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THE EFFECTS OF ABSENTEEISM ON ORGANIZATIONAL OUTCOMES: A PRINCIPAL
COMPONENT ANALYSIS

ABSTRACT

This study surveyed the Louisiana Employer Support of the Guard and Reserve data base to determine the effects of absenteeism on the association between number of customers served by the organization and measures of organizational output, customer satisfaction, and employee behavior. The Principal Component Analysis indicated that quality of the organization's output, employee's satisfaction with their work, and training on employee performance are all positively associated with change in the number of customers served.

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REVIEW OF LITERATURE

Hitt, Bierman, Uhlenbruck, & Shimizu, 2003 suggest that due to the proliferation of the global service economy, human capital has had an increased effect on an organization's value. This is supported by Carmeli (2004) who found that human capital is correlated to organization financial performance ($r = 0.40$, $p < 0.001$, $n = 98$). In addition, many organizations use strategic human resource policies to control fluctuations in their labor (Ferguson, Ferguson, Muedder, & Fitzgerald, 2001).

More specifically, past studies have found a negative correlation between absenteeism and customer satisfaction (Anderson, Fornell, & Mazvancheryl, 2004; Mittal, Anderson, Sayrak, & Tadikamalla, 2005; Rust & Chung, 2006); between absenteeism and employee behavior (Anderson et al., 2004; Gruca & Rego, 2005; Lapre & Tsikriktsis, 2006; Mittal et al., 2005; Rhodes & Steers, 1990; Rust & Chung, 2006); and between absenteeism and organizational output (Bhavani & Tendulkar, 2001; Ford, Quinones, Sego, & Sorra, 1992; Rouiller & Goldstein, 1993; Tracey, Tannenbaum, & Kavanagh, 1995). Finally, scant research on the effects of absenteeism has led many researchers to call for more studies on the effects of absenteeism on organizational performance (Hutchinson, Villalobos, & Beruvides, 1997; Staw, 1980).

RESEARCH OBJECTIVE

The research objective is to determine how respondent organizations perceive the effects of absenteeism on organizational outcomes using measures of organizational performance. The organizational performance measures are measures of customer satisfaction which includes changes in the quality of the organizations output and the amount of time spent training on client / customer satisfaction; measures of employee behavior which include change in the number of employees satisfied with their work and change in the number of team efforts; and finally measures of organizational output which includes change in the level of output and time spent training on employee performance. The organizational outcome measure is change in number of clients / customers served by the respondent organization. Table1. Depicts the codes used for each measure with its corresponding question from the questionnaire.

METHOD

Theoretical foundation for the study

Few studies have attempted to quantify the effects of removing a resource from the organization over time (Jaarsveld & Yanadori, 2011). The difficulty for such a study lays in the fact that removal of a resource from an organization results in a response by the organization which creates a reactive arrangement affecting the results of the study.

In 2009, the war against terror was at its zenith relative to the number of deployments of soldiers. The establishment of the Uniformed Services Employment and Reemployment Rights Act of 1994 (USERRA) restricted an employer's ability to adapt to the absence of an employee. Due to the spontaneous nature of deployment, many employers were unprepared for the absence of employees called to active duty. These restrictions created a near-perfect environment in which to study the effects of resource-loss on an organization, such that the organization's responses and its ability to prepare in advance would be limited.

In 2009, the researchers initiated a study to quantify the effects of the loss of a human resource on the organization, attempting to falsify the resource-based view of the organization. The findings from the research resulted in a paper published in 2010 which found that, for most respondents, there was no perceived significant effect on organizational performance due to deployment (Hisey & Kotrlik, 2010). However, the question remained, "Do employers perceive the effects of deployment on organizational performance as equivalent to absenteeism?" To answer this question, in 2017 the researchers administered a revised instrument to the same sample set used in the 2009 study.

Sample

The average number of employees supervised by the respondent was 262, and the median was 36. The range was from 0 to 5200 and the standard deviation is 708.24. The largest employer type was the service sector at 61%. Professional, managerial, or related occupations comprised approximately 20% of the respondent organizations. Finally, the remaining 19% of the

respondent organizations were comprised of construction, mining, farming, forestry, fishing, transportation, and sales.

Data Collection

Data collection occurred in two phases. In Phase One which occurred in the first quarter of 2009 the instrument was administered to a sample of the 1,109 employers in Louisiana who pledged support for the Employer Support of the Guard and Reserve (ESGR, 2006). The primary sampling unit was the employer, and the secondary sampling unit was a respondent knowledgeable of the effect of deployment on the organization's operations. The sample size was determined to be 108 using Cochran's sample size formula (1977). This number was then doubled to 216, based upon the researcher's expectation of a fifty-percent response rate. The selection process involved numbering each employer from the Louisiana ESGR database sequentially, and then randomly selecting employers using a random sequence generator (Random.org, 2008).

In Phase Two data gathering began in November 2016 and ended February 2017. The only changes made to the original instrument were a replacement of the words "activation and deployment" and "reservist and National Guard soldier" with the word's "absenteeism" and "employee," respectively. Due to the predicted low response rate, the respondent population from the 2009 study was canvassed, rather than sampled randomly. The researchers based this prediction on the effects of the recession in the oil and gas industry and the ravages of several

hurricanes, leading the researchers to believe that many of the respondents who participated in the 2009 study would no longer be in business.

Drawing from Black (2008), the researchers for the current study calculated the sample size using the population size and the number of usable responses (1109 and 117, respectively) from the 2009 study, a 3% error, five response choices, and a 95% confidence level.

$$n = \frac{(z^2) (p) (q)}{E^2}$$
$$n = \frac{(1.96)^2 [(117/1109) (1-(117/1109))]}{(5 \times 0.03)^2}$$

$n = 16.1$, which was rounded up to 17.

For this current study, 18 respondents submitted usable questionnaires.

Instrument Validation

The instrument for the 2009 study was validated using content experts on the effects of absenteeism in organizations utilizing the Rubio, Berg-Weger, Tebb, Lee, and Rauch (2003) content validity index (CVI) and factorial validity index (FVI). Content validation of the instrument followed the methodology utilized by Cormier (2006).

FVI and CVI values of greater than 0.8 were the criteria for determining if the instrument was a valid measure for this study (Robinson, Shaver, & Wrightsman, 1991). The CVI value indicated that there was an 81 percent agreement among the content experts on the content validity of the

instrument. The FVI value indicated that there was a 91 percent agreement among the content experts on the correlation between the objectives of the study and the questions on the instrument. Based on these results, the researchers from the 2009 study concluded that the instrument possessed content validity. Finally, based on the results from the 2009 study, the researchers determined that validation of the 2017 instrument would be redundant.

Pilot Study

In 2009, the researchers conducted a pilot study with 66 randomly selected individuals. The data collection procedures for the pilot study were identical to the procedures used to collect data from the population. No changes were made to the instrument as a result of the pilot test. In addition, the 66 responses from the pilot test were included in the data for the 2009 study. The researchers for this current study determined that based on the results from the 2009 study, a pilot test for the 2017 instrument would also be redundant.

Combining the Data from the Two Phases

The data from Phase One and Two were analyzed using a paired samples *t* test. The significance levels ranged from 0.104 – 1.000 indicating that the respondents could not perceive a statistically significant difference between the effects of deployment and absenteeism on the organization's operations ($p \leq 0.05$). Based on these results, the researchers combined the results of the two studies (Hisey & Bumgardner, 2019).

FINDINGS

Principal Component Analysis (PCA)

Since the purpose of the study is to reduce the number of organizational performance variables associated with the organizational outcome measure as practically possible without giving up explanatory power, PCA was chosen as the statistical method (Hair, Black, Babin, Anderson, & Tatham, 2006). Only one component was extracted from the data therefore there was no rotation.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .794 after removal of all measures with a sampling adequacy value below .711. Based on Bartlett's test of Sphericity (Chi-Square 27.418, 15 degrees of freedom, $p \leq .026$) the analysis is statistically significant. In addition, 18 variables using a Likert-type scale were analyzed with 137 usable responses providing over seven cases per variable. Six measures were extracted from the original 18 measures with loadings greater than 0.650. Finally, there were eight (53 %) non-redundant residuals with absolute values greater than 0.05. This may be a result of the multi-dimensionality of the instrument.

Table 2. provides the Eigen values, percent variance explained, cumulative variance explained, extraction values, loadings, means, and measures of sampling adequacy for each measure. Based on the sample size, the loadings, and the number of variables this component is both reliable as well as practically and statistically significant (Hair,

Anderson, Tatham, & Black, 1998; Stevens, 2002). Moreover, the measure of sampling adequacy indicates that all the measures included in the analysis are intercorrelated justifying the use of PCA (Hair et al., 2006). The mean for the organizational outcome measure (Custsat4) was 2.978.

Table 2 indicates that the respondents associate the organizational outcome measure change in the number of clients/customer served with the organizational performance measures changes in the quality of the organizations output, amount of time spent training on client / customer satisfaction, change in the number of employees satisfied with their work, change in the number of team efforts, change in the level of output, and time spent training on employee performance.

However, only Output5 and Empbeh5 have Eigen values equal to or greater than 1.0. Respondents perceived that these two components are associated with a cumulative percentage of 84.4% of the variance in change in the number of clients/customers served. In addition, as indicated by the scree plot in Diagram 1. there is a second inflection point at component three (Custsat6). By adding Custsat6 to Output5 and Empbeh5 92.4% of the association between the three organizational performance measures and the change in the number of clients/customers served is explained.

Therefore, the three components of interest are: How much did the amount of time spent training on employee performance change (Output5)? How much did the number of employees who were satisfied with their work change (Empbeh5)? How much did the

overall quality of the organization's output change (Custsat6)? These results indicate that the employee behavior measure employee satisfaction, the customer satisfaction measure quality of output, and the output measure time spent training on employee performance are associated with the organizational outcome measure change in the number of customers served and that these associations are positive.

CONCLUSIONS

The Association between Training and Change in the Number of Customers Served

One explanation for the positive association between training on employee performance and change in the number of customers served is that training on employee performance creates knowledge-based capital and this knowledge is then transferred to the employee's job which in-turn improves customer satisfaction and customer retention (Sirmon & Hitt, 2003).

The Association between Absenteeism and Training

These findings are consistent with earlier studies on the incorporation of a training intervention to reduce absenteeism resulting in an increase in employee performance (Diestel & Schmidt, 2012; Ghebreorgis & Karsten, 2007; Staunfenbiel & Konig, 2010; Whyman & Petrescu, 2015) and an increase in organizational citizenship behavior (OCB) leading to increased performance and greater customer satisfaction (Podsakoff, Whiting, Podsakoff, Blume, 2009).

The Association between Employee Satisfaction and Change in the Number of Customers Served

The employee behavior measure number of employees satisfied with their work was positively associated with the organizational outcome measure change in the number of customers served. The results from this study are consistent with earlier studies on the positive relationship between human resource management practices which promote employee satisfaction and customer satisfaction (Chand, 2010).

The Association between Quality and Change in the Number of Customers Served

Finally, the positive association between the overall quality of the organization's output and change in the number of clients/customers served is consistent with many studies associating various measures of customer satisfaction with a plethora of quality measures. For instance, service quality is positively related to customer satisfaction (Chand, 2010; Chen, Lee, Chen, & Huang, 2011; Wu, Huang, & Chou, 2014) and that quality and participation in quality related teams is negatively correlated with absenteeism (Marks, Hackett, Mirvis, & Grady, 1986; Viswesvaran, 2002). Therefore, the findings from this study are consistent with extant literature on the positive association between employee satisfaction, training on employee performance, the perception of quality, and the change in clients/customers served by the organization.

COMPARISON OF THE THEORETICAL FOUNDATION TO THE RESULTS

The findings in this study are consistent with extant literature in that relationships among assets do affect organizational productivity. Specifically, respondents indicated that training on employee performance is an effective intervention for moderating the effects of absenteeism on customer satisfaction. Moreover, employers appreciate the positive effect that training has on reducing absenteeism. These findings are consistent with the interaction of resources effect on organizational performance (Burt, 1992; Hitt et al., 2003; Penrose, 1959).

In addition, the findings from this study highlight the relationship between employee satisfaction and customer satisfaction. Burt (1992) and Hitt et al. (2003) maintained that the relationships between all the organization's resources are inimitable and valuable. To that end, the results from this study indicate that when faced with absenteeism, organizations that focus on employee satisfaction will moderate the negative effects of absenteeism on customer satisfaction.

FUTURE RESEARCH

This study found a positive association between the strategy training and change in the number of customers served during an absentee event. Future studies should determine if there is a correlation between the effects of absenteeism on measures of organizational performance and other organizational strategies employed by organizations to counter the effects of absenteeism. Finally, if correlations do exist then practitioners should identify those strategies that have the greatest effect on organizational outcomes.

LIMITATIONS

The reader should note that respondents indicated that the average number of employees supervised was 262 and the mean was 36. Thus, making inferences to larger organizations should be made with caution.

In addition, the sample for this study is comprised primarily (81%) of respondents from the service, professional, and managerial fields. Therefore, making inferences from this study to organizations outside of these professions may also be problematic.

Table 1. Code and corresponding question from the questionnaire

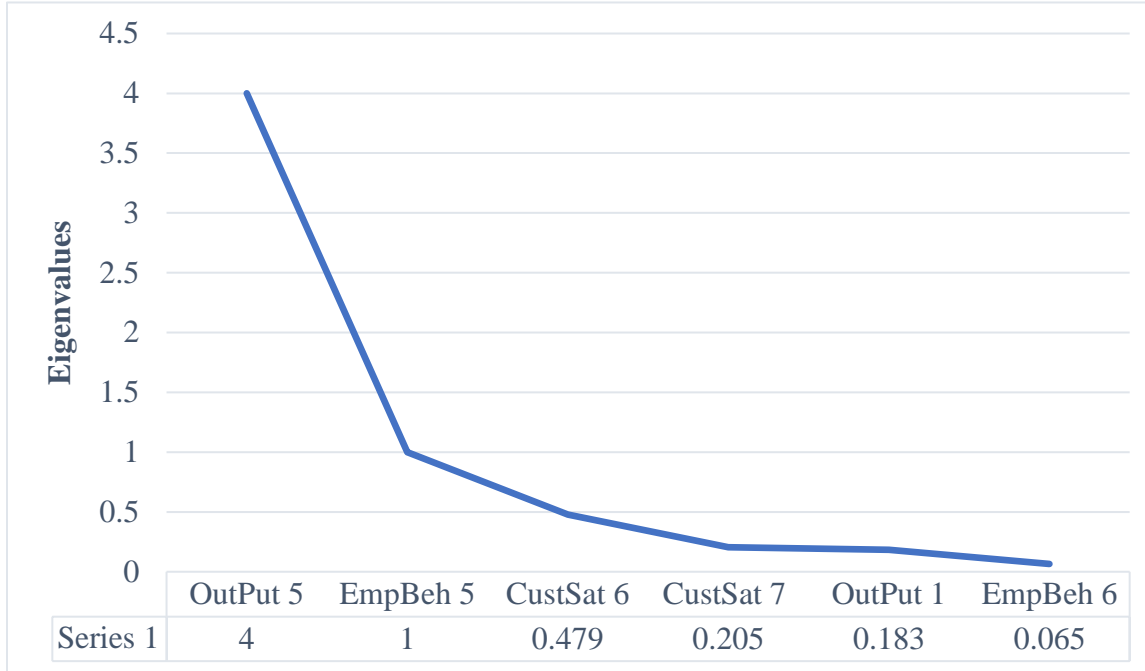
Code	Question from questionnaire
Output1 ^a	How much did the level of output change?
Output 5 ^a	How much did the time spent training on employee performance change?
Empbeh5 ^a	How much did the number of employees who were satisfied with their work change?
Empbeh6 ^a	How much did the number of team efforts change?
Custsat6 ^a	How much did the overall quality of the organizations output change?
Custsat7 ^a	How much did the time spent training on client/customer issues change?
Custsat4 ^b	How much did the number of clients/customers served by your organization change?

^a Organizational Performance Measures, ^b Organizational Outcome Measure

Table 2. Critical statistics from the PCA

Measures	Eigen Values	% Variance Explained	Cumulative Variance Explained	Extraction Values	Loadings	Means	Measure of Sampling Adequacy
Output5	4.065	67.756	67.756	.816	.903	3.336	.744
Empbeh5	1.000	16.662	84.418	.775	.880	2.993	.843
Custsat6	.479	7.980	92.398	.756	.869	2.818	.882
Custsat7	.205	3.422	95.820	.652	.807	3.307	.711
Output1	.183	3.050	98.870	.645	.803	2.869	.835
Empbeh6	.068	1.130	100.00	.422	.650	3.120	.763

Diagram 1. Eigen values for each question.



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