

Images of Competency: Self Report, Assessment Centre, 360 Degree and Personality Perspectives

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Competencies are now almost universally used in assessment for selection and development, but relatively little is known about the reliability and validity of competency dimensions. This paper takes a unique approach to exploring the construct validity of competency dimensions in two ways. First, the paper presents an analysis of the consistency of scores across 4 different assessment methods: self descriptions of competency; assessment centre ratings; 360 degree feedback ratings; personality assessment based on a 'Big Five' measure. Second, the results are analysed at the level of individual competencies as well as an overall competency average to examine whether some competencies are more reliably assessed than others. The results show that while there was significant consistency among methods for some competencies, there were also notable disparities for others. Some clear relationships were found between personality dimensions and the more direct assessments of competency made in 360 feedback and assessment centres. The value of using personality assessment alongside other approaches to measuring competency is discussed. The practical implications of these findings for the role of competency constructs in assessment and development are also considered.

Introduction

Competencies have become ubiquitous in selection and development. Most employees at first supervisor level or above will encounter some form of competency-based assessment in their working lives (e.g. Cook & Bernthal, 1998). Commentators on the competency-based approach have, however, identified a number of limitations. For example, Shippman, Ash, Battista, Carr, Eyde, Hesketh, Kehoe, Pearlman, Prien, & Sanchez (2000) noted that a major problem for competency modelling is lack of rigour in development and consequently the failure to evaluate the reliability or consistency of the models. This criticism can be extended to question the construct validity of competency models. That is, what is the evidence for the internal coherence and relative independence of competency dimensions? Can the dimensional structure of competency models be recovered through factor analysis? Do assessments of competency dimensions correlate across assessment methodologies (e.g. assessment centres, 360-degree feedback)? Do competency assessments correlate with other constructs to which they should be related (e.g. ability and personality)?

The question of the construct validity of competency dimensions is important for a number of practical reasons. For example, competency-based assessments are frequently used to make important decisions about employees, perhaps in assessment centres or competency-based interviews. Additionally, competency-based information is regularly used to inform the personal development of individuals that will require potentially life-changing shifts in habits and patterns of behaviour. Lack of adequate construct validity can undermine the utility of competency-based assessments in all such applications and lead to poor decisions and inappropriate advice. Low validity can also become apparent when organisations and

individuals receive competency-based feedback using more than one assessment method. If the feedback is inconsistent neither party has a sound basis on which to draw their conclusions.

Most of the research to date relating to the construct validity of competency dimensions has focussed on assessment centres (ACs). It has been established that ACs are among the most valid selection methods for predicting future job performance (e.g. Gaugler, Rosenthal, Thornton & Benson, 1987). However, evidence for the construct validity of AC measures has consistently been found to be lacking. Factor analytic studies of AC dimensions typically find only one or two underlying factors, suggesting that the apparent multi-dimensionality of competence is illusory (e.g. Sackett & Harris, 1988; Shore, Thomson & Shore, 1990). Additionally, researchers have long known that dimensions show less consistency than exercises in assessment centre ratings (e.g. Sackett & Dreher, 1982; Robertson, Gratton & Sharpley, 1987; Schneider and Schmitt, 1992). In practice, this means that ratings of different competencies within the same exercise correlate higher with each other than ratings of the same competency across exercises. This is usually interpreted as evidence of questionable construct validity for competency dimensions (e.g. Robertson, Gratton & Sharpley, 1987; Collins, Schmidt, Sanchez-Ku, Thomas, McDaniel & Le, 2003). While much research effort has been committed to finding out why this should be, Guion (1998) has concluded that construct validity remains the biggest unresolved issue in assessment centre research.

Another major area of application of the competency approach is 360 degree (or multi-rater) assessment and feedback. Here again, evidence for the construct validity of competency dimensions is limited. Typically, models based on a variety of different competency dimensions reveal between 1 and 4 underlying dimensions when factor analysed (e.g. Beehr, Ivanitskaya, Hansen, Erofeev, & Gudanowski, 2001; Fletcher, Baldry & Cunningham-Snell, 1998; de Vries, Vriegnaud & Florent-Treacy, 2004; Gillespie, 2005). Taken together, these findings suggest that competency models are defining more dimensions than can actually be determined in both AC and 360 rating data.

Very few studies have examined the relationships amongst different methods of measuring competencies. For example, Atkins & Wood (2002) examined the correlations between AC ratings and 360 ratings among a sample of team leaders in a service organisation. Although the competency model was based on 11 dimensions, this study focussed on overall ratings rather than scores for each individual competency. The correlation between overall AC ratings and the average of others' 360 ratings (i.e. excluding self ratings) was 0.39. This was taken to provide strong support for the validity of overall 360 ratings, showing significant overlap between the 2 methods of assessing competency. Nonetheless, on the basis of these data we might expect sizeable discrepancies between the 2 methods in the description of an individual's competency profile. We have been unable to find any other studies that develop Atkins & Wood's (2002) investigation of the consistency of competency dimensions across measurement methods.

One commonly used approach to examine the construct validity of measures is to examine their correlates (Cronbach & Meehl, 1955) among more fundamental psychological constructs. Accordingly, a number of researchers have examined the construct validity of AC ratings in the context of standardised measures of ability and personality (e.g. Goffin, Rothstein & Johnston, 1996; Hoefft & Schuler, 2001; Collins et al., 2003). The general finding from these studies is that both ability and 'Big Five' personality dimensions are correlated with overall assessment ratings in assessment centres. For example, Collins et al (2003) report that overall assessment ratings are strongly related to the combination of measures of general mental ability and extraversion. This can be taken as evidence for the overall construct validity of ACs, but does not shed light on the validity of individual AC dimensions. However, these findings also raise the question of whether the AC method measures anything unique beyond ability and personality.

It may be that factors other than low reliability and validity of the competency dimensions contribute to variations across assessment methods. For example, one reason given for the low consistency within competency dimensions for ACs is that different exercises are sampling different aspects of the competency (e.g. Hoeft & Schuler, 2001). Thus the assessment of leadership using an in-tray will draw on quite different specific skills and behaviours from those used to demonstrate leadership in a group exercise. Measurements of leadership from a 360 degree assessment may well focus on different skills again, as well as being taken in a quite different context. Some authors have argued that a lack of convergence is only to be expected where different exercises and different methods are used to assess competencies (e.g. Howard, 1997; Haaland & Christiansen, 2002). Given the breadth of most competency definitions it follows there will be a positive advantage to sampling the competency in a number of quite different ways. High correlations among such samples are no more desirable than high inter-item correlations in other test or measure.

The primary aim of the present study was to investigate the extent to which competency assessments based on different methods are consistent with one another. Three different types of competency measurement method were examined: application form ratings; assessment centre ratings; 360 degree feedback ratings. On the basis of previous findings (Atkins & Wood, 2002) it was hypothesised that correlations among overall evaluations of competency would be significant, showing a moderate effect size. An exploratory aspect of this research was to examine whether some competencies were more consistently measured across assessment methods than others.

A secondary aim was to examine how competency ratings relate to fundamental personality traits. In this study we assessed personality using a 'Big Five' measure, *Quintax*[®]. Following previous research (e.g. Barrick & Mount, 1991; Collins et al, 2003) we hypothesised that significant relationships between personality and overall competency ratings would be found, especially for extraversion and emotional involvement (neuroticism), but also possibly for intellectual focus (openness to experience). We also wished to explore whether more specific relationships between personality dimensions and specific competencies could be found.

Method

Context and sample.

The data were collected as part of our ongoing work with professionals and managers in a government agency. The sample consisted of 76 people who applied for and took a promotion assessment centre at middle to senior management level. All participants in the study subsequently undertook a 360 degree feedback exercise using the same competencies as were employed in the assessment centre along with a personality assessment. The feedback from the assessment centre, the 360 and the personality measure was used to assist them in drawing up a focussed personal development plan. There were 59 men and 17 women in the sample. All were aged 25 or above.

Measures used

Application Form – Sift Scores.

As part of the application process for a promoted role, all participants provided a brief written account of how they had recently demonstrated each of the six competencies (see Table 1 for competency definitions). These accounts were anonymised and then rated by assessors who each focused on one competency and provided a rating on a scale ranging from 2 (low) to 9 (high).

Table 1. Competencies

Competency	Example Behaviours
Building Relationships	• Builds relationships with others based on mutual trust and respect
Communication	• Makes clear and effective presentations and briefings
Problem Solving & Decision-Making	• Evaluates the pros and cons of alternative solutions
Leadership	• Inspires colleagues and staff to gain commitment to goals and plans
Improving Business and Customer results	• Recognises and seizes opportunities for improving results
Analysis Skills	• Looks beyond the obvious to identify hidden problems or underlying causes

Assessment Centre. Participants undertook a 2-day assessment centre, facilitated by occupational psychologists with trained senior managers as assessors. The assessment centre exercises consisted of: an assigned role group discussion; a 1 to1 role play; an analysis and presentation exercise; a multiple choice in-tray; a competency-based interview. Each of the six competency dimensions was assessed at least twice. All ratings of observed behaviour were based on the evaluations of 2 assessors. The rating scale ranged from 1 (low) to 5 (high).

360-degree feedback. The participants were rated by their own manager, up to 4 peers and up to 4 direct reports or junior colleagues on each of the 6 competencies, with between 7 and 10 behaviours for each competency. Self ratings were also obtained, but were not used in this analysis. The rating scale varied from 1 (low frequency of behaviour) to 6 (very high frequency of behaviour).

Quintax. *Quintax* is a combined trait and type measure based on the Big Five model. The fundamental scales of *Quintax* (and their analogues in the Big Five model of Costa and McCrae) are shown in Table 2

Table 2. Quintax factors and their Big Five analogues

<i>Quintax Factor</i>	<i>Poles</i>	<i>Big Five Analogue</i>
Extraversion	Introvert - Extravert	Extraversion
Criticality	Personable - Logical	Agreeableness
Organisation	Adaptable - Structured	Conscientiousness
Intellectual Focus	Grounded - Theoretical	Openness to Experience
Emotional Involvement	Calm - Volatile	Neuroticism

Results

Results

Overall ratings

The obtained correlation between the overall score for 360 ratings and overall AC ratings was 0.29 (see Table 3), corresponding to a medium effect size (Cohen, 1988). This correlation is rather lower than the value of 0.39 found by Atkins & Wood (2002), but nonetheless is further evidence of a positive relationship between 360 and AC ratings. There was no significant relationship between overall sift scores and overall scores for the other two methods, although there was a weak trend towards a positive relationship between overall sift scores and overall AC scores.

Individual competency ratings

Initial analyses examined simple correlations between the same competencies assessed by different methods (see Table 3).

It is clear that within any one competency the sift scores were unrelated to either the AC or 360 score except for the correlation of sift scores with AC scores in Analysis Skills. When examining the relationship between sift scores and scores based on the other two methods more closely we found that for only 2 of the 14 relevant correlations were the intra-competency correlations the highest. In all other cases the highest correlate of a sift score rating for a particular competency was with a score obtained for a different competency. This represents poor evidence for the construct validity of sift ratings.

A rather different pattern emerged for the relationship between AC scores and 360 ratings. In this case Communication, Problem Solving & Decision Making correlated significantly across assessment methods, while the remaining 4 competencies did not. For each of the competencies where there was non-significant intra-competency correlation between the two methods there were higher correlations with other competencies in the matrix. This provides some evidence for the construct validity of Communication and Problem Solving & Decision Making, but not for the remaining competencies.

Table 3. Correlations among competencies for different assessment methods

Competency	Sift with AC*	Sift with 360*	AC with 360**
Building Relationships	.14	.16	.04
Communication	.01	-.03	.48
Problem Solving & Decision-Making	.15	.14	.31
Leadership	.18	.02	.10
Improving Business and Customer results	.06	-.10	.13
Analysis Skills	.26	.13	.12
Overall Score	.17	-.01	.29

Correlations in **bold** significant at .05 level, 1-tailed, *N=69, **N=76

Competency and Personality

In order to examine the relationship between personality and each of the competency assessment methods a number of hypotheses were established beforehand. These drew partly on information from previously published studies (e.g. Barrick & Mount, 1991; Salgado, 1997; Collins et al, 2003) and partly on a logical analysis of the content of the competency domains and the likely relevance of personality traits. Table 4 presents the obtained correlations (i.e. uncorrected for reliability or range restriction) for only the hypothesised relationships.

Of the 60 hypothesised relationships, 22 were statistically significant at the .05 level – considerably better than the 3 that would be expected by chance alone. The majority of the significant relationships were found in correlations of 360 and AC ratings with personality, although the sift ratings showed some relationships with personality in the hypothesised direction. Different patterns of association between personality and competency emerged for different assessment methods.

Building Relationships was most strongly associated with extraversion, although only significantly so for 360 ratings. More extraverted managers were rated higher for Building Relationships.

Communication was also related to extraversion, although again only significantly for 360 ratings. More extraverted managers were rated higher in Communication. The hypothesised link between Communication and criticality only significant for AC ratings. More logical managers achieved higher ratings for Communication.

Problem Solving & Decision Making was significantly associated with criticality for both sift and 360 ratings, but not for AC ratings. More logical managers were rated higher for Problem Solving & Decision Making.

Leadership was significantly positively associated with extraversion in both 360 and AC ratings. Ratings of Leadership from the 360 were also associated with lower levels of emotional involvement, while ratings of Leadership from the AC were positively associated with intellectual focus. Thus, more theoretical managers were rated higher for Leadership in the AC. Taken together this presents an image of the effective leader as being certainly more extravert, and probably more calm and more oriented towards the abstract.

Improving Business and Customer Results showed a common pattern of relationships with both 360 and AC ratings where those rated higher in the competency were more extravert, more theoretical and more calm. Sift ratings of this competency were not significantly related to personality.

Analysis Skills was significantly positively correlated with criticality and intellectual focus for both sift ratings and AC ratings, but not 360 ratings. Thus, those managers who were more logical and theoretical in style were rated higher for their Analysis Skills in the sift and AC.

Table 4. Correlations between competency and personality for the 3 assessment methods

		Extraversion	Criticality	Organisation	Intellectual Focus	Emotional Involvement
Sift Ratings*	Building Relationships	.13	(.06)			.02
	Communication	.18	.06			
	Problem Solving & Decision-Making		.32	.07	.02	
	Leadership	-.04	.16		(-.01)	-.03
	Improving Business and Customer results	.03			(-.03)	.(16)
	Analysis Skills		.31		.31	
	Overall Rating	.07			.08	.03
360 Ratings*	Building Relationships	.20	.05			(-.23)
	Communication	.21	.05			
	Problem Solving & Decision-Making		.21	.15	.04	
	Leadership	.24	(-.04)		.13	-.21
	Improving Business and Customer results	.30			.33	-.24
	Analysis Skills		.09		.03	
	Overall Rating	.18			.14	-.27
AC Ratings**	Building Relationships	.16	.06			.13
	Communication	.11	.20			
	Problem Solving & Decision-Making		.11	(-.12)	(-.14)	
	Leadership	.31	.12		.36	-.04
	Improving Business and Customer results	.20			.25	-.28
	Analysis Skills		.28		.23	
	Overall Rating	.20			.23	.04

Correlations in **bold** significant at .05 level, 1-tailed; *N=69, **N=76; () indicates direction counter to hypothesis

Conclusions & Discussion

Consistency in competency measurement methods

The findings of this study demonstrate that there is some clear evidence of consistency across different methods of measuring competency, but also some notable inconsistencies.

The overall competency rating was significantly correlated between 360 and AC methods indicating that the overall evaluation provided by these methods showed a fair degree of overlap. The relationship found was similar in magnitude to that reported by Atkins & Wood (2002) and broadly supports their conclusion that there is good evidence for the validity of overall 360 ratings in terms of their relationship to overall assessment centre ratings. However, the overall sift rating did not correlate with either of these. Taken together these findings provide some evidence for the construct validity of overall competency assessments, but not across all measurement methods.

Examination of the construct validity of specific competencies represented an exploratory aspect of this research. Once again the evidence for construct validity was variable. There was no competency in which all 3 methods of competency assessment were correlated, and there were only 2 competencies (Communication and Problem-Solving & Decision-Making) where there was a significant relationship between 360 ratings and AC ratings. These findings indicate that some competencies are more consistently measured across different methods than others. It is interesting to note that the more consistently assessed competencies in this study can be seen as referring to quite fundamental aspects of a person's behaviour, i.e. Communication and Problem Solving & Decision Making. These can be seen as fairly universal competencies that are assessable across a wide range of situations. They are also related to the constructs that are typically recovered in factor analytic investigations of competency dimensions (i.e. interpersonal skills and cognitive skills). It may be that the remaining competencies in this study are more situation-specific, depending on particular cultural factors in their definition and assessment. For example, Analysis Skills may sound like a dimension that assesses broad reasoning skills, but has a particular meaning in the Civil Service related to thoroughness in seeking relevant data, and making decisions based on evidence. Further research is required to understand whether there are some types of competencies that are typically more coherent in their assessment than others, and therefore demonstrate higher construct validity.

Expert assessor ratings of self-reported competency generally showed no relationship to the other methods which suggests that the process of competency-based sifting was of limited validity. Of course, all such methods may be questioned in terms of the rigour and objectivity that is applied to the process. In this case all assessors were experienced in competency-based sifting and had assessed the competencies previously. In addition, all applications were sifted anonymously by individual competency with each assessor taking responsibility for a single competency. While some improvements in the process could be made, we have concluded that it was conducted using as sound a methodology as practical, and that further investment in this process would be unlikely to produce worthwhile returns.

Personality and competency

Correlations between personality and competency-based assessments revealed a number of significant relationships, some of which were consistent across different competency assessment methods. This finding is similar to that of other studies that have examined the association between personality and competency (e.g. Collins et al, 2003; Hoefft & Schuler, 2001). Extraversion, Intellectual Focus and Emotional Involvement all showed some relationships with overall competency for at least some of the competency measurement methods. Thus individuals with higher overall competency ratings were more Extravert, more Theoretical and more Calm.

Equally interesting are the many significant relationships found between specific personality factors and individual competencies. As all of the relationships examined were based on directional hypotheses, it is unlikely that these are chance artefacts. Higher levels of Extraversion were associated with higher ratings for both interpersonal (Building Relationships, Communication) and business-focused (Leadership, Improving Business & Customer Results) competencies in at least one of the measurement methods. Greater Criticality was linked to higher ratings for both the thinking competencies (Problem Solving & Decision-Making, Analysis Skills) and aspects of the interpersonal (Communication). Higher scores for Intellectual Focus were associated with higher ratings for both the business-focussed competencies (Leadership, Improving Business & Customer Results) and to some extent the thinking competencies (Analysis Skills). Lower scores for Emotional Involvement were associated with higher ratings for the business-focussed competencies (Leadership, Improving Business & Customer Results).

Overall these findings allow two conclusions. First, the relationships between personality and competency measurements add convincingly to the evidence for construct validity of the competency dimensions. The relationships found show that each competency is related to a number of fundamental personality dimensions, and also that these relationships are differentiated among the competencies, providing evidence of discriminant validity.

Second, our findings support previous work which has concluded that personality-based assessments of competency can be given the same credence as more the behaviourally-oriented methods used in ACs and 360 feedback (e.g. Goffin et al; 1996). Indeed, Collins et al. (2003) have gone further to suggest that personality assessment (together with ability assessment) might substitute for the more expensive and time-consuming assessment centre approach. However, the reason for the relationship between personality and competency requires further elaboration before such a strong conclusion can be drawn.

Construct validity of competencies

What, then are we to make of the equivocal evidence for the construct validity of competencies as measured by self report, 360 and assessment centre methods? To some extent, we have positive evidence for the construct validity of at least some competencies (and the overall competency rating) using the more structured assessments offered by 360 feedback and the assessment centre method. However, for some competencies there is little evidence of consistency across assessment methods.

As noted earlier, a lack of consistency might be expected where different exercises and different methods are used to assess competencies (e.g. Howard, 1997; Haaland & Christiansen, 2002). Indeed, given the breadth of most competency definitions there should be an advantage in sampling the competency in a number of quite different ways. However, it is widely accepted that how a person behaves is determined both by dispositions and situations (e.g. Magnussen & Endler, 1977; Mischel, 2004). In general terms, consistent assessments of dispositions are most likely where situations are functionally equivalent. In the context of competency measurement, where the methods used to assess a particular competency are similar we would expect agreement among competency ratings. Where the methods differ more, we would expect wider variation among the resulting competency assessments as specific situational factors become more important than dispositions or general competencies.

The impact of personality traits on behaviour further complicates the relationship between different methods of competency assessment.

One way in which personality has been claimed to have an effect on ratings of behaviour in ACs and 360 feedback is the extent to which observers infer personality traits from the behaviour and use these to evaluate competency (e.g. Lievens, De Fruyt & van Dam, 2001). So, when asked to rate, for example, an individual's communication skills a rater may depend

more on an inferred personality characteristic (e.g. extraversion) than on first-hand observations of behaviour. This may, in part explain some of the relationships found between competency assessments and personality.

A more sophisticated approach develops the interactionist perspective described above to state that different situations (e.g. assessment centre exercises, specific work demands) allow the expression of fundamental traits to differing degrees (Tett and Gutterman, 2000). This is referred to as the trait activation potential or TAP of the situation. Thus, Lievens, Chasteen, Day & Christiansen (in press) argue that assessment centre measures of competency will correlate within competency dimensions only where the exercises used afford comparable opportunities to demonstrate fundamental personality traits. For example, a group exercise provides a clear opportunity to observe characteristics related extraversion, while an in-tray exercise will be less informative in this respect. One implication of this argument is that much of the previous research using the multi-trait multi-method approach to assessment centre dimension validity is based on the inaccurate premise that different exercises have equal potential to allow demonstration of a competency which is common to all. Consequently, the generally accepted conclusion of low construct validity for assessment centre competencies (e.g. Sackett & Dreher, 1982; Robertson, Gratton & Sharpley, 1987) may be premature.

In the context of the present study, trait-activation theory provides a framework within which we can endeavour to account for the degree of consistency in competency measurement across assessment methods. Where methods have relatively high TAP for a particular competency dimension, we might expect greater consistency. For example, Lievens et al (in press) identify communication as a competency which is linked to (and allows expression of) extraversion. In this study Communication was assessed quite consistently across AC and 360 methods, and was positively related to extraversion. However, for the only other consistently measured dimension (Problem Solving & Decision-making), no clear common factors of personality emerged. Equally, Improving Business and Customer Results showed consistent relationships with three personality dimensions for both 360 and AC ratings, but these ratings were not significantly related. The explanatory power of trait-activation theory has therefore yet to be proven.

The overall implication of these observations for assessing the construct validity of competencies, whether by AC, 360 or any other method, is that the measurement of competencies is much more sensitive to the particular methods used than was realised previously. It can be concluded from this that multiple measurements of competencies are necessary, and need not be expected to be highly consistent. It can also be concluded that personality traits are closely linked to competencies and their expression in behaviour.

Implications for feedback

Although there is evidence for the consistency of different measurement methods at the overall summary level, these findings raise questions about the value of measurements of specific competencies as explicit organising constructs in the assessment and development of people. Given the varying levels of agreement among methods it is quite likely that an individual will receive feedback from an assessment centre that will differ in many respects with the feedback obtained from a 360 degree appraisal. Even for the best case of agreement in this study (for Communication), less than 25% of the variance in AC and 360 scores is held in common, allowing significant variation in actual ratings for any one individual on this competency. How then can the individual use this information to take stock of their current level of competency and identify appropriate areas for development?

In practice, it is typically left to the individuals and their advisor to make sense of disparate results. On the one hand, the lack of convergence among methods makes the task more difficult as it allows the individual to question the validity of any part of their feedback. However, it may be that the best tactic for the advisor is embrace the idea that different assessment

methods are assessing different aspects of the competencies, and so need not be expected to be consistent. Candidates may be recognising this when they say that the AC is 'an artificial situation' in their initial attempts to explain AC feedback. The task for both the person and their advisor is to identify those common strands in the feedback that alert them to widely perceived, but specific strengths and weaknesses, so that it is these that are carried forward into development planning. Given that most useful development objectives will be far more focussed than the higher level definition of a competency, then the lack of agreement at the broad competency level need not be a distraction. Indeed if, as Lievens et al. (in press) suggest, a trait-activation approach is adopted the feedback might be organised in terms of which situations activate which traits and behaviours. In this way feedback might be given at an appropriate level of generality.

Summary

This study has demonstrated that different methods of assessing competency provide varying degrees of consistency dependant upon the competency being assessed. This observation need not undermine the value of competencies as organising constructs for the design of assessments of employees. However, caution should be used in generalising assessments of competency in one situation to all situations.

Particular care is needed when different assessment methods are used to assess a common set of competencies. Apparently contradictory ratings may be obtained which can require careful handling when feeding back to assesses. The organisation of feedback into which traits are shown in which situations may be a helpful strategy.

Personality traits are inextricably linked to the definition and measurement of competencies. Thus the inclusion of personality assessment as an additional perspective on competency should be practiced more widely to increase the validity of competency measurement.

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