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Personality traits of expert teachers of students with EBD: clarifying a teacher's X-factor

Svenja Buttner^{a*}, Sip Jan Pijl^{b,c}, Jan Bijstra^d and Els Van den Bosch^{b†}

^a*Department of Teacher Education, Hanze University of Applied Sciences (HANZE), Groningen, The Netherlands;* ^b*Department of Special Education, University of Groningen (RUG), Groningen, The Netherlands;* ^c*Department of Education, Norwegian University of Science and Technology (NTNU), Trondheim, Dragvoll, Norway;* ^d*Regional Centre of Expertise for EBD Schools (RENN4), Groningen, The Netherlands*

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Teaching students with emotional and behavioural difficulties (EBD) is a challenge for many teachers in inclusive education. Much research has been done to find out what differentiates expert teachers from their less skilled colleagues. Recent evidence points to personality as an underlying core factor influencing teacher performance. In this study, the predictive value of teacher personality for teacher quality in teaching students with EBD was examined among a sample of Dutch primary school teachers. Personality was measured using a self-report questionnaire based on the personality dimensions of the Five Factor Model of personality: Extraversion; Agreeableness; Conscientiousness; Neuroticism; and Openness to Experience. Different dimensions of teacher quality in teaching students with EBD were measured using an observation instrument, a self-efficacy questionnaire, and a nomination procedure. The dimensions of Agreeableness, Conscientiousness, and Openness to Experience were found to predict teacher quality in teaching students with EBD measured by the self-efficacy questionnaire. Altogether, personality explained 35% of the variance in teacher quality in teaching students with EBD measured by the self-efficacy questionnaire. The results relate to issues about teacher education and employment. Directions for future research are discussed.

Keywords: students with EBD; teacher quality; teacher personality; teacher observation; teacher self-efficacy; teacher nomination

Introduction

In the ideology of inclusive education, every child should be able to attend a regular school, unless there are insoluble barriers that make this impossible. This principle is voiced in treaties such as the Salamanca Statement (UNESCO 1994.) Therefore, many countries aim to include students with special educational needs (SEN) in mainstream education. Although the degree of inclusion differs between countries and educational systems, the literature reports that the trend toward inclusion confronts teachers with a specific challenge: to meet the SEN of students with emotional and behavioural difficulties (EBD) (Goei and Kleijnen 2009).

*Corresponding author. Email: s.a.buttner@pl.hanze.nl

†Co-author Els van den Bosch passed away recently.

Students with EBD demonstrate internalising (e.g. anxious, withdrawn) and/or externalising (e.g. hyperactive, disruptive) behaviours (DfEs 2001), which vary in frequency, duration, extent, and consequence (Van der Ploeg 2007), fluctuate, are relative and relational, and always dependent on circumstance (Van der Wolf and Van Beukering 2009). In this article, the concept is addressed as follows: 'Emotional and behavioural difficulties result from interactions between the student, the home, and school environment, and are disturbing and restrictive for all parties since they are contrary to normal standards and values'.

Although not necessarily, most students with EBD need a teacher's special attention. Their difficulties are said to undermine their academic progress because of reduced learning opportunities or to function as an escape from academic tasks that are too difficult for them (Gest and Gest 2005). Compared to other students (either with other or without SEN), they make less academic progress (Siperstein, Wiley, and Forness 2011), are referred more often to special education (Ledoux et al. 2012), show higher dropout rates (Bradley, Henderson, and Monfore 2004), and are thus a population at risk (Billingsley, Fall, and Williams 2006).

Not only students with EBD are at risk, their teachers are as well (Kokkinos 2007). Many of them believe that their skills to handle and teach students with EBD are limited and report feelings of professional inadequacy (Jones and Chronis-Tuscano 2008). These teachers experience more job stress (Kokkinos, Panayiotou, and Davazoglou 2005) and are more likely to stop teaching than other teachers (Adera and Bullock 2010). Clearly, teachers need to engage students with EBD whilst minimising disruption of the learning environment to provide effective education for all students.

As a result of the trend towards inclusive education, the requirements to teach students with SEN effectively have increased. Hodkinson and Devarakonda (2011) argue that teacher education for SEN is insufficient and does not meet these changes in policy. As this particularly applies to teaching students with EBD, preparing teachers to teach these students should have high priority within teacher education (Goodman and Burton 2010). It is therefore important to examine what exactly pre-service teachers require to be able to cope with the unique demands of the job.

One way to approach this issue is to apply appreciative inquiry (Cooperrider and Srivastva 1987). This means studying what works for teachers who are able to bring out the best in students with EBD, rather than what goes wrong with those struggling to handle and teach these students. With a nod to today's media, which is constantly looking for people who stand out in the crowd through talent hunts, the term X-factor (Smits 2006) is used in this study to express the enigmatic, hard-to-describe quality that adds to a teacher's excellence in teaching students with EBD.

Although many studies have already reported on evident competences (knowledge, attitudes, skills) of expert teachers in general (Marzano, Marzano, and Pickering 2003), there is an upcoming interest in the qualities of expert teachers of students with EBD in particular (Merrit et al. 2012). Moreover, as expert teachers are typically described in terms of being genuine, engaged, committed, trustworthy, empathic, disciplined, and respectful (Arnon and Reichel 2007; Mertens 2010), teacher personality is argued to be an underlying core quality which their excellence in the classroom may stem from (Prather-Jones 2011; Timmering, Snoek, and Dietze 2009).

Personality is defined as enduring patterns of thoughts, feelings, and behaviours (McCrae and John 1992). Many psychologists believe that the Five Factor Model of personality (FFM) presents a biological account of personality, in which learning and experience play little if any part (McCrae and Costa 2008). Evidence has been

found that personality matures (Costa et al. 2000; Srivastava et al. 2003) and stabilises after one has reached the age of 30 or has started working (Costa and McCrae 2008; Cobb-Clark and Schurer 2012).

In addition to this, the situation that a person finds him/herself in is also found to play a role in how he/she reacts (Paunonen and Ashton 2001). Personality research on twin subjects indicates that heritability and environmental factors equally influence human personality (Bouchard and McGue 2003). Emerging literature suggests that personality traits are dynamic, shift along developmental trajectories (Boyce, Wood, and Powdthavee 2013), and should therefore be conceived as continua that can change with circumstances in life (Fleeson 2001).

The relationship between personality and job performance has been established in a variety of fields requiring interaction with people, such as sales (Connor-Smith and Flachsbart 2007). However, this relationship has not been studied in the field of education with regard to teaching students with EBD. Despite this recognised feasible relationship, no studies have actually measured personality by means of a comprehensive personality test. The only studies available explore evident thoughts, feelings, and behaviours of expert teachers of students with EBD.

These variables relating to personality can be linked to the personality traits of these expert teachers and were reviewed and classified using the dimensions of the FFM by two independent raters in a study by Buttner et al. (2015a). The results indicate that a teacher's quality in teaching students with EBD increases with his/her levels of Extraversion, Agreeableness, Conscientiousness, and Openness to Experience. More research using actual personality tests is required to investigate further the relationship between the FFM and to teaching students with EBD in inclusive education as a specific occupation.

Hence, this study aims to contribute to the emerging literature on teacher quality in teaching students with EBD by exploring its link with teacher personality. To provide a context for the study, the following topics are first outlined: measures of teacher quality; teacher quality in teaching students with EBD; the FFM; and the FFM's relation to job performance.

Measures of teacher quality

Theorists generally agree that teacher quality involves many dimensions and should be treated as a multidimensional construct (Burnett and Meacham 2002; Muijs 2006). In line with this view, different measures of teacher quality have been developed. Buttner et al. (2015b) have evaluated these for the benefit of validating a method for measuring teacher quality in teaching students with EBD: written exam; interview; observation; teacher effectiveness; teacher self-efficacy; and teacher nomination. Each of these will be outlined below. On the basis of their usability (strengths, limitations, user friendliness, time, and cost), the three measures considered most suitable for the present study, which endeavours to measure different dimensions of teacher quality in teaching students with EBD, will then be selected.

Written exam

Written exams are often used in initial teacher education and teacher certification programmes for further professional development (Goldhaber and Anthony 2007). It is impossible, however, to capture complex classroom settings in written formats for

which there are many correct answers and a highly qualified test taker should not be confused with a highly qualified teacher (Berliner 2005). Therefore, a written exam as a measure of teacher quality in teaching students with EBD was not considered suitable for the present study.

Interview

Interviews to measure teacher quality present a number of problems. First, teachers are not always aware of their actions (Weggeman 2008). Interventions reported in hypothetical situations as opposed to real classroom situations often do not correspond (Almog and Shechtman 2007). Teachers may have more time to reflect on their actions in interviews and/or tend to give socially desirable answers. As interviews also risk low reliability and are hard to quantify (Muijs 2006), they were not considered suitable for the present study.

Observation

Observations by professionals are more objective than interviews because experts are better able to judge teacher behaviour in relation to that of other teachers (Muijs 2006). However, observations are snapshots and each observer is, to some extent, likely to align actual observations with a priori expectations of a person's behaviour. Hence, observation was considered suitable for the present study, provided training observers with (inter-) reliability and they make multiple observations over a period of time.

Teacher effectiveness

Teacher effectiveness is found to be strongly related to motivation (Midgley, Feldlaufer, and Eccles 1989) and student achievement (Ashton and Webb 1986). These measures range from being short and general to long and detailed. Coladarci and Fink (1995) found correlations between the rand measure (Armor et al. 1976) and the teacher efficacy scale (TES) (Gibson and Dembo 1984), the TES and the teacher locus of control scale (Rose and Medway 1981), and the TES and response for student achievement scale (Guskey 1981).

Tschannen-Moran and Woolfolk Hoy (2001) argued that the correlations show related but dissimilar constructs of teacher effectiveness and developed a new measure to capture the broad concept. However, measures of student outcome should be applied with caution (Berk 2005; Muijs 2006) and large variations in the concept are still found (Hanushek and Rivkin 2010). As it is nearly impossible to isolate teaching as a factor in student learning (Muijs et al. 2014), a measure of teacher effectiveness was not considered suitable for this study.

Teacher self-efficacy

Teacher self-efficacy is also found to be strongly related to student achievement (Kaufman and Wong 1991). Teachers with high self-efficacy beliefs think that student achievement lies within their control (Tschannen-Moran, Woolfolk Hoy, and Hoy 1998), spend more time monitoring students and giving instruction, facilitate higher levels of classroom management, and thus contribute more to student

achievement than teachers with low self-efficacy beliefs (Goddard, Hoy, and Woolfolk Hoy 2004).

Self-efficacy measures are user-friendly and vary in the number of different dimensions they comprise. For instance, Raudenbush, Rowen, and Cheong (1992) used the simple measure of asking teachers how successful they feel in providing students with the kind of education they would like to provide, while Tschannen-Moran and Woolfolk Hoy (2001) developed a three dimensional self-efficacy measure (instruction, management, engagement), which assesses a broad range of capabilities necessary for good teaching.

However, Skaalvik and Skaalvik (2007) argue that the concept has been incorrectly reduced to three dimensions. In response, they developed the Norwegian Teacher Self-Efficacy Scale. Strong support was found for six correlated dimensions: instruction, adapting education to individual students' needs, motivating students, maintaining discipline, cooperation with colleagues and parents, and coping with change and challenges. Hence, a self-efficacy measure was considered suitable for the present study.

Nominating

Teacher quality can also be measured by applying a nomination procedure, in which peers (e.g. teachers, head teachers) nominate expert colleagues (Collinson 1999, 2010; Ericsson and Lehmann 1996). Such a procedure was used by Thayer-Bacon, Arnold, and Stouts (1998) to identify caring teachers in teacher education. A list of nominees was compared with a list of caring teachers, derived from teaching evaluation forms. Although the authors stated that nominations may not reveal all caring teachers, no nominees had low evaluation scores.

Baltes et al. (1995) sought a broadly based consensus judgement on wise people (e.g. teachers) rather than rating peers with criteria. As nomination occurs in closely connected networks and involves interpersonal dynamics and ethics, input should be collected under anonymous conditions. Nomination was considered suitable for the present study, provided additional measures were used, since analytical assessment of teacher quality and nomination by colleagues do not necessarily lead to the same results (Ellet et al. 1994).

To summarise, the measures considered most applicable for the present study include an observation instrument, a self-efficacy scale, and a nomination procedure. These measures were previously found to measure related but different aspects of teacher quality in teaching students with EBD (Buttner et al. 2015b), which is considered an indicator of their validity.

Teacher quality in teaching EBD students

Studies on the qualities of expert teachers of students with EBD address either evident attitudes and beliefs (thoughts, feelings) or strategies and actions (behaviours). As regards attitudes and beliefs, these teachers are reported to have democratic teaching beliefs and to perceive their incentives and cooperation with professionals as effective (Almog and Shechtman 2007; Poulou and Norwich 2002). They also demonstrate a neutral, responsive, sensitive, and reflective attitude towards their students (Goodman and Burton 2010; Reumerman 2010). Furthermore, although they have a sincere interest in their students, are motivated to help them, and willing to self-

reflect and learn, they tend not to take things personally and are well aware of their limitations (Prather-Jones 2011).

Regarding strategies and actions, expert teachers of students with EBD plan their lessons effectively, demonstrate many differentiation and regulation techniques (Gadeyne, Ghesquière, and Onghena 2006), are able to switch between these strategies (Reumerman 2010), and provide multiple opportunities for students to achieve (Prather-Jones 2011). Furthermore, they show helpful incentives (Almog and Shechtman 2007; Infantino and Little 2007), provide individual students with feedback, create room for negotiation with their students, give them responsibility for their own behaviour (Goodman and Burton 2010), make use of positive styles of humour in their approach to students (Fovet 2009), and engage in teacher–student relationships of high quality (Berry and O'Connor 2010).

The FFM and its relation to job performance

The FFM (McCrae and Costa 2008) is an explanatory account of the role of five related core personality dimensions and six underlying clusters of related traits/facets. Each dimension represents a range between two extremes (e.g. introvert versus extravert). The FFM adopts the tenets of trait theory in that individuals can be characterised in terms of enduring patterns of thoughts, feelings, and behaviours (McCrae and John 1992) and is found to be consistent in observations, interviews, and self-reports and to be valid across cultures (Schacter, Gilbert, and Wegner 2013). The dimensions are described as follows:

1. Extraversion: quantity and intensity of energy directed outwards at the social world. Comprises the facets of warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions.
2. Agreeableness: the kind of interactions an individual prefers varying from compassion to tender-mindedness. Comprises the facets of trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness.
3. Conscientiousness: degree of organisation, persistence, control, and motivation in goal-directed behaviour. Comprises the facets of competence, order, dutifulness, achievement striving, self-discipline, and deliberation.
4. Neuroticism: the extent one is prone to psychological distress. Comprises the facets of anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability.
5. Openness to Experience: actively seeking and appreciating experiences for their own sake. Comprises the facets of fantasy, aesthetics, feelings, actions, ideas, and values.

Regarding the relationship between the FFM and job performance (Barrick and Mount 1991), Conscientiousness shows the most consistent relation with job performance and predicts problem-solving and cognitive restructuring strategies together with Extraversion. Agreeableness and Extraversion are positively related to performance in jobs involving interpersonal interactions (Hurtz and Donovan 2000; Mount and Barrick 1998). Conversely, Neuroticism predicts less problem-solving and cognitive restructuring. All the factors except Neuroticism are valid predictors of training proficiency (Connor-Smith and Flachsbart 2007; Salgado 1997). Women show higher levels of Extraversion, Agreeableness, and Neuroticism than men. These gender differences

are constant across age, educational level, and nationality (Weisberg, De Young, and Hirsch 2011).

Study aims

This study aimed to explore the relationship between teacher personality and teacher quality in teaching students with EBD. Five main outcomes were expected: a positive predictive value of teacher personality for teacher quality in teaching students with EBD regarding the dimensions of Extraversion, Agreeableness, Conscientiousness, and Openness to Experience, as well as a negative value for Neuroticism. Gender differences were studied as well.

Method

Design

Data were collected in two stages. First, teacher quality in teaching students with EBD was measured among a sample of Dutch primary school teachers, special needs support teachers, and head teachers using the three selected measures. Special needs support teachers applied an observation instrument, teachers completed a self-efficacy scale, and teachers and head teachers followed a nomination procedure. At this stage, data were collected by three in-service special needs support teacher trainees, who needed to collect a certain amount of data for their training, under the professional guidance of the first author.

In the second stage, personality tests were taken from a subsection of the initial sample of teachers for two reasons: (1) the special needs support teacher trainees had finished their training by collecting the required amount of data and (2) taking comprehensive personality tests is a time-consuming and costly operation for all parties involved. Although not all the data that were collected in the first stage were actually used later, the complete sampling procedure will be outlined for reliability reasons (e.g. repeatability).

To guarantee that each participating teacher did in fact teach one or more students with EBD when data were being collected, a broad definition of EBD was used in the present study (see the Introduction section). This definition included all students who demonstrate any type of internalising and/or externalising behaviours and pointed out that these behaviours vary in frequency, duration, extent, and consequence, fluctuate, are relative and relational, and always dependent on circumstance.

Participants

Single location schools were selected from the 1015 primary schools in the Northern region of the Netherlands as it was essential that all teachers in a school team knew each other. To enable teachers from teams of different sizes to be compared, the variance in team size was limited to 8–15 teachers. A sample of 200 schools was randomly drawn from this preselected database. In the first stage, teacher quality ratings were collected from 280 teachers (44 male, 236 female), 35 special needs support teachers, and 35 head teachers from 35 schools, of which 32 schools came from the random sample and three responded to snowball sampling from the authors' networks. The special needs support teachers served as professional observers of teacher quality in teaching

students with EBD. The head teachers served as peer-nominators in the teacher nomination procedure. In the second stage, 74 teachers (16 male, 58 female) from a random sample of 150 of the initial 280 teachers responded (49%) and completed personality tests. Their ages ranged from 24 to 63 with a mean age of 44 years.

Measures

CARS

The Competence, Autonomy, Relatedness Scale (CARS) (Buttner et al. 2015b) ($\alpha = .93$) is based on the self-determination theory (Deci and Ryan 1985), which implies that each person has three psychological needs that must be met in order to be motivated to achieve: the need for competence (seek to experience mastery); autonomy (the urge to be in control of one's own life); and relatedness (want to be connected to others). The CARS covers 17 teacher and student indicators of the extent to which a teacher meets a student's basic needs. Special needs support teachers ($n = 35$), who are trained to monitor (observe, coach) students with SEN and their teachers, rated the indicators on a 4-point Likert-scale, ranging from 1 (almost never) to 4 (almost always) on the basis of regular classroom observations. To involve a representative population, the student with EBD whose name was first on the class list was selected. The same student was selected for co-teachers.

Self-efficacy questionnaire

Teacher self-efficacy in teaching students with EBD was measured as an overall construct using a modified version of the Norwegian Teacher Self-Efficacy Scale (NTSES) (Skaalvik and Skaalvik 2007). In this version by Buttner et al. (2015b) ($\alpha = .93$), items regarding teaching were rephrased so that they related to teaching students with EBD. In the present study, teachers ($n = 280$) rated their self-efficacy beliefs on a 4-point Likert-scale, ranging from 1 (not certain at all) to 4 (absolutely certain).

Nomination procedure

A nomination procedure was applied in addition to the more analytical CARS and self-efficacy questionnaire, as advised by Ellet et al. (1994). Teacher quality in teaching students with EBD was addressed as an overall concept, as did Baltes et al. (1995). On the basis of implicit knowledge about teacher quality in teaching students with EBD and impressions of each other's practices (e.g. shared lessons, play), teachers ($n = 280$) and head teachers ($n = 35$) nominated colleagues by answering the question: 'Apart from yourself, do you feel there are other expert teachers of students with EBD working at this school?' If the answer was 'Yes', the person was asked to name the expert(s). The number of nominations was not restricted and was used as an index for teacher quality, like Pijl, Frostad, and Flem (2008) used the number of nominations as an index for peer acceptance. To avoid ethical issues, a statement was made that data were collected and processed confidentially and anonymously.

NEO PI-R

An authorised, validated, translated version (Hoekstra, Ormel, and De Fruyt 2012) of the NEO Personality Inventory-Revised (NEOPI-R) (Costa and McCrae 1992) was

used to measure the five personality domains, as well as the six underlying facet scales of each domain. The five domains and 30 facets were measured equally by a total of 240 items. The internal consistency of the NEO PI-R ranges from $\alpha = .89$ to $.93$ for domains and $\alpha = .54$ to $.83$ for facets (McCrae and Costa 2010).

Data analysis

The data analyses involved a step-by-step procedure. Prior to the actual analyses, as advised in the NEO-PI-R manual (Costa, McCrae, and Dye 1991), checks were run for patterns of answers that agreed, disagreed, or were arbitrary, since the test does not automatically check for untruthful or misleading answers. Participants who agreed with ≥ 150 or ≤ 50 of the 240 items and/or displayed ≥ 1 row of 10 identical scores were eliminated from the analyses to prevent these cases of answer tendency from influencing the results.

The analyses started with exploring gender differences in personality on domain level using Unpaired Samples *T*-tests (Means, Standard Deviations, *df*, *t*-, and *p*-values). Depending on whether gender differences were found or not, male and female teachers were subsequently analysed separately or together. Descriptive statistics of participants' scores on the personality dimensions and the three measures of teacher quality in teaching students with EBD were then calculated (Score Ranges, Means, Medians, Standard Deviations).

The expected predictive relationship between teacher personality and teacher quality in teaching students with EBD was then studied using linear regression analyses (beta coefficients, *df*, *F*-, and *p*-values). Teacher personality comprised the five personality dimensions of the FFM as independent variables while teacher quality comprised the three measures of teacher quality in teaching students with EBD previously found to measure significantly related but different aspects of this type of teacher quality (Buttner et al. 2015b).

To explore the contribution of each of the personality dimensions to each of the measures of teacher quality in teaching students with EBD, three regression analyses were then performed – one for each dependent variable or measure of teacher quality in teaching students with EBD. Absolute scores for the measures were used, except for the nomination procedure, for which percentage scores were calculated so that the number of nominations between teachers from differing team sizes could be compared.

For example, four nominations from a school team of eight teachers constituted a percentage score of 50% (4/8), as the maximum number of nominations was eight minus the nominee, who was not allowed to nominate him/herself, plus the head teacher who participated as a peer-nominator in this procedure. Likewise, three nominations from a school team of 12 teachers constituted a percentage score of 25% (3/12), as the maximum number of nominations was 12 minus the nominee, plus the head teacher.

Finally, in the case of the predictive relationships found between the personality dimensions and the measures of teacher quality, each of these relationships was studied in depth on facet level to explore the contribution of each of the six underlying facets or personality traits of the relevant personality dimension(s). Entering each dimension comprising six facets separately, regression analyses were used to determine which of the facets demonstrated a predictive relationship with the relevant measure(s) of teacher quality.

Results

The checks for answer tendencies revealed 13 cases of a tendency to agree with the answer. No patterns of disagreeing or answering arbitrarily were found. The removal

Table 1. Means, SD, *t*-, and *p*-values of male (*n* = 14) and female (*n* = 47) participants.

Personality	Gender	Mean	SD	<i>t</i>	<i>p</i>
Extraversion	Male	158.07	16.51	-.11	.92
	Female	158.68	19.62		
Agreeableness	Male	176.29	18.94	-1.51	.14
	Female	183.28	14.04		
Conscientiousness	Male	179.79	15.08	.63	.53
	Female	176.02	20.58		
Neuroticism	Male	125.86	15.31	.14	.89
	Female	124.98	21.3		
Openness to experience	Male	163.14	22.47	.88	.38
	Female	158.06	17.8		

Table 2. Score ranges, means, medians, and SD of the five personality dimensions and the three measures of teacher quality in teaching students with EBD (*n* = 61).

		Score range	Mean	Median	SD
Personality	Extraversion	95–198	158.54	160	18.82
	Agreeableness	134–207	181.67	182	15.42
	Conscientiousness	105–217	176.89	178	19.41
	Neuroticism	70–170	125.18	126	19.97
	Openness to experience	111–203	159.23	162	18.90
Quality	CARS	30–68	54.23	54	7.89
	Self-efficacy scale	59–95	77.77	78	7.88
	Nomination procedure	0–86	23.66	14	27.85

Table 3. Results of the linear regression analyses (beta coefficients, *F*-, and *p*-values) between teacher personality and teacher quality in teaching students with EBD (*n* = 61).

Personality	Quality					
	CARS (<i>F</i> = .90, <i>p</i> = .49)		Self-efficacy scale (<i>F</i> = 5.98, <i>p</i> = .00)		Nomination procedure (<i>F</i> = 2.67, <i>p</i> = .03)	
	Beta	<i>p</i>	Beta	<i>p</i>	Beta	<i>p</i>
Extraversion	.09	.58	.24	.07	.21	.12
Agreeableness	-.15	.27	-.31*	.01*	-.21	.08
Conscientiousness	-.13	.37	.39*	.04*	.03	.09
Neuroticism	.17	.32	.23	.11	.01	.95
Openness to experience	-.05	.72	.26*	.00*	.24	.82

*Beta coefficient significant at $p \leq .05$.

Table 4. Results of the linear regression analyses (beta coefficients, F -, and p -values) between the facets of agreeableness, conscientiousness, and openness to experience, and the self-efficacy questionnaire ($n = 61$).

Agreeableness ($F = 3.37, p = .01$)			Conscientiousness ($F = 3.51, p = .01$)			Openness to experience ($F = 1.69, p = .14$)		
Facet	Beta	p	Facet	Beta	p	Facet	Beta	p
Trust	.09	.51	Competence	.17	.36	Fantasy	.046	.74
Straightforwardness	−.08	.59	Order	−.11	.60	Aesthetics	−.038	.82
Altruism	−.10	.49	Dutifulness	−.12	.39	Feelings	.1645	.29
Compliance	−.03	.83	Achievement striving	.19	.32	Actions	−.181	.25
Modesty	−.52	.00*	Self-discipline	.39	.08	Ideas	.329	.04*
Tender-mindedness	.15	.31	Deliberation	−.19	.28	Values	.134	.35

*Beta coefficient significant at $p \leq .05$.

of the 13 cases resulted in a definite sample of 61 participants (14 men, 47 women). The *T*-tests, of which the results, including Means, Standard Deviations (SD), *t*-, and *p*-values (*df* = 59) are presented in Table 1, did not indicate gender differences regarding any of the personality dimensions.

Hence, the subsequent analyses were performed on the complete sample. Table 2 shows the descriptive statistics of scores on the five personality dimensions and the three measures of teacher quality in teaching students with EBD, including Score Ranges, Means, Medians, and SD. Table 3 shows the results of the linear regression analysis, including beta coefficients, *F*-, and *p*-values (*df* = 5) between the personality dimensions and the measures of teacher quality.

The personality dimensions of Agreeableness, Conscientiousness, and Openness to Experience predict teacher quality in teaching students with EBD measured by the self-efficacy questionnaire. The relationship between Agreeableness and teacher quality in teaching students with EBD is negative, between Conscientiousness and Openness to Experience, it is positive.

None of the personality dimensions predicted teacher quality in teaching students with EBD measured by the CARS, nor by the nomination procedure. The five personality dimensions altogether explained 7.6% of the variance (*R* square = .076) in teacher quality in teaching students with EBD measured by the CARS; 35.2% of the variance measured by the self-efficacy scale; and 20% measured by the nomination procedure.

Since the personality dimensions of Agreeableness, Conscientiousness, and Openness to Experience were found to predict a teacher's quality in teaching students with EBD measured by the self-efficacy questionnaire, regression analyses were then performed between each of the six facets of these three dimensions and the self-efficacy questionnaire. Table 4 below presents the results of these analyses (*df* = 6).

By means of the linear regression analyses performed on facet level, predictive relationships between teacher personality and teacher quality in teaching students with EBD were established for the Agreeableness facet of Modesty and the Openness to Experience facet of Ideas. The first relationship was found to be negative, while the second was found to be positive.

Conclusion

On the way to more inclusive types of education, many teachers of students with EBD experience feelings of professional inadequacy in the classroom. Inspired by those who are able to bring out the best in their students with EBD in challenging classroom situations, this study aimed to explore the relationship between teacher personality and teacher quality in teaching students with EBD.

By means of linear regression analyses, the relationships between the five factors of the FFM of personality and three measures of teacher quality in teaching students with EBD were studied. Additionally, relationships among these variables were explored on the facet level regarding the predictive relationships found on the domain level. Furthermore, gender differences were explored among participants.

Predictive relationships between teacher personality and teacher quality in teaching students with EBD were established on the domain level regarding the personality dimensions of Agreeableness, Conscientiousness, and Openness to Experience measured by the self-efficacy questionnaire. On the domain level, predictive relationships were found regarding the Agreeableness facet of Modesty and the Openness to Experience facet of Ideas.

Regarding Agreeableness, the relationship found was negative, while this relationship was positive regarding Conscientiousness and Openness to Experience. This indicates that the higher a teacher's quality in teaching students with EBD, the lower his/her self-reported level of Agreeableness and the higher his/her self-reported levels of Conscientiousness and Openness to Experience. No gender differences were found between the participants.

Discussion

Of the relationships found, those regarding Conscientiousness and Openness to Experience were expected, since these are in line with the general literature on the relationship between personality and job performance (Costa and McCrae 2008; Hurtz and Donovan 2000) and the review study on the personality traits of expert teachers of students with EBD by Buttner et al. (2015a). Conscientiousness predicts problem-solving and cognitive restructuring strategies and Conscientiousness and Openness to Experience are valid predictors of training proficiency (Mount and Barrick 1998; Salgado 1997).

The subsequent regression analyses performed on the facet level regarding the Conscientiousness dimension revealed no underlying predictive relationships. Clearly, together, rather than individually, the facets are strong enough to predict a teacher's quality in teaching students with EBD. Such an explanation probably also applies to the Openness to Experience dimension, which only demonstrated a positive relationship between the facet of Ideas and teacher quality in teaching students with EBD. However, the relationships established on the facet level are of the same nature as the relationships found in both domains.

A first unexpected result concerns the negative relationship between Agreeableness and teacher quality in teaching students with EBD measured by the self-efficacy scale. The subsequent analyses revealed a negative relationship regarding the Agreeableness facet of Modesty. At first sight, this result seems to contradict the literature, since Agreeableness is reported to be positively related to job performance (Mount and Barrick 1998). However, while reflecting on what is known about the qualities of expert teachers of students with EBD (Buttner et al. 2015a), this finding on the facet level may not be so surprising after all.

Expert teachers of students with EBD may not be very modest. They do not tend to play down their own achievements and are not humble (Lord 2007). They are usually reported as 'going their own way' and 'stepping aside from the guidelines of the curriculum' since they are convinced about the efficacy of their classroom incentives to enable students to achieve (Mertens 2010; Van der Wolf and Van Beukering 2009). Such actions undoubtedly require a high degree of self-confidence, which is related to a low level of modesty (Costa and McCrae 2008).

The lack of relationships found between personality and the other measures of teacher quality was a second unforeseen result, since these were found to measure related dimensions of teacher quality in teaching students with EBD (Buttner et al. 2015b). It is possible that such strong relationships between variables do not actually exist. Teacher quality comprises many aspects, of which personality is allegedly one. The low *R* square values and low levels of explained variance found are probably due to the non-inclusion of a control variable, such as knowledge, beliefs, or strategies, which impedes significant relationships between variables.

Another interesting finding was the lack of gender differences found among participants, since women are generally reported to show higher levels of Extraversion, Agreeableness, and Neuroticism than men across different cultures and ages (Weisberg, De Young, and Hirsch 2011). An explanation for this may be that most teachers are female (Hausmann, Tyson, and Zahidi 2012) but not without reason. Perhaps men who chose a career in (inclusive) education do not differ from their female colleagues regarding personality traits.

Finally, reflecting on the initial aim of this study to explore the personal qualities of expert teachers of students with EBD, it can be argued that a teacher's so-called X-factor has partly been clarified. A number of relationships between teacher personality and teacher quality in teaching students with EBD were found, which suggests that certain personality traits are evident in the personality profile of such teachers. However, it was only regarding teachers' own beliefs about their personality and their efficacy in teaching students with EBD that some of the expected relationships were established.

How teachers perceive their own personality is related to how they perceive their quality in teaching students with EBD; it is not related to the perceptions of special needs support teachers, head teachers or colleagues. Of all the hypothesised relationships, this one was most likely to be established, since data on these variables were derived from the same source. Clearly, judgements by other professionals about a teacher's quality do not register a teacher's personality as accurately. The relationships established in this study may indeed prove that the alleged relationship between teacher personality and teacher quality truly exists.

Recommendations for future research

Although this study confirmed that personality indeed plays a role in a teacher's ability to teach students with EBD, it leaves many questions unanswered. As the nature of this relationship is difficult to study and prompts discussion about interventions (Billingsley 1993), more research is required to provide pre-service and in-service teachers with the necessary tools to include students with EBD in mainstream education effectively.

A first direction for follow-up research could be to explore the relationships found among in-service teacher trainees. If these appear to be present in teacher education, the evidence supports the idea that personality and the evident thoughts, feelings, and actions stemming from it are to a certain extent inborn and that teacher trainees with a talent for teaching students with EBD can perhaps be identified early in teacher education.

This view is in line with a nature approach towards personality development, in which learning and experience play little if any part (Cobb-Clark and Schurer 2012). There is, however, emerging literature suggesting that personality traits are dynamic and shift along developmental trajectories (Boyce, Wood, and Powdthavee 2013). Plausibly, the different views on personality development implicate different options to intervene.

Another, perhaps even more intriguing research direction could be to operationalise the thoughts, feelings, and behaviours stemming from the dimensions of Agreeableness, Conscientiousness, and Openness to Experience. This would offer possibilities to improve teacher education by developing renowned bottom-down interventions, which enhance transfer of personality traits by training evident attitudes and behaviours.

A final future research direction concerns attempting to confirm the relationships found with a larger sample to verify and increase the impact of this study's findings. Such research would offer possibilities to study the unexpected, rather difficult to explain negative predictive relationship found regarding Agreeableness. Replication of the results would have implications for the conceptualisation of the 'ideal teacher' for students with EBD.

Notes on Contributors

Svenja Buttner is a Ph.D. in Special Educational Needs. Presently, she is working as a teacher and researcher at the Department of Teacher Education of the Hanze University of Applied Sciences (HANZE) in the Netherlands. Her research interest includes expert teachers of students with EBD.

SipJan Pijl is a professor in Inclusive Education. Presently, he is working at the Department of Special Education of the University of Groningen (RUG) in the Netherlands. He is also working part-time at the Department of Education of the Norwegian University of Science and Technology (NTNU) in Norway. His research interest includes the national and global development towards Inclusive Education as well as the attitudes of students, parents, and teachers towards the inclusion of students with disabilities.

Jan Bijstra is a doctor in Developmental Psychology. Presently, he is working as a researcher at the Regional Expertise Centre for EBD schools (RENN4) in the Netherlands. His research interest includes students with EBD and their teachers. An important part of his career has been dedicated to developing an indication tool for students with EBD.

Els van den Bosch was a doctor in Special Educational Needs. She has worked many years at the University of Groningen (RUG) in the Netherlands. Her research interest mainly included gifted students, but she also had a broad interest in expert teachers. Shortly after finishing this article, Els sadly passed away. She will be missed dearly.

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