Teacher Job analysis and personality profile

Before you read this document be aware of the terminology. The Big Five traits refer to the five traits/domains of the Five-Factor Model (extraversion, agreeableness, openness, conscientiousness and neuroticism). The facets are the 6 subdomains that each trait consists of.

The following profiles are made based on published research literature documenting the relationship the given trait has with this type of job. However, there are certain limitations, which are addressed in section 3 “Limitations in the current personality profile” therefore where the research material is limited the abbreviation “NC” will be used, indicating that the research is not conclusive.

Please use the following rating system, for percentiles, to index the corresponding level of a given trait:

1. ≤ 34: Very low
2. 35–44: Low
3. 45–55: Average
4. 56–65: High
5. ≥ 66: Very high

When referring to the “Ideal level” this refers to the ideal level of a trait or subdomain according to the research literature. The literature often focuses on the MOST successful in a given field and their traits, but that does not mean that you cannot become successful or be one of the successful even if you do not have the ideal level of a trait. To get more information go to section 3 “Limitations in the current personality profile”

Overview

1. Quick overview of the Big Five traits and the subdomains and their ideal level
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## Quick overview of the Big Five traits and the subdomains and their ideal level

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<th><strong>Openness to experience</strong></th>
<th><strong>Ideal level</strong></th>
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<tbody>
<tr>
<td>Openness to experience</td>
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<tr>
<td>Imagination</td>
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<td>Artistic Interests</td>
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<th><strong>Neuroticism</strong></th>
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<td>Neuroticism</td>
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<td>Anger</td>
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<td>Depression</td>
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<th><strong>Conscientiousness</strong></th>
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<td>Self-Efficacy</td>
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<td>Orderliness</td>
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<th><strong>Agreeableness</strong></th>
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<td>Agreeableness</td>
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<tr>
<td>Trust</td>
<td>High end of Average (Not below 50)</td>
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<td>Morality</td>
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<td>Sympathy</td>
<td>High end of Average (Not below 50)</td>
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<th><strong>Extraversion</strong></th>
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<td>Extraversion</td>
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<td>Friendliness</td>
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The following section will give you a detailed rationale for the ideal levels attributed to each trait in the section above.

This section describes the personality traits associated with people who act as biological science teachers at a postsecondary level such as universities. This analysis is meant to give you an overview of the ideal traits for a teacher in this field but it also serves as a way for you to see if your personality might be a match, with these ideal traits. See section 3 to get a nuanced perspective.

This section cannot be a complete overview as there will always be some variation to take into consideration when one is analyzing a broad career spectrum vs a specific job. The more specific a job description is the more accurate the personality profile will be, but the research just isn’t there yet as for us to be able to differentiate between career paths that are very similar e.g. a teacher that focuses on topics at the microcellular level and teachers that focuses on the cardiovascular system.

2. Detailed overview of the personality profile for this career path

The following section will give you a detailed rationale for the ideal levels attributed to each trait in the section above.

Openness to experience

People who score highly on the trait openness are intellectually curious, creative, and liberal (John et al. 2008). Normally, openness is one of the weakest predictors of job performance, but the facet liberalism (readiness to reexamine opinions and values) still seems to be important in predicting job performance (Judge et al. 2013). Openness is often shown as the strongest correlate of ability, particularly creativity and intelligence (Chimel, Fraccaroli & Sverke, 2017).

Furthermore, openness is associated with being open to novelty, creative, curious and to having a well-developed vocabulary, which is important for this occupation, where communication is key - as according to the job analysis both written and oral expression is important in this line of work (Göncz, 2017). Genc, Pekić & Genc (2014) found that students expected good teachers to show more Openness than the general population, the difference was large for Openness to experience. Research shows that efficient teachers tend to be open to novelty, creative, curious and have a well-developed vocabulary. All of these traits are associated with Openness (Göncz, 2017). Furthermore, teachers should be open to unconventional ideas and beliefs and accepting of different cultural backgrounds and the various feelings and different behaviors of their students, as the students at universities can have various cultural backgrounds (Göncz, 2017).

Openness has further been linked to student objectivity in a study from Andalusia, where
university students expected the teachers to disregard their personal characteristics (Sánchez, Pecino, Rodriguez, and Melero, 2011). Therefore, to ensure objectivity and non-biased evaluations of students, a high score on **Openness** and **Agreeableness** is important. According to John A. Johnson (the author of the items) low scorers on the subdomain **Imagination** are more oriented to facts, therefore the ideal level for a teacher in the Natural Sciences is an average or towards the low end of average. **Intellect** is pretty important too as high scores on this subdomain are more open-minded to new ideas, which is a must as a teacher.

Kim et al. (2019) conducted a meta-analysis of 25 studies (total $N = 6294$) examining the relationships between teacher Big Five personality domains and two teacher job-related outcomes (i.e., teacher effectiveness and burnout). The influence of three moderators was assessed, namely, the type of teacher effectiveness measure (i.e., evaluations of teaching, student performance self-efficacy, classroom observation, and academic achievement), source of personality report (i.e., self-report vs other-report), and the instructed educational level (i.e., elementary, secondary, and tertiary). The results showed that all the Big Five domains, except for **agreeableness**, were positively associated with teacher effectiveness, especially for evaluations of teaching. Teacher effectiveness correlated significantly with **openness** ($r = .10$, $p < .05$) (Kim et al. 2019).

In a major study by Rushton, Murray & Paunonen (1983) they found out that the most effective teachers perceived themselves as liberal (0.51), intelligent (0.50), curious (0.48), non-authoritarian (-0.44), objective (0.41), low in anxiety (-0.41), aesthetically sensitive (0.40), sociable (0.38), extraverted (0.34), non-defensive (-0.33), low in impulsivity (-0.32), showing of leadership (0.31), and supporting (0.30). With Liberal, curiousness, non-authoritarian, objectiveness, aesthetically sensitive and intelligence (general mental abilities) all sharing a relationship with **Openness**.

The meta-analytic estimate of the relationship between general cognitive ability and overall job performance is .51, which is a strong correlation (Ispas & Borman, 2015). It is generally believed that general cognitive abilities aid the individual through being more effective at gathering and acquiring knowledge/information (Ispas & Borman, 2015). This might be important as a teacher must gather a lot of information and be able to convey that information in an appropriate manner. Intelligence also helps one being better at handling tasks that require complex thinking, which is required according to the job analysis.

**Openness** has also been related to challenging authority and conventional ideas (especially the facet liberalism), which is important for the skill “critical thinking”, which is rated as important in the job analysis.

Scoring in the average range on **openness** is acceptable and can sometimes be an advantage especially coupled with high **conscientiousness**, if the institution doesn’t allow for a lot of autonomy in the job. Another fact is that researchers from Aarhus BSS found that students from the Natural Sciences tend to score in the low end of **openness**, so it might be an advantage to match your students to some degree.
Neuroticism
Individuals with high scores on the domain emotional stability (opposite of neuroticism which can also be called emotional instability) are calm, secure, and tolerant of stress (John et al. 2008) and these qualities can be helpful to establish trust and credibility with others e.g. students, especially for jobs requiring interpersonal interactions (Mount et al. 1998). Emotional stability is typically the second strongest predictor of job performance in meta-analyses, right after Conscientiousness (Barrick and Mount 1991; Salgado 2003). In particular, the facets impulsiveness (low self-control = Immoderation), depression (guilt, sadness), and anxiety (fear, worry) are the facets most negatively associated with job performance (Judge et al. 2013). It is not very likely that teachers with high neuroticism are capable to build dynamic communicative relationships with their students, and many of them will need a lot of time to improve their skills socially (Göncz, 2017).

Anxiety and Anger radiates strong emotions and as such are contagious meaning they can be transmitted to students and they can in turn become anxious and that will affect their academic abilities (Frenzel et al. 2018; Hatfield et al. 1994). Obviously Self-Consciousness and Vulnerability, which deals with a sensitivity about others peoples appraisal of ones abilities and ones tendency to be overwhelmed when under pressure, is not a good trait for teachers, which are evaluated a lot.

It is a well-established fact that more emotional stable teachers are more efficient in many aspects of their work than poor teachers (Petrović-Bjekić, 1997). Studies show that low levels of neuroticism generally is perceived to be present in good teachers and those professors that are successful researchers have average or low scores on anxiety and neuroticism (although not as low as the successful teacher) (Rushton, 1983). Throughout various meta-analysis, neuroticism has consistently been related to less job satisfaction, less chances of a promotion, less efficacy, less striving for management and less success at work, moreover it is positively related to burnout or emotional stress (Judge, Heller & Mount., 2002; Kim et al., 2019; Smithikrai, 2007).

Overall low levels of neuroticism are beneficial for success in almost all professions.

Conscientiousness
Conscientiousness is the single best predictor of overall job performance, job satisfaction and job efficiency, in meta-analyses (Barrick and Mount 1991; Salgado 2003). The benefits of high conscientiousness are obvious. Conscientious individuals tend to be oriented towards being achievement-focused, highly responsible, and organized, they avoid trouble and achieve high levels of success through purposeful planning and persistence (John et al. 2008). They are seen by others as reliable and intelligent. However, they can be compulsive perfectionist and workaholics (John et al. 2008). Particular focus should be brought to, the facets achievement striving (drive to achieve goals), dutifulness (sense of moral conscience), and self-discipline (ability to begin and complete tasks), because studies show that these are the facets most positively associated with job performance (Judge et al. 2013).
The general rule is, the higher your score is on conscientiousness the better, however given the fact that people with extreme levels of conscientiousness (90-99 percentile) can be perceived as boring and such qualities would be bad for a teacher because we can apply the same logic as with neuroticism that a teachers mood is contagious on students and a boring teacher would impact their learning. If you score in the extreme end of conscientiousness it is more important that you score highly on extraversion, as people here display their energy outwards and are generally outgoing and energetic (Fielden et al. 2015).

Patrick (2011) found that overall teacher evaluations at a tertiary level were predicted most strongly by high levels of teacher conscientiousness, even after controlling for students’ previous learning and expected grade. Teachers where evaluated more positively and as more competent, maybe due to the fact that conscientiousness encompasses characteristics such as competence, order, sense of duty, planning, self-discipline, impulse control and dedication, characteristics that are somewhat associated to the facet orderliness.

Studies confirm that teachers in general are some of the occupational groups that had higher scorers on conscientiousness than the general public and as such students expected them to be more conscientious than the general public (Genc et al., 2014). These effect sizes, for a difference between the population and teachers, were large (Genc et al., 2014).

Given that teaching requires planning and independence to complete tasks and to impart knowledge to others (see the job analysis in section 4), it is to be expected that that teacher conscientiousness is positively related with teacher effectiveness and negatively related with burnout or stress (Kim, Jörg & Klassen, 2019).

Agreeableness

Individuals who score highly on this trait are typically seen as kind, caring, and helpful (John et al. 2008). These qualities are instrumental when trying to create positive and warm environments, which students require in learning and which can boost learning (Pianta and Hamre 2009). Teaching requires interpersonal interactions and interestingly studies show that agreeableness is the strongest predictor of job performance, job engagement and job satisfaction in such professions (Mount et al. 1998). Agreeableness is repeatedly associated with the empathy aspect of empathy and communication, which related to the facet sympathy and is identified as one of the characteristics that make and effective teacher (Klassen et al., 2017). However low scores on the facet sympathy are needed in order to make unbiased and objective judgments based on reason, which is why the ideal level for a teacher is not “very high” or “high”. One might pay attention whether one makes subjective calls on papers or as such. Modesty is another interesting trait that related to ones evaluation of own skills. A “Very low” rating would not be good as they are seen as arrogant by other people and as such it might affect students´ abilities to connect to you. However, “average” might be beneficial given that you will need some form of authority as a teacher.

Students also find agreeableness to be associated with effective teaching, maybe given
this traits association with one’s level of actively listening and engaging in a conversation, seeking advice, and adjusting their communication style (Kim, Jörg & Klassen), which is important according to the job analysis. At a university level, teacher agreeableness was the strongest predictor of overall teacher evaluation, individual rapport, and enthusiasm (Kim and MacCann 2018).

The facets trust (faith in other people) and cooperation have constantly been associated with good teaching “A good teacher should be cooperative, willing to compromise, mild-minded and benevolent with faith in mankind.” (Göncz, 2017). However, high levels of cooperation is not optimal as those people tend to dislike confrontations, which is sometimes needed as a teacher. A score in the high end is needed on the facet Altruism (finds pleasure in helping other) as you will most likely be met with many requests from students and as such you will need a descent scorer in this facet to enjoy these requests.

Extraversion

People with high levels of this trait display their energy outwards, they are friendly, self-confident and positive (Fielden et al. 2015), which is positively related with higher levels of communication, sensitivity, disclosure, and provision of social support (Wilt & Revelle 2009). Especially higher levels of social support is important, because people tend to return the favor and for teachers that might be especially important as studies show that low levels of extraversion was associated with burnout (Kim, Jörg & Klassen, 2019). High levels of extraversion can protect a teacher from stress as it prompts the individual to seek out social support, which mitigates the effect of stress.

Numerous meta-analysis and other studies have found that that extraversion was positively associated with job performance, work success and job satisfaction for occupational groups requiring interpersonal interactions in a way that did not extend to other occupational groups (Barrick & Mount,1991; Smithikrai, 2007). Barrick & Mount (1991) examined three job performance criteria (job proficiency, training proficiency, and personnel data) for five occupational groups (professionals, police, managers, sales, and skilled/semi-skilled). The results indicated extraversion was a valid predictor for two occupations involving social interaction, managers and sales (across criterion types).

Teaching requires assertiveness (being able to speak your mind in groups) and social interaction, for which gregariousness (finding the company of others rewarding) and sociability may be an advantage.

Introversion might be a negative trait in teaching, because according to John A. Johnson (the author of the facets and domains) “The independence and reserve of the introvert is sometimes mistaken as unfriendliness or arrogance. In reality, an introvert who scores high on the agreeableness dimension will not seek others out but will be quite pleasant when approached.”

However, Introverts function well independently, but are also capable of adapting to situations that require social interaction if these situations are structured and in their control; introverts frequently make excellent teachers and team leaders, where they can
make the rules and structure. Outside of such a structure e.g. a large and ever-changing group, they will have a hard time functioning.

3. Limitations in the current personality profile

The current section serves as a way to infer the ideal traits given in section 1 or to give a more nuanced look of the results presented in section 2.

A more nuanced picture of teachers in the natural sciences: Psychological studies examining teacher-student variables consists often (not always) of a convenience sample, which involves psychology students or psychology professors. That gives us some reasonable doubt about the accurateness of the ideal traits in section 1, because it is more than fair to assume that students or professors from the social sciences differ from students or professors from the natural sciences. Therefore, I sought to find out where such differences might be found in the personality profile, to help you take them into account. Goencz, Goencz and Pekic (2014), found out that students of the social and humanistic sciences preferred more extraverted, open, agreeable and conscientious teachers than students of the natural and technical sciences. Furthermore, the self-assessed personality traits of natural and technical sciences students were better predictors of their expectations of good teachers than the personality traits of social and humanistic sciences students, which might indicate that this group of students has clearer and more unambiguous expectations of a good teacher.

However, the basic expectation of a good teacher was openness to experience, and the aspects of agreeableness and neuroticism that provide good interpersonal relations.

Research vs teacher-oriented professors: Furthermore, professors or educators at universities might differ in the respect that some might be more research-oriented and others might be more teacher-oriented. I sought to find out whether these differ because it might give us a more nuanced view of what to change or look for if one should seek to change ones perspective at work. Rushton et al. (1983) investigated university professors that were considered to have adopted two opposing professional roles: a teacher-oriented and a researcher-oriented. This study found certain differences in personality traits. Teacher-orientated professors, where associated with openness to experience (e.g. being liberal, friendly, objective, supportive, non-authoritarian non-defensive, intelligent, and aesthetically sensitive). For the research-orientated professors, features characteristic of conscientiousness (e.g. being ambitious, persistent, dominant, less supporting and inclined to leadership) were dominant.

Can we please them all? We all have some people we get along with better than others and that might be due to the similarity we share personality-wise. A study showed that
students with a high degree of openness to experience and agreeableness, and low neuroticism (i.e. expressed emotional stability) required these domains to be even more pronounced in a good teacher, and conservative assessors preferred even greater conservativism from teachers (Göncz et al., 2014, p. 84).

4. Job analysis

The current job analysis is copied directly from Onetonline and is not a 100 percent accurate for people in your field, due to the results from different positions being aggregated, however most aspects are correct in their assessment of the skills and abilities needed (https://www.onetonline.org/link/summary/25-1042.00)

The markers in this document are interactive, clicking them will take you to the website.

The idea behind a job analysis is to identify the attributes that a candidate needs for either performing the tasks at hand or executing the human behaviors described in the job analysis. These might relate directly to the Big Five traits e.g. a good teacher should be an excellent communicator and have a well-developed vocabulary, which are one of the associations with Openness to experience (Göncz, 2017).

To understand the characteristics that define an effective worker, one must do at worker-oriented analysis. A method to achieve a worker-oriented analysis is through the use of a KSAO, which stands for Knowledge, Skills, Abilities and Other Attributes, the four broad types of characteristics with which worker-oriented analysis is concerned. Worker-oriented analysis, therefore, produces a profile of person characteristics that define the theoretically ideal person for a job (Chimel, Fraccaroli & Sverke, 2017):

- **Knowledge**: The learning necessary to be able to perform the tasks of a job effectively (e.g. product knowledge; knowledge of processes and procedures).
- **Skills**: Acquired physical, mental, and social capabilities related to specific job tasks, which are acquired through experience and strengthened through practice (e.g. machinery operation; leadership).
- **Abilities**: Innate physical and cognitive capabilities that can be applied flexibly to a number of different job tasks (e.g. verbal reasoning; manual dexterity).
- **Other Attributes**: Any other relevant characteristic of a person that cannot be classified into one of the categories above (e.g. motivation; attitudes; personality traits; values).
Summary Report for:
25-1042.00 - Biological Science Teachers, Postsecondary

Teach courses in biological sciences. Includes both teachers primarily engaged in teaching and those who do a combination of teaching and research.

Knowledge

- Biology — Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
- Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Chemistry — Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
- Education and Training — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.

Skills

- Speaking — Talking to others to convey information effectively.
- Instructing — Teaching others how to do something.
- Learning Strategies — Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
- Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Abilities

- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
• **Speech Clarity** — The ability to speak clearly so others can understand you.

• **Written Comprehension** — The ability to read and understand information and ideas presented in writing.

• **Written Expression** — The ability to communicate information and ideas in writing so others will understand.

Other (Interests)

• **Social** — Social occupations frequently involve working with, communicating with, and teaching people. These occupations often involve helping or providing service to others.

• **Investigative** — Investigative occupations frequently involve working with ideas, and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.

For a full job analysis please visit: [https://www.onetonline.org/link/summary/25-1042.00#WorkStyles](https://www.onetonline.org/link/summary/25-1042.00#WorkStyles)

5. **References**

Genc, L., Pekić, J., & Genc, A. (2014). The structure of personality of a good teacher from students perspective according to the big-five model. Psihologija, 47, 49–63. doi: 10.2298/psi1401049g


