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By Musenze Ibrahim Abaasi
Makerere University Business School

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Keywords: job satisfaction, psychometric evaluation, teachers.

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Psychometric Evaluation of Job Satisfaction Scale in Uganda's Teacher Population Sample

Musenze Ibrahim Abaasi

Abstract- Despite several studies in the field of job satisfaction, troublesome areas are still evident. There is still controversy as to whether specific sample may be assessed using instruments which were largely developed based on a dissimilar type of sample other than the one under study. With focus on the problematic area, we derived the purpose for our study. The purpose of the present study is to examine Job Satisfaction Survey's (JSS) relevance for estimation of job satisfaction in teacher population in Uganda. Confirmatory Factor Analysis, using structural equation modelling technique was used to assess the model fit in 208 primary school teachers in Uganda. Results of the Confirmatory Factor Analysis of the teachers' sample did not support the existence of the original 9 facet model by (Spector, 1985), suggesting that some of the JSS's sub scales do not reflect teachers' job satisfaction within the context of Uganda. The best model in the present study was determined to be a four factor solution model, including promotion, supervision, fringe benefits and nature of work. In view of study's originality/value; the current wave of changes in the education sector in Uganda demand validated scales that can address job context specific requirements to follow-up variations in the satisfaction levels of primary school teachers, an area least addressed in literature in Uganda, which this study has fulfilled.

Keywords: job satisfaction, psychometric evaluation, teachers.

I. Introduction

The Job satisfaction Instrument (JSI) (Spector, 1985) is one of the most widely used instruments used to measure Job satisfaction. It a 36 multi-dimensional instrument developed by Spector in 1985 to measure job satisfaction. This kind of measurement considers job satisfaction from human service employee. Overall, the Job satisfaction survey or instrument present evidence for scale reliability and construct validity. The scale reveals a nine (9) factor solution of: Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards, Operating Procedures, Coworkers, Nature of Work, and Communication. It allows adequate assessment of level of job satisfaction among workers in organizations.

The psychometric properties for the Job satisfaction Instrument (JSI) are strong and have been well-established (Mahamoud, 2012; Astrauskaité, Vaitkevičius & Perminas, 2011). In addition, the Job satisfaction scale has strong test-retest reliability, long term reliability, and validity (Spector, 1985; 1997). The JSS uses 36 items with a 6-point scale (—strongly agree to —strongly disagree) to assess nine facets (Pay, Promotion, Supervision, Fringe Benefits, Contingent Rewards, Operating Procedures, Coworkers, Nature of Work, and Communication). Internal consistency reliabilities reported by Spector (1985) for the facets range from .60 (Coworkers) to .82 (Supervision), with a value of .91 for the total score and 18-month test-retest Coefficients, in range of .37 to .71. A multi trait-multi method matrix analysis using JSS and Job Descriptive Index facet scales supported their construct validity (Spector, 1985). Poor job satisfaction has been significantly associated with a host of negative organizational outcomes, including reduced productivity (Appelbaum & Kamal, 2000); delivery of inferior quality work (Tietjen & Myers, 1998); low firm's competitiveness and profitability (Garrido, Perez, &Anton, 2005; Aronson, Laurenceau, Sieveking, & Bellet, 2005).

The bulk of studies on the measurement properties of the modified self- Job Satisfaction Scale (JSS) were conducted in the USA, Europe and Asia (for a review, see Mahmoud ,2012; Byrne, 2010; Al-Khalil & Mahmoud, 2012); thus it was considered important that local validation of the measure precedes its use in a Ugandan setting. The study therefore seeks to establish whether the modified version of the Job satisfaction Scale (JSS) can offer a reliable and valid measure of Job satisfaction on a Ugandan sample. By extension, the primary objective of this study was to test the reliability and construct and/or factorial validity/the factor structure of the Job satisfaction Scale(JSS) on a Ugandan sample of primary school teachers. To the researchers' knowledge, the Job satisfaction Scale (JSS) has been used locally in a few published studies (Musenze, Mayende & Mohamadi, 2014), but the psychometric properties were not reported.

Further, as earlier pointed out; the Job Satisfaction Scale (JSS) was originally developed by Spector in1985 and has since been used or applied to all organizations. Despite the popularity of the measure, there continues to be disagreement as to whether Spector's original nine-factor model of pay, promotion, supervision, fringe benefits, contigent rewards (performance based rewards), operating procedures, co-workers, nature of work and communication represents the most valid structure. Other authors

Author: PhD, Lecturer, Makerere University Business School, Kampala, Uganda. e-mail: ibramusenze@yahoo.com

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(Astrauskaitė & Vaitkevičius, 2011) have supported a three-factor model of promotion, supervision and nature of work. The difficulty in determining the most psychometrically sound factor structure of the Job Satisfaction Scale (JSS) is further exacerbated by the fact that the Job Satisfaction Scale (JSS) development was based on the samples from community health centers, state psychiatric hospitals, state social service departments, nursing homes (Spector, 1985).

The instrument was used in various studies within different organizational sectors in different cultures (Giri & Kumar, 2010; Watson, Thompson & Meade, 2007). This level of diversity complicates the situation as to the appropriate structure and setting. While the Job Satisfaction Survey is one of the most frequently used job satisfaction instruments (Liu, etal., 2004; Watson et al., 2007; Yelboga, 2009), we hypothesize that some of the Job Satisfaction Survey's facets do not correspond teachers' job satisfaction dimensions adequately. The generated purpose of the present study is to examine Job Satisfaction Survey's relevance for estimation of job satisfaction model of teacher population in primary sector in Uganda.

II. Literature Review

a) Teachers and Job Satisfaction

Teachers were often found to have different operating circumstances and experience higher levels of work related stress in relation to usual and typical organizations' employees (Klassen et al., 2010). Unlike typical traditional organizations' employees, teachers have multiple responsibilities. They are required to educate students, ensure their safety and healthy atmosphere, communicate and jointly work together with parents, specialists and administrators, and knowledge, administer documents, organize school trips and complete a range of other tasks like co- curricular activities provided by the government and school administration (Comber & Nixon, 2009). Quite often, teachers register numerous challenges in dealing and interacting with problematic students of various ages, and social background. Such level of interaction, demand sufficient communication, problem solving, interpersonal and conflict managing skills.

Confronted with such challenges, teachers' work requires emotional and intellectual resources which may result into burnout, depression or other physical and psychological health related issues (Chang, 2009). It is evident that teachers vary from typical traditional employees in a variety of ways. Accordingly, tools that usually measure such job satisfaction dimensions as appreciation, communication, coworkers, fringe benefits, job conditions, nature of work, organization itself, organizations' policies and procedures, pay, personal growth, promotion opportunities, recognition, security, supervision may not constantly match with teachers' job satisfaction facets (Spector, 1997).

Literature is consistently in agreement that supervision, co- workers, work itself, promotion and recognition are more important facets of teachers' satisfaction with work (Sharma & Jyoti, 2009; Tillman & Tillman, 2008). However, there are also some other aspects that significantly contribute to teachers' satisfaction that should not be ignored in respect to understanding teachers' job satisfaction phenomenon. "Relationships with students are largely contributing to teachers job satisfaction" – as pointed out by Ramatulasamma and Bhaskara Rao (2003, p.71). Other scholars emphasize such dimensions of job satisfaction as: students' personality and behavior, classroom control, accessibility to the resources, relations with students, colleagues and supervisors (Sharma and Jyoti, 2009). Despite the arguments of various researchers, teachers' job satisfaction is still evaluated using general instruments developed and based on other specific samples (Blood et al., 2002; Castillo, Conklin & Cano, 1999; Tillman et al., 2008; Wong, 2010).

b) The Present Study

Prior results in the research field of job satisfaction unmasked a number of knotty areas. First of all, the bulk of studies on the measurement properties of the modified self- Job Satisfaction Scale (JSS) were conducted in the USA, Europe and Asia (Mahmoud, 2012; Byrne, 2010; Al-Khalil & Mahmoud, 2012); thus necessitating local validation of the modified Job satisfaction scale on a Ugandan sample. Secondly, specific samples, such as teachers are often assessed using scales that may not constantly replicate properties of a particular sample. Based on this, I do contend or hypothesize that although the general job satisfaction instruments or instruments which were primarily developed for specific industry sector do not always mirror other specific sample's characteristics, there were no studies conducted to explain this issue until now. In this article, I examine the relevance of Paul Spector's Job Satisfaction Survey's (JSS), for estimation of job satisfaction of the Ugandan primary teacher population sample.

Thirdly, the JSS was developed based on the samples from community health centers, state psychiatric hospitals, state social service departments, nursing homes (Spector, 1985). However, soon after, the instrument was used in a series of studies within diverse organizational sectors in different cultures (Giri & Kumar, 2010; Watson, Thompson & Meade, 2007). Job Satisfaction Survey is one of the most regularly used job satisfaction instruments (Giri et al., 2010; Liu, etal., 2004; Watson et al., 2007; Yelboga, 2009). Yet, we hypothesize that some of the Job Satisfaction Survey's facets do not correspond teachers' job satisfaction dimensions adequately. Lastly, despite the popularity of

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the measure, there continues to be disagreement as to whether Spector's original nine-factor model of pay, promotion, supervision, fringe benefits, contingent rewards (performance based rewards), operating procedures, co-workers, nature of work and communication represents the most valid structure since other researchers like (Astrauskaitė & Vaitkevičius, 2011) have supported a three-factor model of promotion, supervision and nature of work.

The generated purpose of the present study is to examine Job Satisfaction Survey's relevance for estimation of job satisfaction of teacher population in Uganda. To examine the data and to create a model that robustly fits our Ugandan teachers' sample, we rely on confirmatory factor analysis (CFA) which is one of the techniques of structural equation modeling. The goals of the present study are a) to assess JSS prime model's adequacy to the primary school teachers' sample and b) to determine JSS's facet model that best fits our primary school teachers' sample. Findings, limitations and recommendations are discussed further in the article.

III. Methods

a) Design, population and sample

This study employs a cross sectional survey design. A total sample of 247 primary school teachers was generated using Yamane's (Yamane, 1967) sample size determination approach from a total population of 650. In order to ensure that each participant had equal chance in the study, 247teachers were selected from a total population of six hundred and fifty (650) primary school teachers, using simple random sampling technique. Two hundred and eight (208) questionnaires were retrieved from the field indicating a response rate of 84%. The unit of analysis was the individual primary school teachers. In terms of gender, the male respondents constituted 66% and the female respondents were 34%. Out of 208 respondents, 130 had grade three certificates; 70 diplomas, 08 had degrees. More than half of the respondents were above 25 years of age.

Confirmatory factor analysis technique (as with almost all other multivariate statistical techniques) requires data without missing values (Tabachnick & Fidell, 2007). Based on this, missing value analysis was done and the missing values were replaced using linear interpolation method, consistent with recommendations by (Dodge, 2006). This method was used because of its capability to preserve the entire data structure (Dodge, 2006), a major limitation with other replacement methods such as series mean. After replacement, the final data set consisted of 208 respondents.

b) Measuring Job Satisfaction

The respondents were requested to complete the Job Satisfaction Survey (JSS) developed by Paul Spector (Spector, 1985). The scale offers adequate reliability, validity and normative data measurements (internal consistency reliability and total norms of JSS are presented in Table 1). Also, JSS is available for researchers free of charge for use provided it is not for commercial purposes (Spector, 1997). The JSS assesses 9 facets including pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, nature of work and communication. Each of the sub scales consists of four items. The overall job satisfaction score is computed by summing all 36 items. Therefore, the Job Satisfaction Scale is a 36 multi-dimensional instrument. Examination of the dimensions' internal consistency revealed that Cronbach alpha coefficient (α) for each dimension of the survey ranged from .45 to .74 (which implies that internal consistency of some JSS scales was probably unsatisfactory in this setting; as at least 0.7 and above is acceptable (Nunnally, 1978). More detailed information on the internal consistency reliability of JSS scales in our study is provided in Table 1. The data were analyzed using statistical package SPSS 20.0 and AMOS 19.0 for CFA.

c) Statistical modelling

To evaluate Spector's JSS Scale, I relied on Structural equation modelling (SEM), specifically Confirmatory factor Analysis (CFA). SEM is an all-inclusive statistical approach used to ascertain whether relations exist among observed and latent variables (Hoyle, 1995; Kline, 2011). Accordingly, to evaluate the psychometric properties of Spector's JSS scale, the present study uses SEM with AMOS. We used the estimation procedure in AMOS 19 (Arbuckle, 2009) to determine Job satisfaction factor solution model in a teacher sample of primary schools in Uganda. The Chi-square test which is an absolute test of model fit demands that the model is rejected if the p-value is < 0.05; Root mean square error of approximation (RMSEA) should be < 0.06 and Tucker-Lewis Index (TLI) values of 0.95 or higher (Hu and Bentler, 1999). Others like Kim (2007) recommend goodness of fit (GFI) > 0.90, adjusted goodness of fit index (AGFI) > 0.85, TLI > 0.95, CFI > 0.90 and RMSEA < 0.08 as satisfactory goodness-of-fit indices. We hence followed these guidelines in evaluating the JSS scale based on Ugandan primary teacher sample.

IV. Results

The data of 208 respondents did adequately satisfy the prerequisite of multivariate normality (multivariate kurtosis = 0.91; critical ratio = 18.0); therefore I proceeded with further analysis using structural equation modeling, mainly to estimate models' precise fit. SEM requires that the assumption of multivariate normality is satisfied (Kline, 2010).

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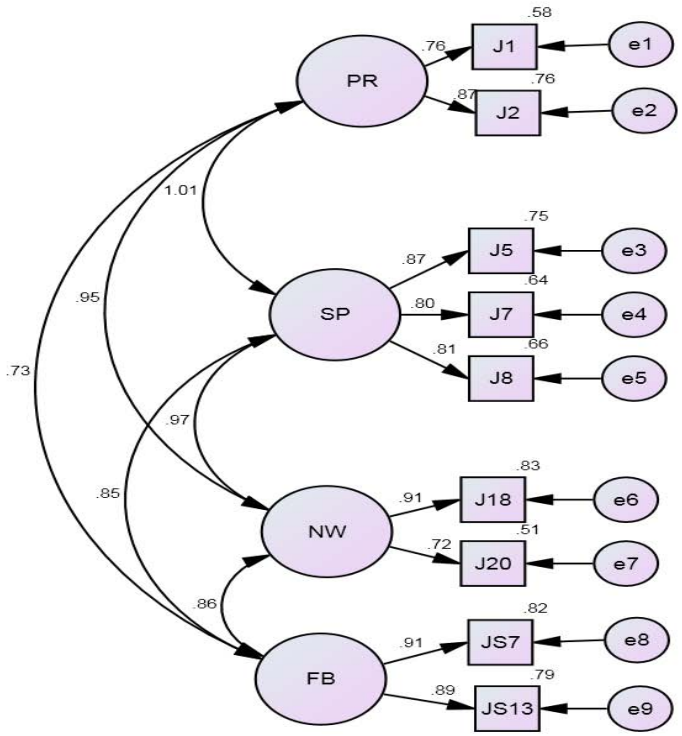
As the purpose of the analysis was to explore the facets' model, the overall index score of job satisfaction (as a factor) was not integrated. The original model comprised of 9 dimensions as first order factors matching to the JSS scales. In order to ensure that every indicator loads only on one factor, I only relied on standard CFA models. This technique assisted eliminate correlations between measurement errors. The results of CFA indicated that the primary nine facet model did not adequately fit the data well ($p>.05$; GFI = .655; AGFI = .586; NFI =. 721; TLI = .698; CFI =.762). Accordingly, through model trimming, CFA was also used to establish the other model which adequately fits the Ugandan Teacher sample best. This process generated a four factor solution model of: promotion, supervision and nature of work and pay. The model with standardized estimates is presented in Figure 1. CFA showed adequate fit of the model to the data ($p = .13$). Goodness of fit indices also confirmed adequateness of the model (Table 3).

From the above analysis, it can be deduced that there is a momentous and significant association between JSS factor solution of observed variables (promotion, supervision, nature of work and fringe benefits) and their underlying latent variables in Ugandan primary school teacher's sample as can be detected from Figure 1 and Table 3. The JSS model put forward in this study showed an NFI of 0.948, which indicates strong convergent validity (Mark and Sockel, 2001). Further, as can be seen in Figure 1 – representing the present study's factor structure – items present satisfactory factor loadings that vary between .37 and .90, and thus indicating the model's convergent validity (Kline, 2011). These observed factor loadings show support of a relationship between Job satisfaction scale and its relevant and respective confirmed facets of promotion, supervision, nature of work and fringe benefits. More evidence is provided by the RMSEA = 0.59 which is further supported by baseline comparison fit indices: the TLI result of 0.90 and CFI = .952. In addition, GFI of 0.91surpasses the suggested minimum of 0.9 which demonstrates acceptable fit of the data. Accordingly, Job Satisfaction four factor structure is confirmed for the sample of primary school teachers in Uganda.

Results in Table 1, indicate that the observed factor loadings of all the items are statistically significant ($p < 0.01$) that is at 1 percent. According to Bollen (1989) and Koufteros (1999), item reliability is assessed through examining multiple regressions (R2) and should be well above 0.5, a prerequisite that this study fulfilled. This showed consistence of items in measuring a construct (Kline, 2010; Lu et al., 2007) and the construct reliability of (0.795; 0.834, 0.801 and 0.825) for promotion; supervision, nature of work and fringe benefits respectively were above 0.7 indicating adequate construct reliability (Kim, 2007; Nunnually, 1978). Discriminant validity is assessed using average variance extracted (AVE) which should be above 0.5 (Fornell and Larcker, 1981). In this study, it is 0.704 which signifies adequate convergent validity.



NFI- .948; TLI- .904; CFI- .952; GFI- .912; AGF -.901; RMSEA-.597; p = .13
Note: PR – promotion; SP – Supervision; NW – Nature of work ; FB – Fringe benefits

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Table 1 : Path coefficients for Job satisfaction in Uganda.

Path	Unstandardized path coefficient	Critical Ratio(CR)	Standardized Path coefficient	R2	AVE	P- value
J1 <--- PR	1.000		.763	.788	.704	
J2 <--- PR	1.330	13.055	.872	.824		.001
J5 <--- SP	1.000		.867	.515		
J7 <--- SP	1.156	14.537	.801	.828		.001
J8 <--- SP	.934	14.938	.814	.663		.001
J18 <--- NW	1.000		.901	.642		
J20 <--- NW	.731	12.458	.717	.751		.001
Js7 <--- FB	1.000		.908	.760		
JS13<---FB	.831	16.820	.888	.583		.001

Table 2 : Job Satisfaction among primary school teachers in Uganda

Job satisfaction dimension	Job satisfaction Items	Analysis code
Promotion (PR)	1.I am satisfied with my chances for promotion.	J1
	2.Employees who do well on the job stand a fair chance of being promoted.	J2
Supervision (SP)	1. I like my supervisor.	J5
	2. My supervisor is not interested in the feelings of subordinates.	J7
	3. My supervisor is quite competent in doing his/her job.	J8
Nature of Work(NW)	1. My job is enjoyable.	J18
	2. I like doing the things I do at work.	J20
Fringe benefits	1. The benefit package we have is equitable.	JS7
	2. There are benefits we do not have which we should have.	JS13

Table 3 : Fit Indices for Confirmed Job satisfaction Model in Uganda

Confirmed Job satisfaction Scale	NFI	TLI	CFI	GFI	AGFI	RMSEA
	.948.	904	.952	912	.901	.597

V. Discussion

The purpose of the present study was to examine Job Satisfaction Survey's (JSS) relevance for estimation of job satisfaction in Uganda teacher population. Results of the standard Confirmatory Factor Analysis of the teachers' sample did not support the existence of 9 facets factor model, suggesting that some of the JSS's sub scales do not reflect primary teachers' job satisfaction within the context of Uganda. In this study, a case has been made for developing a teacher job satisfaction scale that is grounded in specific job context and job content of Ugandan teachers. The resulting indigenous scale based on a large sample of primary school teachers drawn at random from teachers in Uganda represents a departure from the majority of imported and general scales that are frequently used in the domain of organisational psychology. It also represents a rigorously derived tool for measuring job satisfaction in one predominantly teacher (primary) occupational cluster. The 9-item job satisfaction scale has demonstrated an acceptable level of internal consistence (reliability). The scale revealed a four factor structure that consisted of supervision, fringe benefits, promotion and nature of work. The following results suggest that some of the JSS's domains do not adequately measure teachers' job satisfaction sufficiently in the population of Ugandan primary school teachers.

There is a diversity of possible explanations for the unsatisfactory fit of the primary model compared with the original instrument development (JSS). First, according to Mueller & McCloskey (1990), the original JSS Instrument was developed more than 28 years ago based on small samples from community health centers, state psychiatric hospitals, and state social service departments besides nursing homes (Spector,

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1985). The current study data were collected in 2016. With passage of time, work conditions and employment, agreements have changed. For example, nurses' pay and benefits have increased and improved consistent with governments' desire to retain health staff. In Uganda, the government has introduced funds for specifically doctors who accept to work at health centre IVs. Pay for primary school teachers has equally been enhanced consistent with government policy to improve the quality of education and make the sector more appealing. This may explain the relatively inferior reliabilities for the JSS scale when used with primary school teachers.

Another possible explanation for the poor fit relates to conceptual inconsistencies. The apparent lack of consensus on the job satisfaction concept and its dimensions among researchers, practitioners and research participants is still evident in literature. As Linda Evans hints, Research in this field is subject to an additional threat to construct validity, arising out of the vagueness of the concept of job satisfaction" (Evans, 1998, p.6). Without a universal consensus on what constitutes job satisfaction and its separate indicators are, misinterpretations may easily occur. Such misunderstandings may lead to unreliable and invalid results, as this case is.

The best model in the present study was determined to be a four factor solution model, including promotion, supervision nature of work and fringe benefits. The four indicators are among the most frequently investigated job satisfaction dimensions (Spector, 1997). Also, in the recent studies promotion, supervision and nature of work were proved to be of high importance in understanding teachers' job satisfaction (Sharma et al., 2009; Tillman et al., 2008; Rosser, 2005). Based on prior studies, we deduce that the four facets in our confirmed model represent significant and essential dimensions of teachers' job satisfaction and may be used in further research among teachers. Further, consistent with extant literature regarding a positive association between job satisfaction and organization commitment, the present scale linked significantly in the positive direction with Mowday et.al. (1982) organization commitment measure. The scale's predictive soundness was robust in the face of a relatively long period of over 13 months. Of the confirmed 7 job satisfaction sub scales, those relating to relationship with supervisors were major in predicting the likely hood of quitting. The contribution of the remaining factors to quitting decision was marginal. Based on this, it appeared that the decision to quit or stay on job is determined by worker's relationship with supervisors, which this study affirms. Further, the current results contribute to the growing body of literature on job satisfaction evaluation by employing the JSS in the Ugandan context. These findings suggest similarities in cultural understandings among Uganda and Lithuanian employees (Astrauskaité, Vaitkevičius & Perminas, 2011). Another contribution of this study relates to the data from a large sample size, which significantly supports the psychometric evaluation of the JSS.

The present study for measuring job satisfaction among primary school teachers in Uganda and the normative data reported herein, can serve a diversity of practical applications. The scale can for instance be used to assist with the evaluation of quality of teacher's work life and similar other agendas by evaluating changes in the satisfaction levels of various job areas prior and after the implementation program or plan. In the specific domain of teacher management, it is fascinating to note that pay, contingence rewards, coworkers and operating procedures was the area of least job satisfaction. Along with the current teachers' scheme of service and teacher sector restructuring, government of Uganda has introduced measures to improve on motivational levels of teachers. Some of these measures include the policy shift for headship of both primary and secondary schools aimed at collapsing the current school grading system; that is grade I, II, III and IV so that payment is not contingent on the grade of the school under his/her leadership but rather on academic qualification along with accompanying instrument. Communication within the sector has also been streamlined and operational procedures such as strict observance of teaching time tables given due consideration. Most teachers in public schools are now managed by general administrators who are unlikely to be teachers themselves. The effect of the new management environment on teachers' job satisfaction can be gauged on national level against the present normative data.

This study is not without limitations; first, the current finding is the limited selection of work contexts included in the study. The study was limited to primary education sector. Consistent with Strong et al.'s (1999) work context catalog or taxonomy, job contexts in some organizations may vary thereby defeating the goal of enhancing the generalizability and practical utility. Future research, regarding job satisfaction across work contexts should consider a diversity of work contexts that vary from one another to differing extents. Secondly, the study results are derived through confirmatory factor analysis (CFA). Recent study by Hopwood and Donnellan (2010) focusing on personality inventories' internal structure assessment using CFA technique, demonstrated that CFA may not always be a suitable method for personality inventories' model estimation. From their study, it is evident that not any of the sound or well-known personality attribute inventories demonstrated adequate model fit. While JSS is not a personality trait inventory, it is based on subjective employees' feelings towards their job. Consequently,

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using only CFA is not satisfactory for the final conclusions regarding the test. Based on this argument, while Hopwood and Donnellan do not assert that CFA is generally unsuitable method; they suggest that researchers should employ multiple factor analytic methods that is (CFA as well as EFA) that this study was devoid of. This is not however to imply that the emergent JSS model is absolutely inadequate to the teacher sample studied.

VI. Conclusion

In view of the satisfactory fit indices of reliability and validity of the scale, a new version of the Job Satisfaction Scale can be judged as reliable and valid for measuring job satisfaction within the context of primary school teachers in Uganda. The findings of this study suggest the need for scholars to focus and develop specific work context job satisfaction measures since the working environment differ from job to job. The following results suggest that some of the JSS subscales defectively explain teachers' job satisfaction facets.

Besides the desire for strong validity and reliability properties, require that research tools ought to be as concise as possible to lessen respondents' burden and research costs in respect to data collection, data exploration and analyses (Tourangeau&McGilton, 2004). In any survey, including fewer measures of study variables is normally positively related to superior statistical power. If teacher job satisfaction can be effectively measured using 9 items collapsing into four subscales as established in this study rather than nine subscales as developed by Spector 1985, analytical models that rely on these subscales are likely to have more statistical power. In the Ugandan setting and in other fields with similar support for service delivery, it is sensible to consider use this four factor scale for more credible results. However, I do recommend further redesigning, testing and retesting of the JSS instrument in order to minimize probable causes of error associated with sampling adequacy of items. This has the potential to increase instruments' internal consistence, hence increased efficacy, effectiveness and trustworthiness of the JSS as a legitimate and consistent measure of teacher Job.

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