscientific research into

account.

### Material and Methods:

In this paper, the materials of the numerous studies focused on the problem of modern generations, and their specifics were analyzed. For the elaboration of the results the holistic approach, sociological methods, and comparative analysis were used.

### Results and discussion:

Many representatives of our population around the world would like to be different from others in various ways. And indeed, all people are the same in some way, different somewhere, and some unique. At the same time, the basic factor that makes the perception of the environment and the distinction of individuals from each other - is personality.

In research, personality is expressed through relationships between unconscious motivation, self-schema, and observed models of behavior that constitute emotional intelligence.<sup>1</sup>

In the surveys or other studies, the collection of these characteristics is expected to improve the descriptiveness and prediction of scientifically and socially relevant processes and phenomena.

The relationship between psychological characteristics and



socioeconomic measures of HR success, are the focus of interest among social scientists and economists.<sup>2</sup>

These studies, such as the online study by Goethe University Frankfurt am Main<sup>3</sup>, show that a person's cognitive abilities, especially intelligence, are the best predictor of a successful life.

People with high cognitive ability have more success at school, college, training, work, and in their private lives compared to people with low cognitive ability. They tend to have higher incomes or occupational positions, are less likely to divorce, and are less likely to become delinquent or unemployed. In addition to cognitive performance, other psychological characteristics are also conducive to socioeconomic success, such as conscientiousness and optimism.<sup>4</sup>

In terms of management understanding, employee behavior and attitudes have a serious impact on the potential of human resources, in terms of activity and efficiency, of an organization. It is of utmost importance to recognize people before hand and determine a relationship between their personalities and organizational behavior in terms of organizational development.

At the present time, according to the opinions of numerous experts in the field of personality psychology, the five-factor model of personality (Big Five model) is the most widely used model to describe the overall personality. The model contains the five abstract dimensions also called factors:

Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness.<sup>5</sup>

"The model was developed on the basis of the so-called lexical approach. This assumes that there is also a representation in our language for personality traits that are particularly important for the way people interact with each other (Klages' sedimentation hypothesis)."<sup>6</sup>

As early as 1936, Allport and Odbert extracted 17954 personality-relevant terms from dictionaries. In the forties, Cattell (1943a, 1943b, 1946a, b, c) reduced these in a multistage procedure to 35 clusters with 6 to 12 terms each. In this process, he first weeded out synonyms or very rare terms. Based on peer ratings on the remaining word list, Cattell calculated intercorrelations of these property terms and created 35 term clusters. These term clusters were given eight different samples in the 1950s and 1960s by Tupes and Christal (1958, 1961), and the results were factor analyzed. Tupes and Christal found "five strong and recurrent factors and nothing else of any consequence (1992, p. 250).

These factors were interpreted as extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (or intellect).

Even though Cattell's reduction of the variables was often criticized as sometimes quite arbitrary, the resulting five factors could be put forward in numerous studies in recent decades independently of Cattell's clusters.<sup>7</sup>

At the same time, the first cross-cultural replications of the

five factors took place: based on dictionaries of other language areas, such as Dutch (De Raad, Mulder, Kloosterman & Hofstee, 1988) or German (Ostendorf, 1990), five independent personality dimensions emerged on the most global level. Therefore, already since the 1990s, the so-called Big Five (1992) is considered the most established model of personality. Today, it is the reference model for personality description par excellence. The Big Five have proven to be good predictors for various aspects of everyday life.<sup>8</sup> For example, (low) neuroticism and (high) conscientiousness are associated with health and longer life span.

With respect to conscientiousness, the effect on lifespan also seems to be moderated by the fact that conscientious individuals are less likely to be involved in accidents.<sup>9</sup>

Professional life is also shaped by individual personality: Already in the choice of occupation, for example, it is evident that agreeable individuals prefer social occupations and conscientious ones more conventional occupations. Finally, open-minded people prefer research or artistic activities.<sup>10</sup>

Conscientiousness is the central predictor of professional success.<sup>11</sup>

Job satisfaction, on the other hand, tends to be greater among individuals with high emotional stability, extraversion, and conscientiousness.<sup>12</sup>

There are numerous established procedures for assessing the Big Five. Probably the best-known and most comprehensive questionnaire is the NEO Personality13, which, with its 240 items, also permits the recording of individual facets of the five dimensions. Its abbreviated version, the NEO Five-Factor Inventory14, which captures each of the five factors with 12 items, is also widely used. The Big Five Inventory (BFI)15; German Adaptation16: was developed to provide a procedure that captures the Big Five independently of the respective scientific schools, i.e., the prototypical five factors of personality. With its 44 items, the BFI is also a comparatively economical instrument. However, all of these instruments are generally too long for survey research. The BFI-1017 was therefore developed to enable the five main dimensions of personality to be recorded in research contexts that are subject to strong time and monetary restrictions (e.g., surveys).

The BFI-10 consists of 10 items, two for each dimension of personality. Neuroticism is captured by items 4 and 9, extraversion by items 1 and 6, openness by items 5 and 10, agreeableness by items 2 and 7, and conscientiousness by items 3 and 8. Each of the dimensions is captured by one positively and one negatively poled item. Items 1, 3, 4, 5, and 7 are negatively poled. A five-point rating scale from "strongly disagree" (1) to "strongly agree" (5) is available for the respondent's answers.

In order to obtain measurement values for the respondent's individual expression on the five personality dimensions, the answers to the two items are averaged for each dimension. For this purpose, first, the item with negative polarity is recoded (items 1, 3, 4, 5, and 7), and then the mean value is calculated for each dimension from the recoded and the non-recoded item. The value

range of each of the five dimensions is then between 1 and 5.

The BFI-10 allows the measurement of the five main dimensions of personality with only two items per dimension.

Table. 1 shows the wording of the items as well as their descriptive statistics<sup>18</sup>. Table. 1. Items and descriptive statistics of the BFI-10 from sample 2

<sup>7</sup> Norman, W. T. (1967). *2800 personality trait descriptors: Normative operating characteristics for a university population*. Department of Psychology, University of Michigan.

<sup>8</sup> Christensen, A. J., Ehlers, S. L., Wiebe, J. S., Moran, P. J., Raichle, K., Fernyhough, K. & Lawton, W. J. (2002). *Patient personality and mortality: A 4-year prospective examination of chronic renal insufficiency*. *Health Psychology, 21*, 315-320.

<sup>9</sup> Arthur, W., Jr. & Graziano, W. G. (1996). *The five-factor model, conscientiousness, and driving accident involvement*. *Journal of Personality, 64*, 593-618.

<sup>10</sup> Barrick, M. R., Mount, M. K. & Gupta, R. (2003). *Meta-analysis of the relationship between the five-factor model of personality and Holland's occupational types*. *Personnel psychology, 56*, 45- 74

<sup>11</sup> Schmidt, F. L. & Hunter, J. E. (1998). *The Validity and Utility of Selection Methods in Personnel*

*Psychology: Practical and Theoretical Implications of 85 Years of Research Findings*. *Psychological Bulletin, 124*, 262- 274.

<sup>12</sup> Judge, T. A., Heller, D. & Mount, M. K. (2002). *Five-factor model of personality and job satisfaction: A meta-analysis*. *Journal of Applied Psychology, 87*, 530-541.

<sup>13</sup> Costa, P. T. & McCrae, R. R. (1992). *Revised NEO Personality Inventory and NEO Five-Factor Professional Manual*. Odessa, FL: Psychological Assessment Resources.

<sup>14</sup> Costa, P. T. & McCrae, R. R. (1989). *The NEO PI/FFI Manual Supplement*. Odessa, FL: Psychological Assessment Resources.

<sup>15</sup> John, O. P., Donahue, E. M. & Kentle, R. L. (1991). *The Big Five Inventory – versions 4a and 5*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.

<sup>16</sup> Rammstedt, B. & John, O. P. (2007). *Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German*. *Journal of Research in Personality, 41*, 203- 212.

<sup>17</sup> Rammstedt, B. & John, O. P. (2007). *Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German*. *Journal of Research in Personality, 41*, 203- 212.

	Mean	Standard Deviation	Skewness	Kurtosis
Extraversion	3.24	0.88	-0.09	-0.50
Agreeableness	3.20	0.83	-0.18	-0.39
Conscientiousness	4.10	0.69	-0.58	0.20
Emotional Stability	3.49	0.85	-0.38	-0.31
Openness	3.41	0.88	-0.27	-0.37
Average	3.49	0.83	-0.30	-0.35

Source: Rammstedt, B. & John, O. P. (2007).

The BFI-10 was developed as a research instrument for social science studies of various types and questions. The target group is therefore the general population aged 18 and over. In principle, the BFI-10 can be administered in different survey modes. In the context of validation, the scale can be used in CAPI mode (Computer Assisted Personal Interview), in CAWI mode (Computer Assisted Web Interview), and in paper form (self-completion). However, before using the BFI-10 in mixed mode designs, a check should be made for invariance A template for creating survey documents, e.g., questionnaire, list booklet, or CAPI programming.

The implementation time of the BFI-10 in CAPI mode is composed of the interviewer reading the items aloud and the respondent answering them. In 75% of CAPI interviews, completion takes 108 seconds or less (percentile 75 = 108). Similar completion times can be assumed in other survey modes.

The basis for the development of the BFI-10 was John, Donahue, and Kentle's (1991) 44-item BFI. The items of the BFI will be translated into German as part of the development of the German version of the BFI. From the 44 items, 10 are selected. The item selection procedure was described in detail by Rammstedt and John (2007, p. 205):

"We selected 2 BFI items for each Big Five dimension following five criteria: (1) We represented both the high and low poles of each factor so that each BFI-10 scale would consist of one true scored and one false-scored item. (2) We covered as broad a bandwidth as possible for each scale by selecting two items that both measured core aspects of a Big Five dimension but were not highly redundant in content. (3) We constructed identical English language and German-language versions, so that the resulting instrument would be usable for cross-cultural research and to minimize capitalizing on chance.

<sup>18</sup> Rammstedt, B. & John, O. P. (2007). *Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German*. *Journal of Research in Personality, 41*, 203- 212.

(4) To the extent that there were still item choices to be made, we selected items on the basis of two empirical criteria, namely their corrected item-total correlations with the full BFI scales (thus favoring more central over more peripheral item content) and the simple-structure pattern of their loadings in factor analyses of all 44 items (thus favoring items related uniquely to one factor and not to the other four factors)."

Initial evidence for the psychometric goodness of the instrument constructed in this way was reported by Rammstedt and John (2007) and by Rammstedt (2007).

In the present work, two large samples will be collected to further support the psychometric goodness of the BFI-10. The focus will be on the social science validation measures in order to simultaneously demonstrate the usefulness of recording the Big Five for social science research on the basis of the validity coefficients of the BFI-10.

The population can be defined as "all persons aged 18 and over living in the Federal Republic of Germany and neighboring EU countries".

The survey can be conducted in two waves with a time interval of 6 to 10 weeks. The data can be collected in a face-to-face interview (CAPI) or by prescribing an online questionnaire. In addition to the BFI-10, the questionnaire should include extensive sociodemographic information as well as other psychological and social science validation measures. Established standard instruments can be used for validation (interpersonal trust, life satisfaction).

In order to be able to check the psychometric quality of the BFI-10, characteristic values for reliability and various aspects of validity are calculated on the basis of the samples described above.<sup>19</sup>

How to evaluate objectivity? Objectivity is the degree to which a measurement is independent of the investigator. This refers to different phases of an investigation: implementation, evaluation, and interpretation.

In the case of a face-to-face interview, implementation objectivity depends on the interviewer who collects the data. It is given if the interviewer follows the exact instructions and the wording of the items when giving the scale. With appropriately trained interviewers, implementation objectivity is usually guaranteed (Rammstedt, 2010).

Evaluation objectivity concerns the numerical and categorical evaluation of respondents' answering behavior according to established rules.<sup>20</sup>

This is fully given in the BFI-10, since the allocation rules of the values on the items are clearly defined and do not allow any room for interpretation.

Interpretive objectivity is present when the conclusions drawn from the survey results are comparable across different researchers. To maximize interpretive objectivity, researchers' knowledge of the measurement intent of the scale and of how to interpret the quantitative measures should be comparable (Rammstedt, 2010). By standardizing the scoring and assigning a numerical measure that describes the respondent's expression of the five main dimensions of personality, the interpretive objectivity of the BFI-10 can also be considered to be in place.

Next issue is reliability. Reliability, or measurement accuracy, of a scale is the degree of precision with which a particular characteristic is recorded.<sup>21</sup> Retest reliability can be used as a reliability measure.

<sup>19</sup> Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I. & Peter, R. (2004). The measurement of effort-reward imbalance at work: European comparisons. *Social science & medicine*, 58, 1483-1499. <sup>20</sup> Source: Siegrist, J., Starke, D., Chandola, T., Godin, I., Marmot, M., Niedhammer, I. & Peter, R. (2004). The measurement of effort-reward imbalance at work: European comparisons. *Social science & medicine*, 58, 1483-

1499. <sup>21</sup> Bühner, M. (2011). Einführung in die Test- und Fragebogenkonstruktion. PS Psychologie. München: Pearson Studium.

From the first validation study of the BFI-10, Rammstedt and John (2007) report adequate to good reliability coefficients for the subscales of the BFI-10 at a six-week retest interval.

Then important to provide validity. Content validity is given if an item truly or sufficiently accurately represents the construct to be measured."<sup>22</sup>

Empirical testing of content validity is usually not possible. To check whether a procedure is content valid, its construction is usually examined in detail. Content validity is given if the construct to be measured is adequately defined a priori and the items are assessed by a panel of experts with regard to their validity. The content validity of the BFI-10 was ensured by closely aligning the wording of the items with the definition of the constructs. In addition, care was taken to ensure that for each Big Five factor, the two items chosen covered different aspects of the factor.

Furthermore, the item formulations were subjected to an expert review and subsequently optimized for the targeted group in a cognitive pretest.

Factorial validity can be considered to be given if the assumptions about the dimensional structure of the construct to be assessed are testable and can be substantiated. The factorial validity of the BFI-10 can be ensured by testing the assumptions of the five-factor model of personality using the BFI-10. The model assumes five abstract largely uncorrelated dimensions on which human experience and behavior can be described.

Construct validity is given if the measured value of a scale is suitable as an indicator for the characteristic that is to be measured by the scale. Suitability is judged by how well the scale performs empirically with respect to hypotheses that can be derived from the model of the characteristic to be measured.

Construct validation involves using theoretical considerations to postulate positive, negative, and null relationships of a scale to be validated with other empirical indicators (nomological network) and testing whether the predicted pattern can be empirically substantiated.

At last, but not least it is necessary to provide the evaluation of results. The BFI-10 is a highly economic scale that allows coverage of the five main dimensions of personality according to the five-factor model in studies that are subject to strong time and monetary restrictions. A more comprehensive coverage will not allow. The results can be easily assigned to the scale of the different survey modes.

Validity evidence can be provided for the CAPI, the CAWI mode, and the paper form (self-completion).

Such research and adaptation of the models to the specifics of the company will contribute a lot for the development of human

resources management.

Personnel development is becoming increasingly important. Differences in performance between companies are increasingly decided at the personnel level. How personnel development is to be understood, where it is classified, and which interventions and approaches to the behavior modification, straight for change processes is to be explained more near.

What is personnel development and what does it comprise? As it is known, the term personnel development characterizes the promotion of professionally relevant knowledge, skills, attitudes, etc. through measures of continuing education, counseling, systematic feedback, and work design. In this context, the goals and contents of personnel development should be based on corporate strategy, i.e., focus on competencies that are needed to achieve strategic corporate goals...".<sup>23</sup>

In the context of a company-internal change process, attention is focused less on knowledge- oriented and more on behavior-oriented procedures, self-management, and the promotion of innovation. Innovation alone is very complex and multifaceted and at the same time is already finding its way into corporate structures with Design Thinking. In order to keep the focus of this work nevertheless, only the "...relevance of the group composition is singled out and the differentiated address in Individual, Team and Organization. Self-management, the effort "...to influence one's own behavior in a goal-oriented manner", is obviously gaining in importance; with a popular-scientific large advice market. In contrast, personnel psychology has so far devoted itself to this topic rather step-motherly. And yet, neuroscience- based self-management techniques already exist. For this work of importance, the Zurich Resource Model developed by Frank Krause and Maja Storch at the beginning of the 1990s, which "... sees itself as a theoretical integrative model of self-management across schools ...". The basis of this integration project are findings of brain research and scientifically (established) theories<sup>24</sup>

<sup>22</sup> *ibid*

<sup>23</sup> 2 *Mattenklott, A. / Ryschka, J. / Solga, M. (2008), „Personalentwicklung: Gegenstand, Prozessmodell, Erfolgsfaktoren. In J.S. Ryschka und A. Mattenklott (Hrsg.) „Praxishandbuch Personalentwicklung: Instrumente, Konzepte, Beispiele“, 2. Auflage, Wiesbaden, Gabler Fachverlage, S. 19.*

Sonntag and Stegmaier give an overview for the behavior-oriented procedures and how behavioral changes and personality development can be initiated. Approaches, intentions, elements, design features, etc. can be differentiated<sup>25</sup>.

Taking into account the specifics of the modern generations and their behavior, ones of the important tasks are development of the competencies and skills of the modern generations (especially Generation Z versus Generation Y) in the labor market. In this reason the detail study of the problem of Y and Z generations state in labour markets is planning. The important task in this research will be focused on the analysis of data that will reveal what typical characteristics and values for the modern generations. From the

information collected by means surveys and questionnaires, the results will be used to make the necessary selection of specific tools in human resources management. These results should lead be useful for long-term development of employees and their motivation.

Thus, it is essential to find out what are the most important requirements for employee management with regard to the demands and expectations of generations Y and Z.

Other the important problems occur and following objectives of the study are:

- to explore how the demands and expectations of Generations Y and Z have evolved in recent years.
- to compare what differences and similarities exist in the demands and expectations of generations Y and Z on the labor market.
- to examine which retention characteristics Y and Z possess and what characterizes them? To then break down the different bonding characteristics into individual bonding components.
- To analyze what effect the retention tools and their characteristics have on generations Y and Z and how they should be used in a meaningful way?

Further subordinate goals:

- To explore what the current expectations of Generation Y and Z are for the world of work among age groups between 15 and 60, differentiated by gender.
- To compare what the current expectations of Generation Y and Z are for the world of work for all genders, differentiated by social status: Hauptschule students, Realschule students, Gymnasium students, students in vocational training/employment, unemployed, and other non-employed.

Based on the developed retention tools, a survey of the target group will be conducted. The results of the survey will be compared with the hypothetical assumptions.

Accordingly, the following basic research questions arise in this study:

1. What are characteristics and values of generations Y and Z?
2. What are the current expectations of generations Y and Z with regard to the labor market?
3. What are the work demands on the labor market?
4. Which instruments have to be used by the HR department of a company SME in order to attract the employees of generation Y and Z and to bind them to the company in the long term?

<sup>24</sup> AFNB – Akademie für neurowissenschaftliches Bildungsmanagement, (2011), „Führung und Motivation. Wie uns die Gehirnforschung dabei helfen kann, Mitarbeiter zu führen und zu motivieren“, digitale Broschüre, Köln: AFNB

<sup>25</sup> *ibid*

1. How should employees be managed and motivated in the future?

In general, the questions were divided into the following categories:

- Sociodemographic and behavioral characteristics
- Media usage behavior
- Value-related and psychological characteristics
- Expectations towards
- Future employer or career development

To elaborate these data which are discrete or categorical variables the statistical and econometric methods will be used. The analysis of quantitative data can be evaluated on the basis of the completed online forms using a factor analysis or econometric models.

## Conclusion

The labor market is changing from an employer's market to an employee's market, and thus personnel is becoming a bottleneck resource that requires a new approach. Each generation in the labor market has different values and perceptions, which are reflected in expectations towards employers.

Thus, a lot of complicated individual and environmental factors should be taken into account for the analysis of human behavior, and modern approaches and models for the assessments of the individuals and development of the human resources should be implemented in the companies.

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- <sup>6</sup> *ibid*