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Personality Source Traits as Predictors of Teaching Effectiveness

What makes a teacher effective? The answer to this seemingly simple question is likely to be a long list of factors contributory to effective teaching. Some factors are environmental (in the school as an organization) or situational (in the classroom), for example, the degree of teacher autonomy in curricular matters or the availability of resources. It is readily appreciated that such factors are largely beyond the control of the teacher; he will have to do his best to benefit from them when they are likely to enhance teaching effectiveness and to counteract their ill effects when these are expected. Nevertheless, there is still one key factor – the teacher both as a pedagogue and a person who serves as a catalyst in promoting the interaction between the pupil and the learning task.

Teachers' Behavioural Patterns and Personality

The search for the effective teacher has a long history and an important milestone is Ryan's *Characteristics of Teachers* (1960). After an extensive search of literature and analysis of empirical data, Ryan concluded that the following three behavioural patterns were major dimensions characterizing the classroom behaviour of elementary and secondary teachers:

- Pattern X Warm, understanding, friendly
vs aloof, egocentric, restricted
- Pattern Y Responsible, businesslike, systematic
vs evading, unplanned, slipshod
- Pattern Z Stimulating, imaginative, surgent
vs dull, routine

As Ryan was concerned mainly with the structure of teacher behaviour in terms of the Patterns he had identified and the consistency of these Patterns, correlational studies were undertaken to relate the three Patterns to such variables as the teacher's age, sex, marital status, teaching experience, verbal ability, influence affecting choice of teaching, religious activities, non-vocational activities, etc. Needless to say, these variables are useful for a deeper understanding

of the behavioural patterns since they were deemed as antecedents of the Patterns. It is regrettable that practical teaching success or teaching effectiveness was not given a more important place in Ryan's monumental work.

Ryan reported however substantial positive correlations between high ratings on the Patterns and high ratings of pupil behaviours characterized as alert, responsible, confident and capable of initiative. Given that such behaviours contribute to effective learning and that they are more likely to be brought about by certain teacher behaviours, an inference can then be made that teachers higher on the Patterns are likely to be more effective. Yet, Ryan was quick to caution against over-generalization:

It seems reasonable to suspect that learning emphases and teacher roles vary in relation to the characteristics of the pupils taught, to grade level, and to field of learning (subject matter). An aloof, rigorously academic teacher might be well suited to teach bright, academically-minded, well-adjusted high school students, but he might be entirely unsuited to teach certain younger children vitally in need of sympathy and understanding above all else (p. 370).

Ryan also explored the relationship between Patterns and teacher personality. He found Pattern X and Pattern Z, but not Pattern Y, repeatedly associated with the Impulsive, Dominant and Social Scales of the Thurstone Temperamental Scale which he acknowledged was not a sufficiently reliable test of personality. Personality associated with high scores on these scales is characterized thus:

- Impulsive Scale makes decisions quickly, enjoys competition, and changes easily from one task to another.
- Dominant Scale enjoys public speaking, organizes social activities, promotes new projects and persuades others.

Social Scale enjoys the company of others, makes friends easily, and is sympathetic, co-operative and agreeable.

Ryan also noted the following similarities between the Patterns and certain personality factors that had been identified in factorial studies in ongoing research into personality measurement:

Ryan's Characterization	Cattell's Personality Traits
Pattern X	<i>Cyclothymia</i> : warm, truthful, co-operative <i>Schizothymia</i> : impersonal, aloof, unco-operative <i>Paranoid cyclothymia</i> : suspicious, jealous
Pattern Y	<i>Convention practicality</i> : conventional, dependable, practical <i>Bohemian unconcern</i> : undependable, unconcerned about practicality, unconventional
Pattern Z	<i>Surgency</i> : resourceful, original, energetic <i>Desurgency</i> : stereotyped, languid

As Ryan's main interest was in the structures and their consistency with regard to teacher behaviours, the relationships between the Patterns and teacher personality were therefore of secondary or incidental concern in his research, as evidenced by the sporadic attention given to this aspect. His exploratory investigation and cursory discussion may, however, be one of the sources of inspiration for later studies on personality correlates of teaching effectiveness.

Sixteen Personality Factors

The Sixteen Personality Factors Questionnaire (Cattell and Eber, 1968) is the result of long and extended empirical research. This was developed as a general purpose test of personality and has been used extensively for personnel work and research purposes. Especially notable are the studies on the personality of scientists as compared with that of non-scientists carried out in the sixties. The 16PF Questionnaire provides measures of sixteen personality source traits identified by factor-analytical studies. Concerning the source traits, Cattell (1965) has this to say,

By a trait, therefore, we obviously mean some relatively permanent tendency. Traits are generally divided into three modalities: *abilities*, *temperamental* and *dynamic traits*.

... A temperamental or general personality trait is usually stylistic, in the sense that it deals with tempo, form, persistence, etc., covering a large variety of specific responses. For example, a person may be temperamentally slow, or easy going, or irritable, or bold. ... What comes out by statistical calculation of factor analysis, as a unitary dimension or factor, is best characterized psychologically as a *source trait*. For it operates as an underlying source of observed behaviour (p. 67).

Thus, the source traits can be seen as the underlying causes of a person's behavioural idiosyncracies. Such idiosyncracies can be expected to be manifested rather consistently over time and in a variety of situations, thus giving rise to the uniqueness of the person and serving as predictors of his behavioural tendencies. This would mean that a teacher brings into the classroom his personality and his behavioural idiosyncracies. This is to some extent the manifestation of his temperament. It is then logical to expect some of his personal qualities, in terms of the source traits, to have effects, perhaps indirectly, on the effectiveness of his teaching.

Personality Source Traits of Effective Teachers

A large number of psychological-educational studies have used the 16PF in the last few decades, though only some of these deal specifically with teaching effectiveness. Of the fifteen studies summarized here, seven are British while the remaining eight are American. Of these, three were reported in the 50s, eight in the 60s, and four are more recent. The findings, in terms of significant correlations between teaching effectiveness and 16PF source traits, will be summarized. (See Table on page 33 for details.)

In these studies, the criterion of teaching effectiveness was measured in terms of the supervisor's ratings of practical teaching in the case of student-teachers and the principal's ratings in the case of certified teachers. Source traits for which significant correlations with such criterion have been reported are as follows:

Factor G – Conscientiousness (Superego Strength vs Superego Weakness)

Eight positive correlations have been reported. Individuals scoring high on this trait are said to be conscientious, responsible, persevering and loyal.

Researcher	Subjects	N	16PF Source Traits															
			A	B	C	E	F	G	H	I	L	M	N	O	Q1	Q2	Q3	Q4
Erickson (1954)	Teachers in second year of teaching	64						+				-		-			+	
Montross (1954)	High school teachers in second year of teaching	25	+															
Hadley (1954)	'A' student teachers vs 'C' student teachers	Not given					-	+						-				
Burdick (1963)	Elementary school student teachers	86							+		-			-			+	
Warburton <i>et al.</i> (1963)	Graduate Certificate in Education student teachers	100						+		+							+	
Tarpey (1965)	Student teachers	28	-					+	-			-						
Soloman (1967)	Day training college students	155 (78M+ 77F)																+
Cortis (1968)	Students from three Colleges of Education	107M+ 153F																
McClain (1968)	University students preparing to teach various subjects	72M 122F	+	+		+	+	+	+		-				+		-	-
Davis and Satterly (1969)	Student teachers	149F						+		+		-		-				-
Henjam (1969)	Student teachers	33 Jr High 45 Sr High	+	+	+	+	+	+	+	+		+	+		+	+	+	
Heddendorf (1971)	Students at liberal arts colleges	154		-	-						-	-			-	-		
Start and Laundy (1973)	Secondary school teachers from 10 schools of different types	216						+										
Middlebrook (1977)	Students of colleges of education	45M 49F				+				+	-	+						
Twa and Greene (1980)	Elementary and secondary teachers of various subjects	67M+ 74F					+							-	+			
+ Positive correlation			3	3	1	3	4	8	4	4	0	2	1	0	3	1	4	1
- Negative correlation			1	1	1	0	1	0	1	0	4	4	1	4	1	1	2	1

Factor I – Sensitivity (Premsia vs Haria)

Four positive correlations have been reported. Individuals scoring high on this trait are characterized as sensitive, sentimental and tender-minded.

Factor L – Suspiciousness (Protension vs Security)

Four *negative* correlations have been reported. On this trait, low scoring individuals are said to be trustful, unsuspicious and gullible.

Factor O – Insecurity (Guilt Proclivity vs Guilt Rejection)

Four *negative* correlations have been reported. On this trait, low scoring individuals are characterized as cheerful, without fear, spirited and self-sufficient.

Factor E – Dominance (Dominance vs Subordination)

Three positive correlations have been reported. Individuals scoring high on this trait are said to be confident, boastful, aggressive and forceful.

The above five source traits yield correlations that are either consistently positive or negative, thus indicating that there is a relationship between temperament and teaching effectiveness, though the numbers of correlations vary from eight to three among the relevant studies. Other than these, significant correlations, *both positive and negative*, have been reported for each of another seven 16PF source traits. Although these findings are somewhat contradictory, they nevertheless provide information as to the probable direction of correlation. The source traits with both positive and negative correlations with teaching effectiveness are as follows:

Factor F – Surgency (Surgency vs Desurgency)

Four positive correlations and one negative correlation have been reported. On this trait, high scoring individuals are characterized as talkative, genial, cheerful, responsive, and alert. On the other hand, low scoring individuals are said to be brooding, depressed, seclusive and taciturn.

Factor A – Friendliness (Cyclothymia vs Schizothymia)

Three positive correlations and one negative correlation have been reported. On this trait, high scoring individuals are characterized as

easy going, warmhearted, frank, generous, and self-effacing. Conversely, low scoring individuals are said to be obstructive, indifferent, secretive and impassive.

Factor B – Intelligence (Intelligence vs Unintelligence)

Three positive correlations and one negative correlation have been reported. On this trait, high scoring individuals are characterized as alert, imaginative, thoughtful, and wise. Conversely, low scoring individuals are said to be stupid, unimaginative, vacillating and silly.

Factor H – Unreservedness (Parmia vs Threctia)

Four positive correlations and one negative correlation have been reported. Individuals scoring high on this trait are said to be carefree, self-confident and brave, whereas low scoring individuals are described as careful, secretive and cowardly.

Factor M – Unconventionality (Autia vs Praxemia)

Four *negative* and two positive correlations have been reported. On this trait, individuals scoring low are described as conventional, poised, utilitarian and earnest whereas high scoring individuals are said to be eccentric, placid, complacent and self-absorbed.

Factor Q1 – Radicalism (Radicalism vs Conservatism)

Three positive correlations and one negative correlation have been reported. On this trait, high scoring individuals are characterized as encouraging change and generally rejecting convention. Conversely, low scoring individuals are said to reject change and prefer the familiar.

Factor Q3 – Self-discipline (Controlled-will vs Uncontrolled-will)

Four positive and two negative correlations have been reported. Individuals scoring high on this trait are said to be sensitive to uncertainty, prefer assurance to luck, do not make empty promises and do not say things which they later regret. Conversely, low scoring individuals are careless, lack perseverance and have changing interests.

For the remaining four 16PF source traits, one positive correlation and one negative correlation have been reported. These are:

Factor C – Stability (Ego-strength vs Ego-weakness)

High scoring individuals on this trait are characterized as unworried, mature, stoic and patient, whereas low scoring individuals are anxious, infantile, worrying and impatient.

Factor N – Shrewdness (Shrewdness vs Naivete)

On this trait, high scoring individuals are said to be polished, insightful regarding others, calculating and influenced by expediency, while low scoring individuals are characterized as crude, unskilled in analyzing the motives of others, indifferent and apathetic.

Factor Q2 – Self-sufficiency (Self-sufficiency vs Group-sufficiency)

On this trait, high scoring individuals are characterized as temperamentally independent and prefer individual activities, whereas individuals scoring low are said to prefer group activities and seek social approval.

Factor Q4 Tenseness (Id-significance vs Id-insignificance)

Individuals scoring high on this trait are described as having periods of free-floating anxiety and unexpected lapses of memory, while low scoring individuals are relaxed, composed and disinclined to worry and accept frustration easily.

To summarize, research over the past twenty-five years has shown some 16PF source traits to be good predictors of teaching effectiveness, as assessed by college supervisors and school principals. These are Conscientiousness (G), Sensitivity (I), Suspiciousness (L), Insecurity (O), and Dominance (E). While Factors G, I and E correlate positively with teaching effectiveness, Factors L and O have negative correlations with the criterion.

Besides these five source traits, there are other 16PF factors which may also qualify, with some caution due to inconsistent findings, as predictors of teaching effectiveness as well. These are Friendliness (A), Intelligence (B), Surgency (F), Unreservedness (H), Unconventionality (M), Radicalism (Q1) and Self-discipline (Q3). Although both positive and negative correlations with the criterion have been reported for these traits, on the balance, all except Factor M are positively correlated with teaching effectiveness. Incidentally, no trends have been observed where Stability (C), Shrewdness (N), Self-sufficiency (Q2) and Tenseness (Q4) are concerned.

Some Methodological Issues

Although the findings are pooled from studies carried out in a variety of situations, they however share some methodological issues. These are discussed under the following headings: the criterion, the sample, the predictor and the analysis.

The Criterion

In the studies cited, college supervisors and school principals' ratings were used as the criterion. Such measures were based on classroom observation and the subsequent ratings were by necessity global and subjective to some extent, though prior specification of the behaviours to look for and how they were to be rated could have helped reduce the subjectivity somewhat. Even with guidelines for observation and rating, the context in which the student teachers operated could be quite different from that in which the certified teachers functioned. In the different contexts, college supervisors and school principals might have looked for different behaviours as indicators of teaching effectiveness. In fact, Wiseman and Start (1965) found no significant correlations between the supervisors' ratings of a group of student teachers during their practical teaching and the principals' ratings of the same group of teachers five years after they had qualified. This may also mean that teaching practice grades are not good predictors for future success in teaching, perhaps because of the low stability of teaching behaviour.

Pupil growth has always been suggested as a measure of teaching effectiveness. This seems logical and appealing; after all, pupil learning is what teachers are trained to bring about and employed for. This approach is however not without its problems. One of these is that immediate achievement gain of the pupils can only be measured for lower level objectives; an emphasis on these will have a backwash effect on teaching so much so that higher level objectives tend to be neglected or not given their due. A related problem is that the long term gain of the pupils is understandably contributed by many factors among which the teacher's effort is but one. For example, parental attitudes and expectations have been found to be related to the child's intelligence and achievement scores.

Another problem of assessing teaching effectiveness in terms of pupil growth is that pupil growth is the result of interaction between the teacher's teaching and the pupil's experiential background and capabilities. Studies of school

effects have shown that pupil growth cannot be totally accounted for by teacher behaviour; a corollary of this is that the teacher should not be held *totally* responsible for nor credited with pupil growth. Thus, to assess teaching effectiveness solely in terms of pupil growth would not be only unfair but also misleading to all parties concerned.

An alternative to teacher behaviour and pupil growth as indicators of teaching effectiveness is pupil behaviour in the classroom while teaching is going on. If it can be established that certain pupil behaviours lead to successful learning and that such pupil behaviours are largely a response to certain teacher behaviours, it can then be inferred that successful learning is dependent on the kind of teacher behaviours identified, with pupil behaviours as intervening variables. In this respect, Ryan (1960) found some relationships between the Patterns he identified and pupil behaviours believed to be conducive to successful learning. Of course, the pupil's history of learning, his mental and physical conditions, etc. also affect his classroom behaviours. Nevertheless, pupil behaviour deserves more attention than it has hitherto been accorded in the search for indicators of teaching effectiveness.

After weighing the strengths and weaknesses of pupil growth and teacher behaviour as indicators of teaching effectiveness, Soar (1973) concluded that, in comparison to the alternatives, observational methods seem the most hopeful for, *inter alia*, they do not create pressure for the teacher to stress low level objectives, but they measure the performance which is most directly under the control of the teacher and permit the faculty and administration of a school or system to agree on valued teaching behaviours with a minimum of misunderstanding. Soar however recommended the use of systematic observation in which the observer looks for and records the occurrence of specific behaviours rather than make global judgments.

The Sample

The sample size of the cited studies had a range from as few as 25 to as many as 259, with eight studies involving 100 or more teachers. Understandably, the researchers had to work with available subjects who were willing to participate. Thus, the studies used by and large captive samples and there was little likelihood of sampling in its strict sense. This, of course, limited the generalizability of the findings.

Seen from a different viewpoint, these studies were not meant to be normative in the first place; they were undertaken with a view to contributing to the understanding of the relationship between teaching effectiveness and teacher personality. In other words, they are research-oriented rather than evaluation-oriented. In this perspective, a significant correlation between teacher effectiveness and a particular source trait, when repeatedly found in several studies with small samples, yields more positive information than a correlation between teacher effectiveness and another trait found only once in a large sample.

Another aspect concerning the samples is the female preponderance as indicated by the information available from these studies in which sex of the teachers was reported. This female preponderance suggests that the findings are more applicable to female teachers. In fact, in those studies where analyses for male and female teachers were carried out separately, different source traits were found to correlate with the criterion. This sex-personality interaction effect is not to be underestimated when considering the relationship between teaching effectiveness and teacher personality.

Perhaps a more important yet likely to be overlooked aspect of the samples is that they were made up of selected groups. It can be expected that all teacher education institutions exercised some form of selection, though the actual procedures and criteria might have varied from one institution to another. Thus, the correlations reported are for those student teachers who had survived the selection and not for the pre-selection applicants who sought admission to the teacher education programmes. Since certain source traits correlate with teaching effectiveness, the selection might have truncated the distributions of the relevant traits. This implies that, although the correlations reported in the studies are in the main low to moderate in magnitude, the correlations could well be greater had they been obtained from the pre-selection applicants rather than from the selected ones, since the size of correlation is a function of the distributions of the variables correlated.

The Predictor

The 16PF is a self-report questionnaire providing the so-called Q-data which has essentially the same information as offered in medical, psychiatric consultation. Since such data depends on

interpretation, it is liable to distortion by imperfect self-knowledge, delusion about the self, or an intention deliberately to fake (Cattell, 1965). It is however beyond the scope of this paper to discuss the trustworthiness of the 16PF. Since it is a well researched personality test widely used by clinicians and researchers and has shown reliability and validity with respect to acceptable standards, the trustworthiness is taken for granted here.

Nonetheless, the possibility of deliberate faking is relevant. People consciously fake in taking a personality test if they are motivated to do so. However, since the studies cited are research-oriented which would not have any consequences for the teachers involved, deliberate faking is not likely to have occurred. Faking should, however, be of greater concern if the 16PF were to be used as a selection device and known or perceived as such by those taking the test.

Borich (1977) provides a four-stage measurement framework for evaluating classroom instruction: pre-operational measures, immediate process measures, intermediate process measures and product measures. In this framework, personality tests come under the pre-operational measures stage. Other measures in the same stage include archival records, interview data, baseline paper-and-pencil tests and biographical questionnaires. In terms of proximity to product measures (which include pupil attitudes and achievement), personality tests are one stage removed from them when compared with intermediate process measures (which include classroom observation of the teacher's affective characteristics, e.g. teacher warmth).

Both personality tests and interview data are pre-operational measures, the time lapse between taking predictor and criterion measurement will be the same for both. With the notorious lack of reliability of interview data on the one hand, and the acceptable reliability assured by extensive research of personality tests on the other hand, better prediction of teaching effectiveness could be made from personality test scores than from interview data.

Although classroom observation is closer in time to product measures when compared with personality tests, in Borich's framework, observation tends to be influenced by situational factors and, like interviews, observer variability, whereas personality tests measure relatively more stable traits and are free from tester influences. Thus, classroom observation and personality tests have their respective strengths and weaknesses.

Therefore, on theoretical grounds and with reference to Borich's measurement framework, the 16PF would compare as favourably as, if not more, than other commonly used predictors of teaching effectiveness such as interview data and classroom observation, if product measures were considered as the ultimate criterion.

The Analysis

Almost all the cited studies used the bivariate approach to analyse the data. Even when multiple regression was used, there was only one criterion variable, i.e. teaching effectiveness in terms of practical teaching ratings. As exploratory studies, they contributed to the understanding of the relationship between teaching effectiveness and teacher personality.

Nonetheless, since teaching effectiveness can be variously defined by using different indicators, there is no reason why more criterion variables cannot be used so that weaknesses inherent in one variable can be compensated for by the strengths in another variable. This will lead to a more comprehensive and unbiased view of teaching effectiveness. In other words, all three types of criterion variables mentioned earlier, i.e. teacher behaviours, pupil behaviours and pupil growth, can be included for analysis.


As pointed out at the outset, effective teaching depends on a large number of factors, many of which are beyond the control of the teachers. This means that teacher personality has only limited predictive power where teaching effectiveness is concerned. This implies the personality measures will have to be analyzed together with other measures, especially those of the teaching environment and the pupils, and their predictive power will have to be evaluated with reference to the total configuration of the contribution of various factors thus identified. It is obvious that some multivariate approaches will have to be employed to attain this complex kind of analysis.

Efforts may also be made to obtain personality measures of the pre-selection applicants. This will be useful for a more thorough understanding of the predictive power of personality traits for teaching effectiveness. It will be professionally questionable to allow, say, a random sample of applicants to go through a teacher education programme and to teach subsequently in the classroom for the sake of research. It is however possible to have the applicants, short-listed or otherwise, take a personality test. This

will enable a comparison between those selected for the programme and those rejected. Such information would be useful for ascertaining whether teachers selected for training differ from rejected applicants in personality traits that have hitherto been found to be relevant to teaching effectiveness.

Conclusion

Some personality source traits as measured by the 16PF have been found to have some predictive power for teaching effectiveness in terms of ratings on classroom teaching by college supervisors and school principals. Generally, the correlations are low to moderate in magnitude.

When considering the use of selected source traits as predictors of teaching effectiveness, the question should not be how well such measures by themselves predict but how much information they can provide in addition to whatever other predictors (e.g. academic performance as admission qualification or interview data) are being used. In other words, how much can personality measures improve prediction of teaching effectiveness as compared with the existing procedures? As teaching effectiveness is not unidimensional and is affected by a host of factors, the usefulness of personality traits as predictors will have to be seen in the context of a multiplicity of predictors and criteria. 

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