Development and Validation of Work Place Integrity Scale; Evidence from Ghana.

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Abstract

This article developed and validated work place integrity scale that are applicable across industries. Responded questionnaire perceived to contribute to integrity were subjected to principal components analysis. Overall Cronbach's alpha coefficient of 0.843 was reported. The Kaiser-Meyer-Olkin value was 0.887, whiles the Bartlett's Test of Sphericity reached statistical significance, supporting the use of factor analysis. Total variance explained initially, revealed the presence of six components with eigenvalues 24.973%, 8.309%, 5.045%, 4.843%, 4.077%, 3.969% of the variance respectively contributing to a cumulative variance of 51.2%. Using Cattell's scree test, it was decided to retain components 1&2 for further investigation. To aid in the interpretation of these two components, oblimin rotation was performed which resulted in a simple pattern matrix with 2 components showing a number of strong loadings. The resulted component correlation matrix was very strong (0.346). The two-component solution explained a total of 33.2% of the variance, with Component 1 contributing 24.9% and Component 2 contributing 8.3%. The resulted pattern matrix relating to component 1 supports the non- usage of inducement to assess the integrity of a person, whiles component 2 support the use of inducement to assess the integrity of a person.

Key Words: Integrity; Reliability test; Validation test; Cronbach's alpha; Bartlett's test of sphericity, Oblimin rotation.

1.0 Introduction

The study was initiated to develop and validate work place integrity scale that are applicable across business organizations. Ethical scholars; Becker, (1998); Belvaev, (2011); Edgar & Pattison, (2011); Parry & Proctor-Thomson, (2002); Palanski & Yammarino, (2009) have observed that, there are a variety of integrity definitions within business and across other disciplines as well. Lack of a consensual definition, means lack of consensual understanding. Common sense suggests that such lack of consensus will make teaching, internalizing and implementation of integrity codes more difficult. No wonder, businesses in society today have received a great deal of negative press over the years due to perceived lack of integrity both at the organization level and within organizations at the individual level, (Macey, 2013; Stevens, 2013). This is so, because integrity was prominently touted by Enron in its code of values, yet, Enron, its traders and executives, became synonymous with corporate fraud and personal deception. The result was that "while Enron had a wonderful value statement and comprehensive ethics policy, with widespread unethical behaviour rife, these became of no value" (Thomson, 2008). Enron publicly failed its stakeholders and spectacularly fell into bankruptcy with several of its leaders jailed or fined by the federal government of the United States (Ingerson, 2014).

One of the main purpose of this study was to contribute to the debate on what constitutes integrity at the work place. It is believed that it could provide an inventory that could be used in measuring unethical behaviour across industries as a talent management tool for hiring, promoting, reprimanding, and firing. The significance of this study is enormous considering that Ghana recently developed code of conducts (integrity) for government appointees which among others articulated government's commitment to fight corruption. It is expected that the findings of this study would have important policy implications.

2.0 Theoretical and Literature Review

Integrity has a Latin origin and it means wholeness. It encompasses many of the best and most admirable traits in a man: honesty, uprightness, trustworthiness, fairness, loyalty and the courage to keep one's promise regardless of the consequences. One can distinguish between integrity, ethics, morals, and character, but the way these

terms are normally used suggests they are similar (<u>Ashkenas, 2011</u>). The Oxford Dictionary has noted that, integrity, is the quality of being honest and having strong moral principles.

Subjectivist see integrity as something that invariably helps to promote good individual behaviours and societal outcomes, but is not something that should be ethically or legally required (Goodin, 2010; McFall, 1987; Palanski & Yammarino, 2007). DeGeorge, (1993) observed it to be a freely chosen virtue that enhances both personal character and relational outcomes, and thus benefits the possessor. It ideally benefits those with whom the possessor interacts. Jacobs, (2004) proposes that integrity researchers of this mind-set usually link integrity with an altruism that exceeds a calculated and strategic benevolence. This notion that integrity is based on personal moral norms and leads to compassion, empathy, and care which in turn leads to a kind of selfless, altruistic behavior falls under what some scholars refer to as subjectivist perspective on integrity (Becker, 1998; Locke & Becker, 1998; Palanski & Yammarino, 2007; Vandekerckhove, 2007).

Objectivistic perspective of integrity is founded on three bases other than on personal moral predilection, and it does not need to be understood as either empathetic or altruistic (Becker, 1998; Locke & Becker, 1998; Palanski & Yammarino, 2007; Vandekerckhove, 2007). They are: "metaphysics (including the axiom that there is an external reality), epistemology (individual reason is the only valid source of knowledge), and ethics (founded on rational self-interest)" (Jacobs, 2004). This objectivistic perspective alternatively interprets and understands individuals' integrity, as grounded in morally universal realities instead of in morally relativistic norms (Becker, 1998; Locke & Becker, 1998; Palanski & Yammarino, 2007; Vandekerckhove, 2007). Regardless of these differences, ethical scholars continue to agree with the idea that integrity matters.

Craig and Gustafson's (1998) Perceived Leader Integrity Scale [PLIS] was the first widely used and wellvalidated psychometric instrument in organizational behaviour constructed to directly get at the construct of integrity. They identified seven main behavioural domains as a framework for item generation consistent with their construct of integrity. These seven domains were: training and development, maliciousness, resource/workload allocation, self-protection, truth telling, procedure and policy compliance, and unlawful discrimination. The result of this research was the production of two versions of the PLIS, a 43-item scale and a 31-item scale. Additionally, they found that integrity perceptions among supervisors were strongly related to subordinate job satisfaction. Palanski and Yammarino (2007) have pointed out that, although Craig and Gustafson's (1998) scale was innovative in that it was predictive of unethical behaviour, it failed in a critical way, because it was not designed to identify ethical behaviour.

Following this shortcoming, Olson, (1998) published Moral Integrity Scale [MIS] specifically designed to measure integrity as directly related to ethical thoughts, feelings, and behaviours. Olson defined moral integrity as being composed of a tripartite model including public justification, moral discernment, and consistent behaviour. Olson developed the scale using Carter's (1996) three (3) part definition of integrity: moral discernment, consistent behaviour, and public justification. The MIS reported overall and specific reliability was very high. The overall Cronbach's alpha for the entire instrument was 0.95. He found that moral integrity was positively correlated with well-being and negatively correlated with anxiety. There are some concerns related to the development and validation of Olson's instrument. First, the sample size in study was small. Second, sampling bias was present as the participants were from a highly religious community, which have been shown to self-evaluate higher along moral dimensions reducing the external validity of the scale and bringing into question the result (Hardy & Carlo, 2013).

In view of this, Dineen et al. (2006) commenced and published Behavioural Integrity Scale [BIS]. Their main research question was why subordinate employees emulate supervisors. They designed the BIS to measure the relationship of supervisor integrity to employee behaviours in a bank setting. The overall Cronbach's alpha for the first survey group was 0.82 and for the second group was 0.86.

The study found that the relationships between supervisory guidance and the outcomes varied as a function of the degree to which supervisors were perceived to exhibit behavioural integrity. The pattern was consistent across the two independent sample surveys.

Finally, Tang and Liu (2012) published the Authenticity of Supervisor's Personal Integrity and Character (ASPIRE) scale to predict the behaviour of individuals based on the perceived integrity of their supervisors. ASPIRE consisted of "three inter-related sub-constructs: Supervisors who show honesty, fairness, and integrity (Honesty and Integrity), (2) care about others' work and provide services to subordinates as servants (Caring Servant), and (3) are friendly and offer transparent decision making and professional development". Its overall Cronbach's alpha was 0.95. The study showed that low perceived supervisor integrity was related to high self-

interest and low unethical behavioural intentions, secondly, unethical behaviour was significantly related to low self-esteem, high Machiavellianism, and low intrinsic religiosity.

3.0 Research Design and Discussions of Results

There were some key steps that went into the process of this scale development. The first involved the generation of items that were related to integrity. The items were then pruned down to 30 research questions using a Likert-type scale ranging from 1-7 with the anchor points being: l = Strongly disagree; 2=Disagree; 3= slightly agree nor disagree; 4= neither agree nor disagree; 5 = slightly agree; 6 = Agree; 7 = strongly agree. Additionally, the 30 scale items questionnaire developed were circulated to 500 Ghanaian workers across various industries, to which 452 responded. Next was the checking of the internal consistency and reliability of the scale before the exploratory factor analysis to create the final 15 item inventory for component 1 and 12 item scale for component 2.

In conducting the validity and reliability tests, we followed the recommendations of Pallant, (2010) in that, when you are selecting scales to include in your study it is important to find scales that are reliable. Reliability is the degree to which the items that make up the scale hang together. Are they all measuring the same underlying construct? Pallant, (2010) has noted that factor analysis is different from other statistical techniques. It is not designed to test hypotheses or to tell whether one group is significantly different from another. It is undertaken as a 'data reduction' technique. It takes a large set of variables and looks for a way that the data may be 'reduced' or summarised using a smaller set of factors or components. It does this by looking for 'clumps' or groups among the inter-correlations of a set of variables. Accordingly, the scale developer starts with a large number of individual scale items and questions and, by using factor analytic techniques, they can refine and reduce these items to form a smaller number of coherent subscales (Pallant, 2010). One of the most commonly used indicators of internal consistency is Cronbach's alpha coefficient. Pallant, (2010) had observed that, ideally, the Cronbach alpha coefficient of a scale should be above 0.7. In Behavioural Integrity Scale [BIS] published by Dineen, et al. (2006), the overall Cronbach's alpha for the first survey group was 0.82 and for the second group was 0.86. In this study, the specific item Cronbach alpha coefficient shown in total item statistics named Appendix 1, range from 0.834 to 0.848, and the overall Cronbach alpha coefficient was 0.843 as seen in the Reliability Statistics in Table 1. This means the study can be subjected to factor analysis.

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Cronbach's	Cronbach's Alpha based on	N of
Alpha	Standardised item	Items
0.843	0.862	30

Table 1: Reliability Statistics

Prior to that, the suitability of the data for factor analysis was assessed. The results are shown as Table 2 below. The Kaiser-Meyer-Olkin value was 0.887, exceeding the recommended value of 0.6 (Kaiser, 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance (Sign. value should be 0.05 or smaller), in this case it is p=.000, hence PCA was performed.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of sampling adequacy	0.887
. Approx. Chi-Square	3138.550
Bartlett's Test of Sphericity Df.	378
Sig.	0.000

The responses from the questionnaire perceived to contribute to integrity scale were subjected to factor extraction or principal components analysis (PCA) using Kaiser's Criterion or eigen value rule. Factor extraction involves determining the smallest number of factors that can be used to best represent the interrelations among the set of variables to be retained. We adopted the recommendation by Pallant, (2010). Using this rule, only factors with an eigenvalue of 1.0 or more are retained for further investigation. As shown in Appendix 2, the PCA initially, revealed the presence of six components with eigenvalues exceeding 1, explaining 24.973%, 8.309%, 5.045%, 4.843%, 4.077%, 3.969% of the variance respectively contributing to a cumulatively variance of 51.2%.

An inspection of the scree plot shown as Figure 1 revealed a clear break after the second component. Catell, (1996) recommends retaining all factors above the elbow, or break in the plot, as these factors contribute the most to the explanation of the variance in the data set. Obviously two components (component 1&2) were retained for further assessment and retention.

Figure 1: Scree Plot



To aid in the interpretation of these two components, oblimin rotation was performed which resulted in a simple Pattern Structure shown as Appendix 3 with 2 components showing a number of strong loadings. The resulted Component Correlation Matrix reported as Table 3, showed the strength of the relationship between the two factors in this case it was very strong (0.346). Hence the two components can achieve similar result when used to conduct an integrity test.

Table 3: Component Correlation Matrix

Component	1	2
1	1.000	0.346
2	0.346	1.000

The two components solution explained a total of 33.2% of the variance, as shown in Appendix 1 with Component 1 contributing 24.9% and Component 2 contributing 8.3%. The results of the pattern matrix relating to component 1 support the non- usage of inducement (bribes and gifts or the like) to assess the integrity of a person at the work place, whiles component 2 support the use of inducement (bribes and gifts or the like) to assess the integrity of a person at the work place. Component 1 had 15 items (questions 6,12,13,14,15,17,19,21,23,24,26,27,28,29,30), and Component 2 had 12 items (questions 4,6,7,9,11,2R,3R,5R,7R,10R,16R,20R)

The result of this analysis support the non-usage of inducement (bribes and gifts or the like) to assess the integrity of a person at the work place, whiles component 2 support the use of inducement (bribes and gifts or the like) to assess the integrity of a person at the work place.

The interpretation of the two components was consistent with previous research on the PANAS scale, with positive affect items loading strongly on Component 1 and negative affect items loading strongly on Component 2, Watson et al (1988).

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APPENDIX 1: Item-Total Statistics

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Does not pretend to possess the knowledge, skills 162.34 386.067 .337 .202 .839	<i>i</i> 9
and abilities required for the job	
Applies his/her knowledge, skills and abilities to 161.71 392.372 .343 .319 .839	<i>i</i> 9
achieve organizational goals	
Is willing to account for what has been entrusted to 161.47 393.127 .454 .429 .833	\$8
him/her	
Performs tasks that are not in his/her job description 162.58 391.387 .265 .367 .84	12
to the benefit of the organization	
Acts in the interest of the organization rather than 161.91 388.647 .436 .455 .83	;7
his/her personal interest	
Perseveres until the task is accomplished 161.76 387.566 .499 .639 .830	56
Does not indulge in sexual harassment 161.70 384.166 .456 .324 .83	36
Question 2 responses reversed 162.23 387.693 .307 .246 .84	
Question 3 responses reversed 161.58 383.393 .451 .489 .83	
Question 5 responses reversed 161.85 375.220 .515 .450 .834	
Question 7 responses reversed 162.71 374.785 .430 .347 .83	
Question 10 responses reversed 161.92 377.540 .468 .420 .83	
Question 16 responses reversed 161.97 393.551 .232 .206 .84	
Question 18 responses reversed 165.40 419.016149 .196 .85	
Question 20 responses reversed 103.10 113.010 1.13 1.130 1.03 Question 20 responses reversed 162.87 386.255 .277 .218 .84	
Question 22 responses reversed 163.01 397.397 .126 .248 .84	
Question 22 responses reversed 103.01 397.397 1120 1240 104 Question 25 responses reversed 163.53 393.297 .153 .273 .84	18

Component	Initial Eigenvalues Extraction Sums of Squared Loadings		red Loadings	Rotation Sums of Squared Loadings ^a			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.992	24.973	24.973	6.992	24.973	24.973	6.121
23	2.326	8.309	33.282	2.326	8.309	33.282	4.727
3	1.413	5.045	38.327				
4	1.356	4.843	43.171				
4 5 6	1.142	4.077	47.248				
	1.111	3.969	51.217				
7	.988	3.528	54.745				
8	.970	3.464	58.209				
9	.938	3.349	61.558				
10	.895	3.197	64.755				
11	.798	2.850	67.606				
12	.745	2.660	70.266				
13	.738	2.637	72.903				
14	.703	2.512	75.415				
15	.689	2.462	77.876				
16	.642	2.295	80.171				
17	.617	2.204	82.375				
18	.607	2.169	84.544				
19	.524	1.873	86.417				
20	.513	1.831	88.248				
21	.483	1.724	89.972				
22	.472	1.686	91.659				
23	.456	1.630	93.289				
24	.440	1.570	94.859				
25	.430	1.537	96.395				
26	.401	1.433	97.828				
27	.321	1.147	98.976				
28	.287	1.024	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Appendix 3: Pattern Matrix^a

	Compo	nent
	1	2
Always tells the truth		
Does not give bribe		.336
Is not influenced by gifts to violate organisational principles and procedures	.308	.369
Judgement is not influenced by tribal, religious or other affiliations		.428
Does not influence the judgment of superiors/peers/subordinates with money for favours (e.g. for promotion)		.454
Does not influence the judgement of superiors/peers/subordinates using personal relationships		.452
Will report to authority when paid what is not due him/her	.317	
Insists that superiors/peers/subordinates follow organizational policies and procedures	.455	
Always follows organizational policies and procedures even if they are inconsistent with the person's personal interest	.444	
Is committed to achieving organizational goals	.523	
Abides by the organization's code of conduct	.582	
Completes tasks as required	.761	1
Treats all staff fairly	.553	
Does not pretend to possess the knowledge, skills and abilities required for the job	.373	
Applies his/her knowledge, skills and abilities to achieve organizational goals	.674	
Is willing to account for what has been entrusted to him/her	.562	
Performs tasks that are not in his/her job description to the benefit of the organization	.632	
Acts in the interest of the organization rather than his/her personal interest	.692	
Perseveres until the task is accomplished	.782	
Does not indulge in sexual harassment	.440	
Question 2 responses reversed	-	.532
Question 3 responses reversed		.665
Question 5 responses reversed		.631
Question 7 responses reversed		.696
Question 10 responses reversed		.584
Question 16 responses reversed		.468
Question 18 responses reversed	418	
Question 20 responses reversed		.379

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.^a

a. Rotation converged in 8 iterations.

Appendix 4: Component Matrix^a

	Compo	nent
	1	2
Always tells the truth	.466	
Does not give bribe	.450	
Is not influenced by gifts to violate organisational principles and procedures	.542	
Judgement is not influenced by tribal, religious or other affiliations	.573	
Does not influence the judgment of superiors/peers/subordinates with money for favours	.543	
(e.g. for promotion)	1	
Does not influence the judgement of superiors/peers/subordinates using personal	.484	
relationships	1	
Will report to authority when paid what is not due him/her	.460	
Insists that superiors/peers/subordinates follow organizational policies and procedures	.605	
Always follows organizational policies and procedures even if they are inconsistent with	.448	
the person's personal interest	1	
Is committed to achieving organizational goals	.564	
Abides by the organization's code of conduct	.660	
Completes tasks as required	.581	431
Treats all staff fairly	.592	
Does not pretend to possess the knowledge, skills and abilities required for the job	.428	
Applies his/her knowledge, skills and abilities to achieve organizational goals	.555	343
Is willing to account for what has been entrusted to him/her	.563	
Performs tasks that are not in his/her job description to the benefit of the organization	.392	446
Acts in the interest of the organization rather than his/her personal interest	.614	309
Perseveres until the task is accomplished	.642	399
Does not indulge in sexual harassment	.566	
Question 2 responses reversed	.307	.407
Question 3 responses reversed	.439	.481
Question 5 responses reversed	.503	.415
Question 7 responses reversed	.376	.544
Question 10 responses reversed	.468	.384
Question 16 responses reversed	.306	.340
Question 18 responses reversed		
Question 20 responses reversed		

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Appendix 5: Structure Matrix

	Component	
	1	2
Always tells the truth	.386	.390
Does not give bribe	.348	.416
Is not influenced by gifts to violate organisational principles and procedures	.435	.475
Judgement is not influenced by tribal, religious or other affiliations	.444	.530
Does not influence the judgment of superiors/peers/subordinates with money for	.398	.537
favours (e.g. for promotion)		
Does not influence the judgement of superiors/peers/subordinates using personal	.334	.513
relationships		
Will report to authority when paid what is not due him/her	.401	.352
Insists that superiors/peers/subordinates follow organizational policies and	.549	.429
procedures		
Always follows organizational policies and procedures even if they are	.467	
inconsistent with the person's personal interest		
Is committed to achieving organizational goals	.567	.311
Abides by the organization's code of conduct	.647	.389
Completes tasks as required	.710	
Treats all staff fairly	.598	.321
Does not pretend to possess the knowledge, skills and abilities required for the job	.417 .649	
Applies his/her knowledge, skills and abilities to achieve organizational goals Is willing to account for what has been entrusted to him/her		
Is willing to account for what has been entrusted to him/her Performs tasks that are not in his/her ich description to the benefit of the		
Performs tasks that are not in his/her job description to the benefit of the		
organization	.687	
Acts in the interest of the organization rather than his/her personal interest		
Perseveres until the task is accomplished		
Does not indulge in sexual harassment		.388
Question 2 responses reversed		.503
Question 3 responses reversed		.651
Question 5 responses reversed		.650
Question 7 responses reversed		.649
Question 10 responses reversed		.603
Question 16 responses reversed		.457
Question 18 responses reversed	379	
Question 20 responses reversed		.357

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.