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Personality, Resilience, Self-Regulation and Cognitive Ability Relevant to Teacher Selection

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Personality, Resilience, self-regulation and cognitive ability relevant to teacher selection

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Abstract: The current study uses social judgment theory to inform the design of processes to be used in selecting teachers for training programs. Developing a comprehensive selection process to identify individuals who are likely to succeed as teachers is a mechanism for improving teacher quality and raising the profile of the profession. The design of such a process requires the identification of qualities of effective teaching that can be assessed at selection, and their relative importance. Six psychological constructs are identified from previous literature that are likely to differentiate between teaching candidates – Extraversion, Agreeableness, Conscientiousness, Resilience, Self-Regulation and Cognitive Ability. Participants (n =90) judged the likely success of 35 hypothetical teaching candidates. All included constructs were positively related to candidate selection, with Cognitive Ability the most valued attribute. Individuals clustered into three groups – one cluster high cognitive ability, a second cluster of people with high personality scores, Agreeableness in particular, and a third characterized by high self-regulation and Resilience scores. Further research is required to validate the current findings however they lend support to the use of all six constructs in teacher selection, particularly cognitive ability.

Keywords: judgment analysis, personality, teacher selection, Resilience, self-regulation, cognitive ability

Introduction

High quality teachers can have a profound, positive effect on students' performance. Outside the personal attributes of students, socio-economic factors, the environment and peers, the characteristics of the teacher have been shown to account for the greatest variance in student achievement, accounting for approximately 30% of this variance (Hattie, 2009). The purpose here is to support the development of processes that select individuals into teaching programs who are likely to succeed by identifying the best predictors of effective and successful future teachers. This task is especially pertinent to many countries including Australia, where there is a

downward shift in entry standards into undergraduate teaching courses, and a reduction of the quality of graduate teachers (Department of Education, Employment and Workplace Relations, 2011, Dinham, 2013).

There have been many attempts to devise optimal processes to select candidate's into teacher training programs (for a recent international review see Hobson, Ashby, McIntyre, & Malderez, 2010). Currently, selection into teacher training programs in Australia is typically based upon a candidates high school university entrance score. Other, more comprehensive, teacher selection methods include measures of cognitive ability, grade point average, personality, written responses, and interviews (Casey & Childs, 2007). Such selection processes mirror that of selecting students into medical training programs. These processes is includes assessment of cognitive, personality and personal skills (Bore, Munro, & Powis, 2009) and complements recent research interested in defining factors influencing student's choice of teaching as a career (Richardson & Watt, 2006; Watt, & Richardson, 2007).

This paper uses a social judgment model to investigate the utility of six psychological constructs in selecting candidates into teacher education programs. First, evidence from previous research is presented to support the use of the six psychological constructs – Extraversion, Agreeableness, Conscientiousness, Resilience, Self-Regulation and Cognitive Ability. The current study evaluates whether teachers and non-teachers agree that these constructs are important when selecting teachers and identified their perceptions of the relative importance of each.

Characteristics of effective teachers

A number of studies have asked individuals (students, teachers and non-teachers) to describe highly effective teachers, and many of these descriptors relate to psychological variables (Stronge, 2007). Psychological constructs such as some aspects of personality (Barrick & Mount, 1991, Tett, Jackson, & Rothstein, 1991); intelligence (Bertua, Anderson, & Salgado, 2005); Resilience (Avey, Reichard, Luthans, & Mhatre, 2011); and self-regulation (Beeftink, Van Eerde, Rutte, & Bertrand, 2012) have been shown to relate to job performance for an ever increasing number of fields. The inclusion of these factors in the present study is based on the teacher selection model recently proposed in which personality, Resilience and self-regulation are regarded as key indicators for selection (Bowles, Hattie, Dinham, Scull, & Clinton, 2014). The Five Factor Model of personality, developed by Costa and McCrae (McCrae & Costa, 1987), is an internationally accepted, comprehensive categorisation of adult personality (Anglim, J., & Grant, S. (2014; Thalmayer, & Saucier, 2014). It describes five dimensions of personality on which individuals differ. The model is popular and psychometrically sound and is shown to reliably differentiate between individuals in a way that is relatively stable over time and culture (McCrae et al., 2000; Thalmayer, & Saucier, 2014). The five factors are: *Openness to Experience* – reflects an individual's tendency to be curious, imaginative, creative and broad minded; *Conscientiousness* – reflects individuals' tendencies to be organized, planful, committed and goal directed; *Extraversion* – reflects an individual's tendency to be social, warm, energetic and enthusiastic; *Agreeableness* – reflects an individual's tendency to be kind, cooperative and empathetic; *Neuroticism* – reflects an individual's tendency to be emotionally insecure, anxious and sensitive (Anglim, & Grant, 2014; McCrae & Costa, 1987).

The relationship between personality factors and job performance has been explored extensively. A number of meta-analyses support a strong, positive relationship between *Conscientiousness* and job performance, across many jobs and occupational groups (Barrick & Mount, 1991; Hurtz & Donovan, 2000; Mount, Barrick, & Stewart, 1998; Salgado, 1997; Tett, Jackson, & Rothstein, 1991). Correlations for *Extraversion* and *Agreeableness* were moderately positive for jobs involving significant social interaction (Barrick & Mount, 1991). *Agreeableness* is a particularly good predictor of job performance where the job requires helping, cooperating with and nurturing others; such as teaching (Barrick, Stewart, Neubert, & Mount, 1998; Mount, Barrick, & Stewart, 1998). Furthermore, common descriptors of excellent teachers include elements of *Agreeableness* (relating well to students, being approachable, empathy); *Conscientiousness* (organised and well planned); and *Extraversion* (warmth, sense of humor, enthusiasm) (e.g. Ayres, Sawyer & Dinham, 2004; Batten, Marland, & Khamis, 1993; Grieve, 2010). Research findings are less conclusive for the other personality factors of *neuroticism* and *openness to experience* and therefore are not included in this research. Although Klassen and Tze (2014) recently found only a small significant relationship between personality and teacher effectiveness, teacher personality is still regarded as important for selection of teachers (Rimm-Kaufman & Hamre, 2010; Rushton, Morgan, & Richard, 2007).

Self-regulatory skills are the thoughts, feelings and actions deliberately generated by an individual to set and achieve goals that are adaptive (Bowles, 2006; Carver & Scheier, 2010). They involve effectively seeking and using feedback to adjust and improve, managing time and seeking help when needed. Self-regulation is related to successful job performance in a range of professions (Ashford & Tsui, 1991; Beeftink et al., 2012; Lord et al., 2010) and a recent study found mathematics teachers classified as having high levels of self-regulation were given more favourable rating by students, and the students of such teachers reported feeling more component and autonomous in class (Klusmann et al, 2008). It is likely that teachers with self-regulatory skills manage their workload better and seek feedback on their teaching from students and colleagues, thus working to improve their teaching. One element of self-regulation, effective goal setting, has been explored extensively and shown to have a positive impact on specific task performance and general job performance (Hattie, 2008; Locke & Latham, 1990, 2002). Moreover, effectively setting appropriately challenging goals for students and lessons, with clear strategies for attaining them, is considered characteristics of an effective teacher directly related to self- regulation. Further, providing feedback to students frequently and in a meaningful manner is one of the most significant influences on student achievement (Dinham, 2008; Hattie & Timperley, 2007).

Resilience is typically defined as the capacity to cope with challenging situations and to bounce back from adversity (Beltman, Mansfield, & Price, 2011). Resilience is associated with increased job performance and satisfaction in a number of professions (Avey et al., 2011). It can protect against stress and burnout (Mansfield, Beltman, Price, & McConney, 2012) and improves a person's capacity to persist long-term (Chen & Miller, 2012). Teaching is regarded as highly stressful compared with other occupations and is noted as having a particularly high burnout and resignation rate (Kahn, 1993; Travers & Cooper, 1993). About a quarter of school teachers rate teaching as a "very or extremely stressful" job (Kyriacou, 2001). Given the challenges inherent to teaching, and high experiences of stress and burnout, Resilience is likely to be an important factor in teacher success (Kyriacou, 1987; Robertson, & Dunsmuir, 2013; Tang, Leka, & MacLennan, 2013).

In the context of recruitment and selection, a successful selection process will identify candidates who are highly resilient and thus likely to manage any stress associated with teaching, without it impacting on their teaching performance.

Cognitive ability, or intelligence, is a construct that describes a person's mental or brain based skills. The literature relating to cognitive ability is vast, and the construct is conceptualised in many ways. It is not the purpose of this paper to debate the nature of cognitive ability and so a definition is used that has proven useful in applied psychology. In the present study, cognitive ability is defined as a general mental capacity which includes many abilities – planning, problem solving, abstract thinking, quick learning and learning from experiences (Hunter & Schmidt, 1996; Ones, Dilchert, & Chockalingam, 2012). A number of studies support the relationship between cognitive ability and overall job performance (e.g., Lang et al., 2010). Furthermore, a recent systematic review of the research in the United States identified seven studies that found a correlation between teacher cognitive ability and student learning and achievement (Wayne & Youngs, 2003). Teachers with lower cognitive ability have also been found to have a detrimental effect on the performance of high achieving students (Grönqvist & Vlachos, 2008).

Perhaps the most compelling argument for the importance of cognitive ability comes from the McKinsey report exploring high performing schools (Barber & Mourshed, 2007). A commonality among high performing school systems is the screening of teaching candidates based on their literacy, numeracy and general ability skills. In addition, many of these systems recruit their teachers from the top one third of school leavers (the countries are: top 5% in South Korea, the top 10% in Finland, and the top 30% in Singapore and Hong Kong ; Auguste, Kihn, & Miller, 2010; Barber & Mourshed, 2007). The report further suggests that higher levels of literacy and numeracy ability is needed before individuals enter pre-service teaching programs.

The current study

Social Judgment Theory can help determine the relative importance of the psychological constructs described thus far (personality, cognitive ability, self-regulation and Resilience) in relation to selecting teaching candidates. Social Judgment Theory uses Brunswick's Lens model to help understand the process people use in making a decision (Karelaia & Hogarth, 2008). Judgments are understood to be the result of integrating multiple cues that are probabilistically related to criteria. For example, if selecting a candidate for a particular job, selectors predict a candidate's job performance (criterion) based on their previous experience and university scores (cues), as such cues are probabilistically related to their performance, the desired criteria. Lens modelling allows the identification of the relative importance of cues used in a decision making process. While individuals may be inconsistent over a set of judgments, a linear regression model can be used to describe and predict individual judgments (Cooksey, 1996a). This method has been used to explore decision making in a wide range of contexts including doctor's treatment policies for patients with depression (Smith, Gilhooly, & Walker, 2003); business students' estimates of stock prices (Singh, 1990); expert and student weather forecasting (Stewart, Roebber, & Bosart, 1997); personality judgments (Nestler, Egloff, Kufner, & Back, 2012); and teachers prediction of children's early reading achievement (Cooksey, Freebody, & Davidson, 1986).

"Judgment analysis", using a lens modelling approach, provides a method to identify the value people place on various cues (in this case the six psychological constructs). Previous

research indicates that people are capable of making highly accurate judgments in many contexts (e.g. Karelaia & Hogarth, 2008; Kaufmann & Athanasou, 2009).

A group of teachers, regarded as experts, and a group of non-teachers were asked to judge a set of hypothetical teaching candidates, who were presented as having differing scores on the six psychological constructs. After this process of classification, a model was developed that identifies the qualities that were most salient for these two groups. Participant's responses were grouped based on the constructs that had greatest influence on their judgments. Figure 1 shows a lens-modelling representation of the current study.

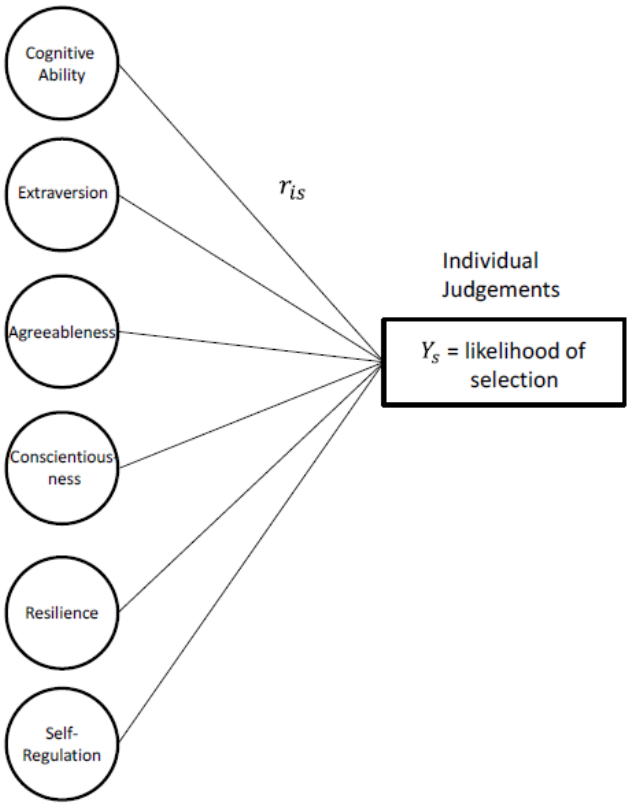

Figure 1. Lens model representation of the current study

It should be noted that it is worthwhile to explore whether teachers and non-teachers differ in their views of what characteristics are pertinent to teacher training and practice. Peterson, Henderson and West (2014) found substantial division between the view of the general public and the American teacher in regards to education, and it is expected that non-teachers in the present study will choose characteristics that differed to the teachers. Although non-teachers by definition are not experts in teaching, non-teachers have all presumably experienced teaching in some way, most likely through their own schooling, and would be likely to have different ideas about what makes an effective or potentially great teacher compared to a practising teacher.

The specific questions addressed in the current study are: Which attributes are considered most highly when judging candidates for entry into a teacher training program? What is the relative importance of Cognitive Ability, Extraversion, Conscientiousness, Agreeableness, Resilience and Self-Regulation when judging candidates for entry into a teacher training program? And, do teachers and non-teachers differ in their perceptions of the relative importance of these attributes in selecting a teaching candidate? The following hypotheses specifically address the research questions:

Hypotheses

(1) Each construct (Cognitive Ability, Extraversion, Conscientiousness, Agreeableness, Resilience and Self-Regulation) will relate positively to the participant's judgments of teacher candidate selection. Specifically, the average beta-coefficient for each construct will be positive.
(2) Individual participants will value the six constructs differently, relevant to teacher candidate selection. Specifically, participants will be clustered into groups determined by the weightings of different constructs.
(3) Teachers and non-teachers will differ in the value they place on the six constructs.
(4) The three personality constructs – Extraversion, Agreeableness and Conscientiousness will be most highly valued based on the previous literature.
(5) Participant's judgments will be consistent with their explicit ratings of the construct importance.

Method

Participants

Participants in the present study were recruited via a snowball technique. An email containing a link to a questionnaire was sent to interested participants from the general population. 99 participants submitted a questionnaire and eight participants were later excluded from analysis due to a high proportion of missing responses. One further participant was excluded as their responses indicated misinterpretation of the taskresulting in 90 participants in the final sample.

The sample consisted of 31 teachers and 59 non-teachers. There were 56 females and 34 males; 27 were aged less than 32, 12 were between 33-52 years of age, 18 were over 53, and 33 to 52 (years of age) did not indicate their age. Four of the participants indicated that completing secondary school was their highest level of education attained. The remaining 86 participants indicated they had studied at university, with many indicating higher degrees. Of the 31 participants who identified themselves as teachers, 16 worked predominantly within government schools; 15 worked predominantly within independent schools; 10 worked with primary school students and 21 worked in secondary schools.

Materials and Procedure

The distributed questionnaire required participants to imagine that they were responsible for selecting candidates to receive training to become a teacher. Participants were provided with the following definitions of six attributes:

Cognitive Ability is a person's mental or brain based skills. The Cognitive Ability test covers three areas of ability - numerical ability (completing mathematical problems and working with numbers), verbal ability (solving problems and understanding information using language based reasoning) and spatial ability (abstract thinking and visual problem solving). A person with a high Cognitive Ability score has performed well across these three tests of cognitive abilities. *Extraversion* is an element of a person's personality. A person with a high Extraversion score can be described as social, energetic, assertive and warm. *Agreeableness* is another element of a person's personality charactized by elevated empathy. An greeable person encourages cooperation, avoid conflict and find it easy to work with others. *Conscientiousness* is another element of a person's personality. A person with a high Conscientiousness score can be described as organised, committed and hard-working. *Resilience* is the ability to cope with challenging situations and overcome adversity. A person with a high Resilience score is persistent, optimistic, and quickly and easily recovers from challenging situations and takes action to maintain and improve their health. *Self-Regulation* is a person's ability to choose and control their thoughts, feelings and actions. A person with a high self-regulation score sets realistic and achievable goals, controls their impulses, seeks feedback to improve and help when needed.

Via the online questionnaire, participants were presented with information about 35 hypothetical teaching candidates. A profile consisting of scores for Cognitive Ability, Extraversion, Agreeableness, Conscientiousness, Resilience and Self-Regulation ranging from 1 to 20 was given for each of the 35 hypothetical teaching candidates. These profiles were constructed such that there were high, medium and low scores within each profile. Participants judged the likelihood that they would select each candidate for teaching training on a scale of 1 to 9 where 1 = *would definitely not select* and 9 = *would definitely select*. Participants viewed candidates one at a time and made a judgment about the candidates suitable for selection before moving on to the next candidate.

Participants were then asked to explicitly rank, from 1 to 6, the importance of the six attributes (Cognitive Ability, Extraversion, Agreeableness, Conscientiousness, Resilience, and Self-Regulation) for selecting a candidate for teacher training.

The online questionnaire was designed based upon guidelines for judgment analyses described by Cooksey (Cooksey, 1996a) and other researchers. The following considerations were important:

Number of cues (in this case, the six constructs): Research has indicated that people's judgments are more accurate when fewer cues are provided to base judgments on (Karelaia & Hogarth, 2008). It has been suggested that fewer than seven cues is appropriate (Cooksey, 1996a).

Number of judgments (in this case teacher candidate profiles): The number of cue profiles to be judged needs to be large enough to allow generation of stable regression statistics and at the same time not be so large that participants tire or do not complete the task. There is some disagreement about the minimum number of cues required, however it is generally agreed that the number of judgments should be between 5 and 10 times the number of cues (Cooksey,

1996a; Tabachnick & Fidell, 2001). Acknowledging that participants complete the task online and on their own, it is particularly important to minimize the time constraint to minimize attrition. 35 profiles were generated, about six times the number of cues.

The nature of the judgment to be made: It is critical that participants understand the judgment context and cue information (Cooksey, 1996b). In the context of selecting candidates for teacher training programs, teachers are likely to be familiar with the judgments and cues required but have not explicitly made the judgment before. Non-teachers may not have considered the judgments or cues required when making a selection decision; however, teaching is a context everyone has exposure to. It is important that the cues are described in detail, and in simple terms as the psychological constructs may not be familiar to participants.

The profile values: Karelaia and Hogarth (2008) identified the importance of providing participants with explicit cue values rather than general information from which cue values are inferred. Cooksey (1996a) also highlighted the value in providing concrete cue information that is provided in the form that would be encountered in the environment. In this case test scores were provided for each construct that mirrored the information gathered from participants in the selection process.

In addition, judgments are known to be more accurate when cue information is uncorrelated (Karelaia & Hogarth, 2008), however uncorrelated constructs may not represent realistic scores as the six constructs used are likely to be correlated in some degree; however there is not sufficient information to inform the nature of these correlations and using uncorrelated scores does not result in unbelievable profiles. To create a set of profiles with minimal correlations between them, the statistical computing program R-project (The R Projec, n.d) was used to regenerate the correlation matrix over a million times until the correlation matrix was minimised. The minimised correlation matrix for the six variables based on the generated profiles is presented in Table 1. As can be seen, the values are very close to zero, thus the variables are very close to uncorrelated.

	1	2	3	4	5	6
Cognitive Ability (1)		-0.12	0.03	0.03	0.07	0.00
Extraversion (2)			0.01	0.06	0.15	0.01
Agreeableness (3)				0.09	0.17	-0.14
Conscientiousness (4)					0.03	0.00
Resilience (5)						-0.03
Self-Regulation (6)						

Table 1. Profile construct correlations

Data Analysis

Each individual's judgment policy is inferred from their decisions by regressing the judgments on the cues. The outcome is a weighted model describing an individual's judgment policy, the relative value placed on each cue, and the rule used to combine the cues and form a judgment.

The analysis used to identify individual judgment policies is a within-subject analysis. Each participant's evaluations of all the hypothetical candidates become a separate data set (Graves & Karren, 1992). Multiple linear regression was used to identify a judgment policy equation for each individual; the beta-weights provide a way of quantifying the value the individual placed on each construct during the decision making, and the R^2 value indicates the degree of consistency for each person. For each participant, the judgment value that the participant gave for each of the 35 hypothetical candidates (rating of likelihood of selecting candidate) was entered as the dependent variable with the scores for each construct entered as independent variables. The resultant set of weights is known as a policy equation.

Hierarchical cluster analysis using Ward's minimum variance technique was performed on the beta-weights for all participants. Ward's method is commonly used and has been shown to be efficient and effective (Cooksey, 1996a). This identifies clusters of participants based on profiles of common judgment policies.

A between-subject one-way ANOVA was used to determine the constructs on which the clusters differed. Chi-Squared test of independence was used to establish the association of demographic variables and to teachers and non-teachers judgment policies.

Results

Multiple linear regressions were performed for each individual participant to identify their judgment policy. Examination of residual plots confirmed no violation of the assumptions of multiple linear regression (normality, linearity, homoscedasticity and independence of residuals). Standardised beta-coefficients are appropriate for comparing individual judgments in this study because the cues presented had low correlations.

Table 2 shows the average within-subject standardised beta-weights for each of the cue construct and associated standard deviation. Cognitive Ability and Self-Regulation had the largest positive weights, while all other variables had weights close to zero.

	Mean Beta	SD
Cognitive ability	0.21	0.10
Extraversion	0.06	0.06
Agreeableness	0.06	0.07
Conscientiousness	0.06	0.05
Resilience	0.06	0.06
Self-Regulation	0.13	0.09

Table 2. Descriptive statistics of judgment profiles of within subject beta weights of the cue construal. To identify

participants who used common judgment policies, hierarchical cluster analysis using Ward's minimum variance technique was used. This procedure was performed on the regression coefficients for all of the participants. Examination of the dendogram and Euclidean distance coefficients produced by the analysis indicated that a three cluster solution was most interpretable. There were sufficient respondents in each cluster with 24.4% of participants in cluster one, 47.7% in cluster two, and 27.7% in cluster three.

To examine which constructs explain the difference in clusters, a MANOVA was performed using the clusters as independent variables and the coefficient weights for the six constructs (Cognitive Ability, Extraversion, Agreeableness, Conscientiousness, Resilience and Self-Regulation) as dependent variables (Table 3). The partial eta-squared values for each construct are displayed with Cognitive Ability, Resilience and Self-regulation varying across groups statistically significantly differently.

	Cluster 1 (*N* = 22)		Cluster 2 (*N*=43)		Cluster 3 (*N*=25)				
	Mean	(SD)	Mean	(SD)	Mean	(SD)	*F*	Sig	η^2
Cognitive ability*	0.33^{a}_{b}	.06	0.17^{a}	.09	0.16^{b}	.07	37.11	.001	0.46
Extraversion	0.03^{a}	.05	0.06	.07	0.08^{a}	.05	4.31	.016	0.09
Agreeableness	0.07	.07	0.08^{a}	.07	0.03^{a}	.05	4.91	.010	0.10
Conscientiousness	0.04	.04	0.07	.06	0.06	.05	2.44	.093	0.05
Resilience	0.04^{a}	.04	0.04^{b}	.04	0.10^{a}_{b}	.10	15.78	.001	0.27
Self-regulation	0.08^{a}	.09	0.09^{b}	.05	0.23^{a}_{b}	.08	35.84	.001	0.45

Table 3. Descriptive statistics of judgment profiles, and analysis of variance showing differences across the three clusters.

*Note: * Means with the same superscript (^{a,b}) are significantly different at least at the .05 level (Bonferroni's post hoc test)*

The respondents in cluster one valued cognitive ability; cluster two valuing the personality, particularly Agreeableness and Conscientiousness; and cluster three valuing Extraversion, Resilience and self-regulation. The three typologies are presented in Figure 2. The greatest contribution to differences between the groups is made by Cognitive Ability for cluster one and Self-regulation for cluster three.

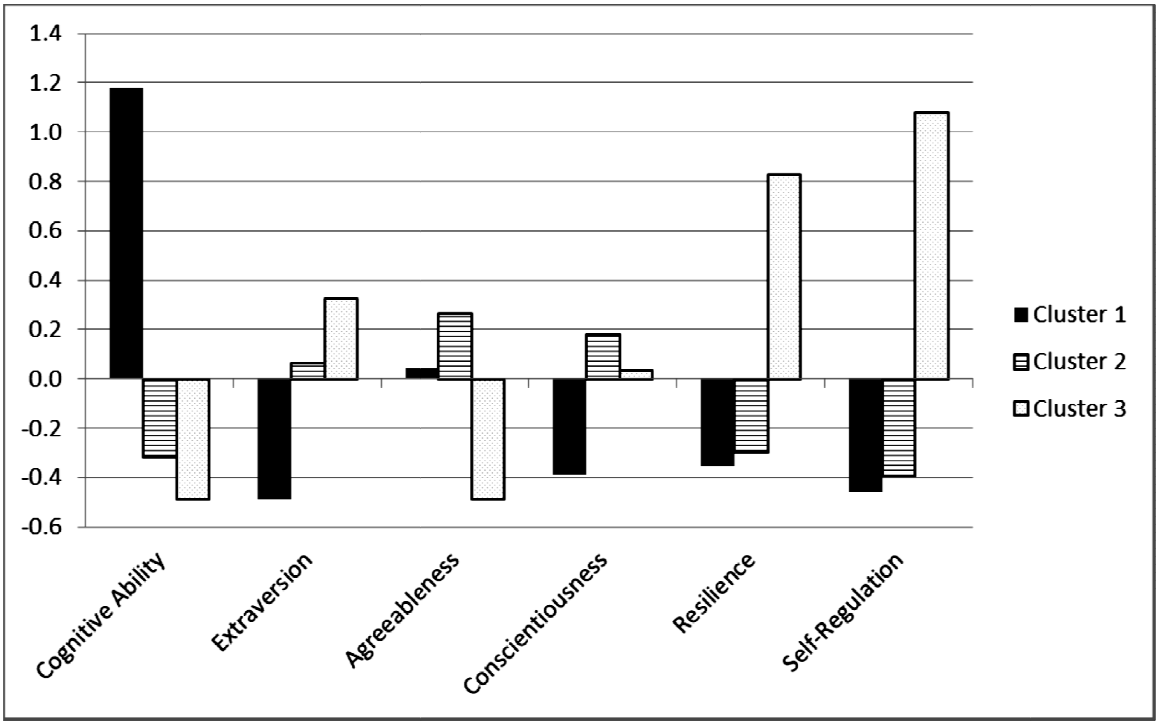

Figure 2. Attribute weightings by cluster group.

Chi-Squared tests of independence were conducted to determine whether participants in the three clusters differed by the demographic variables age and gender There was no significant relationship found between cluster grouping and being a teacher or not (=1.825, *df*= 1, *p* = 0.402); age (=20.783, *df* = 2, *p* = 0.054); or gender (=1.002, *df* = 1, *p* = 0.606). There was no significant relationship between cluster grouping and identifying as a teacher or non-teacher (=1.825, *df*=1, *p* = 0.40).

Finally, to determine the extent to which participants were aware of the judgment policies they used, participants gave an explicit ranking of the importance of the six attributes. The average ranking of each attribute is presented in Table 4 with the Pearson correlation between attribute coefficient weights and explicit ranking. There was a weak to moderate, significant correlation between participant's explicit ranking and implicit weighting of the attributes.

	Mean Ranking (Standard Deviation)	Explicit Ranking	Correlation
Cognitive ability	5.21 (1.39)	1	0.47**
Conscientiousness	4.29 (1.64)	2	0.29*
Agreeableness	3.70 (1.87)	3	0.22*
Self-Regulation	3.69 (2.00)	3	0.52**
Resilience	3.62 (1.80)	4	0.26*
Extraversion	2.82 (2.11)	5	0.32*

Table 4. Rank and correlation of the six attributes.
Note: * Correlation is significant at the 0.05 level, ** significant at the .01 level .

Discussion

The current study aimed to contribute to our understanding of the characteristics of effective teachers and how these might be used in the teacher selection process to improve the quality of teaching in Australia. Participants completed a social judgment task that identified of the value of six psychological constructs in selecting a teaching candidate. This study comes out of the need for the development of processes to effectively and efficiently identify the characteristics of candidates likely to succeed and persist as a teacher candidates and teachers.

It was first hypothesised that the six psychological constructs (Cognitive Ability, Extraversion, Conscientiousness, Agreeableness, Resilience and Self-Regulation) would relate positively to participant's judgments of candidate selection. Specifically, it was anticipated that the average beta-coefficient for each construct would be positive. This hypothesis was supported, and the results provide further evidence of a theoretical and empirical link between the six constructs and teacher effectiveness, and people's perceptions of the qualities of effective teachers.

The second hypothesis tested proposed that the three personality constructs, Extraversion, Agreeableness and Conscientiousness, would be most highly valued by participants. This hypothesis was not supported as Cognitive Ability and Self-Regulation had the highest mean coefficients. This contrasts with a range of studies that identified elements of teacher-student relationships and personal characteristics closely related to the personality variables as commonly perceived to be most important for teacher effectiveness (Ayres et al., 2004; Batten et al., 1993; Grieve, 2010; Kneipp et al., 2010; Walker, 2008).

There are a number of possible explanations of the current findings. Generally previous studies exploring perceptions of teacher effectiveness required participants to generate their own descriptions of effective teachers. When reflecting on effective teachers, the most visible characteristics are those that relate to personality – showing empathy, building strong relationships, having enthusiasm and energy – and thus these are often cited as important teaching qualities. Cognitive Ability and Self-Regulation are less able to be observed in the classroom, and may therefore be less likely to be identified. It is possible that previous research reflects visible characteristics of teachers whereas the current study encouraged participants to consider other variables. This is consistent with elements of the literature, while there is limited research highlighting Cognitive Ability and Self-Regulation in people's perceptions of teacher

effectiveness, there is evidence linking them directly to high quality teaching and student outcomes (Corno & Kanfer, 1993; Randi, 2004; T. W. Smith et al., 2008).

The third hypothesis tested proposed individual participants would value the six constructs differently. Specifically, it was expected that participants would be clustered into a number of groups determined by their weightings of different constructs. This hypothesis was supported – participants' judgments clustered into three groups. The first cluster was characterized by a dominant preference for candidates with high cognitive ability .The second cluster was characterized by a relative preference for people with high personality scores in Agreeableness and Conscientiousness. The third cluster was characterized by a preference for Extraversion, Resilience and self-regulation.. The cluster groupings show that there are differences in the way people value the constructs. While overall cognitive ability and self-regulation were the most highly valued by participants, individuals differed in their preference for the remaining variables. Further research is needed with a larger sample to confirm these results; however they do suggest that relying on only cognitive ability in the selection process may not be sufficient in identifying the various types of people required to work in the various roles in teaching settings.

The fourth hypothesis, that teachers and non-teachers would differ in the value they place on the six constructs, was not supported. The likelihood of belonging to a cluster did not depend on a person's teaching status (i.e., teacher vs. non-teacher). Contrary to expectations, teachers in this sample did not have a more detailed and first-hand understanding of what is required in the role of a teacher compared to non-teachers. It is possible that a larger sample may have highlighted these differences, in particular teachers valuing Resilience.

The fifth hypothesis proposed people's judgments would be consistent with their explicit ratings of the construct importance and was partially supported. Small to moderate correlations were found between judgments and explicit rankings. Comparing the average rankings across participants, Cognitive Ability and Conscientiousness were identified explicitly as the most important constructs; however coefficient weights reflected greater importance of Cognitive Ability and Self-Regulation. This result indicated that participants had limited cognizance of their values and were not consistent in their application. This partially reflects differences in people's judgments aside from cognitive ability which was consistently and clearly considered important; there were differences in the value participants placed on other variables. It may also reflect the accurate perception of the complexity of the role wherein multiple, interacting competencies are simultaneously salient.

The judgments made by this sample highlight the importance of Cognitive Ability, and are consistent with research showing it is a robust predictor of success in a range of settings. They are also consistent with the selection methods used in high performing international school systems (Barber & Mourshed, 2007). If these findings are a true representation of the important qualities for use in teacher selection so that candidates will be successful teachers, there is a strong argument for a selection process informed by cognitive ability, as well as other factors such as personality factors, self-regulation and Resilience (Bowles, Hattie, Dinham, Scull, & Clinton, 2014). Whilst screening applicants based on intelligence may improve the quality of teaching in Australia, it may also exacerbate teacher shortages in the areas of maths and science (Phillips, 2014). For Cognitive Ability to be an effective method of improving teacher quality in Australia, substantial systemic and cultural changes are needed to build the profile and attractiveness of teaching as a profession for high achieving school leavers.

The findings, however, may be limited by the particulars of the current sample. The use of a small snowball sample may limit the generalizability of the results of the study, particularly in light of the homogenous educational experience of participants. It is recommended that future research employs a larger, more representative sample of participants. A longitudinal design could be employed whereby future teachers are followed from pre-service education courses to practice, and differences in teacher effectiveness and self-reported ratings of the six constructs in the present study could be analysed. Ideally, such research would inform selection procedures to better predict future success as a teacher. Finally, sector (Early Childhood, Primary and Secondary) differences are deserving of consideration as these groups have differing career opportunities demands and trajectories which may be informed by Personality, Resilience, Self-Regulation, and Cognitive Ability.

Overall, the current research demonstrates the relative importance of six psychological constructs (Extraversion, Agreeableness, Conscientiousness, Resilience, Self-Regulation, and Cognitive Ability) in reference to teacher selection. The findings presented here add to previous research on the relationship between psychological attributes and selection of teachers. It is anticipated that future research could investigate how these six psychological constructs among others predict future teaching success (Bowles, Hattie, Dinham, Scull, & Clinton, 2014).

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