
ANALYSING THE MEASUREMENT ITEM OF EMPLOYEE ENTREPRENEURIAL BEHAVIOUR (EEB) USING EFA AND CFA

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ABSTRACT: *This study is being conducted to analyse a measurement item of Employee Entrepreneurial Behavior (EEB) in the IT industries using a structured questionnaire. The variables used in this study are innovativeness, proactiveness and risk taking. The data is collected from 410 respondents. While most earlier studies focused on students as respondents, the current study proposes to close this research gap by focusing specifically on IT employees. The data is used to analyze the Reliability, Confirmatory Factor analysis (CFA), Exploratory factor analysis (EFA) using AMOS software. The result of Cronbach alpha depicted to be very high for each variables, CFA and EFA resulted to be positive.*

KEYWORDS:

Employee Entrepreneurial Behaviour, Innovativeness, Proactiveness, Risk-Taking and CFA..

1. INTRODUCTION

21st century, to stay competitive businesses must be poised to overcome the challenges and focus on sustainability; the business's success relies heavily on the employees. Nowadays, companies are looking for new ways to drive growth, and employees are often the ones that can provide fresh ideas. Employee entrepreneurial behaviour (eeb) is a term used to describe the actions and attitudes of employees who act in an entrepreneurial way within the company. In recent years, researchers focused on employee entrepreneurial behaviour (eeb) have started to emerge, whereas eeb is widely perceived as a positive trait in the modern business world. Through eeb, companies can achieve a sustainable environment in the economy. The significant role of employee's entrepreneurial behaviour in assisting with strategic organizational orientation and overcoming challenges in facing fluctuating environmental conditions (Neessen et al. 2019)). Generally, these behavioural employees are working towards reaching the organization's objective. On the other hand (Manuti and De Palma 2014)) stated that organizations place a high value on these types of employees since those employees not only perform well but also provide further advantages to the organization, including (drive, initiative, creativity, etc.). However, in recent years, companies have recognized the importance of their employee behaviour, whereas the entrepreneurial behaviour of employees helps support business and drive innovation and growth. The author (Martínez-González et al. 2022)) observed in the gem project that entrepreneurial behaviour of employees have more impact on high sustainability job (growth) prospects, especially in

comparison with fledgling entrepreneurs and owner- managers. Even though new ideas are generated by entrepreneurs/owners of the organization, the idea of the employee is closely related to the customer's point of view, which often results in being positive.

Moreover,(Kirkley 2016)stated, daring, creativity, ambition, and independence are important attributes that sway entrepreneurial behaviour. Bearing in mind the importance of eeb, organizations in these times have begun to provide training and development programs to stimulate employees and think out of the box. As such, Organizations cannot achieve their objectives/run business smoothly in the absence of these types of behaviour; however, eeb is a decisive factor has to be looked into. To increase firm profitability, performance, innovativeness, and competitiveness, organizations must prioritize intrapreneurship as a component of their business strategy(Baruah and Ward 2015). Although eeb is not a simple aspect that can be brushed aside, it should be given major importance in the organization as in the view of the hr department. At the same time, intrapreneursfeel free and try out their ideas; when they get freedom and role ambiguity in organizations (Baskaran 2017), employees get motivated when given flexibility, authority, and involvement in decision-making.(Mustafa, Martin, and Hughes 2016)concede that organizational factors do not directly explain the entrepreneurial behaviour of employees. At the same time, it may help to recognize the paths from those organizational factors and propose personal emotions and motivationregarding the job, which includes job satisfaction since employee job satisfaction is inextricably intertwined. (Widya Hastuti et al. 2016)through their research study, identifies that to attain sustainable innovation, employees' autonomy, proactiveness and risk-taking behaviour plays a vital part and foster entrepreneurship within an organization. While job diversity reportedly affects perceived capacity for entrepreneurial behaviour, whereas autonomy boosts employees motivation or desire to engage in such behaviour, it is possibly more distinctive since it raises control over the workplace notion(de Jong et al. 2015).however, despite the importance of entrepreneurial behaviour, some studies have profiled a set of factors that affect eeb in an organization which includes reward fairness perception, work discretion, openness to communication, and higher perceived tolerance of failure. Consequently, the author (ul Haq et al. 2018) stated that the culture of open communication boosts entrepreneurial behaviour; therefore, in general, employees get the freedom to talk in the organization, which creates emotional well-being.as we know, acceptance of failure is a stepping stone for success. Furthermore,(ul Haq et al. 2018) states that an organization may face the risk of innovation inability when they don't accept tolerance of failure. Employee entrepreneurial behaviour and empowerment are positively associated, whereas empowered employee may also plan their work activities(Morris, M.H., Kuratko, D.F. and Covin 2010). As the likelihood of reward influences employee entrepreneurial behaviour, nonetheless, the organization ultimately have control over the decision to reward such behaviour.

The main copse of this study is to suggest and validate a scale for measuring employee entrepreneurial behaviour with its main three dimensions innovativeness, proactiveness and risk-taking. Employees from it sectors in an indian context were chosen to be investigated.it industries accounting 7.4 per cent of gdp in the financial year 2022, whereas it-bpm may be the future engine of modern india since

It also contributed to india's economic growth. On the other hand, india is made up of more than 19% of the global spending .as far as it business is concerned, the business cycle impacts entrepreneurial behaviour and strategic management whereas the organization development takes place(Michelin et al. 2022).moreover, crucial to develop the entrepreneurial behaviour of employees, the business in it sector must give attention to entrepreneurial institutional linkages (Kasanagottu and Bhattacharya 2018)this proves that the significant role of entrepreneurial behaviour is a major consideration in all aspects of business, especially in it, according to these dynamics the author (Michelin et al. 2022) stated that the entrepreneurial behaviour of managers is vital for strategic implementation and actions that involve unique characteristics of a company since technology based organization that depends on innovative technological activities for development.

2. STATEMENT OF THE PROBLEM

Firstly,Covid 19 pandemic have created a huge impact over the business,So,Post covid 19 is more competitive whereas organization should find creative solutions to keep their business running and help employees in coping with the difficulties of this unprecedented situation(Hamouche 2021). Whereas,to survive in an competition, employee entrepreneurial mindset is manadatory for an organization. Secondly, Employees are facing work related issue like stress,heavy work load,decrease job satisfaction. By improvising employee entrepreneurial behavior,the individual will try to overcome the issues as soon as possible , by generating new ideas.Whereas (Heinze, Weber, and Heinze 2015) discovered that employees with this behavior use opportunistic strategies to introduce new logics into organisations.

In recent era, numerous studies have analyzed the Employee Entrepreneurial Behaviour as an important factor(Badoiu, Segarra-Ciprés, and Escrig-Tena 2020; Mustafa, Gavin, and Hughes 2018).The global level attention has arised due to its significant role in an organization(Hernandez 2019),this created influence over the development of questionnaires for this area of study.Moreover,Several studies in the area of employee entrepreneurial behavior have relied heavily on indicators of performance outcomes(de Jong 2016); Beyond the previous two decades,major strides have been made in the study of employee entrepreneurial behavior in different terms like entrepreneurial orientation(Rauch et al. 2009),entrepreneurial intention (Van Gelderen et al. 2008; Toftoy et al. 2008),entrepreneurial mindset (Haynie et al. 2010) entrepreneurial behavior of employees (Wakkee, Elfring, and Monaghan 2010).Previous studies have concentrated on how entrepreneurial behavior mindset is developed among students.

In the past two decades, extensive research has been done on developing and validating instruments to assess the psychological dimensions of entrepreneurial behaviour(Shaikh et al. 2020). Only a few studies have concentrated on implementing CFA to validate the structural elements of the instrument.CFA should be used to validate the employee entrepreneurial behaviour instrument given in rising usage in structural equation modelling.

The major research questions were

- Do there questionnaires that have been adequately validated to examine employees entrepreneurial behavior especially for IT employees?

The main objective of this study includes

- To validate the questionnaires related to Employee entrepreneurial

behavior with its dimensions (innovativeness, proactiveness and risk-taking)

3. RESEARCH GAP

Only few studies have validated the innovativeness, proactiveness and risk taking (Soba, Yildiz, and Ersoy 2021) by considering students as respondents whereas current study to fill this gap determining proper research questions especially considering IT employees as respondents

4. REVIEW OF LITERATURE

Dimensions Of Employee Entrepreneurial Behaviour

4.1 Innovation

In today's fast-paced changing market environment, innovation and change are becoming essential factors for competitive advantage for businesses (Jun -Chul Ha 2022). The presence of innovation plays a huge part in the growth of an organization. Consequently, studies have observed that, while fostering Entrepreneurial behaviour within an organization, it is believed that innovative behaviour of an employee is associated with firm improvement and strategic rejuvenation and also enhance company's competitive edge (Hernandez 2019). Within the expertise of human organizational capital, innovativeness, emerges as an intangible asset of a firm (Malibari and Bajaba 2022). However, (Åmo 2010) stated that capitalizing on a new market opportunity, employees are setting up brand new spin organizations; for instance, they reframe the business structure, as they like to get betterment towards the businesses through their creativity, innovation, idea, ownership behaviour etc., In the case of R &D, employees in the innovative sector bring insight into developments and adaptability towards change, whereas customer wants and technological solutions that change rapidly, which is essential for business success, the evaluation of Entrepreneurial behaviour of employees and its progenitors is pertinent (Schweitzer, Palmié, and Gassmann 2018) Furthermore, continuous innovative thinking drives from the growing consensus of innovate employee behaviour (Zhang and Yang 2021).

4.2 Proactiveness

According to (Parker and Collins 2010) an action taken on one's initiative and future orientation by changing and improvising a situation or oneself is described as employee proactiveness, suggestively employees with this type of behaviour will have the willingness to take the initiative and take actions without being instructed by others/higher authority, this, in turn, makes leader easier their job and success of their goal. Proactive behaviour could aim to improve the organization's internal environment or to fit the firm through its context; for example, such as identifying threat sort interacting with strategic issues with the management, practice employees are self-motivated, such as they can able to provide solutions in a crucial situation to handle the problems faced by the organization (de Jong et al. 2015). In an organization, the proactive climate also helps the firm to increase its competitive advantage, while the proactive behaviour of employees leads to finding and seizing opportunities before a competitor, firms can gain a competitive edge in the market (Kang et al. 2016).

4.3 Risk taking

A key component for an organization's success is employee risk-taking behaviour. Employees risk-taking behaviour will directly impact the organization's performance. Nowadays, organizations encourage employees to take risks as it can move the

organization forward since some organizations provide rewards and training in risk assessment to overcome uncertainties. Moreover, the reward will get benefited those who seemingly acquiesce to institutional pressures and expectations by institutional surroundings (Shu et al. 2015)Entrepreneurs" interest in potential financial gains motivates them to take risks(Longenecker, Justin G. 2016)

The three constructs of employee entrepreneurial behaviour studied by prior research are shown in **Table 1**. Entrepreneurial behaviour factors that were previously researched were innovativeness(Hansen and Dibrell 2015) , proactiveness(Sønderstrup-Andersen et al. 2010), and risk-taking(Low and Chan 2017). Meanwhile, a recent study(Soba et al. 2021) conducted a study on students who belong to Brazillian and Finnish Universities to validate measurement scales for individual orientation in an international context.

Table 1: Employee Entrepreneurial Behaviour Factors Researched By Previous Researchers

No	Factor	Researcher
1	Innovativeness	(Hansen and Dibrell 2015)
2	Proactiveness	(Sønderstrup-Andersen et al. 2010)
3	Risk-taking	(Low and Chan 2017)

5.METHODOLOGY

For this study, the researcher adopted Non-Probability sampling in that the snowball method has used to collect data from the samples. The major reason to go with the snowball method is after the pandemic situation IT sector is facing a hectic situation. Especially these sectors were working with full effort. So, for the researcher it becomes too difficult to contact employees directly or through social media. To overcome this situation, the researcher, by using the reference method, collected the data. The participants of this study were 410 employees from the IT sector in India. The questionnaire was distributed, and ask them filled it out. It took up to 20-25 min to complete the questionnaire. The Three Dimensions of Employee Entrepreneurial behaviour were used to design the questionnaire, including innovativeness, proactiveness, and risk-taking. By utilizing these three constructs, the researchers created a new questionnaire related to our study to measure the employee Entrepreneurial behaviour whereas, the specialist in this field was consulted before the questionnaire was modified.

Reliability tests (Cronbach alpha), Exploratory Factor Analysis(EFA), and Confirmatory Factor Analysis (CFA) are used in this study to evaluate the validity and confirmatory of constructs.EFA is used to determine the most relevant variables and broadly examine the relationship between many variables by deriving common underlying dimensions(Wipulanusat, Panuwatwanich, and Stewart 2018).CFA is used to determine the goodness of fit and to determine whether certain loading patterns are consistent with data, to assess construct dimensions and identification of dimensions. (Wipulanusat et al. 2018).Further, the statistical software Analysis

Moment Of Structure (AMOS) version 21 is used to measure CFA, whereas construct validity is done to add value to the constructs. Based on the coefficient of each item loading significantly ($p < 0.05$) and the item reliability of a latent variable, convergent validity was evaluated (Anderson 1987; Claes Fornell and David F. Larcker 1981). Convergent validity is in good when the composite reliability value is more than 0.70 (Claes Fornell and David F. Larcker 1981; Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham 2006). Simultaneously, the average variance extracted for all constructs, which had to be less than 0.9 whereas used to examine discriminant validity. Discriminant validity is attained only when the value is less than 0.9 constructs (Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham 2006). The employee entrepreneurial behaviour instrument were measured using a five point Likert Scale consisting of 1-Strongly Disagree, 2-Disagree, 3- Neutral, 4-Agree, 5-Strongly agree.

6. FINDINGS

By using relevant statistical tools, the evaluation of the validity and reliability of the instrument is discussed below.

6.1 Reliability Of Instrument

Table 2 depicts the reliability of the items for entrepreneurial behaviour using the Cronbach alpha value, which assesses the internal consistency of the factors. (Babbie 1992) his article describes that Cronbach Alpha values are categorized according to reliability index, with 0.90-1.00 being extremely high, 0.70-0.89 being high, 0.30- 0.69 as moderate, and 0.00 to 0.30 being low. By applying the classification mentioned earlier, the results of our study show that the Cronbach alpha value lies between 0.90-1.00 and seems extremely high. As suggested by previous Cronbach alpha must have minimum values of 0.6 and greater than 0.5. (Mohamad Najib Abdul Ghafar 1999; Sekaran 2003). Since all the variables Cronbach alpha values are greater than 0.5. as a result, the entrepreneurial behaviour instrument has a high level of reliability (Table 2).

Table 2 Value Of Cronbach Alpha For Entrepreneurial Behaviour Approach

Variable	Number of Items	Number of Items Excluded	Cronbach Alpha Value
Innovativeness	7	-	0.914
Proactiveness	7	-	0.942
Risk-taking	7	-	0.939

6.2 Exploratory Factor Analysis

In order to study potential underlying latent factors through measureable variables, EFA is viable method for describing the shared variability across the measured variables, whereas it also helps in Data minimization (Luo, Arizmendi, and Gates 2019). In investigate this study researchers utilized maximum likelihood and promax rotation. According to (Vogt 2005) when KMO value exceed 0.7 means it

considered to be fine. In our analysis the KMO test value is .931 and made the researcher to proceed further. In communalities table all the values exceed the cut-off value of 0.3, the highest value is around 0.8. The total variance explained is 66.83. The reproduced correlation value is 8% with absolute value greater than 0.05. Table 3, 4, 5 indicates that Kaiser-Meyer –Olkin Measure of Sampling Adequacy $.931 > 0.6$ is adequate for inter-correlation while Bartlett's Test of Sphericity is significant (Chi Square = 7251.238, $p < 0.005$), communalities values and loadings values.

Table 3 KMO And Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.931
Bartlett's Test of Sphericity	Approx. Chi-Square	7251.238
	df	210
	Sig.	.000

Table 4 Communalities

	Initial	Extraction
Innovativeness_1	.460	.380
Innovativeness_2	.697	.711
Innovativeness_3	.602	.581
Innovativeness_4	.571	.570
Innovativeness_5	.737	.751
Innovativeness_6	.759	.786
Innovativeness_7	.493	.472
Proactiveness_1	.683	.656
Proactiveness_2	.786	.790
Proactiveness_3	.820	.834
Proactiveness_4	.836	.858
Proactiveness_5	.716	.711

5		
Proactiveness_6	.631	.577
6		
Proactiveness_7	.559	.480
7		
RiskTaking_1	.567	.552
RiskTaking_2	.740	.737
RiskTaking_3	.709	.701
RiskTaking_4	.745	.739
RiskTaking_5	.676	.687
RiskTaking_6	.740	.711
RiskTaking_7	.767	.751

Extraction Method: Maximum Likelihood.

Table 5 Pattern Matrix^a

	<i>Factor</i>		
	1	2	3
Proactiveness_4	.944		
Proactiveness_3	.910		
Proactiveness_2	.862		
Proactiveness_5	.851		
Proactiveness_1	.832		
Proactiveness_6	.758		
Proactiveness_7	.636		
RiskTaking_7		.904	
RiskTaking_4		.855	
RiskTaking_2		.854	
RiskTaking_5		.842	
RiskTaking_3		.823	
RiskTaking_6		.815	
RiskTaking_1		.653	
Innovativeness_6			.904
Innovativeness_5			.894
Innovativeness_2			.851
Innovativeness_3			.741
Innovativeness_4			.676
Innovativeness_7			.663
Innovativeness_1			.629

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

4.4 Confirmation Factor Analysis (CFA)

On the other hand, CFA was conducted to investigate the underlying relationship between the set of indicators. This analysis aimed to substantiate the three Entrepreneurial behaviour dimensions. Full-fledged measurement estimation of the measurement model was constructed using maximum likelihood estimation. Specifically, the (James L. Arbuckle 1997) states that a reliable estimating technique can handle large samples and distributions that vary from normality; maximum likelihood was chosen in this study. By using the fit of indices, model fit is assessed. Model fit was evaluated using a variety of factors, such as absolute misfit and relative fit indices, whereas root mean square error of approximation (RMSEA) was included in the absolute misfit indices (Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham 2006) and comparative fit index (CFI), Tucker Lewis Index (TLI) and Incremental Fit Index (IFI) were the relative goodness of fit indices used in the study (Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham 2006). According to (James L. Arbuckle 1997, 1999), a model is considered to be fit when the index demonstrates that (i) the value of CMIN/df is between 1 and 5 and is regarded as an acceptable fit between the model and data. (ii) CFI AND TLI indexes are approaching 1.00, and (iii) An acceptable error of the RMSEA index of 0.08 or less.

Table 6. Fit Indices For The Model Measurement

Fit Index	Hypothesized model (n=410)	Recommended values	Source
χ^2 / df	2.964	≤ 5.00	Hair et al (2006)
CFI	.950	≥ 0.90	(Bagozzi and Yi 1988); Hair et al (2006)
RMSEA	.069	≤ 0.08	Browne & Cudeck (1993); Hair et al (2006)
TLI	.943	≥ 0.90	(Bagozzi and Yi 1988); Hair et al (2006)

IFI	.950	≥ 0.90	(Bagozzi and Yi 1988); Hair et al (2006)
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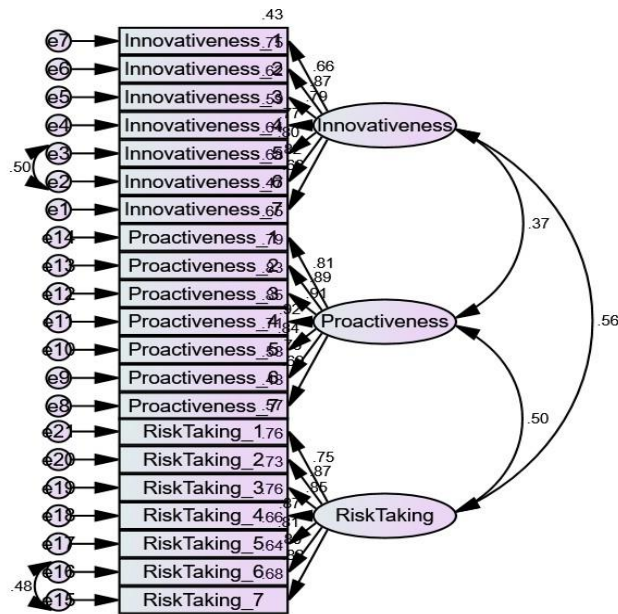


Figure 1 Measurement Model For Entrepreneurial Behaviour

Table 6 indicates that the measurement fit for the model of entrepreneurial behaviour can be accepted when it fulfils the suggestions of indicators (Anderson 1987; Claes Fornell and David F. Larcker 1981). The degrees of freedom index values CMIN/df=2.964, CFI=.950, TLI=.943, IFI=.950 and RMSEA=.069 show that the sample's results are consistent with the entrepreneurial behaviour model. Figure 1 depicts an entrepreneurial behaviour model. Moreover, the reliability of the constructs, the average variance extracted for a latent variable, and the coefficients of each item were used to evaluate the convergent validity (table 7).

Table 7. CFA Results (Standardized Loading, Composite Reliability And Average Variance Extracted)

Convergent validity				
Construct	Item	Factor loading	Composite reliability	Average variance extracted
Innovativeness	IN1	.659		

	IN2	.868	0.912	0.598
	IN3	.789		
	IN4	.769		
	IN5	.798		
	IN6	.824		
	IN7	.683		
Proactiveness	PR1	.809		
	PR2	.888		
	PR3	.913		
	PR4	.924		
	PR5	.843		
	PR6	.760		
	PR7	.690		
Risk-taking	RT1	.752	0.938	0.684
	RT2	.874		
	RT3	.852		
	RT4	.874		
	RT5	.810		
	RT6	.798		
	RT7	.824		

Note: a Composite reliability = $(\sum \text{loading factor})^2 / \{ (\sum \text{factor loading})^2 + (\sum \text{indicator error measurement}) \}$ b Average variance extracted = $\sum (\text{loading factor}^2) / (\text{number of item})$

Table 8. Discriminant Validity Of Constructs

Construct	(1)	(2)	(3)
(1) Proactiveness	0.836		
(2) Innovativeness	0.367	0.773	
(3) Risk -Taking	0.500	0.558	0.827

7.LIMITATIONS

The study mainly depends on IT employees especially in indian context , whereas future researcher can concentrate on other sector employees. The main three dimension is taken into account there are more sub dimension under employee entrepreneurial behavior construct .future research can include those dimensions in their research for more in-depth analysis. Only CFA and EFA used in this study.

8.CONCLUSION

This study's findings demonstrate that the Cronbach Alpha of all three variables is greater than 0.90, which is extremely high. As such, this instrument has a high level

of reliability which is classified with (Babbie 1992), the three factors identified as Innovativeness, Proactiveness, and Risk-taking. Furthermore, all the items exhibited an acceptable loading of greater than 5.0 (Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham 2006). As a result, the questionnaire created was appropriate for use in studying entrepreneurial behaviour, which primarily involved three dimensions include Innovativeness, Proactiveness, Risk-taking. Therefore, this study offers preliminary proof of the instrument's validity.

Numerous theoretical and empirical studies on entrepreneurial behaviour have been conducted. Generally, however, most of the studies are related to students' entrepreneurial behaviour. In contrast, none of the studies attempted to analyse it with employee entrepreneurial behaviour. This study aims to construct an entrepreneurial behaviour instrument for employees working in IT sectors. The study's results were aimed at aiding in developing employees and employers, especially in the organisation. The results can also be used to identify individual well-being correlated with a firm's growth. Therefore, to be successful, an entrepreneur must have the necessary entrepreneurial expertise from various sources, including formal education, improved job experience, coaching and mentoring (Riyanti et al. 2022).

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