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Academics' job satisfaction in Tanzania's higher education: The role of perceived work environment

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A B S T R A C T

Employees' job satisfaction is critical for better work performance, reduced turnover intention, enhanced organizational commitment, and decreased job burnout. In the last several decades, numerous studies have assessed the association between employees' work environments and job satisfaction globally. However, little research has addressed academics' job satisfaction in non-European countries, and studies of Tanzania are particularly scarce. Drawing on Lewin's field theory, this study sought to fill this gap by examining the relationship between Tanzanian academics' perceived work environment and their job satisfaction, as measured by the Minnesota Satisfaction Questionnaire (MSQ). The study was quantitatively driven, with a cross-sectional survey design. A convenience sample of 116 academics (men: N = 93; women: N = 23) from two universities in Tanzania responded to a newly self-designed Perceived Work Environment Inventory and the MSQ. Hierarchical multiple regression analysis was performed using SPSS version 25 to detect significant predictors of academics' job satisfaction. The results demonstrated that academic freedom, participative decisions, teamwork, supervision, and resources statistically significantly predicted academics' job satisfaction over and above their marital status, gender, age, academic rank, and institutional type. This study has both practical and policy implications, and its findings contribute to the broader literature on the management and governance of higher education.

1. Introduction

Ensuring the satisfaction of employees is key to fostering productivity, creativity, and innovation. Therefore, in the last four decades or so, debate on the determinants of job satisfaction has persisted in the fields of organizational and occupational psychology. Some occupational psychology studies (see e.g., Desselle, Andrews, Lui, & Raja, 2018; Salau et al., 2018; Vuong et al., 2019) have revealed that a work environment that is perceived to be desirable by employees positively affects both employees' work motivation and their productivity. In contrast, perceived non-desirable work environments reduce workers' morale and are associated with productivity loss (Strömberg, Aboagye, Hagberg, Bergström, & Lohela-Karlsson, 2017). Unsurprisingly, the definitions of work environment and employee job satisfaction are not immune to debate. Indeed, decades' worth of research has examined what is entailed in a work environment and the role it plays in employee job satisfaction. The extent to which the work environment predicts employee job satisfaction and dissatisfaction has attracted the interest of numerous researchers globally (Hayes, Douglas, & Bonner, 2015; Sutaryo & Purwana, 2017; Zhang, Fu, & Li, 2019).

However, studies of the association between employees' perceived work environment and their job satisfaction have generated inconsistent results, owing to the convolution in assessing work environments across diverse fields. For example, Judge and Hulin (1993) demonstrated that the work environment did not stably predict workers' satisfaction across time, while Hayes et al. (2015) uncovered a statistically significant association between hemodialysis nurses' work environment and their job satisfaction. Supporting the former finding, Sutaryo and Purwana (2017) reported that the work environment of public servants did not significantly predict their job satisfaction. Although job satisfaction has been widely studied across sectors globally, few studies have examined the job satisfaction of academics in higher education (HE) in Tanzania; research on job satisfaction in Tanzania has mainly focused on the health sector (see e.g., Blaauw et al., 2013; Mbaruku, Larson, Kimweri, & Kruk, 2014; Naburi, 2017).

The few existing studies of employee job satisfaction in Tanzania have produced varied results. For example, Masath (2015) examined the level of job satisfaction among secondary school teachers in Tanzania, their intention to leave the profession, and the impact of their age. According to the results, teachers aged 25–40 years indicated a lower level of satisfaction with a higher intention to leave the profession than teachers aged 40–60+ years. However, Mbaruku et al. (2014) examined workplace satisfaction among primary health practitioners in rural Tanzania, and the results showed that 73.9% of the participants were satisfied with

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their jobs. Blaauw et al. (2013) compared the job satisfaction and intention to leave among 2220 health workers from three African countries: Tanzania, South Africa, and Malawi. The results revealed significant differences in both job satisfaction and intention to leave among the three study countries. While the South African sample revealed that 52.1% were satisfied with their jobs, 71% and 82.6% of the respondents from Malawi and Tanzania were satisfied with their jobs, respectively. Besides, the findings revealed that the level of job satisfaction predicted the intention to leave. A study by Naburi (2017) also examined, among other issues, the job satisfaction among 213 providers of prevention of mother-to-child transmission of HIV programs in Tanzania. The results showed that more than half of the health care providers were not satisfied with their jobs and that one third had a strong intention to leave their jobs. None of these studies were conducted in HE, or among academics. Besides, although most of these studies from Tanzania were from the health sector, they yielded inconsistent results, providing an opportunity to examine job satisfaction among academics in Tanzanian HE through the lens of their perceived work environments. Following this introductory section, the rest of the paper is organized as follows: Section 2 surveys the related literature on the study variables. While Section 2.4 describes the theory underpinning the present study, Section expounds on the methodological aspects. Next, Section 4 presents the results, and Section 5 presents the discussion and conclusion. Finally, Section 6 describes the limitations, significance, and implications of the study.

2. Literature review

2.1. Higher education system in Tanzania

The HE system in Tanzania is constituted of universities, university colleges, university campuses, and university centers. Following the neoliberal reforms in the mid-1980s, HE provision has been offered under public–private partnership (PPP) (Mgaiwa & Poncian, 2016). This arrangement has facilitated certain achievements in terms of HE access, but this does not mean that the quality of education has improved. Under the Universities Act 2005, universities can establish and offer degree programs that last for a specified time according to the guidelines of the Tanzania Commission for Universities (TCU). As in many other countries, HE in Tanzania is deemed the end of formal schooling. To access university education in Tanzania, a prospective candidate must either complete advanced secondary education and meet the minimum admission requirements set by the TCU for direct admission, or have equivalent qualifications, such as diploma-level certification in relevant fields, to enter the prospective candidate's category. Although the HE system is administered by the Ministry of Education, Science, and Technology (MoEST), the TCU oversees registration and accreditation to ensure that universities do not become degree mills.

As of 2019, according to the National Bureau of Statistics (NBS, 2019), 43 universities and university colleges made up Tanzania's fast-growing HE sub-sector in the last decade. Of the 43 HE institutions, 16 are state-owned, and 27 are owned by the private sector (NBS, 2019). Albeit grappling with equity and quality challenges, student enrolment in Tanzania HE increased from only 13 students in a single faculty in 1961 (Mkude, Cooksey, & Levey, 2003) to 209,144 students in a diversity of degree programs in the 2017/2018 academic year (NBS, 2019). Although private universities (PRUs) account for 62.8% of total existing HE institutions, student enrolment in PRUs accounts for only 32.9% of total student enrolment, while public universities (PUs), despite representing only 37.2% of all HE institutions, have enrolled 140,293 students, accounting for 67.1% of total student enrolment in the country (NBS, 2019). The enrolment characteristics of the two categories of universities indicate that PRUs play a negligible role in the expansion of HE access, relative to their PU counterparts.

2.2. The academic profession in Tanzania

The academic profession in Tanzania, similar to many other African countries, can be regarded as relatively young, compared with that in regions such as Europe, Australia, America, and Asia. HE institutions in most countries in Africa got their start in the early 1960s. As such, the work environments of academics in PUs and PRUs in Tanzania differ significantly. For example, in PUs, except for those in training posts, all academics with PhD qualifications work under permanent and pensionable terms, while their counterparts in PRUs work mainly under contractual terms. The evidence suggests high turnover in both categories. For example, Ishengoma (2004) found that academics only work briefly in private universities before returning to their desired public universities owing to job insecurity issues. At the same time, there is evidence that brain drain is common among universities, because many academics move from academic to non-academic jobs or emigrate, especially to OECD countries (Philip G Altbach, 2013; Amani & Komba, 2016). All these factors may suggest dissatisfaction with the job characteristics of academia.

Another major ongoing challenge in the academic profession concerns constraints on academic freedom and autonomy. Over the years, elements of government control have been experienced in universities, owing to the state's fear of being criticized by the academic community. Controlled public academic debates have been a common element, as have censorship laws that limit the use of statistics. In one famous case, five local and 16 overseas academics were sacked with prejudice from the University of Dar es Salaam for criticizing government policies (Ngirwa, Euwema, Babyegeya, & Stouten, 2014). As recently as 2018, the government amended the Statistics Act 2015 (URT, 2018) to restrict the use and publication of statistics without government endorsement. This amendment not only inhibited the freedom of individual researchers and institutions, but may also have resulted in the production of poor-quality research, which may, in turn, affect research independence and objectivity in research as well as opportunities for research collaboration with foreign research organizations (Malanga, 2018). Overall, the existing challenges to academic freedom and autonomy may affect academics' work environment and job satisfaction, which may consequently curtail their efficiency.

Furthermore, the academic profession in Tanzania has also been shown to have a high rate of turnover due to brain drain and other work-related issues (Fussy, 2017). Empirical evidence from isolated cases indicates that, for example, at the University of Dar es Salaam and its two constituent colleges, 72 academics left the university within five years without giving a clear reason for their decision (Amani & Komba, 2016). Moreover, a study by Nyahongo (2015) cited by Hokororo and Michael (2019) revealed that between 2009 and 2013, 102 of 840 academics employed at the University of Dodoma left their university appointments through either resignation or termination. Similarly, Mkumbo (2014) established that 44.5% and 34.4% of Tanzanian academics in public and private universities, respectively, were interested in an alternative career. As scholars (e.g., Griffeth, Hom, & Gaertner, 2000) have deemed workers' attitudes and intentions to quit their jobs to be reliable explanations of actual turnover, Mkumbo's findings suggest that academics in Tanzania, to a large extent, are discontented with their academic profession. The challenge of turnover among academics in Tanzania and elsewhere may be partly attributed to a global decline in the attractiveness of academic jobs because of work stress, reduced work autonomy (Pienaar & Bester, 2008), comparatively low pay (Nyahongo, 2015), and increased workload caused by HE massification policies. These issues and those explained in other sections indicate the need to study academics' job satisfaction from the perspective of the perceived academic work environment. Altogether, the existing challenges to academic freedom and autonomy may affect the work environments of academics and, consequently, their job satisfaction, which could curtail their productivity and performance. These arguments and the overall context of the academic profession clearly indicate that this study was critical and,

indeed, timely in examining academics' job satisfaction from the perspective of their perceived work environment.

2.3. Academics' work environment and job satisfaction

The work environment is a commonly studied variable in occupational and organizational psychology and has long been found to be predictive of the productivity of academics in organizational settings (Way, Morgan, Larremore, & Clauset, 2019). These findings build on the study by Kapenda and Pieters (2017), who argued that for effective organizational productivity to occur, a desirable and supportive work environment is indispensable. Equally, some studies in organizational psychology (e.g., Jiang, Lambert, Liu, & Zhang, 2018; Pierce, O'driscoll, & Coghlan, 2004; Wan et al., 2015, pp. 517–526) have demonstrated that certain facets of the work environment, such as a higher level of autonomy, job variety, and participation in decision making, are among the factors explaining workers' job satisfaction. Similarly, Elechi, Lambert, and Otu (2018) examined workers' environment variables that predicted job satisfaction among correctional staff in Nigeria. The results revealed that job autonomy, quality of supervision, and instrumental communication significantly predicted the job satisfaction of correctional staff.

Of particular interest is the work of Glaveli, Karassavidou, and Zafiropoulos (2013), who also examined the relationships among three facets of a supportive work environment, work–family conflict, and job satisfaction in Greece. Their findings revealed that the three facets of a supportive work environment could predict job satisfaction. Wargo-Sugleris, Robbins, Lane, and Phillips (2018) examined the relationship between nurses' work environment and their job satisfaction, among other variables, in the United States. The results showed that the work environment explained 55% of the variance in job satisfaction. Moreover, in an assessment of the applicability of the Job Demands–Resources model among academics in mainland China, Han, Yin, Wang, and Zhang (2020) revealed that academics' job satisfaction increased as a result of job resources (i.e., teaching resources, social support, and administrative support) mediated by work engagement. The literature has further shown that an undesirable work environment may result in job dissatisfaction. For example, Zhang, Fu, & Li (2019), among other variables, investigated the relationship between academics' perceived work environment and job dissatisfaction in a sample of 547 academics in Hong Kong. The results showed that academics' perceptions of organizational expectations of research, university management and governance as well as working conditions significantly predicted job dissatisfaction.

While many scholars have conceptualized job satisfaction differently over the years, Vroom (1964) defined it as employees' orientation of emotions toward their workplace roles. Job satisfaction is complex, constituting personal and organizational characteristics. As such, scholars have argued for a rigorous assessment of theory-based hypotheses to study job satisfaction in relation to the perceived work environment. To elicit reliable results, controlling for other attributes related to individual and institutional characteristics is advisable. Although there has been little consensus on the clear conceptualization of job satisfaction among researchers and how such job satisfaction can be assessed, a considerable amount of evidence has shown that academics' job satisfaction is linked to their work environments (see e.g., Brown, Charlwood, & Spencer, 2012; Wan et al., 2015, pp. 517–526).

The existing research has indicated that job satisfaction, as an outcome variable, is influenced by numerous variables involving the job's characteristics and context as well as demographic factors. However, numerous studies (see e.g., Garland, McCarty, & Zhao, 2009; Griffin, 2001; Misis, Kim, Cheeseman, Hogan, & Lambert, 2013) have shown that facets of work environment variables together tend to have a more statistically significant relationship with job satisfaction than demographic variables do. A wealth of literature has further indicated that organizations and their sub-units may have different work environments (Tumulty, Jernigan, & Kohut, 1994), suggesting the need for comprehensive measurement of the work environment that captures all conditions of all units in an organization.

While earlier studies on the work environment and job satisfaction have been conducted in research areas other than academic settings (see e.g., Albert, Davia, & Legazpe, 2016; Hoendervanger, Ernst, Albers, Mobach, & Van Yperen, 2018; Wright & Davis, 2002), their findings have generally indicated that employees' job satisfaction relates to their perceived work environment. However, as these studies did not focus on academics, it could be argued that similar variables could also affect job satisfaction among academics. Although studies on the relationship between the perceived work environment and job satisfaction are considerably informative, most of them have been conducted in research areas other than the HE academic setting. Little research has focused on perceived work environments, either in Africa in general, or in Tanzania in particular. Additionally, the above studies mainly examined the health sectors of developed countries. Little research has been conducted in HE academic settings, or, more specifically, among academics in Tanzanian universities. Therefore, this study's examination of the relationship between academics' perceived work environment and their job satisfaction is not only critical but timely. To fill this research gap, two research questions were proposed. RQ1. Are the Minnesota Satisfaction Questionnaire (MSQ) and newly self-designed Perceived Work Environment Inventory (PWEI) valid and reliable for academics in Tanzania? RQ2. Does academics' perceived work environment statistically predict their job satisfaction?

2.4. Lewin's field theory

This study subscribes to Lewin's field theory, first developed by the German-American Gestalt psychologist Kurt Lewin (1936). The theory is denoted by the following mathematical formula:

$$B = f(p, e)$$

where.

"B" represents an individual's behavior, "*p*" represents the individual (person), and
"*e*" represents the environments with which an individual interacts.

The underlying assumption of Lewin's field theory is that the environment surrounding individuals and their actions affects individual behaviors. Lewin used the concept of life space or psychological field to clarify his theory, arguing that a person's behavior at any point in time is attributable to elements cohabiting in that person's current *life space* or *psychological field*—i.e., the recipe of all factors influencing the person's behavior. Lewin defined field theory as a "technique or method of analyzing causal relationships and of building scientific variables'' (Lewin, 1997, p. 201).

Conceptually, in this research, academics' perceived job satisfaction is a manifestation of their physical, social, and psychological work environments. Therefore, considering the variables addressed in this study, Lewin's field theory was selected as a framework for evaluating the effect of the perceived work environment on job satisfaction among academics.

2.5. The present study and hypotheses

The objectives for the present study were twofold—firstly to examine the validity and reliability of the newly self-designed PWEI for assessing academics' work environments in HE settings and the MSQ for assessing job satisfaction. Secondly to examine the predictive power of academics' perceived work environments concerning their job satisfaction while considering the demographic factors that might affect such job satisfaction. To achieve these objectives, the following assumptions (hypotheses) were made.

Hypothesis 1. There is a statistically significant positive relationship

between a perceived congenial work environment and academics' job satisfaction.

Specifically, after controlling for demographic factors, perceived desirable work environment was expected to have a positive relationship with academics' job satisfaction, while work environments perceived to be undesirable were expected to negatively predict the two dimensions of academics' job satisfaction. Broadly, these research hypotheses were rooted in Lewin's field theory that employees' characteristics and their behaviors at work are a function of themselves and the environment in which they work. Another argument is that the work environments perceived to be undesirable were expected to negatively predict the two dimensions of academics' job satisfaction. Broadly, these influences employees' feelings and characteristics (Wright & Davis, 2002).

3. Methods

To ensure that this research was conducted within the realm of ethical principles governing research activities, an information sheet was used to secure informed consent from all respondents involved.

3.1. Participants

The present quantitative study involved a convenience sample of 116 academics (i.e., 93 males and 23 females) from two Tanzanian universities. This sample was drawn from a population of 317 academics, accounting for 37% of academics in the two studied universities. Convenience sampling was used because it is the easiest, least time-intensive, and least expensive sampling technique to implement (Bornstein, Jager, & Putnick, 2013; Jager, Putnick, & Bornstein, 2017). Arguing for sample size adequacy for exploratory factor analysis, Pearson and Mundform (2010) recommended a ratio of at least five participants per question item. Therefore, given the number of questions in the present study, the sample size was relatively adequate. The two participating universities were Ruaha Catholic University and the Mkwawa University College of Education (a constituent college of the University of Dar es Salaam), two relatively recently established private and public universities in Tanzania, respectively. Generally, the participating institutions well represented the types of universities that exist in Tanzania. The academics from these two universities were suitable for this study because they met the inclusion criterion of having served in their respective universities for at least one year. As such, they were in a good position to assess their work environment as they perceived it and the extent to which they were satisfied with their academic jobs. The participants' ages ranged from 21 to 60 years. Of the 116 participants, 50 (43.1%) worked in mathematics and natural sciences, and 66 (56.9%) worked in humanities and social sciences. Additionally, the study sample comprised one professor (0.9%), four senior lecturers (3.4%), 28 lecturers (24.1%), 69 assistant lecturers (59.5%), and 14 tutorial assistants (12.1%). This sample was largely a true reflection of the tendency of the academic profiles of academics in Tanzanian universities to be skewed toward lower academic ranks with a limited number of professors.

3.2. Measures

Notwithstanding providing demographic information, all of the academics responded to two self-report inventories in English: 1) a 35-item self-designed PWEI, measuring academics' perceived work environment, and ii) the self-report MSQ, comprising 20 items by Weiss, Dawis, & England (1967), to assess academics' job satisfaction. The participants used a 7-point Likert-type scale to indicate the degree to which each statement fitted them (i.e., from 1 = "absolutely disagree" to 7 = "absolutely agree").

3.2.1. The Perceived Work Environment Inventory (PWEI)

Although several work environment scales have been developed and used to assess work environments in various fields of study, such existing inventories are not comprehensive enough and cannot measure all aspects of academic work environments, owing to their peculiar nature. For example, the Work Environment Scale (WES-10) designed by Moos (1981) and later modified by Røssberg, Eiring, and Friis (2004) has only 10 items and could hardly measure all aspects of work conditions, including those of academics. A newly-designed inventory (the 35-item PWEI) was therefore designed to suit this study and capture such specific dimensions as academic job demands and academic freedom, based on instruments used in fields other than academia, e.g., the WES-10, an instrument widely used over time in health sciences research contexts (Baker, Carlisle, Riley, Tapper, & Dewey, 1992; Røssberg et al., 2004). The PWEI has seven dimensions (i.e., teamwork, working hours and resources, job demands, academic freedom, supervision, and participation in decision making), assessed using a 7-point scale (i.e., 1 = "absolutely disagree," 2 = "strongly disagree," 3 = "mildly disagree," 4 = "neutral," 5 = "mildly agree," 6 = "strongly agree," 7 = "absolutely agree"). Sample items in the PWEI include "The number of working hours per week is fairly reasonable" (job demands) and "I have plenty of freedom to decide how to do my work" (academic freedom). These dimensions are essential in academic work environments, as they form an important part of research, innovation, and knowledge generation, which are core functions of academics.

3.2.2. The Minnesota Satisfaction Questionnaire (MSQ-short)

The MSQ-short, originally designed by Weiss, Dawis, & England (1967), is a widely used inventory for measuring workers' perceived job satisfaction. Scholars have used the MSQ in thousands of doctoral theses, Master's dissertations, and research projects to produce successful results related to employees' job satisfaction (Mansoor, Fida, Nasir, & Ahmad, 2011; Nguni, Sleegers, & Denessen, 2006; Shyji & Santhiyavalli, 2014; Spitzbart, 2013; Unzicker, 2012, pp. 8–2012). Originally, the MSQ-short was a product of the Work Adjustment Project carried out at the University of Minnesota. The philosophy behind this inventory assumes that work suitability is contingent upon the correspondence between an individual's abilities and existing support in the work environment (Weiss, Dawis, & England, 1967).

However, a major difficulty in assessing employees' job satisfaction is related to the fact that employees may be contented with certain dimensions of work and discontented with others (Spagnoli, Caetano, & Santos, 2012). This has presented some challenges for many existing inventories of job satisfaction assessment, which have adopted two major approaches. The first is a macro perspective, through which respondents are asked to reveal their overall feelings or perceptions about their current jobs (Wanous, Reichers, & Hudy, 1997). The second asks that employees' details and the extent to which they are contented or pleased with different dimensions of a job, with overall job satisfaction being determined by the summation of the employees' satisfaction with several dimensions or facets. The MSQ generally measures three proportions of job satisfaction—intrinsic satisfaction, extrinsic satisfaction, and general satisfaction. One of the items representing extrinsic satisfaction is "The opportunity to do different things from time to time."

While there are other existing inventories for measuring job satisfaction, the MSQ has several advantages. For example, scholars (e.g., Martins & Proença, 2012; Shyji & Santhiyavalli, 2014; Spitzbart, 2013; Unzicker, 2012, pp. 8–2012) have shown, using psychometric indices, that the MSQ is steady over time. Moreover, earlier studies have indicated satisfactory coefficient alpha values, extending from 0.85 to 0.92, and Cronbach's alpha coefficients from 0.85 to 0.91 (Martins & Proença, 2012). Therefore, it was justifiable to use the MSQ in the present study, and specifically in the context of Tanzanian HE, where it has never been used before.

3.3. Procedures

To ensure this study was conducted within the ethical principles governing research activities, I obtained ethical approval from the

Human Research Ethics Committee of the University of Hong Kong. Such ethics approval was used to gain access to the research sites (i.e., the two universities) in Tanzania prior to data collection. The data collection exercise was conducted from June 2018 through August 2018. With the approval of the vice-chancellors of the study universities, a total of 190 questionnaires were distributed, along with information sheets serving as informed consent forms for the respondents from the two studied universities. The researcher continued to collect the completed questionnaires for two months. In the end, a total of 123 questionnaires were returned to the researcher, yielding a 64.7% response rate. However, after an initial check, only 116 questionnaires were found to be useable.

3.4. Data analyses

Inventory reliability was examined through estimations of internal consistency, calculated by computing their Cronbach's alphas. As the two inventories were being used with academics in Tanzania for the first time, the factor structures (validity) of the two instruments were examined using exploratory factor analysis (EFA). To examine the influence of the demographic variables on the key variables, analyses of variance (ANOVA) were performed. Correlation analyses were also conducted to examine the relationship between academics' perceived work environment and job satisfaction. More importantly, hierarchical multiple regression analysis was conducted to explore whether or not academics' perceived work environment as an independent variable statistically predicted their job satisfaction. To do this precisely, only marital status among the demographic variables was controlled owing to its significant correlation with the key study variables. Variables such as age, gender, academic rank, work experience, university type, and primary discipline were not controlled in the subsequent analyses because they were revealed to have no significant correlation with the key study variables.

4. Results

4.1. Validity of the newly self-designed PWEI and MSQ

After conducting EFA with principal components and Oblimin rotation, seven components were extracted from the process (i.e., teamwork, working hours and resources, participative decisions, job demands, support services, academic freedom, and sense of organizational ownership). These seven components explained 70.8% of the total variance in the data set. Most of the items loaded on the respective components/factors as theoretically expected. However, one item (item 21) in the participative decision scale loaded on resources (see Table 1). The seven-factor model fit index was Chi-square (df = 378, N = 116) = 1928.09, $p < .001$. This index suggests that the seven-factor model was acceptable (Marsh, Hau, & Wen, 2004).

Note. Variables with factor loadings of less than 0.30 are omitted. TW = Teamwork, RCs = Resources, PD = Participative decisions, JD = Job demands, Sup = Supervision, AFRD = Academic freedom, (OO) = Organization ownership.

The seven extracted factors as indicated in Table 1 accounted for 70.8% of the total variance in the data. Overall, the seven-factor solution indicated was a suitable model for assessing academics' perceived work environment. Similarly, for the MSQ, I also conducted the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and conducted the Bartlett test of sphericity before the exploratory analysis. The results indicated that KMO = 0.82, which is well above the acceptable limit of 0.5 (Field, 2009). The two-factor model fit index was Chi-square (df = 136, N = 116) = 858.23, $p < .001$. These indices suggests that correlations between items were sufficiently large for PCA (Kaiser, 1974). The 20 items were forced into a two-factor solution while eliminating items with factor loadings below 0.30. The results indicated that all of the items except 4, 6, and 20 loaded on the theoretically expected factors (see Table 2).

Note. Variables with factor loadings of less than 0.30 are omitted.

The two-factor model accounted for 48.7% of the total variance in the data. As the original MSQ had two factors, the present two-factor solution confirms that MSQ is suitable for measuring an individual's job satisfaction. The findings of the present study support earlier findings based on a two-factor structure (Martins & Proença, 2012; Weiss, Dawis, & England, 1967).

Table 1
Factor loading for the Perceived work environment inventory (PWEI).

	Factor 1(TW)	Factor 2(WH)	Factor 3(PD)	Factor 4(JD)	Factor 5(Sup)	Factor 6(AF)	Factor 7(OO)
11	.80						
14	.78						
8	.77						
10	.75						
13	.74						
12	.64	.37					
35		.86					
34		.79					
33		.78					
31		.68					
32		.47		.35			
21		.40					
23			-.81				
24			-.66		.32		
22			-.65				
29				.86			
30				.75			
5					.80		
6					.79		
4	.41				.44		
1	.35				.38		
17						-.90	
18						-.82	
16						.50	
15		.32				-.38	
28							.79
27							.76
26							.76

Table 2
Oblimin-rotated two-factor solution for the MSQ.

	Intrinsic Satisfaction	Extrinsic Satisfaction
13	.84	
15	.79	
17	.76	
12	.74	
18	.71	
19	.69	
16	.65	
14	.54	
5	.49	
8	.39	.35
1		.76
9		.75
11		.66
3		.65
2		.53
10		.50
7	.32	.45

4.2. Reliability of the PWEI and MSQ

The coefficients for all scales in the PWEI was .92. The Cronbach's alpha coefficients for individual scales were: 0.88 (Teamwork), 0.85 (resources), 0.80 (Participative decisions), 0.70 (Job demand), 0.79 (Supervision), 0.80 (Academic freedom), and 0.79 (Organizational ownership). Similarly, the Cronbach's alpha coefficients of all scales in the MSQ were 0.88 and 0.87 and 0.77 for intrinsic and extrinsic satisfaction, respectively. This internal scale reliability is judged to be very good, based on benchmarks established by (DeVellis, 1991).

4.3. Correlation of academics' perceived work environment and job satisfaction

The relationship between academics' perceived work environment and their job satisfaction (Table 3) were examined. Except for resources and job demands, which were correlated with extrinsic satisfaction alone, all other dimensions of academics' perceived work environment were positively associated with both intrinsic and extrinsic satisfaction. The strength of this correlation was more pronounced in teamwork, participative decisions, and academic freedom than in other dimensions. Generally, the results indicated that academics who perceived their work environments to be more desirable tended to score higher on most of the intrinsic and extrinsic job satisfaction scales.

4.4. Predicting job satisfaction from academics' perceived work environment

As anticipated, the results of the hierarchical multiple regression indicate a distinct positive contribution of the academics' perceived work environment (PWE) to their job satisfaction. Extrinsic satisfaction was the aspect of job satisfaction most strongly predicted by the academics' work environment. The extent to which the academics' work environment accounted for their job satisfaction beyond demographics (i.e., age, sex, work experience, marital status, and academic rank) was denoted by R^2 indices (i.e., R^2 in Table 4), ranging from 6% (for intrinsic satisfaction) to 31% (for extrinsic satisfaction). Specifically, academic freedom made a unique contribution to extrinsic satisfaction (31%). Additionally, participative decisions accounted for 25% on the extrinsic satisfaction, teamwork explained 24% in the extrinsic satisfaction, and supervision accounted for 21% in extrinsic satisfaction.

5. Discussion

This study was intended to achieve two main objectives: first, to examine the validity and reliability of a self-designed PWEI for assessing academics' work environment in HE settings and, second, to examine the predictive power of academics' perceived work environment concerning their job satisfaction in HE institutions. After conducting the EFA, the findings revealed seven factors or components of the academics' perceived work environment model. The internal reliability indices for PWEI were acceptable, with Cronbach's alphas ranging from 0.70 to 0.88.

The present study was also intended to examine whether academics' perceived work environment could predict their job satisfaction beyond the examined demographic characteristics (i.e., age, sex, work experience, marital status, and academic rank). The findings are broadly consistent with the proposed theoretical framework (i.e., Lewin's 1939 field theory), in the sense that academics' job satisfaction was a function of their perceived work environment. In this study, dimensions such as teamwork, supervision, academic freedom, participative decisions, and resources were part of the theoretical framework that defined academics' work environment as an input variable and job satisfaction as the output variable. As expected, the findings largely support the research hypotheses.

Table 3
Zero-order correlation of perceived academics' work environments to academics' job satisfaction (N = 116).

PWE	M	SD	Intrinsic Satisfaction	Extrinsic Satisfaction
Teamwork	5.34	.99	.33**	.52**
Working hours	3.47	1.29	0.1	.41**
Support Services	4.60	1.44	.23*	.43**
Job demand	4.59	1.42	0.1	.29**
Academic Freedom	4.61	1.19	.40**	.57**
Supervision	5.10	1.12	.34**	.47**
Participative Decision	4.30	1.13	.25**	.52**

Notes: *$p < .05$; **$p < .01$.

Table 4
Predicting job satisfaction from perceived work environment (N = 116).

Change in JS		Intrinsic satisfaction	Extrinsic satisfaction
R2		.17	.45
Total			
R2		-.01	-.02
Demo			
R2		.08	.21
Sup			
R2		.04	.25
Pd			
R2		.08	.24
Tw			
R2			.06
Jb			
R2			.16
Wh			
R2		.14	.31
Af			
F		2.633**	8.418***
Df		12,102	7102
PWEI	βtw	.32***	.51***
	βpd	.24*	.51***
	βAf	.39***	.57***
	βjd		.30**
	βRcs		.42***
	βsup	.33**	.49***

Notes: *$p < .05$; **$p < .01$.; ***$p < .001$, TW = Teamwork, RCs = Resources, PD = Participative decisions, JD = Job demands, Sup = Supervision, AFRD = Academic freedom.

Specifically, the results show that academic freedom provides a favorable environment for fostering both the intrinsic and the extrinsic job satisfaction of academics. The most salient reason for this result is the fact that when academics are free to fulfil their academic engagements (i.e., teaching, research, and public service) without fear of external control and intimidation, they are most likely to achieve either internal and external fulfilment or contentment in their current jobs. This finding echoes Altbach (2001, pp. 205–219) earlier argument that academic freedom is at the core of the university's survival and that HE cannot function without it. More importantly, it suggests the need for university senior management to seek, guarantee, uphold, and protect academic freedom in HE institutions. Academic freedom may also be perceived to present a desirable and satisfying environment for academics because it safeguards not only individual academics' teaching rights but also their research activities, in addition to promoting scientific inventions and innovations without questioning from authorities (Karran, Beiter, & Appiagyei-Atua, 2017). With satisfied employees, it is easier for the organization to achieve its pre-determined goals. Therefore, one of the best ways for university senior management officials to achieve such job satisfaction for academics is to provide an environment that fosters academic freedom.

The findings further showed that teamwork among academics positively predicted both their intrinsic and extrinsic satisfaction. As indicated in Table 4, teamwork accounted for 8% of intrinsic satisfaction and 24% of extrinsic satisfaction. Interestingly, these findings are positioned within the broader body of existing literature. Notably, recent studies (see e.g., Alegre, Mas-Machuca, & Berbegal-Mirabent, 2016; Hanaysha & Tahir, 2016) have all found that teamwork statistically predicted job satisfaction. Similarly, a study by Körner, Wirtz, Bengel, and Göritz (2015) revealed that interprofessional teamwork mediated the relationship between organizational culture and job satisfaction. Overall, these findings further suggest the need to create effective teams among academics in HE for the effective fulfilment of the core activities of academics (i.e., teaching, research, and community service). Arguably, the need for teamwork as part of a desirable work environment stems from

the fact that teaching and research are duties that require collaboration and interdependency among academics to produce effective research leading to new knowledge and innovations.

Drawing another example from these findings, supervision received from immediate supervisors (i.e., deans, heads of departments and units) positively predicted academics' job satisfaction. The role of quality supervision in job satisfaction supports the trajectory of previous studies in the work environment and job satisfaction literature (see e.g., Jiang et al., 2018; Pfeiffer, Brusilovskiy, Davidson, & Persch, 2018; Wan et al., 2015, pp. 517–526). The most plausible explanation of these findings is that the methods of supervising academics, in terms of directives from their immediate supervisors or middle university managers, and the degree to which they are involved in decision making at different levels are important factors of extrinsic job satisfaction among academics. Notably, in this particular study, the environment in which academics are supervised by their immediate leaders (e.g., heads of departments and deans) accounted for 8% for intrinsic satisfaction and up to 21% of extrinsic satisfaction. Based on Luwin's field theory, quality of supervision is not only an important part of employees' work environments but also an indispensable condition for their job satisfaction. This also suggests the need for both senior university and middle university management to ensure that supervision of their subordinates is carried out in such a way it does not negatively affect their job satisfaction.

Similarly, the involvement of academics in decision making at different levels was equally important. Arguably, their involvement in decision making makes academics feel a sense of ownership over decisions reached, in addition to organizational ownership. The effect of involvement in decision making also echoes previous studies (see e.g., Jiang et al., 2018; Pierce et al., 2004). Contemporary management practices insist on employees' involvement in decision making, as it improves their performance (Kuye & Sulaimon, 2011; Pereira & Osburn, 2007), reduces job-related strain (Jackson, 1983; Slate & Vogel, 1997), and increases job satisfaction (Muindi, 2011; Scott-Ladd, Travaglione, & Marshall, 2006). Based on Luwin's field theory, these findings suggest that employees' perceived satisfaction is a function of their participation in decision making that broadly presents the work environment.

Resources and job demands had an insignificant positive relationship with intrinsic satisfaction. These findings are also explicable. Given the current massification policies in Tanzania HE and probably many other developing countries, there has been a student surge that can be translated into increased working hours and reduced resources and job demands. These two factors reduced academics' intrinsic satisfaction and extrinsic satisfaction. These findings may echo existing evidence of a heavy workload among academics in Tanzania. For example, as recently as 2019, academics in some public universities in Tanzania had twice the teaching workload of that outlined by the Tanzania Commission for Universities (TCU). Instead of teaching 10 hours a week, an assistant professor taught up to 20 hours a week, not to mention their potential administrative responsibilities. These findings further suggest that there is a dire need for university management to ensure that the work environment, in terms of job demands, can be reasonably managed by academics.

These findings construct the fundamental logic of employees' job satisfaction within the data set used but also make sense in the broader and more diverse context of HE literature related to academics' job satisfaction and the environments in which they work. The newly self-designed PWEI and, especially, its subscales of academic freedom, involvement in decision making, teamwork, and supervision make a unique positive contribution to the literature on academics' job satisfaction.

Unlike several previous studies (e.g., Menon & Athanasoula-Reppa, 2011; Van Maele & Van Houtte, 2012), which determined that most demographics make a statistically significant contribution to job satisfaction, the present study yielded the unexpected result that age, sex, work experience, academic rank, and marital status had non-contributory significant predictive power for both types of job satisfaction. For instance, studies by Bishay (1996) as well as Menon and Athanasoula-Reppa (2011) both established that age made a significant contribution to job satisfaction. As for work experience, studies by Van Maele and Van Houtte (2012) and by Menon and Athanasoula-Reppa (2011) all found that employees with longer work experience tended to be more satisfied with their jobs than those with shorter work experience. Such discrepancies between the present results and those of previous studies may be due to various reasons. One relates to the context in which previous studies were conducted. For example, most previous studies were conducted in a non-African context, in which demographics might have less influence on job satisfaction than in other contexts. As such, the sample used in the present study could explain why demographics did not have significant predictive power concerning job satisfaction, as expected. As these possible arguments are not yet supported by any empirical research on the work environments of Tanzanian academics, this remains merely post-hoc speculation that calls for further research, not only in Tanzania but in other countries with similar academic work environments.

6. Limitations, contributions, and implications

6.1. Limitations and directions for future research

Three shortcomings were evident in this study. First, the analysis of the findings were limited to data from the self-reported questionnaire. Self-reported data are not constantly dependable in the same way as data acquired across behavioral measures because the self-reported data can be exaggerated by socially desired responses. Second, the sample for this study was not fairly reasonable, nor was it obtained through random sampling procedures, owing to practical research constraints; therefore, future research should focus on a larger sample size. Third, the data used in the present study were collected only through a single survey. Therefore, the shortcomings of the present research provide an opportunity for future research to endeavor to amass data longitudinally to assess the stability of employee satisfaction over time. Lastly, while the perceived work environment was used as the predictor variable and academics' job satisfaction as the predicted or criterion construct, the statistically significant results obtained merely indicate correlational associations, rather than causative associations.

6.2. Contributions

Notwithstanding its shortcomings, the current study makes two main research contributions. First, it offers a new understanding that the self-designed PWEI factor structure is best explained by a seven-factor solution—teamwork, working hours and resources, job demands, academic freedom, supervision, and participative decisions. More importantly, the seven-dimensional PWEI model proposed in the current research is suitable for assessing the perceived work environment among Tanzanian academics. Although the PWEI will need to be confirmed in academic work contexts in countries other than Tanzania, the current findings generally suggest that the PWEI is suitable for examining academics' perceived work environment in HE institutions.

Second, the current study was intended to examine the relationship between academics' perceived work environment and their job satisfaction. The findings of this study have deepened and expanded our understanding of the nature and importance of some facets of academics' work environments in the realization of job satisfaction among academics. As such, establishing a meaningful link between organizational and occupational psychology with HE research as an outcome of this study is of great importance.

The current findings, especially the understanding of the existing relationship between the two types of academics' job satisfaction (i.e., intrinsic and extrinsic) and the different dimensions of academics' work environments, can help academics in HE to establish their own ways of improving the work environment, such as by creating a collaborative

culture among colleagues, seeking to build academic freedom, and involving academics in decision making organs by engaging university management in decision making.

6.3. Implications for university management

The present study suggests both practical and policy implications for university management. First, from a management point of view, are the practical implications stemming from these findings. Academics exposed to distinctive work environment types have different levels of job satisfaction. For example, academics who perceive academic freedom to be desirable and important to the work environment may be more satisfied with their jobs, and those who perceive involvement in decisions to be important to them are more likely to be satisfied with their jobs. What this study recommends, however, goes far beyond the idea of a desirable work environment for academics. Rather, it proposes distinctive, accommodating, and desirable work environments that will make everyone enjoy and feel fulfilled by their jobs. The findings from the present study may further aid university senior management officials in creating desirable work environments that are preferred and valued by academics for their job satisfaction. While the findings of the present research may be promising, its shortcomings and inconsistent findings opposing previous studies warrant more research on the work environment and employees' job satisfaction.

Second are the policy implications stemming from the present study. Specifically, the present findings imply that there is a need for university management to implement institutional policies that foster desirable work environments in which job satisfaction will be realized. Such policies should foster work environments that are dedicated to cultivating a culture of academic freedom and autonomy, teamwork, supervisory support, and participative decisions. When such policies are put in place, they produce work environments that foster academics' job satisfaction. Overall, the present findings imply that to foster satisfied employees (i.e., academics), senior university leaders should create desirable work environments that build teamwork, provide freedom for academic endeavors, and involve academics in different levels of decision making. Such work environments enable academics to feel more satisfied in their jobs and, as a result, they become more productive and remain committed to the organization.

CRediT authorship contribution statement

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Declaration of competing interest

The author(s) declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Albert, C., Davia, M. A., & Legazpe, N. (2016). Job satisfaction amongst academics: The role of research productivity. *Studies in Higher Education, 43*(8), 1362–1377. https://doi.org/10.1080/03075079.2016.1255937

Alegre, I., Mas-Machuca, M., & Berbegal-Mirabent, J. (2016). Antecedents of employee job satisfaction: Do they matter? *Journal of Business Research, 69*(4), 1390–1395.

Altbach, P. G. (2001). International realities and challenges, *Vol. 41. Higher education*. Academic freedom.

Altbach, P. G. (2013). Advancing the national and global knowledge economy: The role of research universities in developing countries. *Studies in Higher Education, 38*(3), 316–330.

Amani, J., & Komba, A. (2016). Relationship between job satisfaction and turnover intention among lecturers in Tanzanian public universities. *Annals of Modern Education, 8*(1), 1–15.

Mgaiwa, S. J., & Poncian, J. (2016). Public–private partnership in higher education provision in Tanzania: implications for access to and quality of education. *Bandung. Journal of the Global South, 3*(1), 1–21.

Baker, G. A., Carlisle, C., Riley, M., Tapper, J., & Dewey, M. (1992). The work environment scale: A comparison of British and north American nurses. *Journal of Advanced Nursing, 17*(6), 692–698.

Bishay, A. (1996). Teacher motivation and job satisfaction: A study employing the experience sampling method. *Journal of undergraduate Sciences, 3*(3), 147–155.

Blaauw, D., Ditlopo, P., Maseko, F., Chirwa, M., Mwisongo, A., Bidwell, P., et al. (2013). Comparing the job satisfaction and intention to leave of different categories of health workers in Tanzania, Malawi, and South Africa. *Global Health Action, 6*(1), 19287.

Bornstein, M. H., Jager, J., & Putnick, D. L. (2013). Sampling in developmental science: Situations, shortcomings, solutions, and standards. *Developmental Review, 33*(4), 357–370.

Brown, A., Charlwood, A., & Spencer, D. A. (2012). Not all that it might seem: Why job satisfaction is worth studying despite it being a poor summary measure of job quality. *Work, Employment and Society, 26*(6), 1007–1018.

Desselle, S. P., Andrews, B., Lui, J., & Raja, G. L. (2018). The scholarly productivity and work environments of academic pharmacists. *Research in Social and Administrative Pharmacy, 14*(8), 727–735.

DeVellis, R. (1991). *Scale development: Applications and theory*. Newbury Park, CA: Sage Publications.

Elechi, O. O., Lambert, E. G., & Otu, S. (2018). Exploring the effects of work environment variables on the job satisfaction of Nigerian correctional staff. *Criminal Justice Studies, 31*(2), 160–177.

Field, A. (2009). *Discovering statistics using SPSS:(and sex and drugs and rock'n'roll)*. Sage publications.

Fussy, D. S. (2017). The development of a research culture in Tanzania's higher education system, PhD thesis,. *The University of Glasgow, Scotland*.

Glaveli, N., Karassavidou, E., & Zafiropoulos, K. (2013). Relationships among three facets of family-supportive work environments, work–family conflict and job satisfaction: A research in Greece. *International Journal of Human Resource Management, 24*(20), 3757–3771.

Griffeth, R. W., Hom, P. W., & Gaertner, S. (2000). A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management, 26*(3), 463–488.

Griffin, M. L. (2001). Job satisfaction among detention officers: Assessing the relative contribution of organizational climate variables. *Journal of Criminal Justice, 29*(3), 219–232.

Hanaysha, J., & Tahir, P. R. (2016). Examining the effects of employee empowerment, teamwork, and employee training on job satisfaction. *Procedia-Social and Behavioral Sciences, 219*, 272–282.

Han, J., Yin, H., Wang, J., & Zhang, J. (2020). Job demands and resources as antecedents of university teachers' exhaustion, engagement and job satisfaction. *Educational Psychology, 40*(3), 318–335.

Hayes, B., Douglas, C., & Bonner, A. (2015). Work environment, job satisfaction, stress and burnout among haemodialysis nurses. *Journal of Nursing Management, 23*(5), 588–598.

Hoendervanger, J. G., Ernst, A. F., Albers, C. J., Mobach, M. P., Yperen, Van, & W, N. (2018). Individual differences in satisfaction with activity-based work environments. *PloS One, 13*(3). e0193878.

Hokororo, S. J., & Michael, F. (2019). Predicting academic staff intention to stay in Tanzanian universities using job embeddedness model: Smart PLS approach. *Faculty of Business Management The Open University of Tanzania, 1*.

Ishengoma, M. J. (2004). Cost-sharing in higher education in Tanzania: Fact or fiction. *Journal of higher education in africa/revue de l'enseignement supérieur en afrique*, 101–133.

Jackson, S. E. (1983). Participation in decision making as a strategy for reducing job-related strain. *Journal of Applied Psychology, 68*(1), 3.

Jager, J., Putnick, D. L., & Bornstein, M. H. (2017). II. More than just convenient: The scientific merits of homogeneous convenience samples. *Monographs of the Society for Research in Child Development, 82*(2), 13–30.

Jiang, S., Lambert, E. G., Liu, J., & Zhang, J. (2018). An exploratory study of the effects of work environment variables on job satisfaction among Chinese prison staff. *International Journal of Offender Therapy and Comparative Criminology, 62*(6), 1694–1719.

Judge, T. A., & Hulin, C. L. (1993). Job satisfaction as a re ection of disposition: A multiple source casual analysis *organizational. Behavior And Human Decision Processes, 53*(3), 388–421.

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*(1), 31–36.

Kapenda, H. M., & Pieters, L. (2017). Lecturers' perceptions on the effectiveness of in-service training programs at selected public sector organisations in Namibia. *Multidisciplinary Journal of Educational Research, 7*(2). https://doi.org/10.17583/remie.2017.2526

Karran, T., Beiter, K., & Appiagyei-Atua, K. (2017). Measuring academic freedom in Europe: A criterion referenced approach. *Policy Reviews in Higher Education, 1*(2), 209–239.

Körner, M., Wirtz, M. A., Bengel, J., & Göritz, A. S. (2015). Relationship of organizational culture, teamwork and job satisfaction in interprofessional teams. *BMC Health Services Research, 15*(1), 243.

Kuye, L. O., & Sulaimon, A. A.-H. (2011). Employee involvement in decision making and firms performance in the manufacturing sector in Nigeria. *Serbian journal of management, 6*(1), 1–15.
Lewin, K. (1997). Resolving social conflicts and field theory in social science. Washington DC *American Psychological Association*.
Mansoor, M., Fida, S., Nasir, S., & Ahmad, Z. (2011). The impact of job stress on employee job satisfaction a study on telecommunication sector of Pakistan. Journal of Business Studies Quarterly, 2(3), 50.
Martins, H., & Proença, T. (2012). Minnesota Satisfaction Questionnaire–Psychometric properties and validation in a population of Portuguese hospital workers. *FEP Journal–Economics & Management: Working Papers, 471*(1), 42–58.
Masath, F. B. (2015). 'Teacher job satisfaction'and 'intention to leave the profession': Does age matter? *Journal of education, Humanities and sciences (JEHS), 4*(2).
Mbaruku, G. M., Larson, E., Kimweri, A., & Kruk, M. E. (2014). What elements of the work environment are most responsible for health worker dissatisfaction in rural primary care clinics in Tanzania? *Human Resources for Health, 12*(1), 38.
Menon, M. E., & Athanasoula-Reppa, A. (2011). Job satisfaction among secondary school teachers: The role of gender and experience. *School Leadership & Management, 31*(5), 435–450.
Misis, M., Kim, B., Cheeseman, K., Hogan, N. L., & Lambert, E. G. (2013). The impact of correctional officer perceptions of inmates on job stress. *Sage Open, 3*(2), 2158244013489695.
Mkumbo, K. (2014). Prevalence of and factors associated with work stress in academia in Tanzania. *International Journal of Higher Education, 3*(1), 1–11.
Moos, R. H. (1981). *Work environment scale manual palo alto, califomia*. Consultmg Psychologists Press.
Muindi, F. K. (2011). *The relationship between participation in decision making and job satisfaction among academic staff in the school of business, university of Nairobi*.
Naburi, H. E. (2017). Implementing prevention of mother-to-child transmission of HIV in dar es Salaam. *Tanzania: Human resources, client and provider satisfaction and cost-effectiveness: Inst för folkhälsovetenskap/dept of public health sciences*.
NBS. (2019). *Tanzania in figures. Dar es Salaam: Ministry of Finance and planning*. N. B. O. S. *Retrieved from* http://www.nbs.go.tz.
Ngirwa, C. C., Euwema, M., Babyegeya, E., & Stouten, J. (2014). Managing change in higher education institutions in Tanzania: A historical perspective. *Higher Education Management and Policy, 24*(3), 127–144.
Nguni, S., Sleegers, P., & Denessen, E. (2006). Transformational and transactional leadership effects on teachers' job satisfaction, organizational commitment, and organizational citizenship behavior in primary schools: The Tanzanian case. *School Effectiveness and School Improvement, 17*(2), 145–177. https://doi.org/10.1080/09243450600565746
Nyahongo, J. W. (2015). Improving socio-ecological environment to promote academic staff retention in Tanzanian universities: Case study of the university of dodoma. *Managing Change at Universities–A selection of case studies from Africa and Southeast Asia–Volume II, 183*.
Pearson, R. H., & Mundform, D. J. (2010). Recommended sample size for conducting exploratory factor analysis on dichotomous data. *Journal of Modern Applied Statistical Methods, 9*(2), 5.
Pereira, G. M., & Osburn, H. G. (2007). Effects of participation in decision making on performance and employee attitudes: A quality circles meta-analysis. *Journal of Business and Psychology, 22*(2), 145–153.
Pfeiffer, B., Brusilovskiy, E., Davidson, A., & Persch, A. (2018). Impact of person-environment fit on job satisfaction for working adults with autism spectrum disorders. *Journal of Vocational Rehabilitation, 48*(1), 49–57.
Pienaar, C., & Bester, C. L. (2008). The retention of academics in the early career phase: Empirical research. *SA Journal of Human Resource Management, 6*(2), 32–41.
Pierce, J. L., O'driscoll, M. P., & Coghlan, A.-M. (2004). Work environment structure and psychological ownership: The mediating effects of control. *The Journal of Social Psychology, 144*(5), 507–534.
Røssberg, J. I., Eiring, Ø., & Friis, S. (2004). Work environment and job satisfaction. *Social Psychiatry and Psychiatric Epidemiology, 39*(7). https://doi.org/10.1007/s00127-004-0791-z
Salau, O., Worlu, R., Osibanjo, A., Adeniji, A., Oludayo, O., & Falola, H. (2018). Survey data on work environments and productivity of academic staff of selected public universities in Nigeria. *Data in brief, 19*, 1912–1917.
Scott-Ladd, B., Travaglione, A., & Marshall, V. (2006). Causal inferences between participation in decision making, task attributes, work effort, rewards, job satisfaction and commitment. *The Leadership & Organization Development Journal, 27*(1), 399–414.
Shyji, P. D., & Santhiyavalli, G. (2014). Impact of leadership styles on job satisfaction in higher education institutions. *International Journal of Leadership in Education, 2*(2), 29–34.
Slate, R. N., & Vogel, R. E. (1997). Participative management and correctional personnel: A study of the perceived atmosphere for participation in correctional decision making and its impact on employee stress and thoughts about quitting. *Journal of Criminal Justice, 25*(5), 397–408.
Spagnoli, P., Caetano, A., & Santos, S. C. (2012). Satisfaction with job aspects: Do patterns change over time? *Journal of Business Research, 65*(5), 609–616.
Spitzbart, I. (2013). The impact of transactional versus transformational leadership on job satisfaction in the hotel industry. *Research in Hospitality Management, 3*(1), 69–76. https://doi.org/10.1080/22243534.2013.11828305
Strömberg, C., Aboagye, E., Hagberg, J., Bergström, G., & Lohela-Karlsson, M. (2017). Estimating the effect and economic impact of absenteeism, presenteeism, and work environment–related problems on reductions in productivity from a managerial perspective. *Value in Health, 20*(8), 1058–1064.
Sutaryo, K., & Purwana, D. (2017). The impact of leadership style and work environment to employees job satisfaction with organizational culture as moderating variable at balai kesehatan penerbangan jakarta. *JRMSI-Jurnal Riset Manajemen Sains Indonesia, 8*(1), 139–161.
Tumulty, G., Jernigan, I. E., & Kohut, G. F. (1994). The impact of perceived work environment on job satisfaction of hospital staff nurses. *Applied Nursing Research, 7*(2), 84–90.
Unzicker, T. L. (2012). *A Study of the job Satisfaction of Nebraska school superintendents. (Degree of doctor of education A dissertation)*. Lincoln, Nebraska: University of Nebraska-Lincoln. Retrieved from http://digitalcommons.unl.edu/cehsedaddiss/107.
Van Maele, D., & Van Houtte, M. (2012). The role of teacher and faculty trust in forming teachers' job satisfaction: Do years of experience make a difference? *Teaching and Teacher Education, 28*(6), 879–889.
Vroom, V. H. (1964). *Work and motivation*. New York: John willey & sons. *Inc.*
Vuong, Q.-H., Napier, N. K., Ho, T. M., Nguyen, V. H., Vuong, T.-T., Pham, H. H., et al., Effects of work environment and collaboration on research productivity in Vietnamese social sciences: evidence from 2008 to 2017 Scopus data. (2019). *Studies in Higher Education, 44*(12), 2132–2147.
Wan, C., Chapman, D. W., Zain, A. N. M., Hutcheson, S., Lee, M., & Austin, A. E. (2015). Academic culture in Malaysia: Sources of satisfaction and frustration. *Asia Pacific Education Review, 16*(4).
Wanous, J. P., Reichers, A. E., & Hudy, M. J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology, 82*(2), 247.
Wargo-Sugleris, M., Robbins, W., Lane, C. J., & Phillips, L. R. (2018). Job satisfaction, work environment and successful ageing: Determinants of delaying retirement among acute care nurses. *Journal of Advanced Nursing, 74*(4), 900–913.
Way, S. F., Morgan, A. C., Larremore, D. B., & Clauset, A. (2019). Productivity, prominence, and the effects of academic environment. *Proceedings of the National Academy of Sciences, 116*(22), 10729–10733.
Weiss, D. J., Dawis, R. V., & England, G. W. (1967). Manual for the Minnesota satisfaction questionnaire. *Minnesota studies in vocational rehabilitation, Bulletin, 22.*
Wright, B. E., & Davis, B. S. (2002). Job satisfaction in the public sector: The role of the work environment. *The American Review of Public Administration, 33*(1), 70–90.
Zhang, L.-f., Fu, M., & Li, D. T. (2019). Hong Kong academics' perceived work environment and job dissatisfaction: The mediating role of academic self-efficacy. *Journal of Educational Psychology, 112*(7), 1–13. https://doi.org/10.1037/edu0000437
Lewin, K. (1936). Field theory and experiment in social psychology: Concepts and methods. *American journal of sociology, 44*(6), 868–896.