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Article

From global to regional perspective: unveiling Asia's human resource development trends through bibliometric lenses

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From global to regional perspective: unveiling Asia's human resource development trends through bibliometric lenses

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ABSTRACT

Human Resource Development (HRD) has evolved tremendously since 1969, following the transition from an individual and organizational focus to a regional perspective. However, a comprehensive review of HRD specifically focused on the Asian region using bibliometric analysis has not been published. Given this gap, this bibliometric analysis utilized VOS Viewer, Bibliometric R-package, and Map Chart software to evaluate HRD-related publications originating from Asia, using data extracted from Scopus. The analysis involved nine indicators, including highly cited papers, influential authors, co-authorship patterns among countries, productive journals and nations, thematic mapping, emerging trends, keyword co-occurrence, bibliographic coupling, and related industries. The results showed that HRD in Asia is still undergoing development, with contributions from Asian scholars since 1984. As one of the pioneering regional bibliometric studies on HRD, this analysis provides insights to existing scholars, future researchers, and practitioners into HRD developments in Asia, while suggesting potential areas for future research advancement.

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1. Introduction

The introduction of the term 'human resource development' (HRD) by Leonard Nadler in 1969 has opened multiple streams for research and practices towards developing human resources. This has resulted in the transition of HRD roots from individual and organizational levels of HRD functions such as training and development, organization development, performance improvement, organizational learning, career development, and management and leadership development (Torraco & Lundgren, 2019) to a 'context-specific nature and purpose of HRD'. These context-specific HRD include the individual, family, organization, international organization, community, nation-state, region, and global entity (Crocco & Tkachenko, 2020).

From a regional perspective, a review of HRD literature reveals attempts by Asian authors with varied applications of HRD concepts including in the fields of Business, Management and Accounting (Osolase et al., 2023), Economics (Kurniasih et al., 2023), Engineering (Nguyen & Hadikusumo, 2017), Computer Science (Chung & Lin, 2022), Environmental Science (Tasdiyanto, 2017), Medicine (Kia et al., 2021), Arts and Humanities (Ahmed et al., 2016), and Psychology (Tang, 2020).

Since the first published HRD article in 1962 in The Journal of Economic History (Bowman, 1962), several authors have reviewed and analysed the global perspective of HR-related research using systematic literature review (SLR) (Jotabá et al., 2022), meta-analysis (Blom et al., 2018) and literature review (Coron, 2021). For instance, in their SLR, Jotabá et al. (2022) analysed 33 years of publications, research trends and intellectual structure of human resource management (HRM) from 1987 to 2020. In another study, Blom et al. (2018) conducted a meta-analysis to explore the differences in the effects of HRM practices on individual performance across sectors. Nevertheless, the study did not include other

bibliometric information such as highly cited papers, influential authors, productive journals and countries, patterns of co-authorship among different countries, emerging trends, thematic mapping, keyword co-occurrence analysis, and bibliographic coupling of documents. In a different study, Coron (2021) performed a literature review to quantify HRM from the data sources, objectives and representations of quantification in HRM. Despite their comprehensive discussions, these articles were focused on the HRM context which is different in terms of human resource activities and functions (Werner, 2014).

Specific to the field of HRD, Shirmohammadi et al. (2020) explored past and current studies to bridge the gaps and project future HRD studies using topic mapping technique of five primary HRD journals. The four journals were Human Resource Development International, Human Resource Development Review, Human Resource Development Quarterly, Advances in Developing Human Resource, and European Journal of Training and Development. The findings revealed that research on HRD in Asia is starting to emerge and holds promising potential.

With the proliferation of research that focuses on the global context, some questions remain: 'How about the Asian region?' and 'What are the previous, present and future developments of HRD in this region?'. Following calls for more self-confidence in Asian scholars (Froese et al., 2022; Meyer, 2006) to enhance data collection and analysis of existing HRD efforts and to establish more evidence-based HRD (Tkachenko et al., 2022) it is time for a review that captures the development on this topic and the characteristics of HRD articles in Asia as this kind of information is not yet available in the literature.

With reference to bibliometric analysis, HR-related topics from the global perspective are for instance, big data analytics, psychology, human resource management, green human resource management, HR analytics, and artificial intelligence (See Table 1). HRD at the regional level has been largely unexplored in the scholarly literature. To date, only 19 Scopus articles in the Asian context have been published using bibliometric analysis in the fields of social sciences and business, management and accounting. Thus, the new emerging contexts and underdeveloped areas in relation to HRD scholarship in the Asian region remain unclear. Moreover, there are limited scholarly works that cover summaries on HRD research in Asia despite the popularity of HRD literature across different study areas (Pham-Duc et al., 2023). The exceptions are reviews by Pham-Duc et al. (2023) and Yoon and Chae (2022) which were focused on the analyses of HRD research from the global perspectives. As a corollary, Pham-Duc et al. (2023) have directed future HRD studies to be conducted in the Asian context.

To the authors' knowledge, no previous research explores the research productivity of Asian scholars in HRD research. In the context of Asia, several review studies have been conducted to uncover the development of the field in the region. However, these studies were centred around the context of HRM, used different research approaches, and focused on specific countries (Chen et al., 2018; Cooke et al., 2020; Malik et al., 2022; Poon & Rowley, 2010). Although the fields of HRD and HRM are related, they are different in terms of perspective. The primary goal of HRD is to ensure that organisational members have access to resources that will enhance their performance capacity and to contextualise their experience in light of the organisational strategic needs and demands of their jobs. This contributes to both long-term strategic performance and more immediate performance improvement. Furthermore, this description of HRD encompasses several facets of HRM as well. Yorks (2005) also emphasises the significance of HRM systems being tailored to strategic HRD.

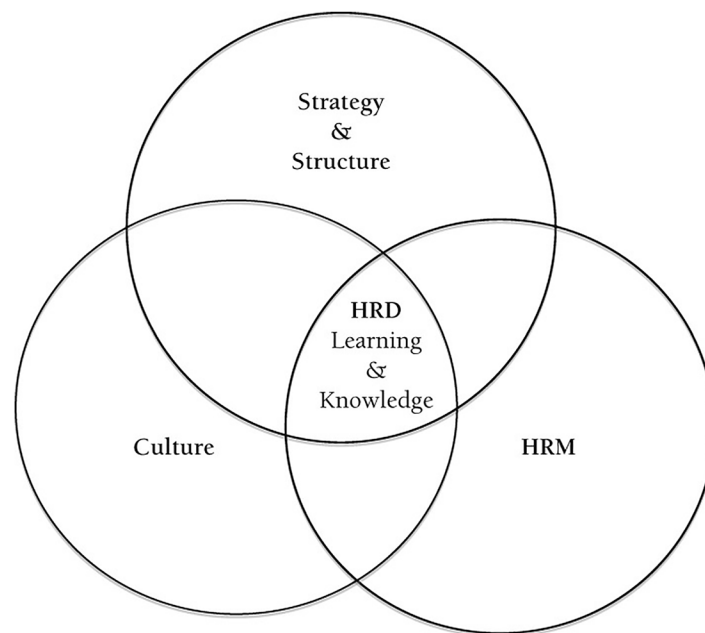
In their model, Mankin (2001) has posited that HRD consists of three elements which are training and development, career development, and organisation development. The model also illustrates how the three themes may intersect. In this context, HRD emphasis on individual learning and knowledge, at the junction of organisational strategy/structure, culture, and HRM, is the main overlap (see Figure 1). The debate from both HRD and HRM sources is consistent with this perspective of HRM as being more comprehensive than HRD. Most people consider subjects like staffing, compensation, and employee relations/communications to be HRM subjects that do not immediately relate to HRD.

Hence, a study that focuses on the contributions of HRD scholars from Asia is a missing link. As attested by Babbar et al. (2000), such study brings recognition to the key scholars that contribute to the development of a field and initiates further discussions. Similarly, reviews that centre around emerging areas play a crucial role in offering insights into the present state and categories of research areas within a specific topic and from Asian perspective (Donthu et al., 2021; Razali & Arifin, 2023). Therefore, it is imperative to conduct a thorough examination of existing literature, systematically synthesize its content,

Table 1. HR-related studies using bibliometrics analysis.

No	Author	Paper title	Study area	Database/Source(s)	Year of publication
1	Fauzi et al. (2022)	Bibliometric review on human resources management and big data analytics	Big data analytics	Web of Science (WoS)	2022
2	Wani and Ganaie (2023)	Mapping human resource management scholarly literature through bibliometric lenses: a case study of library and information science	Human resource management	Web of Science (WoS)	2023
3	Zhang et al. (2023)	A bibliometric analysis of the psychologisation of human resource management	Psychology	Scopus and Web of Science (WoS)	2023
4	Faisal (2023)	Twenty-Years Journey of Sustainable Human Resource Management Research: A Bibliometric Analysis	Human resource management	Scopus	2023
5	Khan and Muktar (2020)	A bibliometric analysis of green human resource management based on Scopus platform	Green human resource management	Scopus	2020
6	Pham-Duc et al. (2023)	Global scientific literature on human resource development: a bibliometric analysis using Scopus database	HRD	Scopus	2022
7	Arora et al. (2022)	A critical review of HR analytics: visualization and bibliometric analysis approach	HR analytics	Scopus	2022
8	Yoon and Chae (2022)	Research Topics and Collaboration in Human Resource Development Review 2012–2021: A Bibliometrics Approach	HRD	Web of Science (WoS)	2022
9	Mohammad Saif and Islam (2022)	Blockchain in human resource management: a systematic review and bibliometric analysis	Blockchain	Scopus and Web of Science (WoS)	2022
10	Danvila-del-Valle et al. (2019)	Human resources training: A bibliometric analysis	Training	Web of Science (WoS)	2019
11	Ghalawat and Kaushal (2021)	Research perspective of artificial intelligence and HRM: a bibliometric study	Artificial intelligence	Scopus	2021

Note(s): This table shows the HR-related bibliometric studies from the Scopus database.

**Figure 1.** A model of HRD, HRM, strategy, and culture (adapted from Mankin, 2001).

and present the key findings. These reviews can identify research gaps and limitations while suggesting potential directions for future research, thus providing valuable guidance to future researchers.

In view of these gaps and the importance of review studies, our study evaluated and assessed the research productivity of HRD authors in Asia by reviewing their publications in the Scopus database. Our focus is to understand research productivity at the individual, institutional and country level. To this end, the present study uses bibliometric techniques, which integrate numerous quantitative tools capable of managing enormous data sets related to the literature (Donthu et al., 2021). Following that, the present

bibliometric analysis examines the current state of the HRD in Asia and provides valuable scholarly foundations for advancing future research in the field.

Best of our knowledge, the present study will be the first bibliometric analysis of HRD research conducted in the Asian context. The following questions are addressed in the present study:

RQ1. What are the trends and patterns of development in HRD research from Asia up until 2023?

RQ2. What are the highly-cited documents and the prolific authors, countries and journals in HRD research from Asia?

RQ3. What are the thematic patterns in HRD research from Asia?

RQ4. What are the industries related to HRD research from Asia?

RQ5. What are the prospective research areas in HRD?

2. HRD: an Asian scope

With the increasing influence of HRD theory and practices, studies on the contextual aspects of HRD have also expanded (Jabarkhail, 2023). Scholars have long recognized the regional role in developing human resources (Garavan et al., 2016). Despite existing studies on HRD-related individual contexts (Garavan et al., 2023) and organizational contexts (Saks, 2021), there is a growing recognition of the importance of National HRD (Garavan et al., 2018; Oh et al., 2013). Furthermore, HRD researchers have called for multilevel investigations to advance National HRD research, including regional perspectives (Crocco & Tkachenko, 2020). At this point, National HRD can be defined as 'a collective vision with corresponding activities for HRD carried out by a group of countries for the benefit of their individuals, organizations, communities, nations, and the region as a whole' (Crocco & Tkachenko, 2020).

With Asia's population representing almost half of the worldwide labour force of approximately 1.2 billion over 3.43 billion (The World Bank, World Development Indicators, 2022) across 48 countries, strong calls have been made for future investigations, specifically for developing countries, including Asia (Pham-Duc et al., 2023). Results from Shirmohammadi et al.'s (2020) study on future HRD reveal that Asia's contribution is vital to the national HRD context. Regarding this, (Mehrotra, 2017) suggests leveraging training and vocational education to create centres of excellence and pre-employment training institutions in African countries, which would address the skill gap in the region and offer potential cooperation between Asia and Africa. Using an APEC case study, Haworth (2013) articulates the relationship between states and MNEs as they consider appropriate reconfigurations of HRD in the Asian region, contributing to our understanding of global production in the 21st century.

More recently, Pham-Duc et al. (2023) discussed the global scientific literature on HRD and suggested conducting future studies from the Asian perspective. Following this inquiry, our study focuses on national and regional HRD perspectives, drawing on Asian contributions, to explore past, present, and future HRD perspectives in shaping regional HRD in Asia. This study assesses and evaluates the research productivity of Asian contributors by reviewing their publications across the Scopus database. Our aim is to identify the highly cited papers, influential authors, patterns of co-authorship among different countries, productive journals and countries, thematic mapping, emerging trends, keyword co-occurrence analysis, and bibliographic coupling of documents. This paper starts with a discussion of the methodological approach used. Next is a presentation of the results, followed by an analysis of the articles published by Asian researchers. The paper concludes with a summary of the contributions and limitations of this study.

3. Methodology

3.1. Bibliometric analysis

This study was performed using a bibliometric analysis approach. It is a quantitative approach that enables researchers to identify potential areas of study in a particular field (Wallin, 2005). This method can also be used to evaluate the impact of published works on a given area of study (Ellegaard & Wallin,

2015). According to Donthu et al. (2021), by using bibliometric analysis researchers can provide a comprehensive overview of a research topic, identify and highlight knowledge gaps, and therefore propose areas for future research.

3.2. Choosing the database

This study utilized the Scopus database as the main source for data extraction. It is one of the most comprehensive databases besides the Web of Sciences and Google Scholar. At present, the database has more than 84 million records including more than 18 million open-access items. This corresponds with Aksnes and Sivertsen (2019) finding that Scopus has broader coverage as compared to the Web of Science. Meanwhile, Google Scholar was not chosen as the database for this study due to its inconsistencies in indexation (Mongeon & Paul-Hus, 2016).

3.3. Technique for analysis

We applied the bibliometric analysis procedures specified by Hanaa and Abdul (2023) to provide an exhaustive overview of the trends related to HRD studies in the Asian context. R-package software and VOS Viewer software were employed to analyse data for the present study. The R-package software identifies the most influential authors, publications, countries and sources based on their total citations and publication count. Moreover, it visualizes the international collaborations among authors, considering the countries of origin of the articles they have authored. Furthermore, we use the software to provide a thematic map and trending HRD topics based on the keywords used in the articles. This enables us to understand the current research themes and project potential areas for future research. On the other hand, the VOS Viewer software shows the relationship between keywords and provides insights into the structure of knowledge in HRD. In addition, we used the software for bibliographic coupling to explain the themes.

3.4. Data collection

Data collection and extraction in this study involved a detailed and systematic process using the Scopus database. This involved the researchers using a similar search string as a bibliometric study on HRD by Pham-Duc et al. (2023) in the same database. It should be noted that the researchers purposely did not set a time limit for data extraction as this study intends to capture the evolution of HRD research in the Scopus database. The data collection process involved in the study is illustrated in Table 2.

3.5. Scope of search

This bibliometric analysis encompasses research on HRD only. That said, only research that explicitly addressed HRD was included in this study while those that did not were excluded. HRD research that was focused on other regions than Asia was also excluded. To do this, the researchers selected the Asian countries using the filters menu in the Scopus database, hence eliminating unrelated countries.

Table 2. Search procedure.

Filtering criteria	Excluded	Included
Database: Scopus		
Date of search: 15 July 2023		
Keywords: 'Human Resource Development' in the article title, abstract and keyword		
Published from: No time limit		
Language: documents in English only		
Document type: include only 'articles'		
Limit to: documents with publication stage as 'final'		534
Duplications	1	533
Content screening: Articles in which the scope of the study (Human Resource Development) discussed in 'Titles, Abstracts, and Keywords' are only included	306	227

Note(s): This table shows the filtering criteria used to reach the final compilation of 227 studies.

4. Results

4.1. Sample characteristics

Our final compilation resulted in 227 articles which were produced by 160 journals and written by 160 authors from 34 countries. This sample covered 22 subjects which were published from 1984 to 2023.

4.2. Performance analysis

4.2.1. Publication trend

The first recorded HRD study in Asia in the Scopus database was that by H. A. B. Parpia (1984) titled, 'The United Nations University's approach to Human Resource Development in Food Science and Technology'. The article was published in Sage's journal 'Hunger and Technology'. Finding from this study is the foundation of historical research on HRD to train for leadership people who are capable of finding solutions to the problem of food, poverty, and nutrition in relation to socio-economic needs. This research included the participations from all territories with Asia is the highest fellows trained in hunger, technology, and society and hunger, health, and society (Parpia, 1984). Figure 2 depicts the total number of papers that are plotted against each year of publication. This figure shows the publishing trend of HRD from 1984 to 2023. It can be observed from Figure 2 that the publication growth of HRD in Asia from years 1984 to 2010 was quite modest with less than 7 articles per year. 20 years after the first publication, the number of publications shows a sharp increase in 2011. This is because, there is a noticeable shift in focus from HRD discussions primarily within the field of business and management to an emergence in other disciplines such as engineering, medicine, computer science, and environmental science. This shift indicates a growing recognition of the importance of HRD practices in diverse sectors beyond business, reflecting the broader applicability and relevance of HRD across various professional domains. Although the years 2011 to 2023 indicate researchers in Asia have started to gain momentum in publication, the trend shows a fluctuation within those years with the year 2020 (22 articles) being the most productive. Correspondingly, with 2023 already entering its third quarter, the number of articles published so far is 7 articles which is more than 50% less than the number of publications in 2022. This indicates publication on this topic in 2023 is not as rapid as the previous year.

4.2.2. Top authors and countries of HRD-related research in Asia

Table 3 presents the most influential HRD authors in Asia as well as the top countries with the most cited documents which have been obtained through citation metrics. Out of the 160 authors, Arshad M.A. (Malaysia) and Mahmood A. (Malaysia) emerge as the most influential authors in this field with 92 citations each. This is followed by Ahmed A. (Pakistan) with 84 citations. These top three prominent authors focus on the topic of HRD in the context of spiritual quotient towards organizational sustainability and

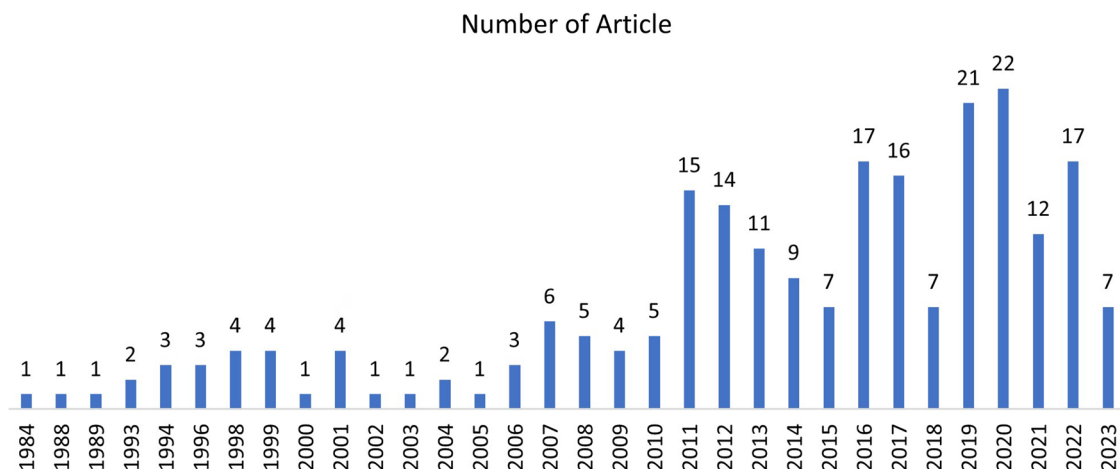


Figure 2. Publication trend of HRD research in Asia.

Table 3. Top authors and countries of HRD-related research in Asia.

Ranking	Author	TP	Institution/country*	Author	TC	Institution/country*	Countries	TP	Countries	TC
1	Khasawneh S.	5	Hashemite University, Department of Curriculum and Instruction, Zarqa, Jordan	Arshad M.A.	92	Universiti Sains Malaysia, Minden, Malaysia	India	41	Malaysia	249
2	Arshad M.A.	4	Universiti Sains Malaysia, Minden, Malaysia	Mahmood A.	92	Universiti Sains Malaysia, Minden, Malaysia	Malaysia	28	China	199
3	Ismail M.	4	Universiti Putra Malaysia, Department of Professional Development and Continuing Education, Serdang, Malaysia	Ahmed A.	84	University of Turbat, Department of Management Sciences, Turbat, Pakistan	Japan	26	India	160
4	Mahmood A.	4	Universiti Sains Malaysia, Minden, Malaysia	Akhtar S.	84	Universiti Sains Malaysia, Minden, Malaysia	China	18	South Korea	117
5	Sulaiman N.L.	4	Universiti Tun Hussein Onn Malaysia, Faculty of Technical and Vocational Education, Batu Pahat, Malaysia	Hassan A.	82	International Islamic University Malaysia, Kuala Lumpur, Malaysia	Indonesia	17	Thailand	102
6	Ahmed A.	3	University of Turbat, Department of Management Sciences, Turbat, Pakistan	Khasawneh S.	78	Hashemite University, Department of Curriculum and Instruction, Zarqa, Jordan	Iran	15	Japan	101
7	Akhtar S.	3	Universiti Sains Malaysia, Minden, Malaysia	Choi J.N.	57	Seoul National University, Seoul, South Korea	Thailand	14	Saudi Arabia	99
8	Sadaike Y.	3	Tohoku University, Sendai, Japan	Chaudhary R.	54	Indian Institute of Technology Patna, Patna, India	Jordan	13	Jordan	93
9	Sakurai A.	3	Tohoku University, Sendai, Japan	Rangnekar S.	54	Indian Institute of Technology Roorkee, Roorkee, India	South Korea	12	Pakistan	73
10	Salleh K.M.	3	Universiti Tun Hussein Onn Malaysia, Batu Pahat, Malaysia	Cchoui M.M.	50	Arab Open University Kuwait, Safat, Kuwait	Pakistan	9	Indonesia	62

Note(s): Institution/Country details generated from the Scopus database.

TP=Total productions; TC=Total citations.

spiritual intelligence for the development of human resources. Traditionally, organizations focus on boosting individual knowledge, skills, abilities (intelligence quotient), and emotional control (emotional quotient) to nurture their human capital. Despite this emphasis, organizations often fall short in adopting a holistic approach to HRD, and this oversight can negatively affect their performance. Thus, researcher believes when employees possess strong spiritual quotient, they can contribute meaningfully to the organization, leading to improved performance. Researchers also suggest that spiritual quotient is a valuable, multi-dimensional aspect that contributes to a comprehensive HRD mechanism. Meanwhile, in terms of total production, Khasawneh S. (Jordan) produces the highest number of publications with five articles. This is followed by Arshad M.A. (Malaysia) and Ismail M. (Malaysia) with four articles each. These top three productive authors focus on the topic of HRD in higher education, spiritual quotient towards organizational sustainability and small medium enterprise.

Among 34 countries that have a minimum of one document published in this area, the top contributor in HRD research is India with 41 publications followed by Malaysia and Japan with 28 and 26 publications, respectively. Meanwhile, Malaysia has the highest number of citations (249 citations) followed by China (199 citations) and India (160 citations) (See [Figure 3](#) and [Table 3](#)).

4.2.3. Top sources for HRD-related research in Asia

[Table 4](#) displays the top publication of HRD research in Asia. The two most significant sources are Human Resource Development International and Journal of European Industrial Training with 193 and 82 citations respectively. The Journal of European Industrial Training is recognized as a prominent source for HRD-related research in Asia due to its dedicated focus on training needs specific to the industrial sector. Nonetheless, the journal's relevance extends beyond Europe, as it also includes global cases when relevant. However, the most prolific sources in terms of publications are Management Research Review and Journal of European Industrial Training with 15 and 6 productions, respectively. Examining [Table 4](#) with



Figure 3. Countries with top intellectual contributions in HRD research.

Table 4. Top sources for HRD research in Asia.

Ranking	Source title	NOC	NOP	Publishing house	Quartile	HR
1	Human Resource Development International	193	1	Taylor and Francis	Q1	/
2	Journal Of European Industrial Training	82	6	Emerald Group	Q2	/
3	Advances In Developing Human Resources	65	4	SAGE Publications Inc.	Q2	/
4	Journal Of Organizational Behavior	57	2	Wiley Blackwell	Q1	
5	International Journal of Productivity and Performance Management	42	5	Emerald Group	Q1	
6	Team Performance Management	35	1	Emerald Group	Q2	
7	Management Research Review	34	15	Emerald Group	Q1	
8	Educational Technology and Society	33	2	International Forum of Educational Technology, National Taiwan Normal University and Society	Q1	
9	Journal Of Chinese Economic and Foreign Trade Studies	28	1	Emerald Group	Q3	
10	Built Environment Project and Asset Management	27	1	Emerald Group	Q3	

Note(s): NOC=No of citations; NOP=No of productions.

a focus on HRD against non-HRD-oriented journals reveals that the top ten journals that publish HRD topics are from different social sciences fields such as industrial training, organizational behaviour, economics and education. This indicates there is a wide range of multidisciplinary social sciences journals that accept publications on HRD.

4.2.4. Top articles on HRD-related research in Asia

Table 5 shows the top 10 cited articles on HRD which are ranked based on the total number of citations. The most cited article by far belongs to Sung and Choi (2014) titled Multiple Dimensions of Human

Table 5. Top articles on HRD research in Asia.

Ranking	Title	Author	Source	First author institution/country	Total citation
1	Sung, S. Y., & Choi, J. N. (2014). Multiple dimensions of human resource development and organizational performance. <i>Journal of Organizational Behavior</i> , 35(6), 851–870. doi:10.1002/job.1933	Sung and Choi (2014)	Journal of Organizational Behavior	School of Business, Nanjing University, Nanjing, China	57
2	Hassan (2007). Human resource development and organizational values. <i>Journal of European Industrial Training</i> , 31(6), 435–448. doi:10.1108/03090590710772631	Hassan (2007)	Journal of European Industrial Training	International Islamic University Malaysia, Kuala Lumpur, Malaysia	55
3	Achoui, M. M. (2009). Human resource development in Gulf countries: An analysis of the trends and challenges facing Saudi Arabia. <i>Human Resource Development International</i> , 12(1), 35–46. doi:10.1080/13678860802638826	Achoui (2009)	Human Resource Development International	Arab Open University Kuwait, Safat, Kuwait	50
4	Rutledge, E., Al Shamsi, F., Bassioni, Y., & Al Sheikh, H. (2011). Women, labour market nationalization policies and human resource development in the Arab Gulf states. <i>Human Resource Development International</i> , 14(2), 183–198. doi:10.1080/13678868.2011.558314	Rutledge et al. (2011)	Human Resource Development International	The Open University, Milton Keynes, United Kingdom	43
5	Raj Adhikari (2010). Human resource development (HRD) for performance management. <i>International Journal of Productivity and Performance Management</i> , 59(4), 306–324. doi:10.1108/17410401011038883	Raj Adhikari (2010)	International Journal of Productivity and Performance Management	Central Department of Management, Tribhuvan University, Kathmandu, Nepal	42
6	Chaudhary, R., Rangnekar, S., & Barua, M. K. (2012). Relationships between occupational self efficacy, human resource development climate, and work engagement. <i>Team Performance Management: An International Journal</i> , 18(7/8), 370–383. doi:10.1108/13527591211281110	Chaudhary et al. (2012)	Team Performance Management	Indian Institute of Technology Patna, Patna, India	35
7	Yang, B., Zhang, D., & Zhang, M. (2004). National human resource development in the People's Republic of China. <i>Advances in Developing Human Resources</i> , 6(3), 297–306. doi:10.1177/1523422304266076	Yang et al. (2004)	Advances in Developing Human Resources	Tsinghua University School of Economics and Management, Beijing, China	35
8	Mahmood, A., Arshad, M. A., Ahmed, A., Akhtar, S., & Khan, S. (2018). Spiritual intelligence research within human resource development: A thematic review. <i>Management Research Review</i> , 41(8), 987–1006. doi:10.1108/mrr-03-2017-0073	Mahmood et al. (2018)	Management Research Review	Universiti Sains Malaysia, Minden, Malaysia	34
9	Al-Ruz, J. A., & Khasawneh, S. (2011). Jordanian pre-service teachers' and technology integration: A human resource development approach. <i>Journal of Educational Technology & Society</i> , 14(4), 77–87.	Al-Ruz & Khasawneh (2011)	Journal of Educational Technology & Society	Hashemite University, Zarqa, Jordan	33
10	Rao, T. V. (2004). Human resource development as national policy in India. <i>Advances in Developing Human Resources</i> , 6(3), 288–296. doi:10.1177/1523422304266075	Rao (2004)	Advances in developing human resources	Chairman of T V Rao Learning System (TVRLS), India	30

Resource Development and Organizational Performance with 193 citations. The article offers practical guideline for creating and implementing HRD programs within organizations. The guidelines cover various dimensions, including investing resources in HRD, exposing employees to HRD initiatives, gaining support from management, and highlighting the perceived benefits of HRD. While the primary goal of HRD is to enhance employees' commitment to ultimately increase organizational income, the article argues that organizations may struggle to achieve this goal unless they secure employee buy-in for HRD programs. This buy-in is based on employees' perceptions of the benefits and a genuine sense of care from the organization's management.

The article suggests that organizations can encourage voluntary employee participation in HRD by moving beyond merely providing financial support and opportunities. Instead, they should adopt quality-oriented approaches to HRD. These approaches involve not only convincing employees of the management's sincere efforts but also emphasizing the significance of HRD for the employees themselves. These efforts are deemed essential for maximizing employee competence and fostering stronger commitment to the organization. The article has attracted considerable interest from researchers because it addresses the inclusive nature of HRD (see example: Bari et al., 2022; Chen et al., 2021; Giotopoulos et al., 2022). It goes beyond the traditional focus

solely on increasing organizational income and emphasizes the importance of nurturing employee awareness. Specifically, the article highlights the need for organizations to demonstrate sincere efforts by management and underscore the significance of HRD for employees. This broader perspective on HRD, encompassing both financial outcomes and employee well-being, has sparked attention in the research community.

The second highest cited article was that authored by Hassan (2007) with the title, Human Resource Development and Organizational Values. The focus of the article was to investigate the relationship between HRD practices and organizational values. The study found that HRD practices such as potential appraisal and promotion, learning/training, performance guidance and development had a positive correlation with organizational values of collaboration, creativity, quality, delegation, and humane treatment. On the other hand, performance appraisal system, career planning, and contextual analysis variables were negatively linked to values like trust and creativity.

4.3. Science mapping

4.3.1. Co-authorship analysis of HRD-related research in Asia based on countries

Figure 4 shows the co-authorship among authors from different countries. We apply the co-authorship analysis to examine the co-authorship relationship among Asian HRD scholars and their collaboration trends (Fonseca et al., 2016). We found that out of the 36 countries, 17 countries have an international co-authorship relationship which denotes researchers nowadays do not work *in silo*. Instead, they form synergetic relationships with others outside their respective institutions to share and disseminate knowledge. In Figure 4, the countries are depicted using circles with labels. The size of each circle corresponds to the number of papers produced by authors from that country. Additionally, the thickness of the links between circles reflects the number of documents co-authored by authors from both countries, signifying the strength of their connection. Our analysis revealed that the country that has the highest co-authorship link with other countries is Malaysia. It has links with six countries which are India, Jordan, United Arab Emirates, Iran, Pakistan and Japan. Based on the data, Malaysian authors have teamed up with different Asian countries for collaborative research. With India, the focus has been on higher education and medical technologies topics (Kadam & Bhusawar, 2021; Thatte et al., 2009), while collaborations with Japan center around business discussions (Cho et al., 2015). Additionally, collaborations with Iran revolve around health-related subjects (Bahadori & Nejati, 2011) and with United Arab Emirates it revolves around organizational performance (Hawarna et al., 2020). From Figure 4, it can be observed that 28 countries are in isolation. This means authors from those countries have not engaged in any collaborative publications with other countries. It is recommended that these countries enhance their international involvement by establishing collaborative networks. This approach will stimulate cooperation among research institutions and universities across borders and facilitating joint projects with researchers from diverse countries (Durugbo, 2016). Furthermore, with regard to

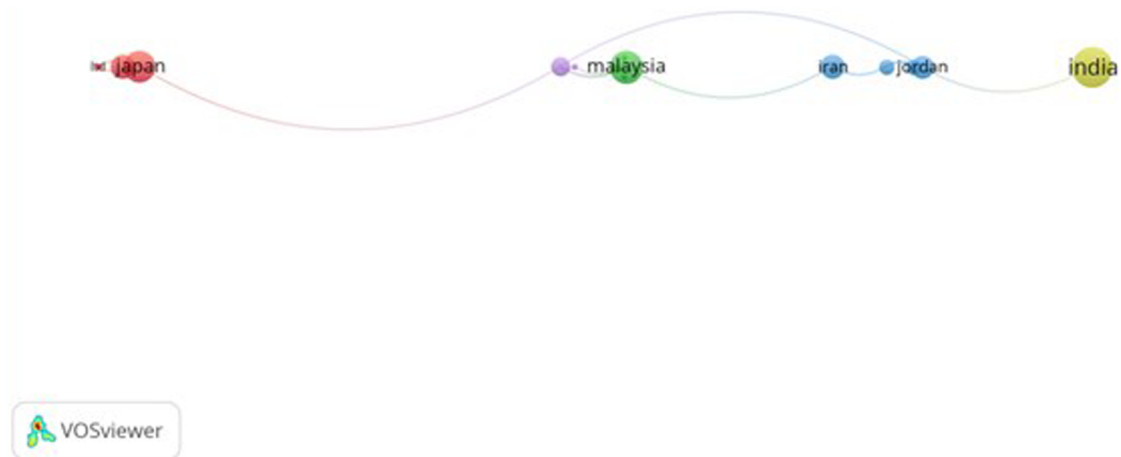


Figure 4. Co-authorship analysis based on countries.

cultural sensitivity, there is a suggestion to promote an understanding of cultural differences among researchers and underscore the advantages of diverse perspectives in research (Cajander & Daniels, 2011). Through the implementation of these strategies, the countries can foster an environment that promotes increased collaboration among researchers, ultimately contributing to a more interconnected global scientific community.

4.3.2. Keyword analysis

4.3.2.1. Trending topics and thematic mapping. Keyword analysis is a method that is used to determine trending subjects and the focus of authors on a particular topic (Agbo et al., 2021). Emerging HRD topics in Asia that are extracted based on authors' keyword usage are shown in Figure 5. To perform keyword analysis, we set the minimum frequency at 4, and the yearly word count at 5. Our analysis reveals that recent HRD studies by scholars in Asia are focused on human capital, organizational performance, higher education, education and organization culture. Interestingly, we found that the term 'HRD', which has been used by researchers since 1984 has become less popular in 2019. Meanwhile, the term that has started to gain traction is 'human resource'.

The most frequently used keywords in HRD are shown in Table 6. Besides Human Resource Development, the predominant keywords employed in existing studies include Higher Education, Training, Human Capital, Motivation, Organizational Culture, Corporate Social Responsibility, Organizational Development, and Organizational Performance.

The thematic map of HRD as shown in Figure 6 is another keyword analysis performed using the R-package. This thematic map aims to analyse the field's current state and to establish the potential research areas which are useful for future researchers and stakeholders (Agbo et al., 2021). The density

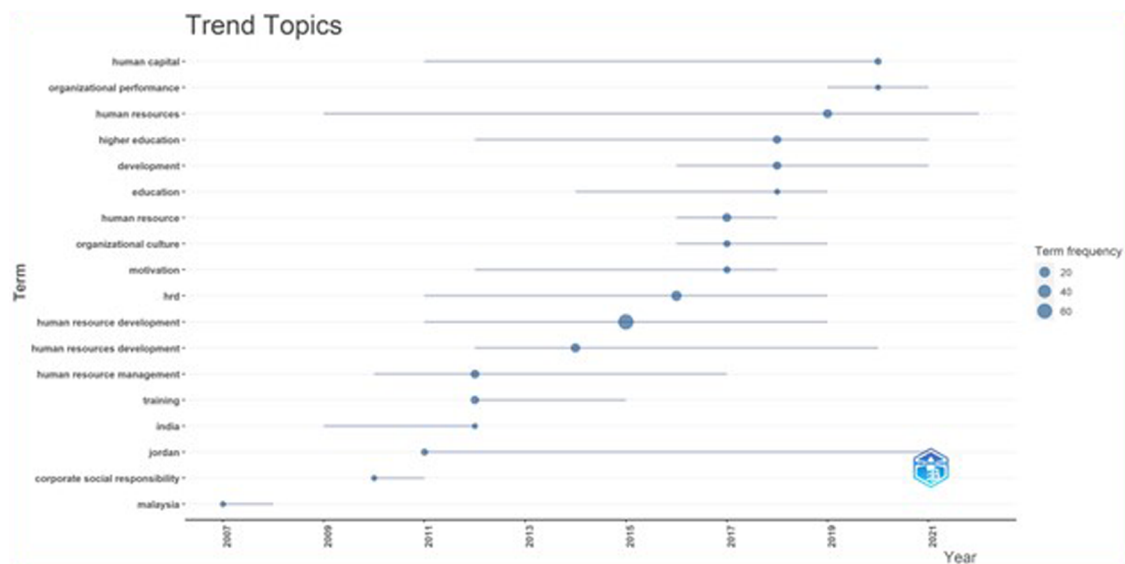


Figure 5. Trending topics with the use of keyword.

Table 6. Top keywords.

Ranking	Keywords	TO	No	Keywords	TO
1	Human Resource Development	66	11	Jordan	5
2	HRD	17	12	Motivation	5
3	Human Resources Development	13	13	Organizational Culture	5
4	Human Resources	11	14	Corporate Social Responsibility	4
5	Human Resource	10	15	Education	4
6	Human Resource Management	9	16	Human Resource Development (HRD)	4
7	Development	8	17	India	4
8	Higher Education	8	18	Malaysia	4
9	Training	8	19	Organizational Development	4
10	Human Capital	5	20	Organizational Performance	4

Note(s): TO=Total occurrences.



Figure 6. Thematic map.

and centrality measures are utilized to assess the level of development and importance of the topics, respectively. The size of each circle corresponds to the number of articles that have employed that specific term. The explanation for each quadrant is as follows:

1. The upper-right quadrant represents the dominant themes in HRD within the Asian context. This quadrant consists of four clusters. It shows that the driving themes in this field are innovation, competitiveness, employee engagement and corporate social responsibility. In terms of innovation, a strong emphasis on promoting creativity and adopting technologies is suggested in HRD practices. For future research, the theme of competitiveness can be explored, focusing on talent acquisition and development strategies that position companies as industry leaders. Additionally, recognizing employee engagement as a key theme underscores the importance of creating a positive work environment. Finally, acknowledging corporate social responsibility as a driving theme reflects a growing awareness of the social and ethical dimensions of HRD in Asian organizations, involving initiatives to contribute to the community, address environmental concerns, and uphold ethical standards in business practices.
2. The lower-right quadrant reflects the fundamental concepts in the field, which consists of three clusters. This quadrant comprises themes such as human resource, human resources and human resource development. It can be seen that the concept of HRD in terms of its adoptability is well-developed and structured. This indicates the significant acceptance of HRD within the HR field, highlighting its thorough exploration and expansion. It also suggests that HRD is a systematically organized concept.
3. The lower-left quadrant depicts themes that are either emerging or declining themes. The four clusters in this quadrant are Vietnam, Malaysia, tourism and human resource development. While

HRD is an important theme to be studied, it can be seen that it has not yet been well-developed in certain industries such as tourism and countries such as Malaysia and Vietnam. Therefore, researchers can consider these themes in future studies.

4. The upper-left quadrant represents the specialized themes that are explored within the field. There are only five clusters in this quadrant which are HR functions, e-HRD and evaluation. Thus, greater emphasis should be placed on enhancing the development of those concepts in future studies. For instance, studying the intersections and influences among HR functions, e-HRD, and evaluation could contribute to a more comprehensive understanding of the field. Furthermore, considering the significance of e-HRD, future research may delve into exploring the effects of emerging technologies on electronic HRD. This exploration might involve examining the integration of artificial intelligence and virtual reality.

4.3.2.2. Co-occurrence analysis. Analysis of keywords provides insights into the concepts that are in focus in the publications. From a total of 655 keywords retrieved from 227 articles, 512 meet the threshold of being occurred for a minimum of 1 time, as displayed in Figure 7. The figure shows that HRD, motivation, higher education, training, human capital and organizational performance have a greater impact on the network. It was found that HRD was often linked to motivation and higher education in a number of studies.

4.3.3. Bibliographic coupling

Bibliographic coupling involves basic, specialized and contemporary knowledge. It uses citations from publications to reveal the current state of knowledge of a particular field (Goodell et al., 2021). Coupling refers to a phenomenon where two works refer to a third work that is in common. This suggests that there is a chance these two works address a similar subject. In this study, we considered documents with a minimum of 5 citations for coupling, which gave a total of 171 documents, among which 156 were connected. This resulted in the revealing of eight thematic clusters as shown in Figure 8.

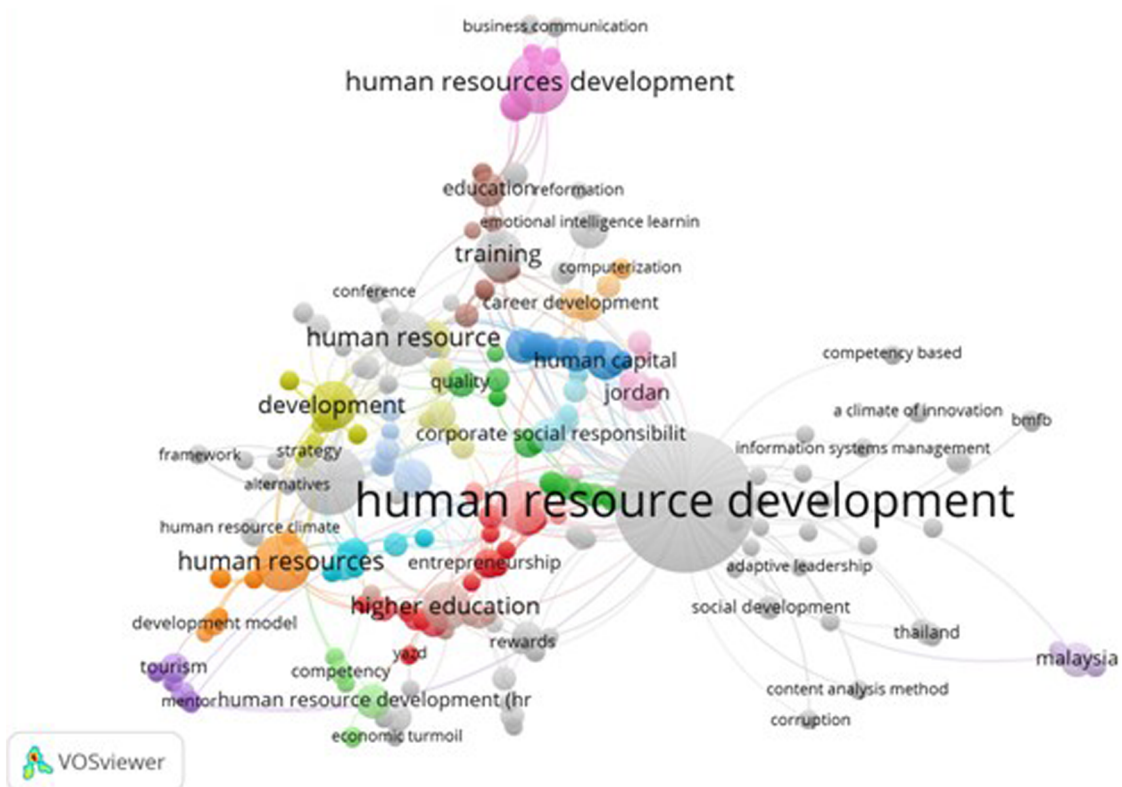


Figure 7. Co-occurrence analysis of keywords.

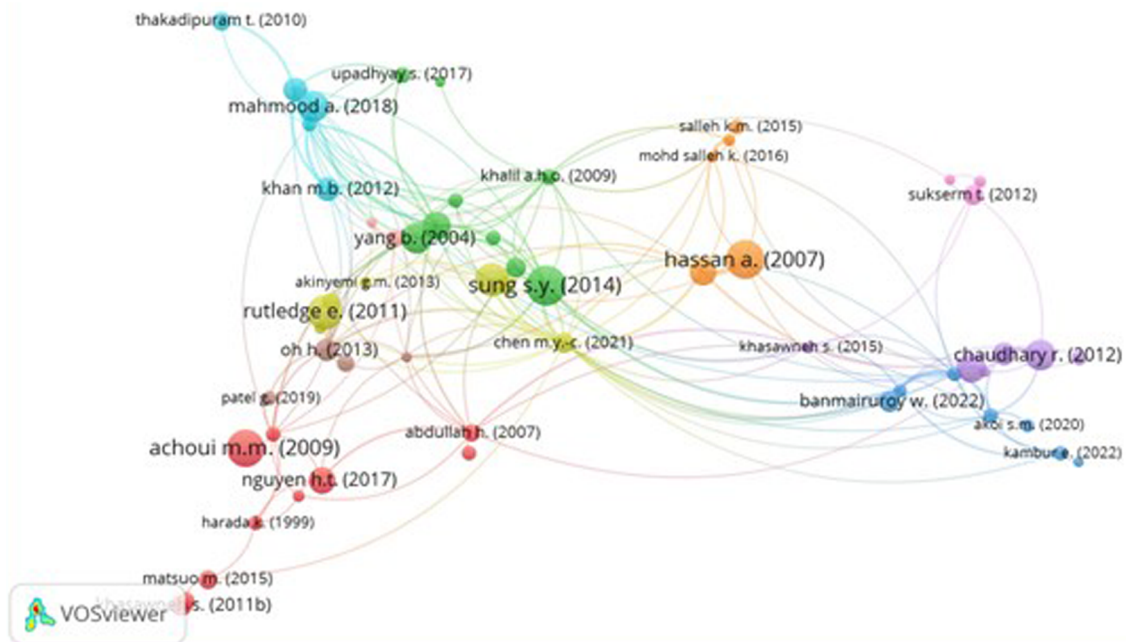


Figure 8. Clusters of related HRD research in Asia.

Then, content analysis was conducted by analysing each item in these clusters and grouping them under a common theme.

Figure 8 illustrates related HRD research in the Asian region. Cluster 1 consists of 10 articles that mainly concentrated on the HRD practice, application and challenges (Achoui, 2009; Phinaitrup, 2000). Cluster 2 discusses country performance in relation to HRD, and it consists of 9 articles (Ahmed et al., 2016; Khalil et al., 2009). Cluster 3 includes 7 articles and it focuses on the impact and effect of HRD (Banmairuroy et al., 2022; Rumman et al., 2020). Cluster 4 consists of 7 articles which mainly revolved around culture, women and economy (Al-Kazi, 2011; Hassan et al., 2019; Inanlou & Ahn, 2016). Cluster 5 consists of 6 articles that discussed training and employee engagement (Chaudhary et al., 2012; Khasawneh & Al-Zawahreh, 2015). Cluster 6 which consists of 5 articles concentrates on issues such as motivation, spiritual and healthcare (Arshad et al., 2019; Khan & Sheikh, 2012; Mahmood et al., 2018). Cluster 7 consists of 5 articles that explored the determinants, model, and competency (Salleh & Sulaiman, 2015). Cluster 8 consists of 4 articles that focus on competitive advantage and sustainable growth (Haghighi et al., 2019; Oh et al., 2013; Osman-Gani & Tan, 1998). Cluster 9 consists of 3 articles that concentrate on Corporate Social Responsibility (CSR) (Sukserm & Takahashi, 2012). Finally, Cluster 10 which consists of 2 articles explores the economic factor and social obstacles (Fallah Haghighi & Bijani, 2020; Haghighi et al., 2019). Summary of the research clusters can be seen in Table 7.

1. **The Impact and Effect of HRD practices, applications and challenges**

Clusters 1 and 3 focus on the impact, effect, and application of HRD practices as well as the application and challenges in HRD.

2. **Performance**

Cluster 2 concentrates on HRD towards organization and country performance.

3. **Culture, women, economy, competitive, sustainable development, CSR, economic and social**

In general, Clusters 4, 8, 9, and 10 revolve around HRD practices relationship with culture, gender (women) competitiveness, economy and sustainable development.

4. **Determinants, model, and competency**

Finally, Cluster 4 centres around the determinants of HRD practices and the development of competency model.

Table 7. Findings summary based on clusters.

Cluster	Theme	References	Findings
Cluster 1	HRD practice, application and challenges	Achoui (2009); Phinaitrup (2000)	A heavy reliance on a small number of natural resources, such as oil and gas, high reliance on foreign workers, poor educational institutions, and low female labour force participation are among the challenging issues of human resource development in Gulf countries. Majority of the challenges can be resolved by using technology as a tool to development of HRD.
Cluster 2	Country performance in relation to HRD	Ahmed et al. (2016); Khalil et al. (2009)	Employee commitment and loyalty to the company can be enhanced by improving career development programs. Employees' performance is greatly influenced by a company's abilities in program development, implementation, and evaluation.
Cluster 3	The impact and effect of HRD	Banmairuoy et al. (2022); Rumman et al. (2020)	Leaders who focus on learning and assist employees' growth can indirectly boost a company's long-term success by encouraging new and creative ideas within the organization.
Cluster 4	Culture, women and economy	Al-Kazi (2011); Hassan et al. (2019); Inanlou & Ahn (2016)	Some countries, like India and South Africa struggle to make the most of their workforce to boost their economies, unlike countries such as Russia, China, and Brazil, which are more successful in this regard. Improved communication between leaders and their team members, trust, and a culture of innovation have a positive connection with employees' commitment towards an organization.
Cluster 5	Training and employee engagement	Chaudhary et al. (2012); Khasawneh & Al-Zawahreh (2015)	Occupational self-efficacy relates positively to work engagement. HRD climate relates positively to work engagement. Self-efficacy relates positively to HRD climate. HRD climate mediates the relationship between occupational self-efficacy and work engagement.
Cluster 6	Motivation, spiritual and healthcare	Arshad et al., (2019); Khan & Sheikh (2012); Mahmood et al. (2018)	An organization can operate effectively by enhancing the development in areas like Intelligence Quotient, Emotional Quotient, and Spiritual Quotient.
Cluster 7	Determinants, model, and competency	Salleh & Sulaiman (2015)	The study proposes a HRD Practice Model to establish an evaluation and assessment system. This system will help measure an employee's competence in performing tasks related to technical skills.
Cluster 8	Competitive advantage and sustainable growth	Haghighi et al. (2019); Oh et al. (2013); Osman-Gani & Tan (1998)	The main social challenges that impact HRD are an increase in the number of foreign workers in the job market, frustrations among local graduates, and brain drain. Additionally, the results from the exploratory factor analysis suggested that the key social obstacles affecting HRD can be categorized into six factors: migration, lack of emphasis on native talent, preference for foreign talent, gender imbalance, unequal resource distribution, and absence of merit-based practices.
Cluster 9	Corporate Social Responsibility (CSR)	Sukserm & Takahashi (2012)	The study suggested that companies should encourage and support employees to actively engage in learning about corporate social responsibility (CSR) activities to build their confidence. The major finding was that self-efficacy mediated the relationship between learning and employees' ethical behaviour.
Cluster 10	The economic factor and social obstacles	Fallah Haghighi & Bijani (2020); Haghighi et al. (2019)	The study highlighted a significant negative gap between current and desired economic factors affecting HRD in Iran, including employment, investment, business conditions, and entrepreneurship. To address this, it has recommended for the improvement of employment and entrepreneurship infrastructure, increasing investment, implementing a comprehensive investment plan, and establishing a unified platform for investment and entrepreneurship to enhance Iran's economic standing in terms of human resource development.

5. Contributing industries in HRD Asia

Aside from providing training to employees, the HRD function in industries holds significance in various areas, including performance and potential appraisal, career planning, job evaluation, and numerous other facets (Uddin et al., 2016). The data examined from the Scopus database revealed that studies on HRD scholarship in Asia were focused on several industries. These industries included hotel industry, tourism, education, s-curve, cocoa, electric vehicle, convention, banking, small and medium-sized enterprises (SMEs), textile and garment, construction, agriculture sector, manufacturing, healthcare, biotechnology, telecom, energy, journalism, cultural, oil, petrochemical, chemical, and steel. Among all these industries, education emerged as the dominant sector in HRD Asia scholarship, accounting for 12 percent of the studies conducted between 1984 and 2023. The second most prominent industry was banking, contributing 9% of the research (Figure 9). This indicates a need for more studies from other industries in the context of HRD Asia scholarship. Such research could significantly contribute to the development of human resources and skills, which play a crucial role in economic recovery and sustainable progress (Tkachenko et al., 2022).

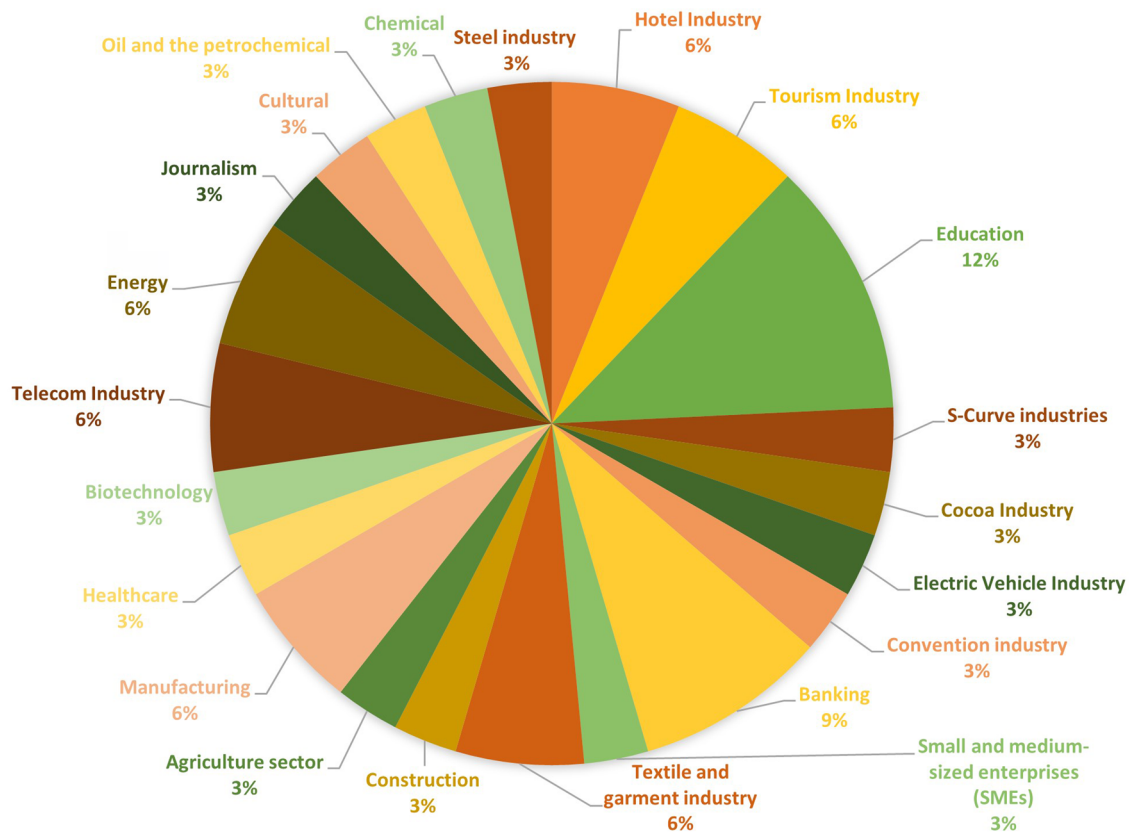


Figure 9. Industry-wise studies on HRD Asia.

6. Discussions and conclusion

6.1. Conclusion

The present study contributes to the growing body of knowledge on HRD in particular, the Asian context. This study has included all the Scopus publications by scholars in Asia until 15 July 2023 which allowed for a comprehensive overview of this region. While the concept of HRD appeared almost 61 years ago, which was in 1962, HRD research in Asia emerged only 22 years later with its first recorded publication in Scopus in 1984. Since then, limited bibliometric study that focuses on HRD in Asia has been published, and this is the article's main contribution.

Our analysis reveals a promising development of scholarly publications on HRD in Asia. This can be observed through the positive growth in the number of articles published in Scopus since its first publication in 1984. While an upward tendency is observed since 2011, the number of publications was not rapid. In contrast to findings published in earlier works on its evolution from global perspectives, we identified three sub-periods that corresponded to three development stages of HRD research in Asia: the seeding period (1984–2010), the growth period (2011–2018), and the development period (2019–2023) (Pham-Duc et al., 2023). This shows that this study topic is still in its infancy, despite a downward tendency in the annual number of published publications between 2012 and 2015. The number of publications published annually has been rising for the past three years, with the scientific output of 2016 surpassing that of 2015. Specifically, there were 17 articles in 2016 compared to only 7 in 2015.

Moreover, our study found that research on HRD in Asia did not receive the same amount of attention from scholars in the region. In terms of total production, India tops other Asian countries, followed by Malaysia and Japan. On the contrary, Malaysia leads in terms of total citations, followed by China and India. In this sense, fostering collaboration, addressing capacity gaps, identifying research priorities, understanding citation patterns, and implementing supportive policies are essential steps to promote a

more inclusive and balanced landscape for HRD research in Asia. By implementing these suggestions, the region can enhance its overall contribution to the field and ensure equitable recognition for researchers across different countries (McClunie-Trust et al., 2022).

On one hand, the concentration of the most prominent and prolific researchers in these mentioned countries contributes to an increase in the number of published articles as well as their impact on the community, particularly in Asia. As a result, the overall number of publications from India and Malaysia is double that of Japan in third place, while the total number of citations for Malaysia and India is double that of India in third place. Furthermore, the first author's affiliation in the ten most cited publications came from varied backgrounds (Table 3). This diverse background creates fresh potential for the stronger development of this research topic their scholars can form and develop deeper collaboration with their counterparts from other countries.

Our study found that five papers from the top 10 publications have 247 Scopus citations out of a total of 414 citations. A total of 160 authors in Asia published topics related to HRD, with Arshad M.A., Mahmood A. Ahmed A. receiving the highest citations. However, taking count the total production, the authors that contributed the most were Khasawneh S., Arshad M.A. and Ismail M. Concerning the co-authorship link, Malaysia possesses the highest co-authorship link with other countries. Meanwhile, the analysis of trending topics shows that nascent HRD studies in Asia are related to Higher Education, Training, Human Capital, Motivation, Organizational Culture, Corporate Social Responsibility, Organizational Development, Organizational Performance. The research topics are focused on multiple directions as compared to global perspectives, according to an analysis of keywords. These directions include human resource management, personnel training and management, education for health care planning and human resources, health care quality, health care policy, health care services, and staff development. This discovery may aid future researchers in defining new avenues for study or assist new investigators in identifying possible areas of collaboration with the current researchers.

Furthermore, it was demonstrated that HRD research in Asia has undergone a transformation towards exploring innovation, employee engagement, and corporate social responsibility. The study utilized bibliometric coupling analysis to presume the thematic structure of HRD-related research in Asia, revealing ten distinct areas of focus and uncovering four research streams. Based on the VOS Viewer coupling analysis, we found that Sung S.Y and Hassan A. were the most frequently coupled authors. Through content analysis of bibliographically coupled articles and a thematic map in keyword analysis, specific areas could be advantageous for researchers interested in conducting further studies on HRD.

Since six of the top ten journals are published by the Emerald Group, it seems that this publishing firm is the most preferred among scholars studying HRD (Table 4). With 15 published articles and 34 citations, Management Research Review is the sole journal that has made a significant contribution to this topic. Five additional journals have limited contribution with only 14 papers and 214 citations (4.65%) are included. Half of the top 10 journals is related to HRD area journals and are in the first quartile. It is crucial to note that papers that are published in prestigious or well-established journals typically receive more attention, are cited more frequently, and have a bigger impact on the community (Pham-Duc et al., 2023). Between 2011 and 2008, five out of the ten published articles received high citations, indicating that articles published during the growth stage are valuable references that have a significant influence on many succeeding studies in this field.

Moreover, our bibliometric analysis revealed that the majority of studies conducted on the implementation of HRD in Asia were in the fields of business, management and accounting, social sciences and economies. Therefore, studies that analyse the practicality of implementing HRD in other areas such as engineering, computer science, environmental science, medicine, arts and humanities, and psychology can be considered for future research.

Finally, based on the analysis, it was found that studies on HRD in Asia was conducted across a range of different industries with education being the most prominent. The findings also underscore the need for further research in other industries for instance agriculture, manufacturing, healthcare, biotechnology, telecom, energy, journalism, cultural, oil, and petrochemical. Such studies can provide

insights into the application of HRD in specific industries, therefore enhancing the skills and competencies of their workforce.

6.2. Practical implications

Findings from this study contribute to the understanding of the development of HRD research from the Asian context. Such understandings facilitate researchers, academia and practitioners to devise strategies to contribute to the knowledge, practice and applications of HRD to suit the current and future trends.

Findings of this study suggest that in order to provide employees with an excellent work experience, HRD practitioners and top management should integrate new technologies into HRD functions (Ali et al., 2023; Shayegan et al., 2023). This is also to leverage technological advancement that can enhance the overall effectiveness of HRD initiatives, contributing to a more positive and productive work environment. Managers should carefully design their department strategies to improve individual and organizational performance while allowing employees to try new things. This involves aligning HRD initiatives with broader organizational goals and creating a conducive environment for employees to explore and experiment with new technologies. For example, top management should consider the introduction of e-HRD practices as part of their unique value enhancement strategies. This could involve the implementation of online learning platforms, digital performance management system and other electronic tools that enhance HRD functions. Integration should be gradual, with adequate support and training provided to ensure a smooth transition.

When discussing e-HRD, it's important to note the integration of data analytics for HRD purposes. E-HRD makes use of data analytics tools to gain insights into the effectiveness of HRD programs (Jiang & Akdere, 2021). These tools track employee progress, pinpoint areas for improvement, and measure the impact of training initiatives on both individual and organizational performance. The data-driven insights derived from these analytics assist HRD practitioners in making informed decisions and continually optimizing their programs. Given that e-HRD involves the utilization of digital platforms and the handling of sensitive employee data, organizations must prioritize cybersecurity (Carstea & Enache-David, 2018). Implementing robust privacy measures becomes crucial, encompassing secure access controls, encryption methods, and compliance with data protection regulations. In essence, e-HRD represents a comprehensive approach to leveraging digital technologies for HRD, incorporating diverse tools and strategies aimed at enhancing overall HRD practices.

6.3. Limitations and future research direction

Despite contributing to the body of knowledge, especially in highlighting the contributions of scholars from Asia to the field of HRD, this study has its limitations. First is the use of a single database for data retrieval and analysis. While Scopus offers substantial article coverage, utilising other databases or a combination of different databases will yield a more comprehensive insight into this topic. Second, this study did not include other types of documents such as unpublished working papers, doctoral theses, textbooks or conference proceedings. Future studies can conduct similar analyses on other document types to provide better insights into the development of HRD. Third, the study only focused on Asian scholarship on HRD. Forth, the contributions of articles published in other languages than English were not highlighted as the study only included articles in English. Lastly, this study examines the development of the topic for the whole period from 1984 to the present time. An interesting research avenue is to segment the study years into three development periods, to provide a different perspective on the evolution of the topic.

This article specifically focuses on HRD in Asian countries; however, future studies could explore HRD in different continents, such as Europe, through bibliometric analysis. Additionally, conducting comparative analyses between continents could provide valuable insights into regional variations in HRD practices. As discussed earlier, the topic of e-HRD is continuously evolving. Future studies may consider delving into this area more deeply, dedicating a paper to e-HRD and exploring the technological aspects of electronic HRD. This could involve discussing emerging technologies relevant to e-HRD and their impact on HRD practices in different regions.

Authors' contributions

Muhammad Aiman conceived and designed the study. Razlina participated in the coordination and drafting of the manuscript. Ummu Athilia helped in the analysis. All authors read and approved the final manuscript.

Disclosure statement

No potential competing interest was reported by the author(s).

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Data availability statement

The data that support the findings of this study are openly available in Scopus at www.scopus.com.

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