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RESEARCH ARTICLE

EFFECT OF SELF EFFICACY ON ORGANIZATIONAL PRODUCTIVITY: A RELIABILITY STUDY

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Abstract

This exploratory study examined the productivity of employees and effect of positive self- efficacy on productivity. Self-efficacy is measured here in terms of the concepts of presenteeism and absenteeism. Self-efficacy was examined as a positive psychological construct and was compared to the negative impact of presenters and absenteeism. This paper utilized a cross sectional questionnaire to conduct purposive sampling on 20 employees from manufacturing and service sectors in the state of west Bengal. The anonymous questionnaire contained eighteen close ended questions to avoid subjective error. Analysis was conducted on these data as a pilot study to check the reliability of the questionnaire using Cronbach's Alpha.

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Introduction:-

Self-efficacy is a psychological concept which refers to one's belief in himself or herself about his or her own capabilities. It has been proved in previous studies that individual's own achievements, motivation, way of living and most importantly work performance are positively correlated with his or her self-efficacy. Individual's emotion and decisions are also controlled by his or her self-efficacy. Moreover, it has also been proven that worker's work perception and job satisfaction improves with improvement in self-efficacy.

On the other hand, workforce is one of the prime determinants of company's growth. It has been established that absenteeism can reduce productivity of individual. That is, highly productive workers tend to take less leave. Moreover, since decline in individual productivity of worker reduces organizational productivity, economists believe that Voluntary retirement scheme is very effective for organizations to get rid of workers with nil or low productivity. Apart from this family conditions of worker's, especially a toxic or a demanding family condition can affect worker's productivity which is being undoubtedly accepted by previous studies.

Since not much has been done to establish the relation between Labour Productivity and Self-Efficacy ,an effort is being made in our work to know the influence of self-efficacy on productivity of workers through a cross sectional survey and a pilot study. Employees of manufacturing and service sector are considered as sample for this study.

Towards that end a questionnaire has been developed and in this article we try to check the reliability of that questionnaire.

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Literature Review:-

Eminent Psychologist Albert Bandura first coined the term Self-Efficacy as a psychological concept in his article 'Self-Efficacy: Toward a Unifying Theory of Behavioral Change,' He also advocated that Self-Efficacy belief is a psychological mechanism and most of the human actions are guided by Self-Efficacy.

Organizational productivity has been empirically defined in Efficiency model as Output divided by Input within a certain time frame where the outputs can be both tangible and intangible and the inputs are Labour, Capital Assets, Materials and Energy. Later on, it has been proven many a times by researchers that if the farms are analyzed on the basis of their resources available and if the resources are utilized properly then the productivity of the farm will definitely improve. This concept is popularly termed as 'Resource Based View' and it was first proposed by Jay Barney long back in 1991. Jay Barney proposed a model known as firm's Resource Based Model, where he analyzed four empirical indicators of the potential of firm resources, namely, value, rareness, imitability and substitutability. This 'Resource Based View' of competitive advantage, examined the link between firm's internal characteristics and its performance. Worker's capabilities and firm attribute are two key resources among others that this 'Resource Based View' emphasized on. Later on other researchers also worked on 'Resource Based View' of farm where they considered labour or human resource as one of the 'Tangible resources'.

Labour productivity or workforce productivity can be measured as real economic output per labour hour. This proposition was further established by Nicole Maestas, Kathleen J. Mullen, and David Powell in 2016 where they stated that the per capita output of the economy is a function of three factors namely per capita technology, per capita physical capital and per capita effective labour input. Additionally they defined effective per capita labor input as a function of employment rate and per capita Human capita productivity.

Dorcias Beaton et.al in this context proposed that worker per capita productivity is a cumulative effect of two factors absenteeism and presenteeism. Absenteeism here is calculated as cost of difficulty faced due to number of days workers were absent. Presenteeism is defined as loss of productivity during work and is calculated by workers productivity loss in terms of labour hour

Table no.1:- Two-by-two table depicting the 4 subcomponents of worker productivity, defined by the perspective and the component of worker productivity considered.

Perspective→ Component	Outcome state	Cost indicator
Absenteeism	No. of days/hours off work	Cost of time away from job
At-work productivity loss or Presenteeism	Difficulties at work	Worker productivity loss expressed in hours and translated to dollars

Source: Dorcas Beaton et.al in Measuring Worker Productivity: Frameworks and Measures

They have also given the above model to explain the effect of absenteeism and presenteeism both in terms of decline in work performance ie the outcome state and the cost associated with it as cost indicator.

Senen Machmud et.al in their paper carried out purposive sampling and Partial Least Square Analysis technique on 69 workers to prove that worker's work perception and job satisfaction improves with improvement in self-efficacy.

NanTang et.al carried on a cross sectional survey on Nurses to find correlation between self-efficacy and presenteeism in 2019 and the results clearly showed that self-efficacy and presenteeism are inversely correlated, that is, if self-efficacy increases then presenters will decrease and therefore productivity of workforce would increase.

L.Borgognia et.al conducted a survey on white collar jobs and concluded that self-efficacy and absenteeism are also inversely correlated. They worked on a sample size of 1160 workers, all of them engaged in white collar jobs in an

Italian Delivery Company. They collected data on the days of leave taken by those workers in the previous one year. They used a self-report questionnaire for this survey. Their findings show clearly that training program to enhance self-efficacy in workers will lead to increased job satisfaction and will reduce absenteeism.

Suri et.al in their paper highlighted that researchers perceive voluntary retirement as a measure to shed the workforce whose marginal productivity is on a decline or nil. This indirectly indicates that self-efficacy controls absenteeism among workers.

Last but not the least Lima in the paper named 'How incivility in the family can affect work performance' clearly showed toxic family environment that undermines one's self-worth and damages ties with loved ones can create psychological distress at work, resulting in poorer work performance.

In this backdrop, the objective of the present study is to analyse the relation between self-efficacy and Labour productivity.

Methodology:-

Research Questions

The following eight research questions are deemed to be the most important for this analytical study.

1. What are the probable causes for taking leave at job place?
2. To what intensity the respondents agree to the following statement?
"Organizational development depends on productivity of individual employee"
3. How do the respondents rate family support as factor responsible for individual productivity?
4. How do the respondents rate Workplace Environment as factor responsible for individual productivity?
5. How do the respondents rate Compensation and salary structure of the organization as factor responsible for individual productivity?
6. How do the respondents rate Peer relationship within the organization as factor responsible for individual productivity?
7. How do the respondents rate Supervisor Subordinate relationship within the organization as factor responsible for individual productivity?
8. To what intensity the respondents agree to the following statement?
"VRS is used as an instrument to tradeoff between 'works' to 'no work'"

Variables

The Dependent variable in this study was the employee's total score on the eightitem employee self-efficacy and productivity scale. The Independent variables were the employee's gender, company name and address, Company type and Type of job.

Assumptions, Limitations and Delimitations

On the very outstate of this survey it was assumed that all the participants would answer the questions to the best of their knowledge. Since all the questions in the questionnaire are close ended there is very less chance of subjective error. Moreover it is assumed that all the workers are expected to behave similarly in similar organizational and job conditions.

So far as limitation of this study is concerned, since all the questions are answered on the basis of personal interpretation of the participants there is chance of having biasness. Moreover the answer to the same question on the part of the higher authority may differ from the given answer causing a threat to external validity.

Having said all, this survey was a very small one with only few questions and took only few minutes to fill it up.

Methodology:-

Participants

This study tries to examine employee's self-efficacy and productivity and if there is any positive correlation between the two. To that end, a purposive sampling was estimated to be conducted consisting of 200 samples. This pilot study is conducted to check the reliability of the survey questionnaire with a 10% sample size of the original sample size.

Hence the survey was performed in July 2021 among a small group of 20 employees of service sector and manufacturing sector in and around Kolkata, West Bengal, India.

Instrument

“An analytical survey to establish the relation between Labour Productivity and Self-Efficacy” is the online survey form that was created to identify and establish a positive correlation between self-efficacy and Labour productivity. The web based survey was not only easily circulated through internet, but the data obtained through this method was also electronically saved and used in statistical software easily. Hence, though traditional mail survey responses are still much more regular and authentic and devoid of any ‘demonstration effect’ as compared to web based surveys.

Components of the model for labour productivity and self-efficacy were taken as factors when the questionnaire for the pilot survey was prepared. The model proposes that Labour productivity can be measured through the level of absenteeism and presenteeism and that level of absenteeism is controlled by level of self-efficacy. Hence, question no seven, eight, nine ten, eleven, twelve and thirteen were directed to find out workers attitude and orientation towards absenteeism in the work place, On the other hand, question no fourteen, fifteen, sixteen, seventeen and eighteen are used to find out the workers attitude about presenteeism.

In the questionnaire, the participants had five choices to choose from when answering the questions number thirteen, sixteen and seventeen a, b, c, d, e like in Liker’s Scale. The options were strongly disagree, disagree, neutral, agree, and strongly agree. For creating the data set we have masked strongly disagree as one point, and strongly agree as six points. Question number eighteen had two answers, ‘yes’ and ‘no’. Yes was masked as 2 and No was masked as 1. Therefore, the minimum outcome possible was 8 and the maximum outcome was 37.

Reliability and internal consistency checking

The instrument that is the web based survey was tested for reliability and internal consistency. Cronbach’s Alpha was used as a measure to do so. Cronbach’s Alpha is mostly used in Psychological Test Theory, where we work on latent or non-observable constructs which are otherwise termed as ‘scale’. This is the degree to which all items in a scale measure the same construct. The formula for is as follows:

$$\alpha = \frac{N \cdot \bar{r}}{1 + (N - 1)\bar{r}}$$

Here, N = Number of samples and

\bar{r} = mean correlation of the items of scale.

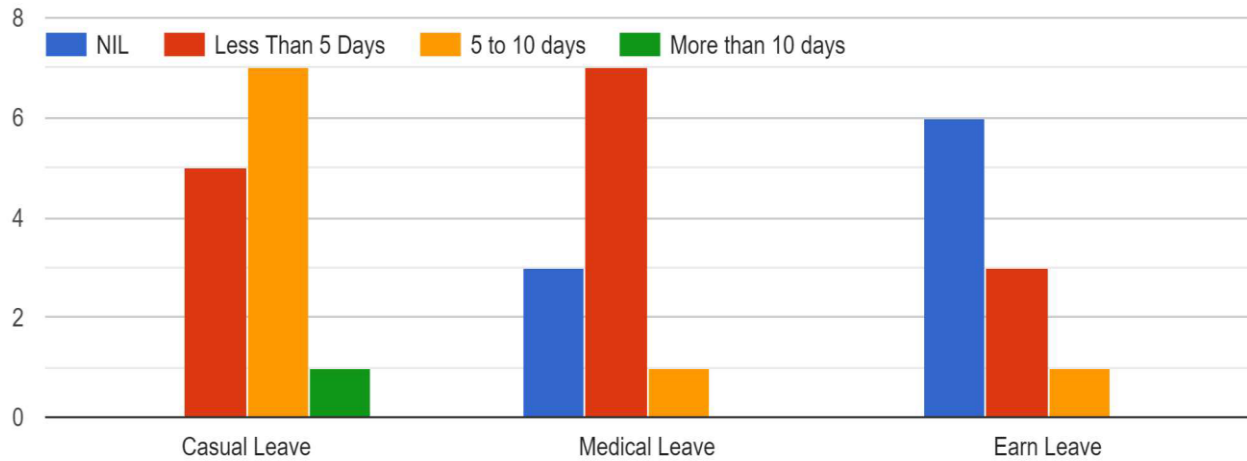
The interpretation of the values of Cronbach’s Alpha are:

- a. $\alpha < 0.60$: Instrument has a low reliability and is unacceptable.
- b. $0.60 < \alpha < 0.80$ instrument is acceptable with moderate reliability
- c. $\alpha > 0.80$ instrument is very reliable.

Sample characteristics

1. Of the respondents to this survey, 61.1 percent (n = 11) were female and 38.9 percent (n = 7) were male.
2. 94.4 percent categorized themselves as working in service sector (n = 17) and only 5.6 percent (n = 1) said they are working in manufacturing sector.
3. When asked to indicate the type of job they are doing 77.8 percent (n = 14) responded as engaged in white collar job, 16.7 percent (n=3) stated they are in Bule collar back office job, and the rest 5.6 percent (n=1) responded as engaged in blue collar job which directly involve working on machine.
4. In answer to the question that whether the workers have taken any leave in the past one year 77.8 percent (n=14) admitted ‘yes’ whereas the rest 22.2 percent (n=4) reported that they have not taken any leave.

Graph 1:- Distribution of leave taken by days.



Source: Primary Survey 2023

All the 20 samples responded to the eight research questions on which the reliability of the questionnaire is tested. Hence, all 20 samples were considered for this statistical analysis.

Table 2:- Dataset for reliability testing.

	Q13	Q16	Q17a	Q17b	Q17c	Q17d	Q17e	Q18
0	2	5	4	5	5	3	5	2
1	1	5	4	4	4	4	4	1
2	1	5	5	5	4	4	4	1
3	1	5	4	5	5	5	5	2
4	2	3	3	5	5	3	4	2
5	2	5	5	5	5	4	4	2
6	1	5	5	5	4	5	5	1
7	1	4	4	4	4	3	4	1
8	1	4	4	5	5	4	4	2
9	1	5	5	4	5	5	5	2
10	1	4	4	5	5	5	5	2
11	1	2	5	5	5	5	5	1
12	1	5	4	5	5	4	5	2
13	2	5	5	5	4	4	5	2
14	2	4	5	5	5	5	5	1
15	1	4	4	5	5	4	4	1
16	2	5	5	5	5	5	5	2
17	4	5	5	5	5	5	5	1
18	1	4	4	5	4	3	4	2
19	4	5	4	5	5	4	5	2

Source: Primary Survey 2023

Table 3:- Descriptive Analysis of the dataset.

	No of samples(N)	Range of value	Maximum Value	Minimum Value	Mean	standard deviation
Q13	20	3	4	1	3.64706	0.4926
Q16	20	4	5	1	4.41176	0.8703
Q17a	20	4	5	1	4.41176	0.6183
Q17b	20	4	5	1	4.82353	0.3929
Q17c	20	4	5	1	4.70588	0.4696
Q17d	20	4	5	1	4.23529	0.7524
Q17e	20	4	5	1	4.58824	0.5072
Q18	20	1	2	1	1.588235	0.5073

Source: Primary Survey 2023

Here we have tried to check the Variability of distribution of the dataset. To that end we have calculated the mean and standard deviation for each question in the data set. All the questions have a mean value very close to the highest value. This measure of central tendency clearly reflects that in our data set most of the workers ticked 'Highly agree' or 'Yes' option as the situation may be.

But when variability of the distribution of each question sample around its mean are analyzed it is projecting different types of clustering for different questions. Although in case of Q13, Q17a, Q17b, Q17c, Q17e and Q18 have standard value less than 0.50. So it can be concluded the Variability of distribution of sample for this questions are tightly clustered around the average and are having low variability, But significantly, for Q16 and Q17d the standard deviation is more than 0.75. Hence, the sample of these two questions are loosely clustered around the average and are having high variability.

Table 4:- Dataset's total score analysis.

	No of samples(N)	Range of value	Maximum Value	Minimum Value	Mean
Total Score	20	31	39	8	32.4118

Source: Primary Survey 2023

Results and Outcomes:-

Outcome1: Calculating the value for Cronbach's Alpha for the above dataset in total gave us a Cronbach's Alpha value of 0.61 with a 95% confidence interval of ([0.28, 0.821]).

Interpretation of the outcome:

As is empirically established that a Cronbach's Alpha value of 0.61 means that the set of questions that was used to create the data set is acceptable with moderate reliability and therefore the survey questionnaire is also acceptable. Moreover the 95% confidence interval lower bound value also came out to be 0.28 which implies that '0' is outside the interval and all the dataset values are also positive as found in the dataset. This clearly explains that if the same questionnaire is used to generate another sample of size 20, there is a good chance that it will depict the same correlation.

Since, the Cronbach's Alpha value of obtained is very marginally acceptable, so now we omit question No. 13, question No. 16 and question no 18 only considered the data set for question no 17 a,b,c,d,e and the construct is only presenteeism in this case.

Table 5:- RevisedDataset for reliability testing.

	Q17a	Q17b	Q17c	Q17d	Q17e
0	4	5	5	3	5
1	4	4	4	4	4
2	5	5	4	4	4
3	4	5	5	5	5
4	3	5	5	3	4
5	5	5	5	4	4
6	5	5	4	5	5
7	4	4	4	3	4
8	4	5	5	4	4
9	5	4	5	5	5
10	4	5	5	5	5
11	5	5	5	5	5
12	4	5	5	4	5
13	5	5	4	4	5
14	5	5	5	5	5
15	4	5	5	4	4
16	5	5	5	5	5
17	5	5	5	5	5
18	4	5	4	3	4
19	4	5	5	4	5

Source: Primary Survey 2023

Outcome 2

Calculating Cronbach's Alpha on this sub data set generates a value of 0.69, array ([,]) and the 95% confidence interval Lower and Upper Boundary are respectively 0.404 and 0.861. This Value establishes that the questionnaire given for reliability and internal consistency checking are well within the moderate range of acceptability. Moreover the lower and upper bound of the 95% confidence interval are both positive and the difference between the lower and upper bound has also narrowed down implying that the dataset is very much correlated. But at the same time the confidence interval is till now wide enough explaining that the sample size is very small.

Discussion:-

The outcomes of the pilot study clearly depicts that when trying to calculate Cronbach's Alpha for the entire data set the questionnaire succeeded the reliability test with a very marginal value of 0.61. But when we tried to calculate the same value with a revised data set by omitting some questions we see that the Cronbach's Alpha value increased to 0.69 which is quiet an acceptable value. So the questions that were omitted in the revised dataset, that is question number thirteen, sixteen and eighteen needs to be reconstructed to be accepted as a measure of Presenteeism. Moreover the Lower and upper boundary range of 95% confidence interval is wide enough which also proposes that if the sample size is more the reliability and internal consistency of the questionnaire will be more.

Conclusion:-

This study uses Cronbach's alpha for reliability testing. But it is found that the score of Cronbach's alpha is influenced by the size of the sample. If the sample size is more the score is found to improve. So the score in this study may vary with the total sample size. Moreover it is also proposed in literature that when the scale comprises large number of items factor analysis needs to be done along with Cronbach's alpha to check reliability of scale and not just rest on Cronbach's alpha as sole indicator of reliability testing.

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