



HR Analytics as a Moderating Role in Effective Employee Engagement and its Outcomes

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Abstract

In today's business environment all business organizations recognized the relevance of employee engagement for better productivity. HR analytics plays a vital role in engaging employees and make better decisions in each department related to all HR activities like HR planning, recruitment and selection, training and development, talent management, performance appraisal, etc... The employee engagement is one of the most critical areas of HR where analytics should be applied. Employee engagement can be defined as the emotional bonding of employees with an organization. HR analytics helps to manifest satisfaction levels, intention to quit, OCB, organizational commitment and productivity. This study analyzes the moderating role of HR analytics in effective employee engagement which results in productivity of employees. The study conducted resulting in how the HR analytics maturity levels of organizations related with engagement levels.

Keywords: Emotional Bonding, Maturity Levels, Moderating Role, Organizational Citizenship Behavior and Organizational Commitment.

4913

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Introduction

Over the last decade or so, the idea of employee engagement has become one of the key people issues discussed at executive and senior manager level (Mojeed-Sanni, B.A., Shaikh, T.T., & Abbas, J.G., 2019). Having engaged employees can be seen as one of the key objectives to which HR functions are expected to strive. With an enormous amount of literature written about it (including a UK government-sponsored research report (Macleod and Clarke, 2009) and vast amounts of money being spent on it, from an HR analytics point of view), employee engagement is something that HR professionals, people managers and students of HR or management need to be highly knowledgeable

about.

In order to access levels of engagement within their organizations many large corporate will use external research companies such as Towers Watson, Gallup, Mercer and Hay Group, to name just a few, whilst others design and run their own employee engagement surveys. Regarding the former, this chapter will talk through how to get the most out of working with these external providers, understanding what they are doing for the organization, and asking the right questions to get meaningful results and outcomes.

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HR analytics is a process of collation, integration and measurement of data that are appropriate for specific HR decisions, and then designing of the predictive models for assessing the future outcomes. Although it is predictive in nature, but HR analytics also does not discredit the importance and significance of descriptive data and other research inputs. Such data and inputs can also help in predictive modeling, when we apply statistical tools and research methodology with it.

The importance and benefits of HR analytics can be better understood when we have before us examples of world-class organizations that are using it. One such example is Google. Many such organizations use the term HR analytics and talent analytics synonymously. Hence, most of the benefits from organizations' point of view encompass talent management. Also, we see the benefits from HR analytics extend to a strategic HR decision-making process. It can legitimize the role of human resources as a business partner and align human resources with the business goals of the organizations.

Review of Literature

Employee Engagement

Ewing et al. (2019) defined employee engagement as "workers who are linked to the company's values and mission, feel empowered, bring energy, enthusiasm, and discretionary effort to their employment, and serve as advocates," based on observations from 27 senior-level internal communication managers. (p. 4) Employees' emotional, cognitive, and bodily connections to their work duties are recurring elements in these classifications.

While various definitions highlight various aspects of employee engagement, a common concept is that employees should feel connected at work. In terms of internal communication, the current study uses Ewing et al.'s (2019) definition of employee engagement because it clearly supports the objectives of internal communication programs in terms of motivating and empowering employees to support the company's mission through their work roles and as ambassadors.

Many industrial and academic studies have shown the considerable benefits that engaged employees can bring to a firm (Mondore, S., Douthitt, S., & Carson, M., 2011). According to a Gallup poll released in 2018, companies with highly engaged staff have "significantly better customer

engagement, higher productivity, better retention, fewer accidents, and 21% higher profitability." Workers who are more engaged have better health outcomes". According to a Gallup poll conducted in 2018 (Harter), 34% of American workers are engaged, 16.5 percent are actively disengaged, and 53% are not involved (Harter, 2018). Academics have studied how to best use internal communication strategy to encourage participation to help their firms achieve these crucial aims (Parent, J.D., & Lovelace, K.J., 2015). For example, research has shown that two-way internal communication, which allows employees to freely share their thoughts and opinions, can help to increase employee engagement in both their positions and their organizations (Karanges, Johnston, Beatson, & Lings, 2015; Lemon & Palenchar, 2018; Truss et al., 2006). Additionally, open communication, good storytelling, channels, and information targeted to employees' wants and preferences, and communication geared toward establishing a sense of belonging and promoting employees' vocal actions have all been mentioned as ways to boost employee engagement (Ewing et al., 2019; Gill, 2015; Ruck, Welch, & Menara, 2017; Welch, 2012; Welch & Jackson, 2007).

Employee engagement is a crucial success mantra for all strong businesses (Nazir and Islam, 2017). According to reports, disengaged employees cost American businesses \$550 billion (about \$1,700 per person in the US) per year (Young et al., 2018). Moreover, in a recent survey, just 16% of employees worldwide are completely engaged (Bradley and Olivier, 2019); hence, consequences and opportunities connected with an engaged workforce are enormous. Employee engagement is defined as "a good, rewarding work-related mental state characterized by vitality, devotion, and absorption" (Schaufeli et al., 2002, p.74). Working for companies that are considered unethical and socially irresponsible can cause many negative reactions in employees, including pessimism and release, according to academic research (Andersson, 1996). Employees working in socially responsible organizations, on the other hand, benefit from motivation and job satisfaction (Young et al., 2018). However, research on CSR and work-related engagement is limited and is still in its infancy (Rupp et al., 2018).



HR Analytics

The rise of HR analytics can be considered from 2010 because from this year, we see an upsurge in the literature on HR analytics (Bakhru, K.M., & Sharma, A., 2022). However, Professor Fitz-enz claims that he laid down the foundation of HR analytics in 1984 through his book *How to Measure Human Resource Management* (Fitz-enz and John Mattox 2014). The literature review suggests that HR analytics could not catch the momentum, but now after 30 years, it has gain become a hot topic (Marler and Boudreau 2017). The probable reasons for this growth can be,

- a) Advancement and easy access to information technology.
- b) Easy-to-understand statistical tools for data processing.

HR analytics is going to play a pivotal role. It will not only add value to the HR discipline with the help of evidence-based human resource management (HRM) but also establish a clear linkage of HR with business strategy (Mishra, S.N., Lama, D.R., & Pal, Y., 2016). It is expected that the organizations that will take the lead in developing HR analytical units will reap the competitive advantage.

Marler and Boudreau in 2017 (Marler and Boudreau 2017, p. 15) defined HR analytics as “A HR practice enabled by information technology that uses descriptive, visual, and statistical analyses of data related to HR processes, human capital, organizational performance, and external economic benchmarks to establish business impact and enable data-driven decision-making.” Fitz-enz and John Mattox (2014) defined HR analytics as a method to analyze and predict the outcomes of HR investments. HR analytics, through statistical and decision models, can help HR professionals establish a clear link between HR investments and business outcomes. It can assist HR professionals in making valuable business decisions that are evidence based and not just gut driven.

Employee Engagement and HR Analytics

It's critical to take a balanced, long-term approach to employee engagement and assess it from a holistic econometrics perspective and not from a perspective of short-term productivity alone.

The core idea of employee engagement analysis is to keep employees invested in the business both implicitly and explicitly. This also helps keep HR relevant and empowered within the organization

itself. It's important to look out for over-complexity, emphasize on actionable intelligence and ease of implementation, and maintain proper and timely records.

The success or failure of the organizations is largely dependent upon employees working in it (Khan, 2013). In this era of globalization and industrialization, where there is high competition in the market (organization), it is important for the organization to have engaged workforce for the survival, growth and smooth running of the organization. Employee engagement is considered an important mechanism that is implored in the business world afloat. Kahn (2013) defined employee engagement as the dedication and involvement of the employees towards their organization and its value. Many scholars consider employee engagement as similar to other important work-related constructs like job satisfaction, job involvement, organizational commitment and organizational citizenship behaviour (Garvin, 2013; Becker et al, 2001; Hamid et al, 2014, Cook, 2008). The drive is for organization to put measures in place to keep highflyers (talented employees) from an exodus-experience.

H1. Employee engagement efforts will be positively associated with effective HR analytics.

In the talent economy, organizations must find the right person for the job. It is a tremendous war for skills, and it can be both technical and soft skills. While Millennial entering the workforce, a plethora of changes happened such as their expectation for work, employee engagement productivity, and employee experience. Deloitte conducted a survey in 2017 and it is evidence of digitalization of HR is essential for effective employee engagement.

H2. The HR analytics maturity levels acts as moderation to effective employee engagement.

Successful organizations can identify the relation between employee job satisfaction, job performance and employee engagement (Bin, 2015). The researcher studied analysis of factors influencing employee satisfaction. Satisfied employees who perform challenging tasks, helps foster better engagement. Unengaged employees demonstrate poor customer service, lack of commitment and performance. Employee engagement blends with job satisfaction, commitment, psychological climate, discretionary effort (Harter et al., 2002b; Perrin, 2003b; Vance, 2006b). Companies having engaged employees



result in higher employee retention, productivity, profitability, customer satisfaction and growth (Gruman & Saks, 2011b; Markos & Sridevi, 2010b).

H3. The best employee engagement practices will lead to effective outcomes.

Model of the Study

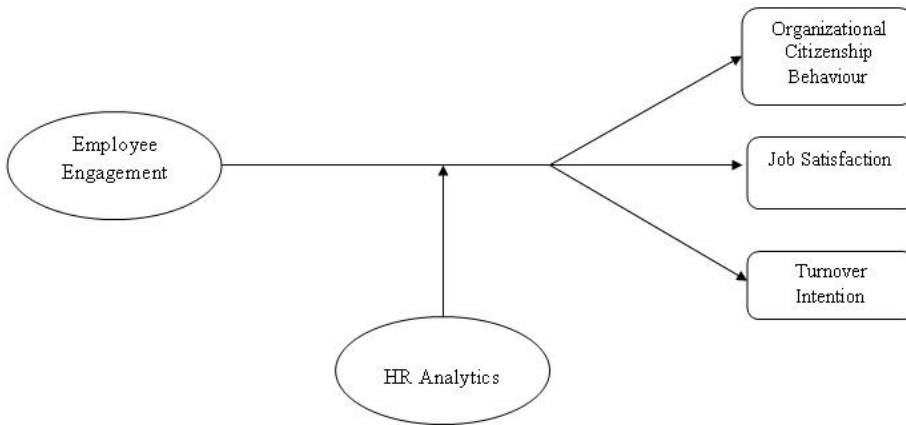


Fig. 1.

Method

The data has been collected from 80 employees who are in total of 100 samples through snow ball sampling. The questionnaire is designed by two different metrics such as employee engagement survey (adopted from Gallup Q12) and HR analytics maturity level survey (adopted from AIHR).

Data Analysis

The different measures were conducted based on model such as like correlation, regression, factor analysis and structural equation modeling for the defined hypothesis. The following table shows descriptive measures of data.

4916

Table 1.Descriptive Statistics

	Gender	Engagement Level	Maturity Levels	Output Levels
N	Female	13%		
	Male	87%		
Mean	Female	3.80	4.09	3.30
	Male	3.79	4.03	3.28
Standard deviation	Female	0.572	0.452	0.290
	Male	0.435	0.452	0.226
Shapiro-Wilk W	Female	0.958	0.938	0.942
	Male	0.924	0.943	0.966
Shapiro-Wilk p	Female	0.749	0.501	0.550
	Male	<.001	0.003	0.058

Out of 80, 13% are female and 87% are male respondents. Both male and female respondents are said their organizations' HR concentrating on HR analytics to measure the engagement levels and

how it helps to improve employees' output levels.



Table 2.One-Way ANOVA (Welch's)

	F	df1	df2	p
Engagement Level	3.97	1	72.0	0.050
Maturity Levels	4.84	1	41.3	0.034
Output Levels	11.63	1	54.2	0.001

Table – 2 shows variance among various variables such as engagement levels with the p-value of <0.5, maturity levels of HR analytics with p-value of <0.5 and output levels of employees and its p-value is also <0.5. The ANOVA results in no much variance among variables.

Table 3.Correlation Matrix

		Engagement Level	Maturity Levels	Output Levels
Engagement Level	Pearson's r	—		
	p-value	—		
Maturity Levels	Spearman's rho	—		
	p-value	—		
Maturity Levels	Pearson's r	0.511	—	
	p-value	<.001	—	
Output Levels	Spearman's rho	0.652	—	
	p-value	<.001	—	
Output Levels	Pearson's r	0.113	0.370	—
	p-value	0.317	<.001	—
Output Levels	Spearman's rho	0.219	0.320	—
	p-value	0.051	0.004	—

Form the Table – 3 of correlation matrix defined the correlation between engagement levels, HR analytics maturity levels and employees’ output levels. The results shows that the p-values are less than 0.1 and the employee engagement levels and maturity levels are positively related with the value of 0.5 and maturity levels and output levels with the value of 0.4 and engagement and output levels with the value of 0.31 are positively correlated. So, the defined hypothesis **“Employee engagement efforts will be positively associated with effective HR analytics”** is true.

Table 4.Scale Reliability Statistics

	Cronbach's α
scale	0.862

As in the Table – 4 cronbach’sα value is 0.86 the test is also reliable for the study. An organization’s success depends increasingly on an engaged workforce and capitalizes on the diverse backgrounds, knowledge, skills, creativity, and motivation of its workforce and partners (Davenport, T.H., Harris, J., & Shapiro, J., 2010).

Valuing the people means committing to their engagement, satisfaction, development, and well-being (Golestani, A., Masli, M., Shami, N.S., Jones, J., Menon, A., & Mondal, J., 2018). To accomplish their overall goals, organizations need to build internal and external partnerships. Internal partners might include labor-management cooperation, while external partners might be customers, suppliers, and education or community organizations. Such partnerships may be a source of strategic advantage for an organization (Ford, M.W., & Evans, J.R., 2000). Hence, the hypothesis **“The HR analytics maturity levels acts as moderation to effective employee engagement”** is true.

Table 5.Model Fit Measures

Model	R	R ²
1	0.830	0.688

Table 6. Model Coefficients - Output Levels



Predictor	Estimate	SE	t	p
Intercept	2.6005	0.2478	10.494	<.001
Engagement Level	-0.0528	0.0634	-0.833	0.407
Maturity Levels	0.2191	0.0637	3.440	<.001

Table5. The output levels of employees are depends on the engagement levels of employees and HR analytics maturity levels of organizations. As the p-value is <0.5 the regression model is also accepted. The model is like

$$\text{Employee Output Levels} = 2.6 - 0.05*(\text{Engagement Levels}) + 0.22*(\text{HR analytics Maturity Levels})$$

The model is fit 83% as the R value from the *Confirmatory Factor Analysis*

Table 7.Factor Loadings

Factor	Indicator	Estimate	SE	Z	p
Employee Engagement	Need Fulfillment	0.509	0.0926	5.50	<.001
	Contribution	0.491	0.0543	9.04	<.001
	Participation	0.382	0.0519	7.37	<.001
	Growth	0.180	0.0476	3.77	<.001
Outcomes	OCB	0.474	0.0661	7.17	<.001
	Satisfaction	0.491	0.0612	8.02	<.001
	Turnover Intention	-0.775	0.0847	-9.15	<.001
HRAM Levels	Data Analysis	0.389	0.0572	6.79	<.001
	Decisions	0.345	0.0597	5.78	<.001
	Model Implementation	0.431	0.0655	6.58	<.001

The study also conducted confirmatory factor analysis with different factor loadings and items in each factor. All the items p-value is <0.05, hence all factors are considered for the overall outcome levels of respondents. The need fulfillment (0.509) is high level of indicator compared to employee contribution (0.49), participation (0.38) and employees' growth (0.18). Employees satisfaction (0.49) is better indicator compare with organizational citizenship behavior (0.47) and turn over intention rate (-0.77) is negatively associated with outcomes. The data analysis (0.38), decisions (0.345) and model implementation by HR managers are acts as a moderation role in employee engagement for evaluation and it results in effective employees' outcomes.



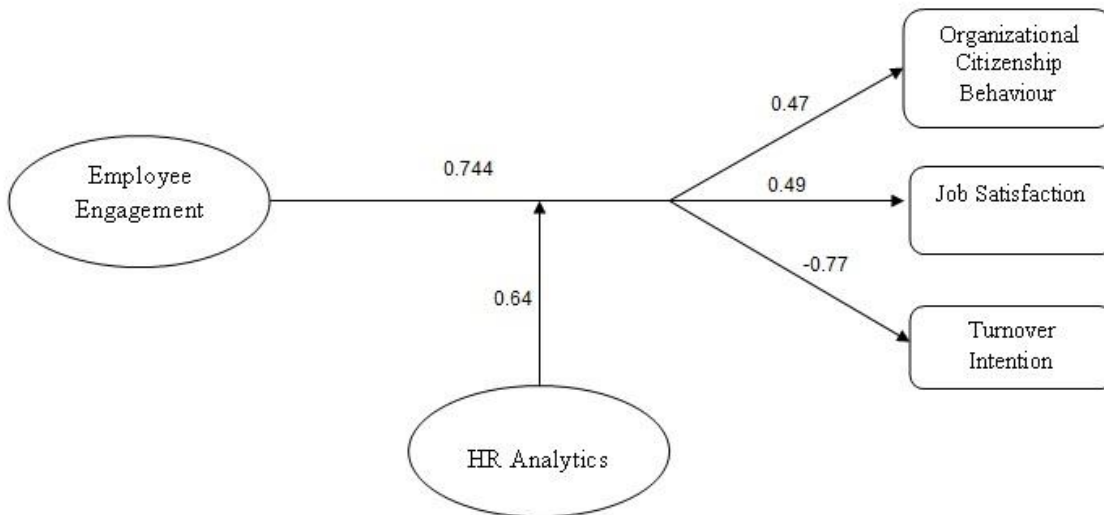


Fig. 2. Structural Equation Modeling

The factors identified in model which are designed earlier on the basis of literature clearly show in the fig - 2. From the above figure represents the effective employee engagement results in increasing OCB and job satisfaction and decrease in turnover intention rate. HR analytics maturity levels acts as a moderation role in achieving effective employee engagement levels which results in better employee outcomes.

Conclusion

Performance improvement requires measurement and analysis. The measures selected should best represent the factors that lead to improved customer, operational, societal, and financial performance. Analysis supports a variety of purposes, such as planning, reviewing overall performance, improving operations, accomplishing change management, and comparing performance with competitors' or with best-practice benchmarks. Here the study consider only limited factors and there is further scope if consider other factors also. It creates and maintain a high-performance work environment and toward engaging workforce to enable it and organization to adapt to change and to succeed.

References

Ewing, M., Men, L.R., & O'Neil, J. (2019). Using social media to engage employees: Insights from internal communication managers. *International Journal of Strategic Communication*, 13(2), 110-132.

Harter, L.M., Ellingson, L.L., Yamasaki, J., Hook, C., & Walker, T. (2018). Defining moments... Telling stories to foster well-

being, humanize healthcare, and advocate for change. *Health communication*.

Karanges, E., Johnston, K., Beatson, A., & Lings, I. (2015). The influence of internal communication on employee engagement: A pilot study. *Public relations review*, 41(1), 129-131.

Lemon, L.L., & Palenchar, M.J. (2018). Public relations and zones of engagement: Employees' lived experiences and the fundamental nature of employee engagement. *Public Relations Review*, 44(1), 142-155.

Truss, C., Soane, E., Edwards, C., Wisdom, K., Croll, A., & Burnett, J. (2007). *Working life: Employee attitudes and engagement 2006*. Chartered Inst. of Personnel and Development.

Gill, R. (2015). Why the PR strategy of storytelling improves employee engagement and adds value to CSR: An integrated literature review. *Public relations review*, 41(5), 662-674.

Ruck, K., Welch, M., & Menara, B. (2017). Employee voice: an antecedent to organisational engagement?. *Public Relations Review*, 43(5), 904-914.

Sabado, A.V.G., & Welch, J. (2012). Employee engagement: Its effectiveness to the employees in the health sector. *Eur. J. Bus. Manage*, 4, 100-107.

Welch, M., & Jackson, P.R. (2007). Rethinking internal communication: a stakeholder approach. *Corporate communications: An international journal*.

Nazir, O., & Islam, J.U. (2017). Enhancing organizational commitment and employee performance through employee engagement: An empirical check. *South Asian Journal of Business Studies*.

Young, H.R., Glerum, D.R., Wang, W., & Joseph, D.L. (2018). Who are the most engaged at work? A meta-analysis of personality and employee engagement. *Journal of Organizational Behavior*, 39(10), 1330-1346.

Bradley, A., & Olivier, S. (2019). How engaged is your team, really. *Harv Bus Rev*. Retrieved from <https://hbr.org/2019/10/how-engaged-is-your-team-really>.

Schaufeli, W.B., Salanova, M., González-Romá, V., & Bakker, A.B. (2002). The measurement of engagement and burnout: A



- two sample confirmatory factor analytic approach. *Journal of Happiness studies*, 3(1), 71-92.
- Andersson, T., & Napier, G. (1996). The Venture Capital Market-Global Trends and Issues for Nordic. *Europe (EASDAQ)*, 56, 62.
- Rupp, D.E., Shao, R., Skarlicki, D.P., Paddock, E.L., Kim, T.Y., & Nadisic, T. (2018). Corporate social responsibility and employee engagement: The moderating role of CSR-specific relative autonomy and individualism. *Journal of Organizational Behavior*, 39(5), 559-579.
- Ford, M.W., & Evans, J.R. (2000). Conceptual foundations of strategic planning in the Malcolm Baldrige criteria for performance excellence. *Quality Management Journal*, 7(1), 8-26.
- Bakhru, K.M., & Sharma, A. (2022). Unlocking drivers for employee engagement through human resource analytics. In *Research Anthology on Human Resource Practices for the Modern Workforce* (pp. 471-490). IGI Global.
- Davenport, T.H., Harris, J., & Shapiro, J. (2010). Competing on talent analytics. *Harvard business review*, 88(10), 52-58.
- Golestani, A., Masli, M., Shami, N.S., Jones, J., Menon, A., & Mondal, J. (2018, December). Real-time prediction of employee engagement using social media and text mining. In *17th IEEE International Conference on Machine Learning and Applications (ICMLA)* (pp. 1383-1387). IEEE.
- Mishra, S.N., Lama, D.R., & Pal, Y. (2016). Human Resource Predictive Analytics (HRPA) for HR management in organizations. *International Journal of Scientific & Technology Research*, 5(5), 33-35.
- Mojeed-Sanni, B.A., Shaikh, T.T., & Abbas, J.G. (2019). Engendering High Performing Employees through Business Analytics, Organisational Social Capital Building (OSCB) and Employee Engagement: A Theoretical Review. *Journal of Educational and Social Research*, 9(3), 70.
- Mondore, S., Douthitt, S., & Carson, M. (2011). Maximizing the impact and effectiveness of HR analytics to drive business outcomes. *People and Strategy*, 34(2), 20.
- Parent, J.D., & Lovelace, K.J. (2015). The impact of employee engagement and a positive organizational culture on an individual's ability to adapt to organization change.

