Industry 5.0: can it be a change management gizmo in Human resource development?

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A competitive advantage in this unpredictable environment depends highly on the management's ability to use the available internal and external labor-market resources flexibly. It not only aligns with the supply and demand of the market, but with nominal distraction to the production process. A change model of Industry 5.0 can maximize the human involvement and maintain a balance between human-machine interaction. It proposes companies to introduce new technologies combined with better-trained employees to foster high productivity, quality work, and a sustainable environment. In this context, this study is based on the randomly selected healthcare sectors from the UAE by stratified proportional sampling amongst 200 employees. The confirmatory factor analysis through R programming reinforces the deployment and redeployment of skills to overcome the skill shortages in the selected health sectors. Moreover, the present study explores the changing dynamics of the talents by embracing diversity, individual creativity, and organizational learning in the upcoming century. Thus, it addresses the characteristics and benefits of technological advancements through human resource development approaches and provides roadmap for innovation and transformation. The model crafted from the study can be utilized as a learning organization prototype in the impending digital industry.

Key words: Industry 5.0, Diversity, Creativeness, Organizational learning, Human resource development.

1. Introduction: Human resource development in Industry 5.0

Human resource development is a changeable and an emergent construct. This field has evolved in an intense way through adult learning, instructional design and performance technology, business and economics, organization theory, cultural anthropology, axiology, and so on. Moreover, the two bodies namely, Academy of Human Resource Development (AHRD) and the University Forum for Human Resource Development (UFHRD) stress it as an applied discipline and seek to solve real-world problems. Thus, relationship between theory and practice is of relevance to the field of HRD. For this, an adoption of a multidisciplinary approach can bridge the gap between academics and

practitioners.

Cappelli and Singh (1992) argue that the employees can potentially create competitive advantage, where competencies are firm-specialized and hard to imitate. It urges society to develop their full potential in life and work. Looking back to history, society has always been reliant on technology. Obviously, the technology of era is in a linear journey with different structures and scopes, yet experiencing periods of uncertainty, battle, and upheaval. It is not only a controversial discussion but a worry that whether machines will completely replace the human workforce or if there is room for both in the coming years. It is a fact that machines can produce consistent work at a swift and accuracy beyond human abilities, yet to explore the cognitive skills persist in them.

1.1 Statement of the problem

As HRD is an evolving mechanism, it is quite natural that the present and/or future generations would face many obstacles and benefits with every technology. And Industry 5.0 is not an exception. Industries rely on various strategic advantages with the changing landscapes and, outputs gained from such integrations helped them to modify organizational infrastructure and in its business operations. While associated with operational risks, modern organizations should identify the benefits of developing machine learning and automation. A publication by Hamel and Prahalad (1994) comprehend that the competitiveness, clusters of factors, of firms is closely linked to the possession of core competencies. Studies indicate that industries are very often changing with technologies and innovations, which in turn, results in how they operate and function. This fact raises the question that what the future will hold for humans and machine coexistence or if the latter will dominate the former. Moreover, now the entire world is exploring to tap the benefits of human and machine collaboration. This collaboration is the gateway of fifth industrial revolution which is also known as "Industry 5.0." The mechanism intertwines human analytical thought with Artificial Intelligence (AI), Internet of Things (IoT), cloud computing, big data, and robot. No doubt, this revolution is setting the landscape for the new modern business and enormous impact on operations. Yet, the challenge is that to step into this era, organizations need to grasp the technology environment, steer the key advances in these areas, and equip the workforce to utilize their capabilities.

As a critical point, literature provides that HRD needs to be conscious in providing practical, workable solutions to identified problems. To support this view, Valentin (2006) suggests critical theory seeks to 'problematize' rather than solve problems and can therefore be justifiably condemned for its lack of practical application. Without due attention to the practical application, any movements

related to HRD become isolated, lack impact, and may considered as elitist (Fenwick, 2004). Therefore, in recognizing the future impacts, organizations ought to create a culture of inclusion, learning with a manifesto of autonomy in their work. This research aims to investigate the Industry 5.0 evolution of selected healthcare sectors in the UAE that are driving towards a tech-enhanced future. In this background, the study throws light to the significance of embracing diversity, individual creativity, and learning culture towards innovation and transformation. Based on this, the objectives crafted are:

- Industrial 5.0 embraces cultural diversity in organizational transformation,
- Industry 5.0 enhances Individual creativity on innovation enhances Industry 5.0,
- Industry 5.0 can build a learning culture in innovations can build Industry 5.0.

2. Background – Why Industry 5.0

Traced back to sixteenth century, the first industrial revolution was steered with mechanical power, steam, water, and fossil fuels. It was followed by the utilization of electrical energy in seventeenth century with assembly lines and mass production of goods. In 1950s, due to the third revolution, the world witnessed innovations through computers and automated technologies into the production process, paved new ways of generating, processing, and sharing information. Most awaited, 'Industry 4.0' spurred by the integration of physical and virtual world, otherwise known as cyber-physical systems. Unfortunately, this has not scaled up to encompass a significant percentage of manufacturing setups, its goal of near-total automation-and the resulting cost-savings- has clearly captured the industry's imagination. Even though in this situation, industrialists and technologists are looking ahead to the Fifth revolution: automation with human intelligence. A snapshot of the industrial revolution has illustrated in Fig: 1.

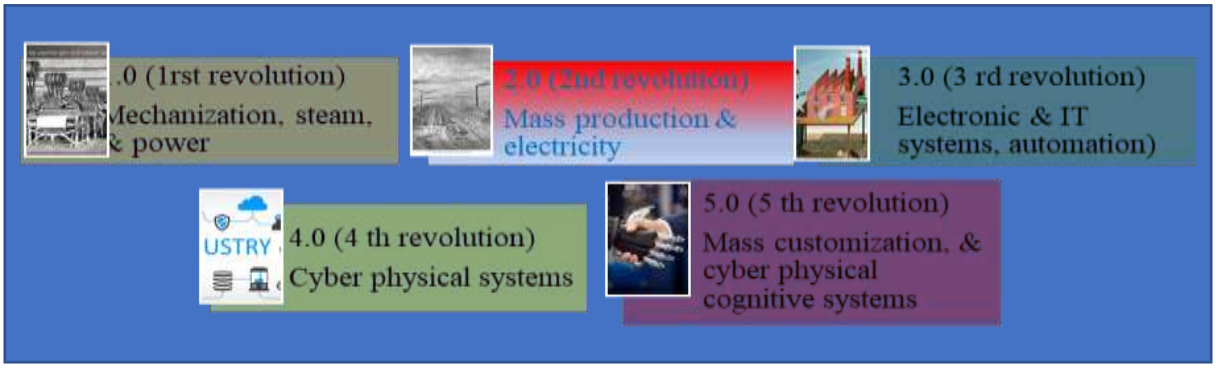

Figure 1: A snapshot of Industrial revolution
Source: Created for the study

However, various data show that the United Arab Emirates has widely developed AI on a large scale. A study by PwC (2018) in Dubai Technology Enterprise Campus measured that the country's implementation of AI knowhows will elevate the GDP by $96 billion by 2030, an estimated contribution of up to 13.6% of the GDP. The average annual growth in the contribution of AI by region between 2018-2030 in the UAE, KSA, GCC4, Egypt is 33.5%, 31.3%, 28.8%, 25.5% respectively. It observes that UAE is one of the swiftest countries followed by Saudi Arabia as both markets ranked among the top fifty countries worldwide in innovation practices and, hence this will surely achieve a monetary gain by 2030. As a next revolution and extension of this, unfolding Industry 5.0 in industries is transformative and onerous. It is laden with trial-and-error method, iterative stages, and tactical measures. To achieve this, the technological advancement needed are: networked sensor operability, multiscale dynamic modelling and simulation: digital twins, shopfloor trackers, virtual training, intelligent autonomous system, advances in sensing technologies and machine cognition. The following Fig 2 represents an extension of Industry 5.0 in the healthcare sector. Functional near-infrared spectroscopy can be used, where a robotic arm, supported with an ultrasound probe, and is controlled by the operator by his brain, and the command is captured through the wireless, head-mounted fNIRS sensing device. This data is passed to a deep learning model to interpret the intention of the human operator. This system can work with human operator anywhere, i.e., not in the same room of the patient. Thus, it facilitates remote diagnostic procedures over a network. Another example, Fig 3 represents the recommended operating principle of cobots for an assistive task in a trivial workplace task. It requires an assistance to judge the risk in helping, then look for safety factors and finally, approach in a safely manner.

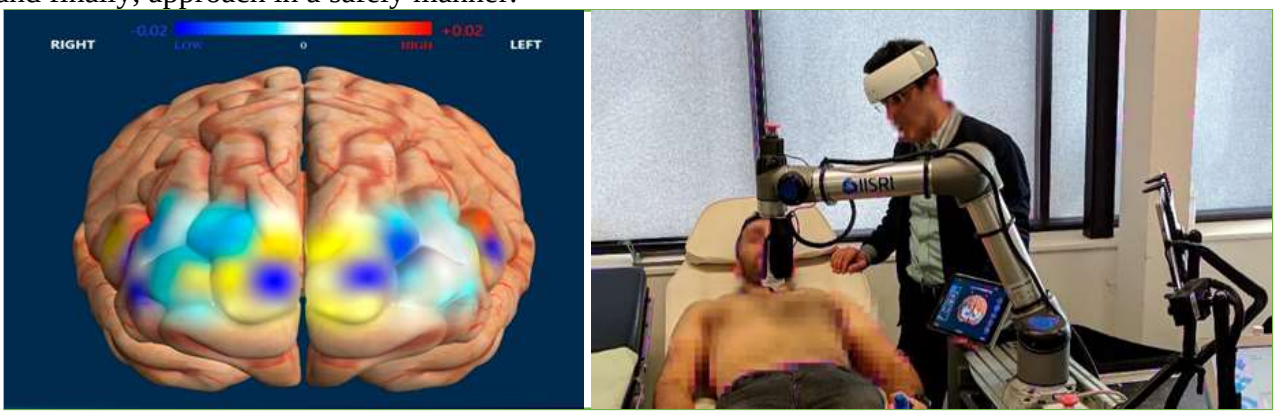

Figure 2: Cobots operating in a workplace.

Source: Nahavandi, Saeid. (2019). Industry 5.0-A human- centric solution. ResearchGate, August 2019 11(6): 4371.

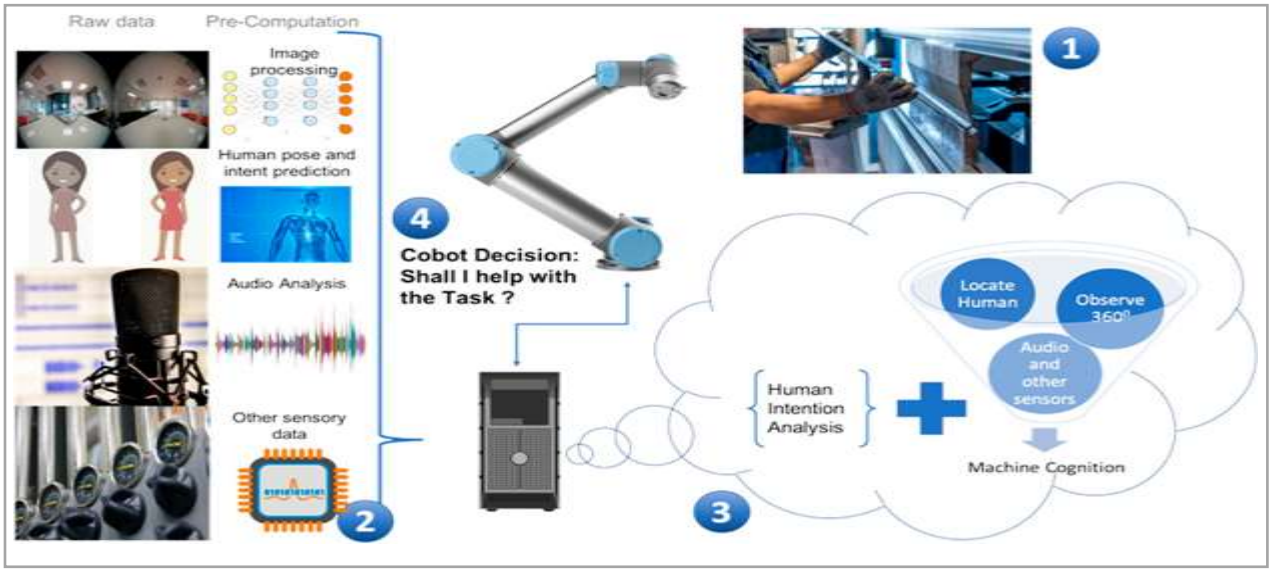

Figure 3: Steps for the operating principle of cobots for an assistive task in a trivial workplace task. *Source*: Nahavandi, Saeid. (2019). Industry 5.0-A human- centric solution. ResearchGate, August 2019 11(6): 4371. Institute for Intelligent Systems Research and Innovation, Deakin University, Australia.

2.1 How HRD maneuvers in Industry 5.0 revolution?

Human resource development is a life-long learning process with theories and practices intended to increase the knowledge, skills, and competencies through deliberate and planned interventions. It creates a learning culture in organizations, development of corporate strategies, improves the individual performance, and manages changes to organizational endurance. HRD is a holistic approach in organizations with structured learning activities for improving job performance, personal growth, and organizational productivity (Gilley & Eggland, 1989). To support this view, Vince (2003) argues that the emphasis of HRD is on action, on building the ability to act on creating the authority through action, and on guiding the changes through actions, and on engaging with others in contingencies with emotions and politics. As learning is a key process in bringing changes by exploring innovative ideas with an individual's capability, creativity, and competency, it urges them to think and act differently while dealing with various dilemmas. Adopting a change strategy by technological advancement is seen by many organizations as being crucial to the provision of HRD and swift changes in the external ecosystem.

As a result of industrial revolution, the entire world witnessed numerous changes and challenges technologically, socioeconomically, and culturally. The new era witnessed drastic changes in the working conditions and lifestyle of individuals. It is evident that right from the first industrial revolution that each phase has its advantages and disadvantages and for this reason the humans are continuously altering the workplace with flexible systems. As a perpetuation of Industry 4.0, Industry

5.0 will blend human power with automated machines to have better output by integrated systems. In this current scenario, the robots are not only programmed machines for monotonous tasks, but it improves the quality of work-life by reducing costs with value-added production processes. Alongside, the advancement in the human touch will create next generation robots, termed as cobots, which can feel the goals and anticipations of a human operator rather than tasks. Cobots have the capacity to watch, learn, and work with humans; therefore, it gives more satisfaction from the jobs. Confronted with uncertainties, swift-changes in market conditions, currency volatility, socio-demographic alterations and so on, organizations have become increasingly reliant on the knowledge, skills, and insights of employees. Unfortunately, many organizations fail to recognize the importance of learning and are fated to lose market share and core capabilities due to inadequate investment for continuous professional development and insufficient recognition of the need to keep abreast of environmental changes. According to Taggar (2002), companies have adopted numerous measures in restructuring their work, selecting individuals based on their abilities, and providing behavioral training to promote creativity. But the costs for those activities yet to meet the strategies for creativity successfully. Therefore, the present study will analyze the necessity and change management processes for Industry 5.0 in selected health sectors within the lens of internally driven factors.

2.1 Embracing diversity

In a globalized market, businesses are not chasing to connect with the customer's views and cultural norms but are fetching employees who can bring knowledge with varied attributes. Modern workplaces, especially in the UAE, have become a melting pot of diversity, with diverse races, ages, religions, talents, and entry of women workforces. The values of embracing diversity have been asserted by Cox and Blake (1991) as enhanced creativity and problem-solving, narrowed employee turnover, higher marketing campaigns to underrepresented societal groups, better flexibility to adapt to changing marketing conditions, and an increased level of productivity.

To support this view, Anand and Winters (2008) point out that diversity is increasingly being placed as a competency in organizations as it leads to paves the way to a diverse environment which in turn enhances higher levels of creativity and divergent thinking. Besides, Bierema (2009) stressed that diversity is rarely discussed in HRD related areas, research, and academic programs. Therefore, it is critical that organizational barriers faced by diverse groups are identified and addressed. Based on this fact, the first hypothesis to be examined is:

H_1: The variable embracing diversity and its related factors in industries have significant role in

Industry 5.0 transformation.

2.2 *Enhancing creativity*

In search with the significance of enhancing creativity, literature provides that creative ideas let organizations to steer to shifting market demand (Nonaka, 1991), increases productivity, innovation, and effectiveness (Amabile and Conti, 1999; Shalley and Gilson, 2004). In 1975, Kerr validated the failures of system approaches in rewarding employees and individual underachievement, which leads to poor organizational outcomes. In this era of Big data and a market-driven economy, creativity is a pressing need to have a competitive advantage and to keep abreast of changes in the external environment (Rajan and Martin, 2001). Studies shown that approaches to the study of creativity have been either cognitive, behavioural (by intrinsic and extrinsic motivation, Baer et al, 2003), or personality based (by identifying individual traits, Amabile, 1983). The cognitive approaches can delve to the framework of the mind and how cognitive processes lead to the production of innovative ideas and processes (Gardner, 1993). Now, this Industry 5.0 entails the collaboration between these cognitive skills and advanced technologies. Although companies have tried numerous strategies to nurture creativity in their workplace, covering training and development, selection procedures, staffing methods, performance measures, redesigning the jobs, talent management, yet they are back to square one to have a creative workplace. (Taggar, 2002). Regarding this reality, it is decided to craft the second hypothesis:

H_2: The variable enhancing creativity and its related factors have significant values in Industry 5.0 innovations.

2.3 Enriching organizational learning

Across the research literature, many descriptions have made on organizational learning, and nowadays organizations realize that learning culture can bring changes by expanding individual's capacity to think differently and approach problems in innovative ways. Unfortunately, however, many organizations hesitate learning policies in their organizational culture, for instance, lack of investment in the professional development and insufficient recognition of the need of the employees and are doomed to lose market share and core capabilities. According to Edmondson and Moingeon (1996) organizational learning is fragmented with some researchers focus on how organizations learn – how systems adapt or process incoming stimuli and others focus on how individuals learn, i.e., how individuals embedded in organizational growth and change by learning. Other contributions by Argyris and Schon (1974, 1978), and Hawkins (1991) lead to single, double, and triple loop learning.

Undoubtedly, action learning, error detection, and correction, critical examination in learning process improve productivity and performance. Thus, it is the cognitive systems that can bring organizational learning by developing their personalities, personal habits, mental maps, norms, and values over time. Keeping this in mind, the third hypothesis to be tested is:

H_3: The variable enriching organizational learning and its related factors are significant in Industry 5.0 transformation.

According to an OECD (2015) report, not all the employee skills that are willing to offer are utilized productively, also a greater mismatch between employee's skills and those required for their job. Moreover, literature supports that there is a greater divergence of skills: highly skilled workers are needed for technology-related jobs, low-skilled workers are hired for services that cannot be automated, digitized, such as personal care; and mid-level skills are being replaced by smart robotics (Michael et al., 2010). To support this view, Handel, 2012 argue that there is no clear trend in cognitive skills requirements within occupations and more direct measures of skills requirements by occupation are less convincing. Hence, this study can bridge the gap in skill development and technological changes.

3. Research Design

A comprehensive literature on Human resource transformation shed-light-on the significance of diversity, individual creativity, and learning, and therefore, decided to consider them as latent variables. Based on this framework, a closed-ended questionnaire, with 28 indicators, by a five-point Likert scale had developed. The study utilized a stratified proportional sampling method with a sample size of 200 employees (varied age, educational qualification, and experiences) from health sectors in the UAE. The random sample technique has used in selecting the organizations. To be specific, the questionnaire consisted of demographic factors, the above-mentioned variables (each variable with 8 indicators), and the impact of HRD function on Industry 5.0 innovations (4 indicators). Supportive reviews had identified in the literature section, and the questionnaire had exhibited in the data analysis section. Moreover, all identified variables are carefully chosen, observed, recorded, and analysed. Thus, survey method aids as a best approach for the quantitative data analysis.

4. Data analysis

As a continuation of the previous part, based on the survey responses, a Confirmatory Factor Analysis had conducted on the 60 observed ordinal items related to diversity, creativity, and learning. This was performed using the R (Version 3.66 Bit) Programming package "Lavaan" (Version 0.6-5) and

followed by the Diagonally weighted least squares (DWLS) estimation method. Three estimations methods commonly used for strong corrections are: a. Maximum likelihood (ML) using the sample covariance matrix, b. Unweighted least squares (ULS) using consistent estimates, and c. Diagonally weighted least squares (DWLS) using polychoric correlation matrix. These estimates are superior to the normal theory-based maximum likelihood when observed variables in latent variable models are ordinal.

4.1 CFA Model fit

The CFA model fit was examined by chi-square statistic; the χ^2/df ratio in which chi-square was adjusted for sample size ((using DWLS of the Polychoric Correlation). The following are the guidelines for assessing model fit: Comparative Fit (CFI) and Tucker-Lewis Index (TLI) greater than 0.90 are indicative of adequate model fit, with values near 0.95 being preferable; a Standardized Root Mean Square Residual (SRMR) below 0.10 and Root Mean Square Error of Approximation (RMSEA) below 0.08 are indicative of acceptable model fit.

Table 1 CFA Model Fit of HRD

lavaan (0.6-5) converged normally after 295 iterations	
Number of Observations	61
Estimator	DWLS
Minimum Function Test Statistic	1009.340
Degrees of freedom	345
P-value (Chi-square)	0.000
Model test baseline model:	
Minimum Function Test Statistic	4222.714
Degrees of freedom	378
P-value	0.000
User model versus baseline model:	
Comparative Fit Index (CFI)	0.827
Tucker-Lewis Index (TLI)	0.811
Root Mean Square Error of Approximation:	
RMSEA 0.181	

90	Percent	Confidence	Interval	0.168	0.194
P-value	RMSEA	<= 0.05	0.000		
Standardized Root Mean Square Residual:					
SRMR	0.196				

The above chi-square model for the goodness of fit for the observed and expected values ensures a significant role in fitting the data well for the study. By calculating the Normed chi-square, it helps to depict the model fits the data precisely, i.e., a least difference between observed and expected values. The latent variable HRD is hypothesized to have three factors namely, embracing diversity (Q1-Q8), individual creativity (Q9-Q16), and organizational culture (Q17-24). The tested measurement model has shown in Fig 4. The model fit is good with a CFI of 0.827, TLI of 0.811, and RMSEA of 0.181 with 90% confidence interval (0.168, 0.194). The $\chi 2$ (minimum function test statistic) is significant with $p<.05$ ($\chi 2$ (3) = 1009.340, $p<.05$). The indicators except Q24, Q25, Q26, Q27, and Q28 all showed significant positive factor loadings, with standardized coefficients above 0.3 (Table 2). There were also significant positive correlations among all three latent factors (Table 3).

Table 2 CFA Factor Loadings

Factor Loadings: Confirmatory Factor Analysis

Factor Loadings (* p<.05 | ** p<.01 | *** p<.001)							
Factors	Indicators	B	SE	Z	Beta	p-value	sig
ED	Q1. Does your organization tolerate diversity?	0.068	0.031	2.192	0.096	0.028	*
	Q2. Have your organization embrace diversity?	-0.443	0.04	-11.01	-0.5	0	***
	Q3. Do you enjoy working in multicultural environment?	-0.5	0.037	-13.51	-0.6	0	***
	Q4. Do you have female employees in the manager level?	-0.675	0.045	-15.13	-0.68	0	***
	Q5. Your organization has pool of employees with multi-cultures?	-0.425	0.03	-14.35	-0.65	0	***
	Q6. Do you feel the management supports the view of diverse culture in decision-making?	-0.516	0.031	-16.52	-0.75	0	***
	Q7. Does your unit have a shared interest?	-0.365	0.027	-13.36	-0.59	0	***
	Q8. Do you feel your leader has more power over you?	0.337	0.034	9.953	0.499	0	***
IC	Q9. Do you have strong urge for learning by observing others?	0.09	0.019	4.813	0.144	0	***
	Q10. Does your organization provide motivation?	0.55	0.036	15.108	0.736	0	***
	Q11. How extent you are socialized (informally) with your team?	0.375	0.031	12.04	0.583	0	***
	Q12. Does your organization give a clear objective to do?	0.528	0.036	14.661	0.675	0	***
	Q13. Does your organization is flexible in tasks?	0.436	0.039	11.27	0.525	0	***
	Q14. Does your company emphasis on rewards and punishments?	0.674	0.038	17.879	0.866	0	***

	Q15. Do you have supportive and shared leadership in your work?	0.595	0.035	16.908	0.797	0	***
	Q16. Do you like to take risks in your workplace?	0.604	0.037	16.42	0.772	0	***
OL	Q17. Do you feel that your company has happy stakeholders?	0.56	0.037	15.059	0.77	0	***
	Q18. Do you feel that your organization has more staff turnover?	-0.29	0.036	-8.009	-0.42	0	***
	Q19. Do you feel your organization has a reputation in the market?	0.238	0.034	6.936	0.352	0	***
	Q20. Do you feel your organization is joyful?	0.43	0.039	11.019	0.578	0	***
	Q21. Do you feel your organization is adaptable to changes?	0.507	0.036	14.124	0.768	0	***
	Q22. Do you feel you are equally treated in your organization?	0.595	0.041	14.439	0.798	0	***
	Q23. Do you have good communication between you and your manager?	0.678	0.041	16.505	0.814	0	***
	Q24. Does your organization have specific deadlines to finish work?	0.034	0.036	0.949	0.047	0.343	
HRD	Q25. Do you have opportunities for systems development through inputs, processes, feedback?	0.123	0.172	0.718	0.681	0.473	
	Q26. Do you have enough opportunities for competencies through skill and knowledge development?	0.18	0.25	0.719	0.84	0.472	
	Q27. Do you feel quality work-life?	0.144	0.201	0.718	0.776	0.473	
	Q28. Do you feel you have a team-learning environment?	0.178	0.248	0.719	0.846	0.472	

ED - Embracing Diversity, IC - Individual Creativity, OC - Organizational Learning, HRD – Human Resource Development

The p-value from the above table clarifies the significance of each indicator to latent variables. Further, to check the model estimators to be non-significant or the data to fit, least difference between expected and observed values. The Std. all is a list of model matrices, the values represent the standardized model parameters, the variances of both the observed and the latent variables are set to unity.

Table 3 Variance of Observed variables

Factor	Item	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
ED	Q1	0.503	0.098	5.109	0	0.503	0.991
	Q2	0.6	0.149	4.015	0	0.6	0.754
	Q3	0.445	0.108	4.129	0	0.445	0.64
	Q4	0.521	0.112	4.666	0	0.521	0.533
	Q5	0.242	0.076	3.194	0.001	0.242	0.573
	Q6	0.212	0.072	2.927	0.003	0.212	0.443
	Q7	0.246	0.065	3.767	0	0.246	0.649
	Q8	0.342	0.13	2.628	0.009	0.342	0.751
IC	Q9	0.381	0.101	3.793	0	0.381	0.979
	Q10	0.255	0.077	3.324	0.001	0.255	0.458
	Q11	0.272	0.066	4.103	0	0.272	0.66
	Q12	0.334	0.075	4.439	0	0.334	0.545
	Q13	0.498	0.133	3.745	0	0.498	0.724
	Q14	0.152	0.082	1.855	0.064	0.152	0.251
	Q15	0.203	0.077	2.629	0.009	0.203	0.365
	Q16	0.248	0.079	3.15	0.002	0.248	0.404
OC	Q17	0.216	0.089	2.415	0.016	0.216	0.408

	Q18	0.386	0.097	3.986	0	0.386	0.821
	Q19	0.399	0.109	3.654	0	0.399	0.876
	Q20	0.368	0.078	4.693	0	0.368	0.665
	Q21	0.179	0.074	2.426	0.015	0.179	0.41
	Q22	0.201	0.096	2.089	0.037	0.201	0.362
	Q23	0.234	0.084	2.772	0.006	0.234	0.337
	Q24	0.518	0.069	7.513	0	0.518	0.998
CR	Q25	0.227	0.07	3.265	0.001	0.227	0.537
	Q26	0.174	0.08	2.179	0.029	0.174	0.295
	Q27	0.177	0.072	2.46	0.014	0.177	0.398
	Q28	0.162	0.08	2.032	0.042	0.162	0.284

The values show the consistency between each latent variable.

Table 4 Regression -HRD

Factors	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
ED	-4.903	5.889	-0.832	0.405	-1.366	-1.366
IC	-0.829	0.676	-1.226	0.220	-0.231	-0.231
OL	-0.754	0.603	-1.251	0.211	-0.210	-0.210

The table clarifies creativity and organizational learning have significant values (std all) as the std error is slightly high for the factor diversity. Based on this inference, the covariances also had measured and is illustrated below.

Table 5 Covariances

Factors	Estimate	Std.Err	z-value	P(>|z|)	Std.lv	Std.all
IC	-0.876	0.057	-15.378	0.000	-0.876	-0.876
OL	-0.851	0.061	-1.004	0.000	-0.851	-0.851

Similarly, the p-values are <0.001, prove its significance to the latent variable, HRD.

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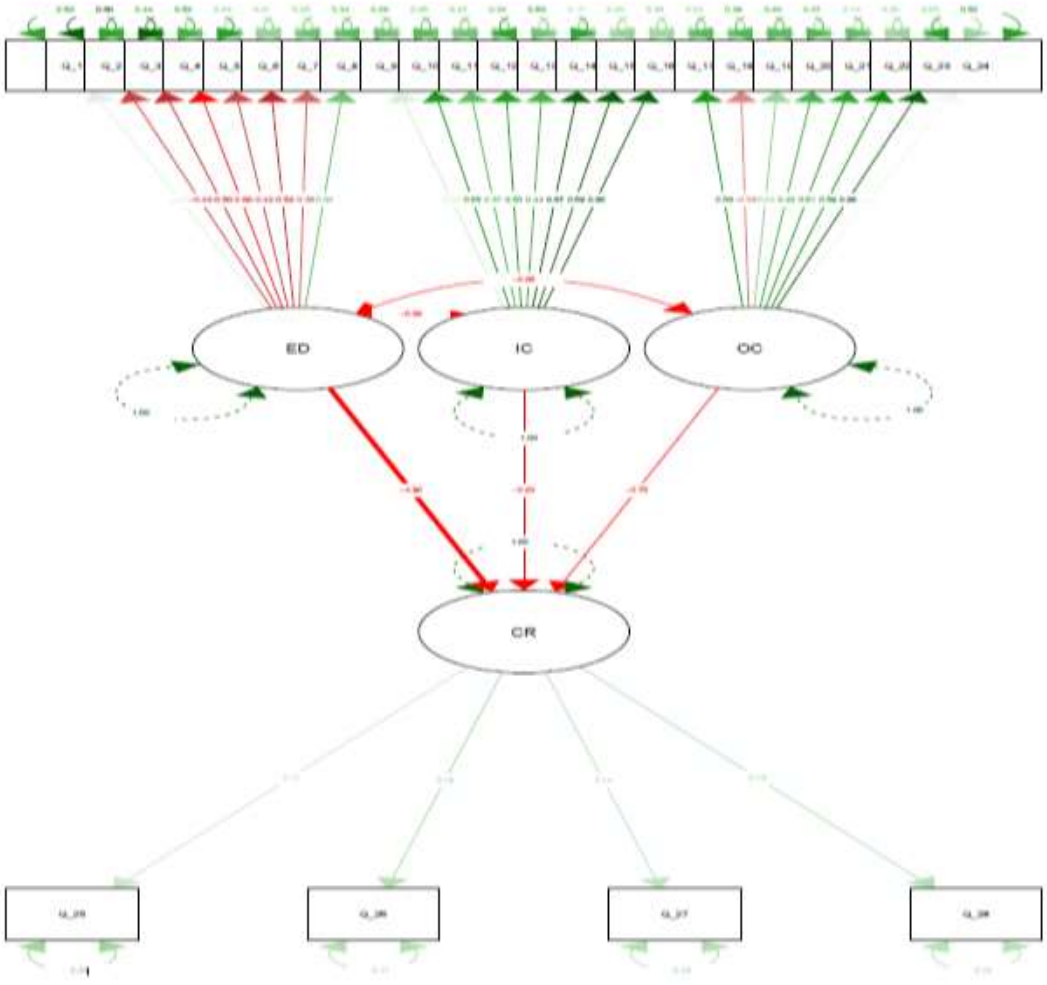

Figure 4: CFA Model
Source: Data analysis

5. Findings and Recommendations

Firstly, a model of fit was created using DWLS and it confirms the validity of the data. Confirmatory factor analysis by model fit indices (Table 6) clarifies that all elements weighed appropriately with the dependent variables. The fit measures were examined by Chi Square test and confirms the goodness of fit (degrees of freedom is 345). Various measures derived from the CFA reinstates the relationship between the factors and the latent variables. The model fit is good with a CFI of 0.827, TLI of 0.811, and RMSEA of 0.181 with 90% confidence interval (0.168, 0.194). The $\chi 2$ (minimum function test statistic) is significant with $p<.05$ ($\chi 2$ (3) = 1009.340, $p<.05$). The indicators except Q24, Q25, Q26, Q27, and Q28 all showed significant positive factor loadings, with standardized coefficients above 0.3 (Table 2). Moreover, Z value represents the Wald statistic and the distribution

score of the data and are obtained by dividing the parameter value by its standard error, P(>|z|). A greater Z value indicates the positive correlation amongst the variables and factor loadings. Beta is the standardized regression coefficient and compares the relationship amongst variables, it varies from -1 to 1 and greater estimate points a stronger relationship. A The tested measurement model has shown in Fig 4.1. Thus, the H1, H2 and H3 were accepted, even though individual creativity indicators show variations in their response. There were also significant positive correlations among all three latent factors (Table 3). The latent variable HRD is hypothesized to have three factors namely, embracing diversity (Q1-Q8), individual creativity (Q9-Q16), and organizational culture (Q17-24). The hypothesis test through regression analysis shows there is some disparity amongst respondents for the factor, embracing diversity as the standard deviation is found to be 5.889 and p-value as 0.405 (Table 4). As a next step, the covariances confirms the significance level with a p-value <0.001 and standard error of 0.057 and 0.061 for individual creativity and organizational learning respectively (Table 5). The factors, individual creativity and organizational culture have stronger correlation as the estimate measures and std. all matrices are closer to zero. Furthermore, the measures are closer to each other and it confirms higher covariance as well. This indicates similar responses from the survey and a stronger relationship with limited variances. Since diversity has a higher std. error estimate, the responses are unlikely valid due to higher error ratio among survey responses. A 'cradle to grave' review of organizational practices needs to be adopted to ensure that such practices meet the needs of both the dominant group and diverse group. Empowering employees to express their identity within their organization without fear of harassment or reprisal can impact the higher levels of job contribution, commitment, creativity, and satisfaction. Hence, the values proved that more attention needs to be devoted to integrating diversity within selected health sectors' structural, political, and cultural framework (Cox and Blake, 1980, Anand and Winters, 2008). This study advocates that mentoring and networking activities will allow minority employees to construct important relationships and help them to augment their career. Moreover, diversity and awareness training can make managers and supervisors more aware of the challenges facing diverse employees and in turn support them in preventing discrimination. The concepts in this study confirms the alignment between actual behavior and rewarded behavior in enhancing creativity. It strengthens the pertinence of creative approaches in selected organizations (Amabile, 1983; Gardner, 1993, Baer et al, 2003). Moreover, it confirms that creativity is contextualized, and organizations must encourage leader support, intrinsic and extrinsic motivation, autonomy, risk-taking disposition, social, and

cultural identity, and furnish socio-technical systems in the workplace. For embedding a learning culture, learning should be viewed as an organizational improvement process, integrating business processes and developmental approaches (Edmondson and Moingeon, 1996). The values prove that organizational learning as a transformational process in which organization's knowledge, competency base, new policies, objectives, and mental maps are formulated. Hence, the selected sectors emphasize continuous learning opportunities, promote enquiries and dialogues, encourage collaboration and team learning, empower employees towards a collective vision, networking, and mentoring. To gear up Industry 5.0, three key elements namely, smart devices, smart automation, smart systems coupled with a human touch by HRD go hand in hand.

Figure 5: Industry 5.0: a change management gizmo in Human resource development.

6. Conclusion

The study is devoted for organizations looking to keep their finger on the pulse of corporate cohort strategies. Industry 5.0 will increase the productivity and operational efficiency, more environmentally friendly, reduce work injury, and shorten production time cycles. Contrary to present intuition, this will create more jobs than it takes away through intelligent systems arena, AI, learning machines, training, scheduling, repurposing, and invention of a new breed of manufacturing robots. Moreover, it is designed in such a way that the identified variables namely, diversity, creativity, and organizational learning remains a vibrant and valuable area within the field of HRD. Since repetitive tasks need not to be performed by a human worker, it will allow creativity in the work process. Additionally, these can be beneficial to employees in facilitating them connect with other learners, build their confidence and competence, and ensure that learners perform up to certifiable standards. Therefore, this study investigated the HRD factors in achieving Industry 5.0 and vice-versa towards a human-tech-enhanced future. It is designed for government leaders, AI partners, AI startups, and

organizations that are inclined to change management. Hence, this can boost the global economy and increase cash flows across the globe.

5.1 Limitations

Basically, in a cross-sectional research like this only limited information could be collected. Attitudes and beliefs would change with demographic factors and work effectiveness. Though the dialogue was limited and mainly through survey, it can be biased. Some factors found to be less significant in the analysis part as change in economic factors, glass ceiling effect, stereotyping, and dominant masculine culture, can be the reasons. It is equally important to consider the ethical issues of the workforce. Ethical behavior in autonomous system must be subjected to verification and validation.

5.2 Future scope

As there is a move from mass customization to mass personalization, these types of studies are need of the hour. The personalization can be achieved only by Industry 5.0 as human needs are transforming and it is a continuous process. From the results, it identifies that workforces in Industry 4.0 are expected to work like machines, "programmed" by management to perform an exact number of tasks every hour. This can reduce the problem-solving skills of employees, lessen the value-added human creativity, and diminish the critical ability. Furthermore, more start-ups can be developed in customer robotic solutions in terms of both hard wares and soft wares. Additionally, it strengthens the green revolution by diminishing energy wastage. Without no doubt, the Industrial revolution continues to evolve and therefore, a human touch demands in all areas of process efficiency for a sustainable growth of the society. Likewise, HRD with multifactorial approach can unlock all revolutionary challenges in the near future.

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