

NATIONAL HUMAN RESOURCE DEVELOPMENT:
REVIEW OF RESEARCH AND A FRAMEWORK FOR PRACTICE

A Dissertation

by

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ABSTRACT

Since it was first introduced to the field of human resource development (HRD) more than a 15 years ago, national human resource development (NHRD) has received increasing attention from HRD scholars. This dissertation aimed to identify and systematically examine the body of theoretical and empirical literature on NHRD in order to understand its evolution and current state. A systematic literature review of **104** peer-reviewed journal articles was conducted. The analysis shows that (1) the construct of NHRD was examined at various levels including more than 40 countries, as well as region, city, community and organization, (2) the articles focused heavily on the analysis of NHRD as national policies for human capital development, (3) most NHRD articles are descriptive in nature, focusing on describing NHRD policies and plans, and (4) studies also focused on exploring the role of NHRD in addressing diverse societal issues. Directions for future NHRD research in the areas of theory, content and methodological developments are recommended.

Due to the emerging nature of the field, there has been ongoing model development using HRD principles. This dissertation systematically reviewed the body of literature on NHRD model development in order to understand its current state. Additionally, research-to-date on NHRD policies and practices were also reviewed. The review resulted in **15** peer-reviewed journal articles on model development and **38** peer-reviewed journal articles on NHRD policies and practices. Eight thematic areas were identified for successful NHRD design and implementation. Knowledge gaps were

identified. A holistic conceptual framework for NHRD policy development, implementation and evaluation is proposed, considering the complex issues of national goals, stakeholders, finance and NHRD context (social, cultural, political and economic). In doing so, this model provides a flexible roadmap and starting point for national human resource planning, implementation and evaluation.

DEDICATION

Dedicated to the 830 million people worldwide living in
extreme poverty including millions of children.

ACKNOWLEDGEMENTS

I want to express my deepest gratitude to my chair Dr. Jia Wang for her dedicated mentoring, encouragement, timely help and exceptional advice and guidance. I would also like to thank my committee members, Dr. Frederick Nafukho, Dr. Barry Lawrence, and Dr. Ren Mu for their guidance and support throughout the course of my research. Dr. Nafukho's advice on linking the role of education to development, Dr. Lawrence's thoughts on the role of economic development and Dr. Mu's advice on theoretical foundations helped shape my dissertation. I would also like to thank Dr. Gary McLean, who introduced me to the concept of NHRD and how HRD can play a potential role for greater good. I would also like to recognize Dr. Barry Lawrence, my boss, mentor, advisor and friend for over 17 years for his encouragement, trust and flexibility at work while I completed this dissertation.

As the saying goes, 'no one gets to graduation alone', is very much true in my case. I am forever grateful to my wife Sridevi for her support and patience during the past seven years. While I attended evening classes, worked on my dissertation at nights and weekends, she took care of our two young daughters and managed home affairs. Her sacrifices in time, effort and choices will never be forgotten. I also want to appreciate the patience and support from my two daughters, Deepta and Dhanya, who were eager for me to complete, so that I all could spend more time together. Finally, thanks to my father and father-in-law, two men who did everything they could for their children. Their encouragement and little nudge from time to time helped me to stay focused.

NOMENCLATURE

HD	Human Development
HRD	human Resource Development
NHRD	National Human Resource Development
TVET	Technical and Vocational Education
HDI	Human Development Index
UN	United Nations
MDG	Millennium Development Goals
SDG	Sustainable Development Goals

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CHAPTER I

INTRODUCTION

Poverty is one of the leading global challenges of our lifetime. Poverty is the primary cause of hunger, deaths, homelessness, access to healthcare, and education. It is also a major reason for economic, social, and political marginalization. In 2016, the world population crossed 7.3 billion. According to the World Bank's poverty update (World Bank, 2016), 13 percent of the world's population (almost 900 Million people) live below the international extreme poverty line of \$1.90 a day. Sub-Saharan Africa has the most concentration of poverty estimated at 35% of the population in 2015. The World Bank projects (actual data lags by a few years) extreme poverty to reduce to 9.6% by 2015, which means that there are still 702 million poor people. In 2015, the United Nations General Assembly formally adopted the 2030 Agenda for Sustainable Development, which guides global action over the next 15 years. Consisting of 17 Sustainable Development Goals (SDGs) and 169 associated targets, this new agenda builds on the achievements of the Millennium Development Goals (MDF), but is far wider in scope and ambition (Word Bank, 2016). Figure 1 shows the 17 SDGs.

UN measures development and progress through the Human Development Index (HDI). According to UN Human Development Reports, "The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The Human Development Index (HDI) is "a summary measure of average achievement in key dimensions of

human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions” (Human development reports, 2016). Figure 2 shows HDI components.



Figure 1. United Nations Sustainable Development Goals (SDGs)

Source: United Nations Development Program

The World Economic Forum which publishes the Global Competitiveness Index measures global competitiveness using 12 pillars and includes 114 indicators that capture concepts that matter for productivity and long-term prosperity of a country (Schwab, 2016). Pillar 4 measures health and primary education and Pillar 5 measures

higher education and training. Enrollment rates, quality of education, specialized training and internet access in schools contribute to the pillar 5 measurements.

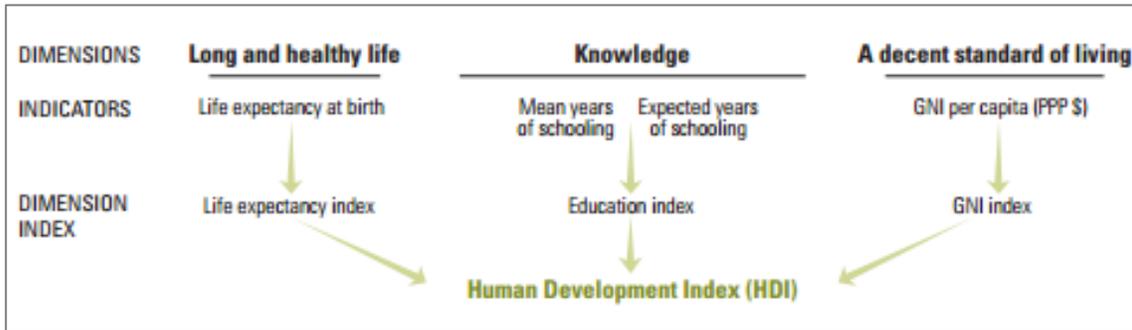


Figure 2. Human Development Index

Source: United Nations Human Development Reports

Poverty reduction starts with human development. Harbison and Meyers (1964), decades ago argued that “people are the real wealth of a nation” (p.15). Education and skill development are at the forefront of human development. In fact, the relationship between education and poverty reduction is well documented. According to Psacharopoulos & Patrinos (2004), “the average rate of return to another year of schooling is 10%. The highest returns are recorded for low-income and middle-income countries” (p.112). In *Competitive Advantage of Nations*, Porter (2011) outlines the four attributes of national competitive advantage. They are factor conditions, demand conditions, related and supporting industries and firm strategy, structure and rivalry. He argues that investments in education can change factor conditions and improve a nation’s productivity and necessary to compete in an industry. According to the Asian Development Bank, educated people have higher income earning potential, and are

better able to improve the quality of their lives (Bauer & Thant, 2010). Empirical evidence has confirmed that education is closely linked to virtually all dimensions of development: human, economic, and social (Kim & Terada-Hagiwara, 2010).

In the field of Human Resource Development (HRD) that focuses on development through learning-based interventions, developing human resources at the national level aligns well with its core mission. Storberg-Walker (2012) reminded us that in challenging economic times, “HRD research and practice should be in service of better society” (p.589). McLean (2004) argued that for many developing countries with little or no natural resources, human resource development is critical for national development. National Human Resource Development (NHRD) can play a significant role in providing the methods and tools needed for the underdeveloped and transitional countries to address their social issues such as poverty. Advancing research and development of NHRD will not only elevate the field of HRD to greater importance, but it is also the responsibility of HRD scholars to contribute to the greater good.

Research Purpose

With the above in mind, I aim to understand and explore the research in the field of National Human Resource Development through two article format dissertation. The first article conducts a systematic literature review to identify and examine the body of theoretical and empirical literature on NHRD in order to understand its evolution and current state. I aimed to identify and systematically examine the body of theoretical and empirical literature on NHRD in order to understand its evolution and current state. Specifically, the following questions guided this systematic literature review (SLR).

1. What is the current status of NHRD research?
2. What are the theoretical foundations of NHRD?
3. How is NHRD studied methodologically?
4. What content dimensions of NHRD are examined?

The second article conducts a systematic literature review of NHRD research on models, policies and practices. The primary purpose of this article is to explore NHRD research on models, frameworks, policies and practices. The overarching objective is to address the following two questions:

1. What is the current status of NHRD model development?
2. What are the various NHRD policies and practices documented in the literature?

In addition to addressing the questions above, I seek to develop a multi-level holistic NHRD framework for policy development, implementation, and evaluation considering the complex issues of national goals, stakeholders, finance and NHRD context (social, cultural, political and economic).

Methods

To address the research questions proposed above, I adopted a systematic literature review (SLR) approach for both articles. SLR provides an objective, replicable, systematic, and comprehensive review and is reported in the same manner as for reporting empirical research (Weed, 2005). A SLR is defined as “a review in which there is a comprehensive search for relevant studies on a specific topic, and those identified are then appraised and synthesized according to a pre-determined explicit method”

(Klassen et al., 1998, p.700). The purpose of conducting a SLR is to provide transparency, clarity, accessibility, and impartial inclusive coverage on a particular area (Thrope, 2006). In each article, the SLR process was completed at four phases and guided by a set of pre-developed inclusion and exclusion criteria.

Research Significance

National economic and social development is a major global challenge and the field of HRD can play a vital and significant role in providing the methods and tools needed for the developing and transitional countries. This critical research has the potential to assist policy makers at national and regional levels in developing and implementing sound HRD plans. Even though NHRD research is relatively new, many countries are in the process of implementing NHRD policy planning and implementation (Cho & McLean, 2004). Cho and McLean suggests that “the concept of HRD as national policy is a reality throughout the world” (p.382).

Understanding the role of national development plans is an important step towards enhancing the role of HRD in national development. Many of the developed nations have invested heavily in strategic NHRD planning, implementation and linking it to economic development and growth. In fact, the relationship between education and poverty reduction is already established (Psacharopoulos & Patrinos, 2004). Therefore, it is not surprising that many developing and underdeveloped nations are hoping to get on the ladders of economic development through NHRD. For a field like HRD whose focuses is development through learning-based interventions, NHRD aligns well with its core mission. Advancing research and development of NHRD will not only elevate the

field of HRD to greater importance but it is the responsibility of HRD scholars to contribute to the greater good.

Structure of Dissertation

This research follows a two journal article format dissertation. **Chapter 1** provides an introduction to the background, purpose and significance of this research. **Chapter 2** provides a systematic literature review of National Human Resource Development. Chapter 3 provides a systematic literature review of NHRD models, policies and practices. Additionally, I propose a holistic conceptual framework for NHRD design, development, implementation and evaluation. **Chapter 4** concludes with a summary of findings.

CHAPTER II
NATIONAL HUMAN RESOURCE DEVELOPMENT: A SYSTEMATIC
LITERATURE REVIEW

Summary

Since it was first introduced to the field of human resource development (HRD) more than a decade ago, national human resource development (NHRD) has received increasing attention from HRD scholars. Due to its emerging nature and “newness” to the field, there have been ongoing debates on the definition and scope of this concept. However, NHRD research in other disciplines can be traced back to almost 60 years ago. In this paper, I aimed to identify and systematically examine the body of theoretical and empirical literature on NHRD in order to understand its evolution and current state. Based on my analysis of 104 peer-reviewed journal articles, I mapped out directions for future NHRD research in the areas of theory, content and methodological developments.

Introduction

Harbison and Meyers (1964) argued that “people are the real wealth of a nation” (p.15). Building on this notion, Briggs (1987) further contended, “if human resources are truly “the wealth of nations,” their development carries with it the parallel responsibilities to recognize that their contribution to the economy must enhance the quality of life on this planet and not lead to its enslavement, impoverishment, or extinction” (p. 1236). Yet for decades, many countries around the world have been struggling to cope with the challenges resulted by poverty, such as hunger, deaths,

homelessness, access to healthcare, education, and economic, social, and political marginalization. According to the World Bank's poverty update (World Bank, 2012), in 2008, 1.29 billion people lived below \$1.25 per day and 2.47 billion people less than \$2 a day. That accounts for 43% of the world population. At the current rate of progress there will still be around one billion people living below \$1.25 per day in 2015. One of the primary means to poverty alleviation is human development, especially in developing and under-developed countries (Bauer & Thant, 2010; Kim & Terada-Hagiwara, 2010). As emphasized in the *Afghanistan National Development Strategy Prioritization and Implementation Plan*, "*Human resources are the backbone of a nation's economy, reflecting national capacity to supply needed skills for economic growth and productivity. Without a strong, equitable, and appropriate approach to human resource development, sustainable economic growth remains elusive*" (p.32).

McLean (2004) argued that to many developing countries with little or no natural resources, human resource development is critical for national development. National Human Resource Development (NHRD) can play a vital and significant role in providing the methods and tools needed for the underdeveloped and transitional countries to address their social issues such as poverty. Findings from this systematic review has the potential to inform policy makers at national and regional levels so that they can develop and implement effective HRD plans. Even though, NHRD has been used to reviewing current educational policy and how it can be enhanced (Cho & McLean, 2004).

Education and skill development are at the forefront of NHRD. In fact, the relationship between education and poverty reduction is already established (Psacharopoulos & Patrinos, 2004). Therefore, it is not surprising that many developing and underdeveloped nations are hoping to get on the ladders of economic development through NHRD. For a field like HRD which focuses on development through learning-based interventions, NHRD aligns well with its core mission. Storberg-Walker (2012) reminded us that in challenging economic times, “HRD research and practice should be in service of better society”. Advancing research and development of NHRD will not only elevate the field of HRD to greater importance but it is the responsibility of HRD scholars to contribute to the greater good.

NHRD: An Overview

In the Human Resource Development (HRD) scholarly community, it is generally agreed that HRD consists of three main domains: training and development (T&D), organization development (OD), and career development (CD). As a field oriented toward improvement, HRD has historically focused on organizations (Swanson & Holton, 2009). With the emergence of diverse philosophical paradigms and theoretical assumptions, the focus and mission of HRD are also changing. As Torraco (2005) noted, HRD has expanded in breath by extending beyond the three traditional domains to include issues such as diversity, ethics, human and social capital development, and strategic change. Meanwhile, HRD has also expanded in scope, from focusing exclusively on organizations to considering communities, regions, and nations (McLean

& Mclean, 2001; McLean, Osman-Gani, & Cho, 2004). It is this integrated perspective that has led HRD into a truly multidisciplinary profession (Torraco, 2005).

In light of these changes, a ‘new’ concept—national HRD (NHRD)—has emerged as a sub-field in HRD. Since this concept was first proposed by McLean in 2004, NHRD has received increasing attention from HRD scholars. This is evidenced by collections of publications in three NHRD focused issues of *Advances in Developing Human Resources* (ADHR) in 2004 (NHRD status and policies), 2006 (NHRD in transitioning societies), and 2012 (HRD for societal development). In addition, a number of conceptual and empirical papers that focused on NHRD in different contexts were published in the premier HRD journals (e.g., Alagaraja & Wang, 2012; Barlett, 2011; Budhwani & McLean, 2012; Demartis, Mathews, & Khilji, 2012; Johnson & Barlett, 2013; Kim, Lee, & Jung, 2009; McLean, 2012; Oh, Choi, & Choi, 2013; Oh, Ryu, & Choi, 2013; Wang, 2008; Storberg-Walker, 2012). In addition to publishing their NHRD studies in journals, scholars have also used other venues to engage the HRD community in continuing dialogues about the topic of NHRD. One example is the organization of innovative sessions at the Academy of HRD annual international research conferences (e.g., Wang, Alagaraja, Mclean, & Yumol, 2009; Wang, Wang, McLean, Bartlett, & Lynham, 2007). These consistent research efforts have undoubtedly contributed to the building of NHRD knowledge base and advanced our knowledge about this emerging topic.

Challenges Facing NHRD Research

As an emerging study territory, NHRD faces a number of challenges. First, like HRD, NHRD struggles with having a commonly agreed identity. Perhaps, due to the “newness” of this concept to the HRD field, there remains an ongoing debate on the meaning of the NHRD construct (e.g., Alagaraja & Wang, 2012; McLean, 2012; McLean, Lynham, Azevedo, Lawrence, & Nafukho, 2008; Wang, 2008; Wang & Swanson, 2008; Wang & Wang, 2006). Such lack of common understanding of its definition and scope had led researchers to adopt a diversity of theoretical perspectives to guide their NHRD research. By systematically examine current NHRD research, I hope to offer a clearer conceptualization of the definitional issues and theoretical foundations of NHRD.

Secondly, given the multidisciplinary nature of NHRD, scholars have published their work in various fields such as HRD, HRM, economics and management. Such practice has likely resulted in publications of mixed quality. By adopting the systematic literature review approach, I hope to provide a reliable assessment of the current state of NHRD despite the inconsistency of the quality of studies across disciplines.

Thirdly, among the NHRD research published to date, both within and outside of the field of HRD, none has taken an interdisciplinary approach to examining NHRD holistically. In other words, most of current research was conducted from a specific disciplinary or theoretical perspective, such as HRD (McLean, 2004, 2007), international or cross-national HRD (Wang & McLean, 2006), economic development (Briggs, 2006; Wang, 2008), international development (Wang, 2008), national development (Cox, Al

Arkoubi, & Estrada, 2006), workforce development (Lee, 2004), vocational development (Mellahai, 2000; Metcalfe, 2011; Wilkins, 2002), culture and history (Cunningham, Lynham, & Weatherly, 2006), and management development (Wang & Wang, 2006). These research efforts, while generating important and valuable insights which would advance our knowledge of NHRD, they do not help develop a comprehensive and holistic understanding of this research domain. By conducting a systematic literature review, it is my hope to help NHRD researchers identify potential interconnectedness and overlaps of their interests, thus fostering cross-disciplinary research partnerships.

Furthermore, the topic of NHRD was introduced to the HRD field only a decade ago (McLean, 2004); and therefore, is considered as new or emerging. However, the concept of developing human resources at the national level is not new. In fact, this notion can be tracked back to 1960s when Harbison and Myers (1964) first proposed to use HRD for societal development from the education and economic growth perspectives. By systematically examining NHRD research in all fields, it is my hope to enrich HRD scholars' understanding of this emerging sub-field in HRD by showing how NHRD has been investigated by scholars in other disciplines.

Research Objectives and Questions

In this paper, I aimed to identify and systematically examine the body of theoretical and empirical literature on NHRD in order to understand its evolution and current state. Specifically, the following questions guided this systematic literature review (SLR).

1. What is the current status of NHRD research?
2. What are the theoretical foundations of NHRD?
3. How is NHRD studied methodologically?
4. What content dimensions of NHRD are examined?

Method for SLR

To address the research questions proposed above, I adopted a systematic literature review (SLR) approach. SLR provides an objective, replicable, systematic, and comprehensive review and is reported in the same manner as for reporting empirical research (Weed, 2005). A SLR is defined as “a review in which there is a comprehensive search for relevant studies on a specific topic, and those identified are then appraised and synthesized according to a pre-determined explicit method” (Klassen et al., 1998, p.700). SLRs originated in the medical and policy fields where they have been used to provide clinical and policy decisions (Cook et al., 2007; Teansfield et al., 2003). The purpose of conducting a SLR is to provide transparency, clarity, accessibility, and impartial inclusive coverage on a particular area (Thrope, 2006). Figure 3 summarizes the SLR process used to prepare this paper.

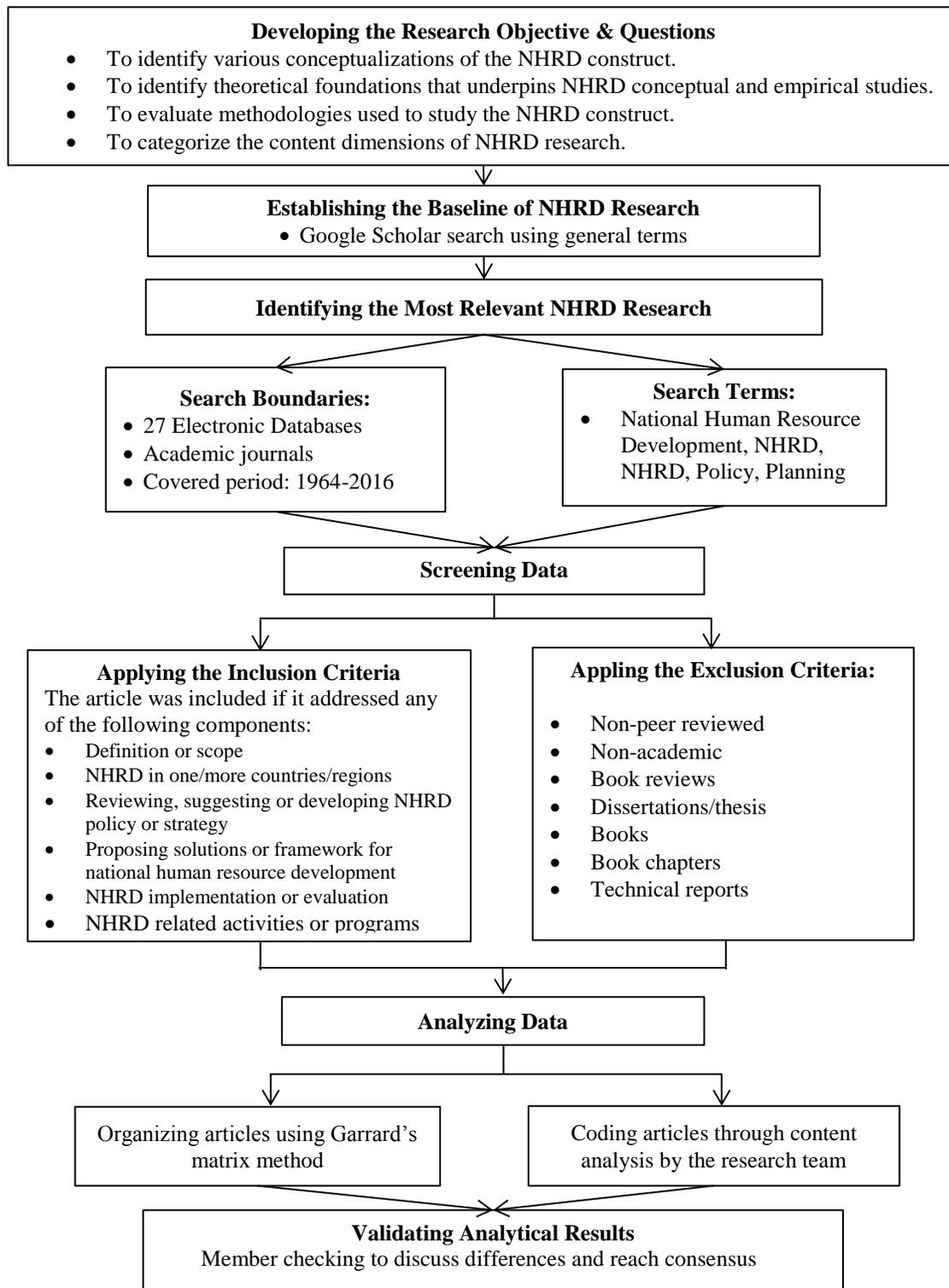


Figure 3. A Summary of the SLR Process

SLR Process

The SLR process was completed at four phases and guided by a set of pre-developed inclusion and exclusion criteria.

Phase 1: Establish the baseline of NHRD research: At the initial stage, my goal was to build a comprehensive literature base of NHRD publications. Therefore, I conducted a preliminary search first through Google Scholar, using the following general terms independently and in combination: national human resource development, NHRD, human resource development, national development, policy, and planning. Using general terms afforded flexibility and captured relevant literature (Nolan & Garavan, 2015), allowing us to establish a broad baseline of literature on NHRD. This initial search yielded about 1,190 publications of all types (e.g., book reviews, book chapters, books, journal publications). No criteria were used to guide this initial search.

Phase 2: Conducting focused database search. Once I established the baseline, I determined the databases to be used for further literature search. Recognizing the interdisciplinary nature of the research topic, I included an extensive range of disciplines to ensure a broad coverage. The databases used at this phase are summarized in Table 1. This search yielded appropriately 800 publications.

Table 1. Databases Used for the SLR Process

Database	Business/economy	Education	Social sciences	General categories
ABI/INFORM Complete (ProQuest)	X			
Accounting & Tax (ProQuest)	X			
Business Source Complete (EBSCO)	X			X
Econ Lit (ProQuest)	X			
Management & Organization Studies	X			
Regional Business News (EBSCO)	X			
ScienceDirect (Elsevier)	X			X
Web of Science (ISI)	X		X	X
Wilson Business Full Text (EBSCO)	X			
Academic Search Complete (EBSCO)		X	X	X
Linguistics and Language Behavior Abstracts (ProQuest)		X		
Physical Education Index (ProQuest)		X		
ProQuest Dissertations and Theses - Full Text		X		
Alternative Press Index (EBSCO)			X	
Anthropological Lit (RLG)			X	
Chicano Database (RLG)			X	
Periodicals Index Online (ProQuest)			X	
Psychology: A SAGE Full-Text Collection			X	
Social Sciences Full Text (EBSCO)		X	X	
Social Services Abstracts (ProQuest)			X	
Sociological Abstracts (ProQuest)		X	X	
Sociology: A SAGE Full-Text Collection			X	
CAB Abstracts (Ovid)				X
ERIC (EBSCO)				X
MLA International Bibliography (EBSCO)				X
OmniFile Full Text Mega (EBSCO)				X
PsycINFO 1872-current (ProQuest)		X		

Phase 3: Applying inclusion and exclusion criteria: Once the publications were gathered, I applied two primary criteria to guide the screening process. First, I decided to include only academic journal articles as I believe that academic publications offered more reliability than non-academic ones. Second, I decided to include academic journal articles that went through the blind review process, as I believe such process helps boost the robustness of published research.

Meanwhile, I used the following questions as additional inclusion criteria as they set the conceptual boundaries for the article screening. If the article met at least one of the six criteria, I deemed it fell within the conceptual boundaries of the study, hence I included it for the review.

1. Does the publication deal with the definition or the scope/extent of NHRD?
2. Does the publication focus on NHRD in one or more countries / regions of the world?
3. Does the publication focus on reviewing, suggesting or developing NHRD policy or strategy?
4. Does the publication propose solutions or framework for national human resource development?
5. Does the publication offer an example of NHRD implementation or evaluation?
6. Does the publication focus on NHRD related activities or programs such as national level workforce development or regional human resource development?

This screening process resulted in a total of 104 articles to be included for final analysis. Publications such as interviews, working papers, conference papers, book chapters, books, technical reports, dissertations, and thesis were excluded.

Phase 4: Analyzing data: A total of 104 publications were identified to be the most relevant and thus included for final analysis. These articles were organized in review matrix tables following Garrard's (2010) Matrix Method. These tables present a summative overview of publications and key findings. Qualitative data analysis techniques including thematic coding and content analysis were used to identify common themes across reviewed articles. The analytical findings were triangulated among the research team members. Discussions were carried out when there is a disagreement until a consensus was reached.

In the remainder of the article, I start with a presentation on the status of NHRD research as revealed by the 104 articles. I then report findings that illuminate each one of the four research questions. Following that, I provide an agenda to advance NHRD research in three aspects: theory development, content areas for future studies; and methodological development.

Current Status of NHRD Research

In this section, I address the first research question by focusing on four issues. First, what is the distribution of NHRD publications overtime? Second, where is NHRD research published? Third, who publish NHRD work and where are they from? Finally, what countries have been selected as the context for NHRD research?

Publication Timeline

In terms of publication timeline (Table 2), it appears that since the start of NHRD research in 1971, very little research attention was given to this topic in the 20th century, evidenced by only eight publications during the period of almost three decades (1971-1999), representing 8% of NHRD literature. It is interesting that there was no research activities at for several years till the end of the century. Millennium marked the new beginning to NHRD research. As Table 2 shows, the progress of NHRD research since 2000 was substantial with a total of 95 articles published in less than two decades (2000-2014), accounting for 93% of scholarship. Specifically, I see a significant increase of publications within the first five years in the 21st century, 30 articles (2000-2005). While the following five years (2006-2010) witnessed a slight decrease in the number of publications (26 articles), NHRD research reached its peak in the most recent five years (2010-2014) with 39 articles published in journals.

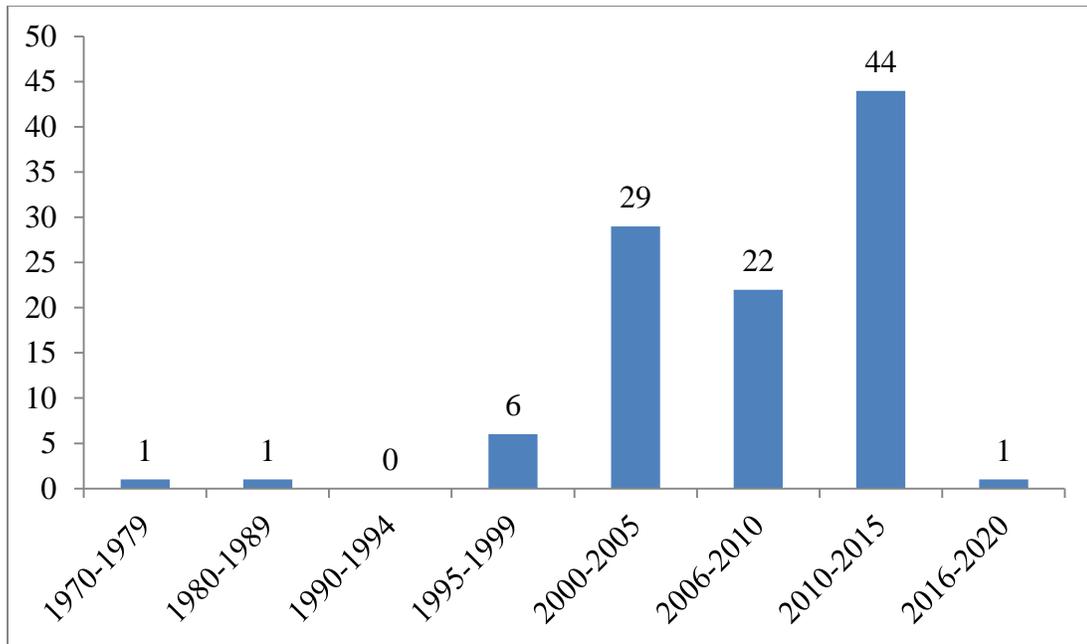


Figure 4: Publications Timeline

Note on time scale: The first two are 10 years; all others are 5 years.

Publication Outlets

In terms of the publication outlets, 15 journals were considered by scholars to disseminate their NHRD work. These journals cover a wide range of disciplines and geographical territories as depicted in Table 3. Nevertheless, four journals appeared to be the most sought outlets and published more than 85% of 104 NHRD articles. They are *International Journal of Training and Development* (33 articles), *Advances in Developing Human Resources* (28 articles), *Human Resource Development International* (16 articles) and *Human Resource Development Review* (11 articles). Regarding these four journals, I offer two observations. First, three out of these four journals (except *International Journal of Training and Development*, IJTD are sponsored by the Academy

of Human Resource Development (AHRD). Second, while IJTD is not the AHRD journals, scholars from the HRD community are heavily involved in the journal leadership, including serving as the regional editors and editorial board members. Therefore, I can safely conclude that the field of HRD has taken a leading role in advancing NHRD research.

Table 2: Publication Outlets

Name of the Journal	Number of Publications
International Journal of Training and Development	33
Advances in Developing Human Resources	27
Human Resource Development International	14
Human Resource Development Review	9
European Journal of Training and Development	3
Asia Pacific Education Review	2
Journal of Vocational Education	2
Review of Integrative Business & Economics Research	2
Human Resource Development Quarterly	1
International Journal of Entrepreneurship	1
Distance Education	1
Journal of Economic Issues	1
Korean Journal of Policy Studies	1
Pacific-Asian Education Journal	1
Proceedings of the American Philosophical Society	1
South Asian Journal of Global Business Research	1
Journal of European Industrial Training	1
The European Journal of Development Research	1
Journal of Management Policy and Practice	1
Pertanika Journal of Social Sciences & Humanities	1

Author Analysis

The 104 articles were authored or co-authored by 147 individuals from around the world. In terms of authorship, 34% of articles are written by a single author, 39% by two authors and 26% by three or more authors.

Table 3: Number of Authors per Article

Number of Authors	Number of Publications
One Author	32
Two Authors	39
Three Authors	21
Four Authors	9
Five Authors	3

As depicted in Table 5, the 147 authors of the 104 articles come from 40 different countries with US as the number one country (48 authors), followed by the UK (17 authors), South Korea (11 authors), and China (7 authors). India, Morocco, Philippines, Spain, Ireland and Netherlands account for another 22 authors. The other 30 countries have provided one or two authors contributing to the NHRD research. It is important to note that more than 80% of the authors are from North America and Europe.

Table 4: Countries of Authors

Country	Number of Authors	Authors
USA	51	Alagaraja, M., Amell, J. W., Arthur-Mensah, N., Azevedo, R. E., Bartlett, K. R., Briggs, V. M., Chermack, T. J., Choi, Y., Demartis, W., Estrada, S. D., Gedro, J., Harbison, F. H., Hasler, M. G., Johnson, K. R., Johnson, M. H., Khilji, S. E., Kim, M., Kim, N., Kim, S., Korte, R. F., Kotamraju, P., Kuchinke, K. P., Lawrence, J. E. S., Lin, J., Lynham, S. A., Mace, S. L., Marquardt, M. J., Matthews, C., McLean, G. N., Nafukho, F. M., Nery-Kjerfve, T., Nissley, N., Ogbuehi, A., Ozag, R., Paprock, K. E., Phipps, S., Prieto, L., Scotland, M., Sparkman, T., Storberg-Walker, J., Sun, J. Y., Swanson, R. A., Taylor, T. L., Thompson, L., Thompson, M. D., Venneberg, D. L., Wang, G. G., Wang, J., Weatherly, G., Yang, B., Yumol, B.
UK	18	Ashton, D., Attwell, G., Budhwar, P. S., Collings, D. G., Debrah, Y., Goodwin, J., Griffiths, D. A., Hills, K. Koukpaki, S., Lee, M., Martínez Lucio, M., Mellahi, K., Metcalfe, B. D., Mills, S., Rees, C. J., Sambrook, S., Stewart, J., Stuart, M.
South Korea	15	Ahn, Y. S., Baek, P., Byun, J., Cho, E., Choi, M. Jung, D. Y., Im, J., Kim, S. B., Lee, Y. H. (Young Hwan), Lee, Y (Youngmin), Oh, H., Oh. J., Ryu, H. H., Ryu, K. Shim, J.
China	7	Ke, J., Udani, Z. A. S., Wang, X., Wu, G., Xie, J., Zhang, D., Zhang, M.
India	4	Panda, S., Rao, T., Varghese, S. Yadapadithaya, P. S.
Morocco	4	Al Arkoubi, K., Cox, J. B., Hassi, A., Motii, N.
Philippines	4	Atienza, T. V., Dado, R. H., Sunio, V. C., Udani, D.S.
Spain	4	Eguiguren-Huerta, M., Escardíbul, J. O., Llinàs-Audet, X., Parellada-Sabata, M.
Ireland	3	Garavan, T. N., Heraty, N., Murphy, A.
Netherlands	3	Mulder, M., Quang, T., Tjepkema, S.
Austria	2	Dikany, M., Lehner, J. M.
Bangladesh	2	Akhter, S., Mahmood, M.
Canada	2	Budhwani, N. N., Foucher, R.
Chile	2	Cox, J. C., Pino, N. D.
France	3	Géhin, J. P., Jobert, A. Hartman, P.

Table 4: Continued

Country	Number of Authors	Authors
New Zealand	2	Elkin, G., Pio, E.
Nigeria	2	Akanji, T., Bankole, A. R.
Norway	2	Nyen, T., Skule, S.
Singapore	2	Osman-Gani, A. A. M., Wee-Liang-Tan.
South Africa	2	Cunningham, P. W., Von der Marwitz, J.
Taiwan	2	Kuo, M. H. C., Lee, Y. H. (Yi-Hsuan)
Thailand	2	Virakul, B., Yamnill, S.
Australia	1	Smith, A.
Belgium	1	Thang, N. N.
Brazil	1	Schuler, M.
Botswana	1	Modisane, K.
Finland	1	Hytönen, T.
Germany	1	Rauner, F.
Iraq	1	Zirar, A. A.
Kazakhstan	1	Baimukhamedova, A.
Kenya	1	Lutta-Mukhebi, M. C.
Kyrgyzstan	1	Tynaliev, U. M.
Lebanon	1	Khodr, H.
Mexico	1	Villar, A. B.
New Caledonia	1	Rodgers, J.
Peru	1	Talleri, A. V.
Saudi Arabia	1	Alzalabani, A. H.
Oman	1	Al-Yahmadi, S.
UAE	1	Wilkins, S.
Ukraine	1	Verkhohlyad, O.

Author Cross-Country Collaboration

Out of the 104 articles, **29** (28%) of them are prepared by authors from more than one country. The remaining 72% articles are authored by individuals residing in the same country. Table 6 provides details on the cross-country collaborative publications.

Table 5: Author Cross-Country Collaboration

Number of Author(s)/Article	Number of Publications
Author(s) from one Country	75
Authors from two Countries	28
Authors from three Countries	1
Authors from four Countries	1

Among the 147 authors who have contributed to the 104 journal articles, less than a handful of them can be considered as major contributors to NHRD research. Table 7 lists seven authors who have published more than three articles on NHRD, with Gary McLean as the number one contributor with significantly more publications than any other scholars who researched this topic (11 articles). The next six scholars have contributed 4-6 publications each. While Frederick H. Harbison and Charles A. Myers have less than four publications on NHRD, I included them as the major contributors for they are the first scholars who proposed the idea of using HRD for societal development; and their work has laid the foundation for NHRD research in the next 50 years.

Table 6: Major Contributors to NHRD Research

Name of Author	Number of Publications
McLean, G. N.	11
Lynham, S. A.	6
Alagaraja, M.	4
Bartlett, K. R.	4
Cunningham, P. W.	4
Llinas-Audet, X.	4
Wang, G. G.	4

Research Context

As revealed by Table 8, a total of 45 countries have been selected as the NHRD research context. Among them, Asian countries/regions (14) have received most research attention, following by the Europe (8 countries), the Middle East (6 countries), South America (5 countries), Central America (3 countries/regions) and Africa (3 countries), and North America (2 countries). Australia, Newland and the Pacific Islands were also selected as the context for NHRD research. Furthermore, it appears that most of the current NHRD research focuses more on the developing and under-developed countries than the developed countries.

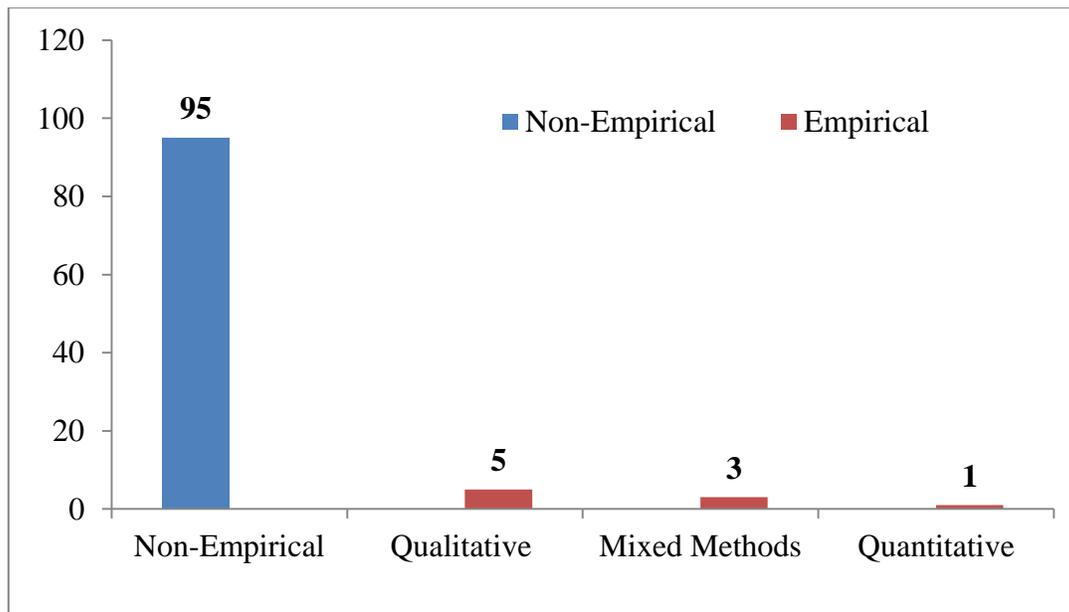


Figure 5: Methodology Analysis

Theoretical Foundations for NHRD Research

In this section, I address the second research question by examining the theoretical underpinnings for NHRD research. Kim and McLean (2012) noted that there is a lack of theoretical foundations for NHRD and scholars such as Baek and Kim (2014) attributed this to the fact that mainstream HRD theories typically support “organization-bound, performance-driven HRD practices” (p. 2). As a result, there is “no theoretically solid foundation” to explain the “societal meaning of HRD” (p. 2). The findings from the 104 article reviews support these authors’ observation and assessment.

During my review, I noticed that many studies are descriptive in nature with a main focus on introducing and describing the national policies, plans, and strategies formulated and/or implemented by specific countries. As a result, with little or inadequate discussion was provided to shed light on the theories that underpin NHRD policies and practices. Most articles did not explicitly highlight a theoretical framework or theory; some did not even provide a review of relevant literature that informed the study. However, in the articles where literature review was provided, it became clear to us that the theoretical foundation of NHRD was very interdisciplinary and largely shaped by political, economic, educational, social and cultural views. The literatures that the authors frequently drew from include general education, technical vocational education, adult education, higher education, training and development, international development, and economics (demand-supply, labor market). A few articles focused on examining the theoretical perspectives of NHRD. To this end, Paprock (2006) provided a good summary by noting that NHRD theory was first informed by human capital

theory, then by social capital theory, open systems theory, change theory, and later transformational theory. Based on the review, I identified the following theoretical perspectives cited in the 104 articles: human capital theory (Briggs, 1987; Elki, 1998; Shim et al., 2015), development education theory (Oh et al. 2013a), institutional theory (Murthy & Garavan, 2009), the stakeholder theory (Baeka & Kim, 2014), development economics/economic theories (Wang, 2008; Wang et al., 2008; Wang & Swanson, 2008), national innovation system theory (Oh et al., 2013a), community development and sufficiency economy perspectives (Budhwani & McLean, 2012), management development (Wang & Wang, 2006), lifelong learning (Byun & Ryu, 2012), intellectual capital perspective and evaluation theory (Shim, Lee, Oh, & Im, 2015b), and feminist perspective (Metcalf, 2011) were specified.

A second finding is the popularity of the model-building approach. A number of authors either examined the existing NHRD models; or proposed a new model based on their literature review. These models attempted to capture the social, cultural, economic, political, and educational characteristics of a specific country or countries that shared similar situations. Below are the few examples of the NHRD frameworks and models included in the 104 articles.

- Five emerging NHRD models proposed by Cho and McLean (2004) based on their cross-country case analysis. They are: (a) centralized NHRD, (b) transitional NHRD, (c) government-initiated NHRD, (d) decentralized/free-market NHRD, and (e) small-nation NHRD.

- Three RHRD models in Korea (Ahn & McLean, 2006): (a) labor economy model focusing on solving the imbalance between supply and demand of personnel in the labor market; (b) education model focusing on lifelong learning and development of learning ability, but excluding vocational ability development; and (c) balanced approach that combines industrial innovation at the regional level with an education innovation system.
- A conceptual TVET framework integrating HRD and NHRD outcomes (Alagaraja et al., 2014) to achieve the strategic goals of workforce, economic, and social development.
- Four NHRD models outside of HRD literature (Alagaraja & Wang, 2012): (1) educational led systems; (2) effect of occupational and labor markets on vocational education systems, skill development, and workplace training; (3) cultural and historical influences on vocational educational systems, apprenticeship institutions, and industry-led training systems; and (4) role and extend of state involvement in vocational, career education and workplace training
- NHRD strategy model for India and China (Alagaraja & Wang, 2012)
- Stakeholder-based HRD model (Baeka & Kim, 2014)—as a tool for identifying the interactions between HRD and society and the characteristics of the interactions with regard to plurality, interdependency, and legitimacy.
- Model for Investigating International Human Resource Development by Metcalfe and Rees (2005)—as a development model as a way of analyzing HRD.

- Conceptual framework for adoption and diffusion of a national human resource development standard by Murphy and Garavan (2009)
- Measurement model of NHRD By Oh et al. (2013b)—to quantitatively measure NHRD system competitiveness
- Conceptual Model for Korean HRD by Shim et al., 2015b—to evaluate the efficiency of the NHRD system in Korea.

All these models and frameworks contribute to NHRD theory formation and a greater understanding of HRD policy and practice within the international and national context.

Methodology for NHRD Research

In this section, I address the third research question. Based on the 104 articles, the research context for NHRD is very diverse covering all the five continents. Sixty-eight percent of the publications (70 out of 104) were based on one or more country context. Among these research contexts, developing and underdeveloped countries have received far more research attention (e.g., Morocco, Korea, India, China, South Africa) than developed countries such as the US, U.K, France, Germany and Norway (included in one study each). Further, Korea, India and China are among the top three most researched countries. This finding is not surprising to us as these nations are the emerging economic power with the largest populations and consumers' markets in the world, and perhaps, also facing the most serious NHRD challenges.

Methodologically, NHRD research appears to be primarily on the conceptual level with no field experience involved (literature review and conceptual papers), and

conceptual articles account for 93% of the reviewed publications. A few articles took the model building approach (e.g., Alagaraja et al., 2014; Alagaraja & Wang, 2012). Case study is the dominant research method in NHRD research, involving either one country for a single case study, or two or more countries for comparative analysis of multiple cases. When a case study approach was adopted, the authors relied heavily on secondary data (obtained through database search) with little first-hand data obtained through surveys (Verkhohlyad & McLean, 2012) or interviews (Ahn & McLean, 2006; Arthur-Mensah & Alagaraja, 2013; Bhdhwani & McLean, 2012). As Table 9 illustrates, only five studies used the qualitative methodologies, three mixed research methods and only one quantitative methods.

Table 7: Countries Studied

<i>Countries Studied</i>		
Afghanistan	Iraqi Kurdistan	Peru
Andorra	Jamaica	Philippines
Australia	Japan	Saudi Arabia
Austria	Kazakhstan	Singapore
Bahrain	Kenya	South Africa
Bangladesh	Kyrgyzstan	South Korea
Botswana	Macao	Spain
Brazil	Mexico	St. Lucia
Chile	Morocco	Taiwan
China	Netherland	Ukraine
Finland	New Zealand	United Arab Emirates
France	Nigeria	United Kingdom
Germany	Norway	USA
Ghana	OECD Member Countries	Vietnam
Gulf States	Oman	
Ireland	Pacific Islands	
India	Quebec, Canada	

Content Dimensions of NHRD Research

Our analysis of the content of the NHRD articles focused on three dimensions:

(1) definitions of NHRD; (2) characteristics of NHRD; and (3) outcomes of NHRD.

Each component is discussed below.

Definitions of NHRD

Harbison and Myers (1964) first proposed using HRD as a strategy for societal development when they defined HRD as:

“the process of increasing the knowledge, the skills, and the capacities of all the people in a society. In economic terms, it could be described as the accumulation of human capital and its effective investment in the development of an economy. In political terms, human resource development prepares people for adult participation in political processes, particularly as citizens in a democracy. From the social and cultural points of view, the development of human resources helps people to lead fuller and richer lives, less bound by tradition. In short, the processes of human resource development unlock the door to modernization” (p. 2).

By this definition, the objective of HRD is “to build the skills and knowledge required for economic, social and political growth and to provide avenues for participation in the creation of a better society for all who seek them” (Harbison & Myers, 1964, p. 15). In line with their thinking, scholars in HRD such as Gary McLean first advocated to expand the boundary of HRD beyond the organizational context and extend HRD functions beyond T&D (training and development), OD (organizational

development) and CD (career development). Similarly, scholars such as Briggs (1987), Cho and McLean (2004), Devadas (2009), Storberg-Walker (2012), Van Horn (2006), and Kuchinke (2010) also argued to expand the scope of traditional HRD to include national development, social development, workforce development and human development for the purpose improving the society and serving the public good. On the other hand, HRD scholars such as Greg Wang and Richard Swanson critically challenged NHRD's definitional process and attempt to expand the HRD boundary to national socio-cultural contexts by including broad issues such as national health issues (Wang, 2008; Wang & Swanson, 2008).

Our findings suggest that there is no singular definition of NHRD; and different authors conceptualized this notion differently, either explicitly or implicitly. Out of all the articles I reviewed, only seven papers explicitly defined NHRD (see Table 9). Nevertheless, most of these definitions were offered from the international HRD perspective. In most cases, the authors constructed the meaning of NHRD based on the country/region or the purpose/functions of NHRD; as a result, a variety of terms were utilized, for example, regional human resource development (Ahn & Mclean, 2006), societal HRD (Griffins & Koukpaki, 2012), human capital development (Elki, 1998; Osman-Gani, 2004; Rao & Varghese, 2009), technical vocational education and training systems (Arther-Mensah & Alagaraja, 2013), HRD in society (Baek & Kim, 2014), community HRD (Budhwani & McLean, 2012), human development (Cox et al., 2006; Kuchinke, 2010), national development (Panda, 2005), and societal development (Kim,

2012). In the cases where the specific term ‘NHRD’ was used by the authors, no definition was given.

In sum, based on my review of NHRD definitions, I offer three observations. First, while the concept of NHRD was first proposed four decades ago, it was not until the recent years (particularly the concentrated period of 2001-2008) did it receive more systematic attention. In addition, the definition and scope of NHRD appears to be a concern primarily to scholars in the field of HRD, not in other disciplines. Second, there is still no consensus about what NHRD is all about—its mission and scope; and opposing views co-exist. Third, NHRD is often conceptualized in a specific context; this supports McLean’s (2004) advocacy for country specific definitions of NHRD.

Table 8: NHRD Definitions

Author	Year	Definition
Harbison & Myers	1964 (p.2)	Harbison and Myers defined HRD as ...the process of increasing the knowledge, the skills, and the capacities of all the people in a society. In economic terms, it could be described as the accumulation of human capital and its effective investment in the development of an economy. In political terms, human resource development prepares people for adult participation in political processes, particularly as citizens in a democracy. From the social and cultural points of view, the development of human resources helps people to lead fuller and richer lives, less bound by tradition. In short, the processes of human resource development unlock the door to modernization.
McLean & McLean	2001 (p. 322)	Proposed the first cross-national definition of human resource development as: ...any process or activity that, either initially or over the long term, has the potential to develop adults' work-based knowledge, expertise, productivity, and satisfaction, whether for personal or group/team gain, or for the benefit of an organization, community, nation, or ultimately, the whole of humanity.
Lynham & Cunningham	2004 (p. 319)	Offered a definition of HRD at the national level (NHRD), (specific to South Africa) as: ...a process or processes of organized capability and competence-based learning experiences undertaken within a specified period of time to bring about individual and organizational growth and performance improvement, and to enhance national, economic, cultural, and social development.

Table 8: Continued

Author	Year	Definition
Metcalf & Rees (2005)	2005 (p.457)	NHRD definition: “Refers to the development of a ‘national’ policy of skills development and is normally devised by governmental administration department.”
Lynham & Cunningham	2006 (p. 119)	“HRD is a field of professional thought and practice operating to serve many different performance systems. When nations are the targeted performance system, the purpose of HRD is to develop and unleash human expertise for national economic performance, political and social development, growth, and well-being by enabling and enhancing the learning and performance capabilities of individuals, family units, communities, other social groups, organizations (of all types), thereby the nation as a whole.”
Wang & McLean	2007 (p.105)	“International HRD (also known, perhaps more appropriately, as cross-national HRD, transnational HRD, and global HRD) is a field of study and practice that focuses on for-profit, not-for-profit, and/or governmental entities and individuals cooperating in some form across national borders. The purpose of this interaction is systematically to tap existing human potential and intentionally shape work-based, community-based, society-based, culture-based, and politically based expertise through multiple means for the purpose of improving cross-national relationships collaboratively across all involved entities through greater mutual understanding, improved individual and organizational performance, improved standards of living and quality of life, reduced conflict between entities and individuals, and any other criteria that

Table 8: Continued

Author	Year	Definition
		would be deemed useful by the involved entities. International HRD is aspirational rather than realized and serves as a challenge for continuous efforts at improvement”.
Oh, Ryu, & Choi	2013 (p. 156)	NHRD is “a system that a country possesses in order to acquire, develop, and utilize its human resources.”

Characteristics of NHRD

From the article analysis, I identified several characteristics of previous NHRD research. First, the construct of NHRD has been examined at various levels including the country, region, city, community and organization. As presented in Table 5 above, at the national level, more than 40 countries have been analyzed as either independently or comparatively, with nations in the under developed and developing world being the center of the NHRD research attention. At the region/city level, examples include Busan region in Korea (Ahn & Mclean, 2006), the Pacific Islands (Bartlett & Rodgers, 2004), non-governmental organizations (Johnson et al., 2010) and Kurdistan Regional government (Khord & Zirar, 2013). Communities that have received research attention include the Ismaili community in Minnesota (Budhwani & McLean, 2012), regional communities in Korea (Byun & Ryu, 2012). At the organizational level, institutions such as Dubai Polytecnic (Wilkins, 2002) was chosen as the case for analysis. In addition, both the public and private sectors have been included in these studies.

Second, articles focused heavily on the analysis of NHRD as national policies for human capital development, with specific focus on systems in place and/or implemented (including plans and strategies). With regards to plans and policies, the following was studied frequently: (1) economic policy (Briggs, 1987, 2006; Harbison, 1971; Wang, Korte & Sun, 2008); (2) HRD as national policy for human capital development (Barlett & Rogers, 2004; Osman-Gani, 2004; Rao, 2004; Wang & Wang, 2006). In terms of NHRD strategies, education and training systems received most research attention. In fact, there is a series of articles published as *International Briefings* by *International Journal of Training and Development* (1999-2013) examining the training and development systems and practices in 31 different countries across the globe. In addition, articles also explored the role of technical/ vocational education system (Arthur-Mensah & Alagaraja, 2013; Mellahi, 2000; Shim, Lee, Oh, & Im, 2015a, 2015b; Wilkins, 2002), higher education system (Panda, 2005), workforce development system (Stroberg-Walker, 2012), and life-long learning (Byun & Ryn, 2012) in promoting NHRD. Other interventions were also explored, including using tourism (Johnson & Bartlett, 2013), social entrepreneurship (Wang, 2012), and regional HRD (Ahn & McLean, 2006) to promote NHRD.

Third, most NHRD articles are descriptive in nature focusing on describing NHRD policies, plans, and executing agencies. As a result, theoretical perspectives were often not articulated. Perhaps, lacking a strong theoretical foundation also led to different approaches to study NHRD. This is evidenced by a diversity of perspectives taken by the authors, such as the international or cross-national HRD perspective (Wang

et al., McLean, 2006; Wang et al., 2007), training and development perspective, (Akanji & Bankole, 2007; Alzalabani, 2002; Baek & Kim, 2014; Foucher & Hassi, 2013), human development perspective (Kuchinke, 2010), economic development perspective (Briggs, 2006; Harbison, 1971), international development perspective (Wang, 2008), national development perspective (Cox, Al Arkoubi, & Estrada, 2006), workforce development perspective (Lee, 2004), education (Harbison, 1971), vocational education perspective (Alzalabani, 2002; Authur-Mensah & Aagaraja, 2013; Mellahai, 2000; Metcalfe, 2011; Wilkins, 2002), culture and history perspective (Cunningham, Lynham, & Weatherly, 2006) and management development perspective (Wang & Wang, 2006).

Finally, studies also focused on exploring the role of NHRD in addressing diverse societal issues. Examples of issues studied include workforce up-skilling (Lee, 2004), HIV-AIDs (Johnson et al., 2013), human trafficking (Mace et al., 2012), societal development (Kim, 2012), capacity building (McLean et al., 2012), women empowerment and development (Metcalfe, 2011), sustainable national growth and competitiveness (Osman-Gani & Tan, 1998), socioeconomic development of low-income women (Razvi & Roth, 2010), labor immigration (Tynaliev & McLean, 2011), and quality of life (Briggs, 1987). These issues reflect different concerns of different countries in their respective context.

Outcomes of NHRD

The 104 studies examined different NHRD outcomes. For instance, Bartlett and Rodgers (2014) examined NHRD as a preferred solution for challenges facing small and far-flung nations of the South Pacific, such as feeling, housing, employing, and

educating growing populations. Budhwani and McLean (2012) explored the role of HRD in community development within a religious context. While NHRD priorities appear to be different in different countries, they generally fall into four categories: (1) to promote workforce development through education and training; (2) to promote societal development by alleviating poverty and eliminating social disparities; and (3) to improve economic development. A number of articles investigated the role of education in NHRD. For example, a qualitative case study of Ghana revealed that technical vocational education and training (TVET) was a major contributor to skills development in Ghana (Authur-Mensah & Alagaraja, 2013)

A majority of articles discussed the perceived impact of NHRD at the conceptual level; and less than a handful of studies actually measured the outcomes. For example, most studies argued for the linkage of NHRD with outcome variables: competitiveness, economic development, quality of life, and societal development; yet no specific indicators or indices were provided to show the actual results. However, I did find that a few articles (e.g., Ahn & McLean, 2006; Budhwani & McLean, 2012; McLean et al. 2012; Oh et al., 2013a; Shim et al., 2015b; Verkhohlyad & McLean, 2011) provided evaluation tools, offered measures, or presented evaluative outcomes to show the impact of NHRD efforts. On the conceptual level, Oh et al. (2013b) constructed an evaluation model to assess the competitive advantage of a country's HRD system. Shim et al. (2015b) also proposed an evaluation model to measure the efficiency of Korean NHRD system. Empirically, interview data from Ahn and McLean's (2006) case study of Busan Metropolitan City, revealed that the city was not effective in carrying out RHRD

functions and roles for the special needs of the region. Budhwani and McLean (2012) conducted a single case study and their qualitative data revealed that HRD played a positive role in community development in a religious context. McLean et al. (2012) presented eight real-life cases where OD interventions were used successfully for the development of village, neighborhood, community center, and educational system. Quantitatively, two studies measured the impact of NHRD systems using specific indices. Oh et al. (2013a) compared 34 OECD member countries, using the Global Human Resource Development Index. They found that Switzerland, Sweden and US ranked top three in order for NHRD competitiveness. Shim et al. (2015a) quantitatively examined the factors affecting employment for those who completed vocational training of NHRD in Korea. Their study result showed that age, gender, training hours, training cost and training contents were significant to employment after vocational training.

Table 9: Summary of NHRD Literature

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Ahn & McLean	2006	Country Studies	10	Regional	Issues and policies on Regional HRD in Busan region of Korea	Literate review & interviews	<ul style="list-style-type: none"> • Ministry of Education and Human Resource Development in Korea manages 28 offices responsible for NHRD. • Regional HRD policies are not coordinated effectively among ministries. • Recommendations: transfer some HRD functions to local government, cooperation among businesses, universities & government and establishing a comprehensive HRD related informational system.
Akanji & Bankole	2007	Country Studies	4	Country	Training & Development in Nigeria	Public data and policy documents.	<ul style="list-style-type: none"> • Training is taken more seriously and is better funded in the private sector in Nigeria. • Recommended reforms include developing effective link between industry-academia, enacting educational reforms and increasing employer investment in employee development.
Alagaraja & Githens	2016	Framework	0	Country / Regional	Development of NHRD Capacity and capability building for accessing	Literature review and framework development	<ul style="list-style-type: none"> • Financial, industrial, and workforce capacities and the alignment between them as an important determinant of how countries resolve their NHRD priorities. • Alignment of workforce development strategies must also consider capacity building of industrial and financial resources.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Alagaraja & Wang	2012	Framework	17	Country	Developing an NHRD strategy model	Comparative case study	<ul style="list-style-type: none"> Newly proposed NHRD model for China and India. Economic reforms and social policy formulations in India and China provided distinctive context to NHRD development.
Alagaraja, Kotamraju & Kim	2014	Framework	2	Conceptual framework	Examining HRD & NHRD linages through TVET literature	Literature review and framework development	<ul style="list-style-type: none"> Nine components are essential to make an effective TVET system. There is an increasing overlap and connection between workforce development, social development and economic development strategies. Effective TVET systems connect the four TVET components to the strategic goals of workforce development, economic development and social development.
Alzalabani	2002	Country Studies	16	Country	Training & Development	Public data and policy documents.	<ul style="list-style-type: none"> Government policy thrust to expand technical education and industrial training. Saudi-isation program to increase Saudi national participation in the economy has not been successful due to several factors including strong competition by skilled expatriates.
Arthur-Mensah & Alagaraja	2013	Country Studies	7	Country	Training & Development	Public data, policy documents and interview.	<ul style="list-style-type: none"> Informal TVET plays a major role in skills development. TVET curriculum to be improved to enhance student's employability and reflect labor market needs. Employer participation in TVET is low and challenging.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Ashton	2002	Country Studies	16	Region	Exploring the relationship between state, capital and labor to National HRD	Country policy and reports analysis	<ul style="list-style-type: none"> • HRD policies of three countries – Singapore, Taiwan and S. Korea have distinctive features. • The differences are due to internal changes in the relationships between state, capital and labor rather than the impact of external factors. • The impact of international agencies on the country’s HRD strategy delivery has been limited.
Attwell & Rauner	1999	Country Studies	7	Country	Training & Development	Public data and policy documents.	<ul style="list-style-type: none"> • About 70% of youth undertake vocational education through the Dual System in Germany. • Proposals underway to modernize and reform the Dual System. • T&D is firmly embedded in the SMEs, service and professional sectors. • Academic research in T&D is well established in Germany.
Baek & Kim	2014	Framework	5	Country / Region	Developing a stakeholder-based HRD model for HRD in society	Review of literature and model development	<ul style="list-style-type: none"> • HRD models traditionally focus on ISD or ADDIE as an HRD intervention process. • HRD should focus on broad and encompassing notion of the society. • The HRD–society nexus can be visualized when complex interactions between the internal and external stakeholders of an organization are recognized.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Bartlett & Rodgers	2004	Country Studies	21	Country	Using NHRD for regional development	Conceptual analysis	<ul style="list-style-type: none"> • Concept and definition of HRD are being promoted as a means for development while embracing strong cultural traditions in the Pacific Islands. • Pacific islands now promote development that stresses concepts of capacity building and improving or maintaining the quality of life. • It is yet to be seen if this NHRD approach will be executed primarily at the individual country level or at a broader regional level.
Briggs	1987	Policy & Strategy	42	Country / Region	Analyzing three elements of NHRD policy: Human capital, linkage of HRD to economic growth, structural changes in labor market	Literature review and policy analysis	<ul style="list-style-type: none"> • Human resources (labor input) contributed for the U.S. economic growth from 1929 to 1982. • Unemployment in 1980s soared due to structural changes and investment in Human Resource Development. • Three policy approaches to human resource development (1) quantitative dimensions, (2) qualitative dimension (3) necessity to assure there are no artificial barriers imposed on the labor market. • Human resource development carries with it the parallel responsibility to recognize that their contribution to the economy must enhance the quality of life.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Budhwani & McLean	2012	Country Studies	1	Community	Role of HRD in developing the Ismaili community in Minnesota	Single-case study	<ul style="list-style-type: none"> • HRD played a role in developing members of the Ismaili community in Minnesota. • The process of community development requires dialogue, creativity, and research. • One way to promote a pluralistic civil society is to ensure that community-level HRD be explicitly linked to and reflective of societal development efforts.
Budhwar, Al-Yahmadi & Debrah	2002	Country Studies	46	Country	Perceptions of managers on role of HRD in Sultanate of Oman	Questionnaire - Qualitative study	<ul style="list-style-type: none"> • Accesses the awareness and perception of Omani managers of State Owned Enterprises (SOEs) on the role of HRD, policies & practices. • Numerous bodies are involved in the administration and delivery of HRD that can be problematic in terms of determining areas of responsibility and accountability. • Recommendations for the development includes establishing a well-structured HRD system, investing in HRD staff, public training and establishing strong & effective evaluation systems.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Byun & Ryu	2012	Country Studies	16	Community	Examining lifelong learning city project in Korea	Qualitative content analysis	<ul style="list-style-type: none"> • Lifelong learning programs in Korea (learning cities) has been successful in creating development, networking and job opportunities. • Cities or regions have autonomy to design, administer and promote different learning activities. • Demonstrates OD applications for Societal Development that include change management in governmental organization, stakeholder participation, partnerships and change agents or OD practitioners.
Cho & McLean	2004	Framework	92	Country / Region	Understanding emerging NHRD models	Conceptual analysis; Synthesis of literature and practice	<ul style="list-style-type: none"> • HRD as a national policy is a reality thought the world. • Suggests five emerging NHRD models: Centralized NHRD, transitional NHRD, government-initiated NHRD, decentralized / free market NHRD, small-national NHRD
Cox, Al Arkoubi, Estrada	2006	Country Studies	15	Country	Exploring the issues and challenges of NHRD in Morocco's national development goal	Interviews, policy analysis and field work	<ul style="list-style-type: none"> • Morocco has progressed to a medium HDI country and is in a transitional model of NHRD since independence. • Reform-minded monarch, passage of reform measures and desire for human development by people are enabling factors for NHRD implementations. • Persistent problems of poverty, unemployment and corruption are impeding factors.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Cox, Estrada, Lynham, Motti	2005	Country Studies	11	Country	NHRD use in Morocco	Literature review & interviews	<ul style="list-style-type: none"> • Influencing factors and environmental forces that are driving and shaping HRD emergence and development in Morocco. • Influencing factors include the knowledge- and skill-oriented interventions that are delivered through partnerships between government, education and business. • Environmental factors include political, economic, socio-cultural and technological.
Cunningham, Lynham, & Weatherly	2006	Country Studies	22	Country	Understanding NHRD in the context of South Africa's historical roots, cultural values, educational level, political system and legislation	Literature review and policy documents review	<ul style="list-style-type: none"> • A number of HRD related problems has plagued South Africa including unemployment, education inequality, loss of high-level skills (brain drain) and jobs, and the HIV/AIDS. • The 'triple transition' toward political democracy, economic liberalization, and racial equity has created pressures and imperatives for NHRD implementation.
Demartis, Mathews, & Khilji	2012	Country Studies	1	Country	Exploring the concept of NHRD in Afghanistan for nation building	Analysis of literature, development and policy documents.	<ul style="list-style-type: none"> • The nation-building process in Afghanistan is at a critical juncture. • NHRD should be used as an effective strategic approach to progressing Afghanistan's nation building strategy to be simultaneously used by the Afghan government and UNDP. • Effective deployment of HRD principles inside UNDP may further contribute to the nation building effort by helping maximize organizational and workforce performances.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Devadas, Silong & Krauss	2011	Framework	3	Country / Region	Identify contemporary challenges of Human resource development	Conceptual analysis	<ul style="list-style-type: none"> Contemporary HRD challenges are identified in the organizational, national, global and HRD professional environments. HRD has the capability and potentials to address the new development challenges at input, process/activity, support and output levels.
Devadas, Silong, Krauss & Ismail	2012	Framework	2	Country / Region	HRD challenges and emerging HRD research inquires	Conceptual analysis	<ul style="list-style-type: none"> A four legged-stool of contemporary HRD research enquires and theoretical direction is proposed. NHRD can address HR issues beyond organizational level but its scope, roles, definition need be clarified, and link to HRD established.
Eguiguren-Huerta, Llinàs-Audet & Parellada-Sabata	2008	Country Studies	5	Country	Understand the training needs of the main sectors within the Andorran economy	Survey of businesses	<ul style="list-style-type: none"> Training investment trend in Andorran companies are increasing. The future training needs focus on customer loyalty, worker satisfaction and quality management. Recommends creation of educational routes via universities in tourism, commerce and finance. Continuing training best practices from Spain and France should be used to establish national system.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Elkin	1998	Country Studies	4	Country	Evaluation of voluntary, industry based, human capital development strategy.	Policy documents and public data	<ul style="list-style-type: none"> • New Zealand’s structural reforms combined with economic reform has contributed to the human resource development. • HRD initiatives (e.g. ‘National Qualification Framework’ and ‘Skills New Zealand’) has expanded systematic training responsive to the needs of the industry.
Escardíbul & Llinas-Audet	2010	Country Studies	2	Country	Describe and evaluate Spanish public programs that foster training.	Public policy documents and data.	<ul style="list-style-type: none"> • Training for employed and unemployed are provided under one system. • Supply-driven training programs focus on employer provided training and demand-driven training program focus on enhancing social-equity and training the unemployed. • Tripartite organization (employer, public authorities and social agents) acts as the foundation for T&D success.
Foucher & Hassi	2013	Country Studies	2	Region	Examines training and development (T&D) in Quebec	Survey of SMEs on T&D practices.	<ul style="list-style-type: none"> • Legislation requires 1% of revenue investment in training for companies with more than CAD \$1 Million. This has led to a training culture in the workplace. • Training remains limited with small business that account for 63% of Quebec’s economy. • SMEs focus on task-oriented training and employ informal training practices such as OJT.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Gedro & Hartman	2015	Country Studies	0	Country	To examine the connection between elementary education and NHRD.	Descriptive case study approach. Participant observation and documents in an elementary school.	<ul style="list-style-type: none"> • Haiti does not have a formal national plan for national HRD. • The primary education though School of Choice (l'Ecole de Choix) presents a critical NHRD response. • Because of low educational attainment in Haiti, focusing attention on primary education is a necessary entry point for NHRD.
Gehin & Jobert	2001	Country Studies	5	Country	Review of Training and Development in France	Public policy documents and data.	<ul style="list-style-type: none"> • The influence of school-based model and strong institutionalization of continuing vocational training has contributed to the success of T&D in France. • Training is on upward trend but inequalities in access still exist. • The move from centralized to regionalized administration of T&D (coordinating and standardizing functions) has been mixed.
Goodwin, Hills & Ashton	1999	Country Studies	23	Country	Review of Public policy, strategy and infrastructure related to T&D.	Public policy documents and data.	<ul style="list-style-type: none"> • Education and training policies & provisions are regionalized in U.K. • Delivery of training is thrust on the employers and employees. This has resulted in de-regulated labor market. • Disparity in training exist between higher levels and lower levels of occupational structure and company size.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Griffiths	2012	Country Studies	4	Country	Links between societal competitive advantage and HRD. Uses Bahrain as a lens for enquiry.	Single case study	<ul style="list-style-type: none"> Bahrain’s NHRD plans include expanding knowledge-based sectors by reforming higher education institutions (HEI). Establishing knowledge networks to connect stakeholders, audit expertise with HEI and develop quality standards. Societal competitive advantage success relies on cooperation between stakeholders including industry/enterprise, policy makers, and education institutions.
Harbison	1971	Policy & Strategy	8	Country	Analyzing HRD as the leading indicator for economic development	Quantitative analysis of economic, social and educational data	<ul style="list-style-type: none"> Human resources-not capital, income, or material resources constitute the basis for the wealth of nations. Truly meaningful index of development and utilization of human resources should include many more indicators of health, education, and employment.
Hassi	2011	Country Studies	4	Country	Examine education system, vocational training (VT), corporate training, policies and strategies related to them.	Public policy documents and data.	<ul style="list-style-type: none"> Employers are not satisfied with the skills acquired by graduates of the Moroccan education system and prefer to provide on-the-job training to their employees. Vocational and technical education system also

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Heraty & Collings	2006	Country Studies	14	Country	Review of Public and private training and development policy, strategy and infrastructure.	Public policy documents and survey of business data.	<ul style="list-style-type: none"> • The Industrial Training Act of 1967 and Labour Services Act of 1987 gave way for competency-based, industry-oriented training of 1990s. • The National Qualifications Authority of Ireland (NQAI) of 2001 provide a mechanism for accrediting prior learning. • Two industry surveys reflects a structured approach to training delivery and a concerted effort to start to measure some of the returns on investment through evaluation and transfer.
Hasler	2006	Country Studies	17	Country	Exploring Brazil's NHRD in the context of economic, social and political growth and development.	Public data, literature review and policy documents.	<ul style="list-style-type: none"> • While Brazil recognized the need for vocational education and training in 1940s, the efforts has limited success due to inequalities in funding, quality and access. • Several national agencies such as National Services of Industrial (SENAI) and Commercial (SENAC) Learning has been established in 2000s to foster government-industry linkage. • The government is beginning to address the disparity in access and funding to education and training to unemployed, poor and tribal regions.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Hytönen	2003	Country Studies	10	Country	Overview of HRD and training in Finland.	Public policy documents and results from three workplace survey results.	<ul style="list-style-type: none"> • Finland has high levels of education among its workforce. • Adult education and training is widely available. Private sector employer participation is high. • The difference in the level of education between older and younger generations, the growing demand in knowledge-intensive fields and fall in manufacturing and construction are among the challenges
Johnson, & Bartlett	2013	Country Studies	4	Country	Exploring NHRD initiatives with specific attention to tourism industry.	Case Study method	<ul style="list-style-type: none"> • Jamaica is increasingly reliant on tourism industry. • Government recognizes NHRD as a means to poverty reduction and economic development, but yet to succeed in implementation. • Large employers (hotels) have implemented successful training and development. • Research at the intersection of NHRD and tourism employment is non-existent and encouraged.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Johnson, Bartlett, Cunningham, Lynham, Von der Marwitz	2010	Country Studies	5	Country	Focus on developing HRD within HIV/AIDS Non-Governmental Organizations.	Qualitative research with case study approach	<ul style="list-style-type: none"> • Much of AIDS crisis is handled by NGOs and international health agencies in South Africa. • Lack of coordination, roles & responsibilities, and connection among NGOs needs and government policies. • There is a need for HRD research to be conducted in HIV/AIDS related NGOs given their front-line roles in both policy and practice.
Ke, Chermack, Lee & Lin	2006	Country Studies	16	Country	Analyzes driving forces for strategies HRD to address the shortage of skilled workers in China.	Literature and policy documents review.	<ul style="list-style-type: none"> • China has an excess of unskilled and semiskilled workers but a serious shortage of professionals and managers. • HRD policies and initiatives struggling to keep pace with economic development since 1980s. • The concept of HRD is in transition with to-down approach, underfunded and emphasis on social & moral values.
Khodr & Zirar	2013	Country Studies	0	Region	Analysis of the current status of the HRD in public sector in Kurdistan Regional Government	Qualitative data – survey of trainees and trainers.	<ul style="list-style-type: none"> • While Kurdistan is part of Iraq, the three province areas is autonomous and governed by regional government. • Obstacles to effective and efficient HRD include lack of a practical HRD training model and systematic process, absence of evaluation procedures, weak civil service training institutions and corruption.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Kim	2012	Policy & Strategy	10	Community / Region / Country	To understand the use of HRD for the purpose of societal development (SD)	Conceptual analysis	<ul style="list-style-type: none"> • Current HRD theory does not adequately address the issues and challenges faced in larger contexts, such as community, country, or international agencies in terms of the purpose, scope, level, tools, or outcomes, and methods. • Traditional HRD have been increasingly recognized as useful and effective interventions to deal with problems and issues that occur beyond a single organization or a group of organizations by means of case studies and conceptual interpretations.
Kim	2012	Policy & Strategy	4	Community / Country	Exploring the use of HRD for societal development	Conceptual analysis	<ul style="list-style-type: none"> • HRD's principles are practices are being applied to broader setting such as local, national and global settings. • Local governments and NGOs are key change agents for community development. • National and local governments are key change agents at National level to address poverty, employment and development. • International development agencies and NGOs are key change agents at global level.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Kim, Lee, & Jung	2009	Country Studies	1	Country / Region	Compares the NRD plans for three countries – Korea, Japan and USA.	Comparative analysis	<ul style="list-style-type: none"> • Korea has unified NHRD plan and central minister to execute policy while U.S. and Japan lack centralized planning and development. • All three countries recognize the importance of funding. • Korea lags behind U.S and Japan in clarity, consistency and implementation of NHRD policies.
Kuchinke	2010	Framework	49	All levels	Linking Human Development to Human Resource Development	Literature review of two fields: HD and HRD	<ul style="list-style-type: none"> • Core aspects of the human development (HD) links to theoretical and applied scholarship in human resource development (HRD). • Conceptual proximity of the two fields with the moral and ethical value stance of HD can provide a solid philosophical foundation for HRD.
Lee	2004	Country Studies	20	Country	Explores NHRD in United Kingdom in the context of national workforce development and key initiatives.	National educational programs, policy documents and literature review.	<ul style="list-style-type: none"> • The multi-stakeholder managed Sector Skills Councils (SSCs) and Learning and Skills Council (LSC) in the U.K has played vital role in workforce development. • Industry, educational institutions and individuals invest / contribute to the success of skills development. • Despite increasing standardization, the scope of HRD as a subject has changed dramatically in the U.K during the past decade.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Lehner & Dikany	2003	Country Studies	3	Country	Overview of educational system, vocational education, and training in Austria.	Public policy documents and results from public surveys.	<ul style="list-style-type: none"> • Primary, secondary and tertiary education in Austria is largely regulated. • Vocational training and apprenticeship is shaped and adapted to the needs of SMEs. • Management training and post tertiary education is much more diverse and less regulated.
Lucio & Stuart	2003	Country Studies	9	Country	Overview of Spain's background, public policy, strategy, private sector investments in T&D.	Public policy documents and industry statistics.	<ul style="list-style-type: none"> • Spain has one of the highest unemployment rates in the E.U. • Tripartite system of life-long learning program have been implemented since 1990s. • T&D in SMEs is low and overall training effectiveness is poor.
Lutta-Mukhebi	2004	Country Studies	17	Country	Reviewing national development plans that focus on HRD for social and economic development	Literature and policy documents review.	<ul style="list-style-type: none"> • Kenya's last two national development plans have assigned HRD a key role in improving the economic well-being of the country and its population. • Policies are enacted to improve training and capacity building in public sector. • Gender disparity exists for women in educational attainment.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Lynham & Cunningham	2006	Framework	89	Country / Region	Comparative discoveries about the role and nature of NHRD	Synthesis of five case studies	<ul style="list-style-type: none"> • Comparison of five transitioning countries (Philippines, South Africa, Morocco, and Brazil) using UN HDI index show similarities and dissimilarities. • Imbalances in NHRD occur due to unequal access to political, economic, social, and educational opportunities. • NHRD must be more than education; it should include the development and unleashing of human expertise for multiple learning and performance purposes
Lynham & Cunningham	2004	Policy & Strategy	30	Country	Reviewing the integrated framework of policy, legislation and programs in the context of NHRD for labor development, economic development.	Literature and policy documents review.	<ul style="list-style-type: none"> • South Africa’s post-apartheid priority of human resource development led to emphasis on education, policies and legislation. • These include National Qualification Framework (NQF) and several skills development acts. • Implementation challenges include bureaucracy, lack of support from industry, funding and HIV/AIDS epidemic.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Mace, Venneberg, & Amell	2012	Policy & Strategy	4	Community	Application of HRD principles to alleviate human trafficking	Conceptual analysis	<ul style="list-style-type: none"> Severe poverty remains the single most dominant factor in of human trafficking. NHRD principles can be used to address and human trafficking problem. Some of the tools include Education, training and community development, empowerment, job training, and income generation.
Mahmood & Akhter	2001	Country Studies	5	Country	Overview of Bangladesh educational system, private sector training and lack of government initiatives.	Public documents	<ul style="list-style-type: none"> Bangladesh's national educational and training system failed to provide adequate knowledge and skills to the workforce. Private sector organizations have undertook different initiatives to enhance industry skill requirements and develop employees.
Mahmood & Baimukhamedova	2013	Country Studies	0	Country	Overview of Kazakhstan education and training systems.	Public documents and statistics.	<ul style="list-style-type: none"> Kazakhstan is in the process of upgrading its educational qualification to meet the post-independence socio-economic conditions. Employee training and development activities are yet to be a part of strategic plan of business enterprises in Kazakhstan

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Marquardt, Nissley, Ozag & Taylor	2000	Country Studies	22	Country	Overview of education system, public policy, labor market, training programs by public and private sector in the US.	Public policy documents and industry statistics.	<ul style="list-style-type: none"> • T&D emerged in the US in 1940s during World War II. • Departments of Labor and Education focus on training and workforce development. • Companies investment in training to has been steadily growing. • Future challenges include globalization, technology, knowledge-based workers, and innovation.
McLean	2004	Definition	128	All levels	Examining definition of NHRD around the world and growing importance	Literature review and experience of the author	<ul style="list-style-type: none"> • Growing importance of NHRD include human resources are primary resources for many countries, critical for national and local stability, necessary to break cycles of poverty, violence and unemployment. • Proposed a cross-national definition of NHRD.
McLean, Bartlett & Cho	2003	Country Studies	25	Country / Region	Exploring the NHRD experiences in Korea and New Zealand	Literature and policy documents review.	<ul style="list-style-type: none"> • There is a need for a unified, synthesized approach to NHRD is emerging as the answer to emphasis on HRD defined as a national agenda. • NHRD is seen as incorporating and going beyond traditional countrywide five-year development plans. • Several countries in the Pacific Rim including the South Korea and New Zealand has adopted NHRD in their development plans.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
McLean, Kuo, Budhwain, Yamnill, & Virkul	2012	Policy & Strategy	5	Community	Demonstrating the use of HRD for societal development	Authors projects, experiences and conceptual analysis	<ul style="list-style-type: none"> HRD principles and theories can be used for societal development via the general improvement of the welfare of people usually outside of the workplace, primarily in communities. Nine case studies / articles are used as illustration to show capacity building, community development and addressing societal problems.
McLean, Lynham, Azevedo, Lawrence, & Nafukho	2008	Definition & Framework	25	All levels	Response on NHRD paradigm, theory development methodology, the bounding process, and reliance on economics	Perspective/opinion	<ul style="list-style-type: none"> Provides reaction to Wang & Swanson's (2008) article on six different areas: <ol style="list-style-type: none"> Insistence on a single paradigm of truth or reality Theory development methodology The bounding process The definitional process Scope of NHRD efforts Reliance on economics (and only development economics)
Mellahai	2000	Country Studies	20	Country	Explores the role of vocational education in NHRD	Case study using longitudinal qualitative study	<ul style="list-style-type: none"> The Saudi Arabian economy relies heavily on a core of foreign workers cutting across all sectors and skill levels. Vocational education in Saudi Arabia suffers from the overwhelming impact of labor market distortion and a negative social perception of skilled and manual work.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Metcalfe & Rees	2005	Definition	66	Country / Region	Defining a framework for International HRD consisting of ‘global HRD’, ‘comparative HRD’ and ‘national HRD’	Literature review & conceptual analysis	<ul style="list-style-type: none"> • HRD can play a role in developing and shaping industrial competitiveness and overall advancement of societal well-being. • Development model to analyze international HRD that includes sector, national culture and international bodies & agencies.
Metcalfe	2011	Country Studies	21	Country	Examining gender issues and governmental regime in the context of NHRD	Literature review, public data and policy documents.	<ul style="list-style-type: none"> • Current literature has not examined gender issues nor considered the governance regimes and institution cultures that shape • Framework for conceptualizing a gender and national HRD model that facilitates women’s empowerment. • The model can guide government national HRD skills strategies and empowerment for women.
Modisane	2015	Country Studies	0	Country	Provide an overview of HRD in Botswana. Highlight the economic milestones achieved.	Literature review, public data and policy documents.	<ul style="list-style-type: none"> • Human Resources Development Council (HRDC) in Botswana acts as the national coordinator of HRD. Right steps are taken for systemic planning of HRD. • Major challenges include inadequate resources, lack of relevance of the education curriculum, and poor quality of educational programs that are too theoretical for the labor market demands.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Mulder & Tjepkema	1999	Country Studies	16	Country	Overview of public policy, labor market, training programs in private sector in Netherland	Public policy documents and industry statistics.	<ul style="list-style-type: none"> Netherland’s national policy trend is very much in favor of training and development with incentives to individuals and companies. Has a strong system of vocational education and life-long learning programs. Employment training is also an important area of training, mainly subsidized by public sources at local, regional, national or European level.
Murphy & Garavan	2009	Framework	4	All levels	Proposing a conceptual framework to explain the adoption and diffusion of a NHRD standard	Literature review	<ul style="list-style-type: none"> Proposes a conceptual framework to explain the adoption and diffusion of a NHRD standard. Ten hypotheses are proposed to outline the adoption of NHRD standards.
Nery-Kjerfve, Kim, Kim & McLean	2014	Country Studies	1	Countries	Case study comparison of NHRD in Brazil and South Korea.	Public policy documents and statistics.	<ul style="list-style-type: none"> Any country using NHRD for its development must accept the fact that there is no perfect approach and no approach that will produce perfect outcomes all the time. Comparison, challenges and discussion on Brazil and Korean NHRD policies and developments with examples.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Oh, Choi, & Choi	2013	Country Studies	3	Countries / Region	Assess, evaluate and compare HRD systems of advanced OECD countries	Secondary data analysis (UN HD Index)	<ul style="list-style-type: none"> Strengths and weakness of 34 OECD countries' NHRD systems are identified using Global Human Resource Development index. They differed significantly in key aspects of supply, demand, environment and supporting systems of NHRD. NHRD competitiveness changes did not occur in short periods.
Oh, Ryu, & Choi	2013	Policy & Strategy	11	Country / Region	Developing Index to evaluate NHRD systems	Model Development	<ul style="list-style-type: none"> Index to evaluate and assess a country's HRD system. The model consist of four factors – supply conditions, demand conditions, environment and supporting systems. 45 indicators were analyzed using Analytic Hierarchy Process. OECD countries data was used to validate the index.
Osman-Gani	2004	Country Studies	41	Country	Analysis of macro-level human capital development strategies in Singapore	Literature review & national HRD policy reviews	<ul style="list-style-type: none"> Singapore's Human resource strategies are continuously revised and adjusted in conjunction with other national strategic economic policies. The tripartite system ensures agreement over strategies and implementation. Macro level human capital development strategies show strong correlation to economic success.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Osman-Gani, & Tan	1998	Country Studies	12	Country	HRD strategies in Singapore and lessons on HRD at a national strategic level for other nations.	Literature review & national HRD policy reviews.	<ul style="list-style-type: none"> • HRD strategies adopted in Singapore had let to its top five competitive nation. Its lessons can be used for other countries' HRD development. • Strategies include multi-department approach, tripartism, education delivery systems, innovation, HRD policies and R&D.
Osman-Gani, & Tan	2000	Country Studies	25	Country	Overview of Singapore's background, Manpower Planning and workforce development.	Public policy documents and statistics.	<ul style="list-style-type: none"> • Singapore's approach to long-term planning, integrated planning and development process for training and skills development has yielded successful results. • Continuous training and skills development has been possible through close cooperation of tripartite group with several policymaking institutions.
Panda	2005	Country Studies	24	Country	Case study of using higher education distance education for NHRD in India	Public data, literature review, national HRD policy reviews.	<ul style="list-style-type: none"> • India has 2.8 million students in 117 universities studying via distance education. • Distance learning in India and its contribution to national development. • Distance Learning has also helped with community development, women empowerment, and development of new sectors.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Paprock, Yumol, Atienza	2006	Country Studies	13	Country	Impact of exporting skilled workers and issues of NHRD in Philippines.	Literature review & national HRD policy reviews.	<ul style="list-style-type: none"> Philippines is one of largest exporter of human resources mainly due to economic conditions and has drained valuable human resources. Since 1990s, policies and programs have been directed towards HRD. Training in the industrial sector has improved skills development in manufacturing and service operations.
Pino & Cox	2012	Country Studies	2	Country	Overview of public policy, labor market and training programs in Chile.	Public policy documents and industry statistics.	<ul style="list-style-type: none"> NHRD challenges in Chile are in four areas: the implementation of the national system of certification of job skills, the inclusion of social dialogue in the training system, the development of individual incentives for post formal education and the development of research in the training area.
Pio	2007	Country Studies	6	Country	Overview of New Zealand's educational system, labor market and public & private training programs.	Public policy documents and industry statistics.	<ul style="list-style-type: none"> In New Zealand, government and the corporate sector work together to strengthen system capability and quality, to increase opportunities for on-the-job experience and to raise the skills. Firms spend an average of 3.7 percent of payroll on training; the median is 2 percent.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Prieto, Phipps, Thompson, Ogbuehi	2015	Country Studies	0	Country	Provide an overview of the state of NHRD in Caribbean countries and how social entrepreneurship can solve the challenges of NHRD.	Literature review & national HRD policy reviews.	<ul style="list-style-type: none"> • With average GDP of less than \$450 per head, poverty, unemployment, crime and other serious issues mar the Caribbean countries. • Using systems approach, social entrepreneurship can be used as a vehicle to promote national human resource development throughout the Caribbean.
Rao	2004	Country Studies	38	Country	Complexities and challenges of integrated NHRD in India	Public data analysis, literature review, national HRD policy reviews	<ul style="list-style-type: none"> • Indian workforce - 64% agriculture, 16% industry and 20% service. • The complexity India makes it difficult to have integrated HRD systems at the national level. • Lessons and experiences learned from corporate sector are rarely used in NHRD formulation.
Rao & Varghese	2009	Country Studies	22	Country	Challenges of corporate HRD in the context of NHRD	Public data analysis, literature review, national HRD policy reviews	<ul style="list-style-type: none"> • HRD challenges in India include a large population, conservative HRD policies and lack of private sectors initiatives. • Industry HR focuses on recruitment, retention and compensation strategies rather than talent development.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Razvi & Roth	2010	Country Studies	7	Country	NGOs and socio-economic development of low-income women in India.	Public data on NGOs, Indian governmental and educational system	<ul style="list-style-type: none"> India is in dire need of labor and educational reforms aimed at women in informal work sectors. Patriarchy, labor, education, and government initiatives emerged as the main underlying factors affecting the socio-economic status of poor women in India. NGOs fill the gaps in socio-economic development of low-income women in India.
Scotland	2004	Country Studies	13	Country	Examining NHRD policy and planning in small island nation	Literature review, national HRD policy reviews	<ul style="list-style-type: none"> Weaknesses in the education system and inadequate HRD contribute to the problems of poverty and unemployment in St. Lucia Education and HRD as key strategies in the development agenda with education reforms and workforce development.
Shim, Lee, Oh & Im	2015	Country Studies	0	Country	Examining the current NHRD structure and framework in Korea	Literature and public policy documents	<ul style="list-style-type: none"> Korean NHRD system includes training institutes, trainees, evaluation agencies, and policy makers. There is a lack of cooperation between agencies conducting and evaluating training programs. A conceptual evaluation model aligning all five stakeholders would increase efficiency.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Shim, Lee, Oh & Im	2015	Country Studies	0	Country	Factors affecting employment after vocational training in Korea	Quantitative Study of 33,555 people who received vocational training	<ul style="list-style-type: none"> Examines the factors affecting employment for those who completed training in Korea. Age, gender, training hours, training cost and training contents includes training satisfactory level, training counseling were found to be significant to employment after vocational training.
Skule, Stuart & Nyen	2012	Country Studies	33	Country	Detailed overview of Norway's regulation and practices of education, vocational training, adult training and lifelong learning.	Public policy documents.	<ul style="list-style-type: none"> Norway's comprehensive reform of vocational education include public involvement in the vocational education and adult training. Current challenges include developing an all-inclusive system of lifelong education, training and learning.
Smith	1999	Country Studies	17	Country	A comprehensive overview of Australian vocational education, traineeship and public policy and implementation of training.	Public policy documents and statistics.	<ul style="list-style-type: none"> Australian vocational education reforms in 1990s include creation of industry-based competency standards, the use of competency-based training and a system for the national recognition of training. Other reforms include new entry-level training arrangements and the development of an 'open' training market. Industry expenditure and inclination for training is lower than public sector investments.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Sparkman	2015	Country Studies	0	Country	Understand the factors and conditions that influence NHRD in Brazil	Literature Review	<ul style="list-style-type: none"> The complex relationship between the Brazilian government, its people and organizations, multinational and indigenous organizations are factors and conditions that influence national development needs. Concerns with NHRD development include race, gender and educational equality.
Stewart & Sambrook	2012	Country Studies	14	Country	Historical development of HRD in UK	Literature review And document analysis	<ul style="list-style-type: none"> In U.K. HRD as a term has been, and is, more evident in the academy than in either the national policy or professional domains. Government, policy and professional organizations use the terms skills development or personnel in practice.
Stewart, Mills, & Sambrook	2015	Country Studies	1	Country	Historical development of HRD in UK	Literature review And document analysis	<ul style="list-style-type: none"> HRD education in the U.K is largely influenced by three key stakeholders: the government, the Chartered Institute of Personnel and Development and the academy. Complex and dynamic interactions between these stakeholders have implications for learners, practitioners, and researchers.
Storberg-Walker	2012	Policy & Strategy	5	Country / Community / City	New paradigm: workforce development	Conceptual analysis	<ul style="list-style-type: none"> Paradigm shift needed in HRD to focus the work of the discipline on enhancing the public good through workforce development. NHRD model that includes workforce development can result in job creation, work force development policy and HRD interventions.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Talleri, Llinas-Audet & Escardíbul	2013	Country Studies	0	Country	Overview of Peruvian economy, education system and public policy on training and development	Public policy documents.	<ul style="list-style-type: none"> Peru's educational and training policies, infrastructure and practices are in its early stages of implementation. Challenges include insufficient budget, educational/evaluation system weakness, inequalities in education and attracting qualified teachers.
Thang & Quang	2007	Country Studies	19	Country	Overview of Vietnam's labor market, education system, public and private efforts at training and development	Public policy documents.	<ul style="list-style-type: none"> Vietnam's workforce has high agricultural base, young workforce and growing private sector. There is a high need for skilled labor. Vietnam is overhauling the whole educational system as a means of NHRD development.
Tynaliev & McLean	2011	Country Studies	4	Country	Analyze the impact of migration on NHRD	Case study design with qualitative data	<ul style="list-style-type: none"> Kyrgyzstan's migrant workers developmental impact factors on NHRD are studied. Developmental impact include challenges and benefits of migration; developing new skills; use of remittances; reasons to return; employment or self-employment; remittances as investment and government assistance for returnees' business activities.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Udani	2009	Country Studies	0	Country	Overview of Macao's political background,	Public policy documents and statistical data.	<ul style="list-style-type: none"> • T&D in the Macao is at its growth stage, driven by current manpower demands and short- and medium-term training needs. • T&D in Macao has been both encouraged and hampered by an economy that is overly dependent on the gaming industry.
Udani, Sunio, Dado & Udani	2012	Country Studies	0	Country	Overview of country background, economy, educational and training policies and strategies of Philippines.	Public policy documents and statistical data.	<ul style="list-style-type: none"> • T&D is vital to Philippines for modernizing and industrializing Philippines economy. • TVET program provides majority of the skills training required for the skilled jobs. • Industry investment in training is high in Business process outsourcing (BPO) sector while lacking in other sectors.
Verkhohlyad & McLean	2011	Country Studies	3	Country	Assessing national human capital (NHC) of Ukraine	Case study	<ul style="list-style-type: none"> • National human capital (NHC) as well as national HRD is different in different countries. • NHC of a country possesses unique features, which has significant implications for its practical utilization and development. • NHC is measurable and helpful from cost-benefit perspective.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Villar, Llinàs-Audet & Escardíbul	2013	Country Studies	0	Country	Overview of Mexico's educational system, public / private training policies and impact on productivity.	Public policy documents and statistical data.	<ul style="list-style-type: none"> • While Mexico invest 5% in education and training systems have improved, there is still need for investment in training to boost skills and productivity. • Greater efforts are required to develop nearly half the working population earning less than US\$14 a day.
Wang	2008	Definition	22	All levels	Exploring the consideration of economics foundation and accumulated international development research and practices in NHRD	Literature review in multiple fields	<ul style="list-style-type: none"> • The domain of HRD should not be extended to HD. • HRD scholars should understand the different meaning of the same terms used in different fields determined by the contextual and historical background of the field. • NHRD should be renamed as HRD national policy studies.
Wang	2012	Framework	3	All levels	Introduced the concept of social entrepreneurship to HRD to promote societal development	Conceptual analysis	<ul style="list-style-type: none"> • Social entrepreneurs have used HRD and organization development strategies to address societal problems in India and China. • Draws details from four case examples to demonstrate the use of HRD strategies.
Wang & McLean	2007	Definition	53	All levels	Expanding the scope of HRD to include international and cross-national HRD	Literature review & conceptual paper	<ul style="list-style-type: none"> • International HRD in the global arena be categorized under three headings: global HRD, comparative HRD, and national HRD. • An introductory definition of international and cross-national HRD is provided.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Wang & Swanson	2008	Definition	47	All levels	Comparison of NHRD literature to development economics & international development literature	Literature review in multiple fields	<ul style="list-style-type: none"> • Four propositions that challenge the present idea of NHRD. • Conclude that the NHRD literature is not based on the foundations of economics and systems theory.
Wang & Wang	2006	Country Studies	24	Country	Management development (MD) as part of NHRD strategies	Literature review in multiple fields	<ul style="list-style-type: none"> • NHRD policies and practices studied from the perspective of Management Development (MD) and China context. • Although much effort was made at multiple levels for developing managers, China’s approach to Management Development MD tended to be fragmented and lacked coherence.
Wang, Korte, Sun	2008	Policy & Strategy	9	Country / Region	Developmental economic policy analysis and comparative studies in NHRD	Literature review in multiple fields	<ul style="list-style-type: none"> • HRD can benefit from the insights provided by development economics—especially in developing countries. • HRD engagement in policy analysis and comparative studies, and contribute to policy recommendations based on development economics.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Wilkins	2001	Country Studies	30	Country	Background of UAE demographics, economy, educational system and private training and development efforts.	Survey of large business.	<ul style="list-style-type: none"> Emirati companies adopt similar methods and strategies of best training and development practice from their foreign counterparts. Research underscores the importance and value of training as well as the cultural / religious / social underpinnings of the UAE society.
Wilkins	2002	Country Studies	14	Country	Role of vocational education in supporting NHRD strategy and the impact of economic, social, cultural and political factors.	Literature review, national HRD policy reviews.	<ul style="list-style-type: none"> Vocational education plays a significant role in supporting the UAE government's policy of Emiratization, but significant social and cultural barriers exist for NHRD. Private sector institutions have been considerably hindered by a number of political and economic constraints.
Xie & Wu	2001	Country Studies	19	Country	Detailed overview of the Chinese demographics, culture, educational system and public policy on vocational education	Public policy documents and statistical data.	<ul style="list-style-type: none"> Public policy on education, educational reform, and vocational education in China is centrally managed by the government. The 10th Five-Year plan has included several HRD plans. State Owned Enterprise's focus on T&D is minimal. China's places cultural importance to lifelong education.

Table 9: Continued

Authors	Year	Focus	Citations	Level	Research Purpose	Methodology	Key Findings
Yadapadithaya	2000	Country Studies	27	Country	Overview of Indian demographics, public policy, strategy and infrastructure on education, training and development.	Public policy documents and statistical data.	<ul style="list-style-type: none"> • India's public policy places emphasis on education to alleviate poverty and improve employment. • Adult education, vocational education and higher education reforms has yielded mixed results. • T&D in corporate sectors is gaining importance. Training needs assessment, lack of training transfer and lack of evaluation are common challenges.
Yang, Zhang, & Zhang	2004	Country Studies	43	Country	Issues and key themes of developing human resources as a national policy with effective measures in China	Literature review, national HRD policy reviews.	<ul style="list-style-type: none"> • After the open-door policy of 1978, China began to adopt HRM and HRD policies. • SOEs are slow adopt HRD concepts and principles. • Chinese characteristics such as top-down approach, strong social and moral implications, and traditional influences are being used to develop the national policy and strategy.

Discussion of Future Directions

Based on my systematic review of the 104 journal articles, I have identified several gaps in the current NHRD knowledge base. In this section, I offer some directions to advance NHRD research particularly in three areas: (1) theory development, (2) content areas for future research, and (3) methodology.

Future Directions for Theory Development

My systematic literature review indicates that a majority of the 104 studies have not made strong use of theory. Where theoretical perspectives are utilized, there is an over-reliance on a small number of theories such as human capital theory, economic theories, and education theories. There is very limited evidence of innovation in extending existing theories or adopting new ones. As a result, despite the efforts in developing new frameworks or models that integrate multiple theoretical perspectives, I found them largely influenced by the popular theories in the mainstream. So I believe this is the area which has the greatest potential for development. In this spirit, I offer two challenges.

First, I encourage NHRD researchers to make more commitment to building a solid theoretical foundation by challenging conventional perspectives and opening themselves to different philosophical views. The theories used to inform these reviewed NHRD studies are either traditional economic theories or training and education theories. While I consider them highly appropriate, I also recognize their potential in hindering creative thinking. Thus I encourage researchers to explore the non-mainstream perspectives; doing so will enable researchers to think outside of the box and generate

innovative ideas. One theoretical perspective which I believe will advance NHRD research is the critical theory. In fact, the notion of NHRD itself is a critical view in action. NHRD challenges the conventional belief about the scope and function of HRD by bringing taken-for-granted areas to the forefront. Having a critical mindset would likely facilitate an understanding of the societal meaning of HRD.

Second, I challenge researchers to take a more rigorous approach to NHRD theory building. Most of the conceptual papers included in this review are exploratory and descriptive in nature. As a result, they either did not talk about the informing theoretical perspectives, or did not show a systematic theory building process. Additionally, an overwhelming number of articles I reviewed offered no empirical data that could lead to the development of evidence-based theory. While case study was the dominant research methodology, it often did not contain the first-hand information, nor led to theory building. In the best case scenario, the authors proposed new conceptual frameworks based on secondary data analysis. This lack of theory building focus and sound theory building method does not help advance the development of NHRD theories.

Content Areas for Future Research

My review disclosed several trends in terms of what has been studied in NHRD research. First, I noticed the most popular approach is to identify national policies, plans and government agencies involved in NHRD planning efforts. While such approach provides a useful overview, it does not help us build a deep understanding. I encourage

researchers to identify real-life examples of NHRD interventions in action, take a closer examination of these strategies, and link them to the actual outcomes.

Second, I encourage future studies to incorporate non-mainstream dimensions such as gender, power, culture, marginalized populations, religion, and other critical societal issues (see below). Out of the 104 articles, I found only two focused specifically on gender (Metcalf, 2011) and religion (Budhwani & McLean, 2012). I advocate a more critical approach to NHRD research.

Third, while there has been some noticeable advancement in developing NHRD theory and research, very little work has been done to date to examine the application of NHRD. I suspect this is due to the broad coverage of NHRD and difficulty in collecting field data. I encourage researchers to focus on specific HRD efforts made on a micro level rather than trying to cover the whole country, even countries. A good example I found is McLean et al.' (2012) article. In this article, the authors presented eight case studies they had personally involved to demonstrate how HRD principles and theories had been used for societal development at various levels—villages, local community centers, temple, neighborhood, and K-12 educational system. These concrete examples help us see NHRD in action and its impact.

Fourth, there is also a lack of research on the linkage of NHRD to other related fields. I am surprised to see a very small number of scholars outside of the HRD field study NHRD, despite that NHRD is an area involving many disciplines. To this end, I call for more interdisciplinary collaboration among scholars and practitioners, because

promoting research and development of NHRD will elevate the field of HRD to greater importance and contribute to the greater good.

With the above points in mind, I suggest the following areas for future research.

1. The national HRD planning and policy making process—who are the stakeholders? How is the process unfolded? What factors influence the process?
2. Workforce development as related to NHRD—what is the relationship between workforce development and human resource development? How do these two systems interact with each other?
3. Real-life examples of NHRD for societal development—what HRD strategies/interventions have been used for NHRD? For what purpose specifically? What are the outcomes of these interventions? How effective are them?
4. Gender issues in NHRD—How gender issues affect NHRD planning? Does gender matter in the NHRD planning process?
5. Marginalized populations in NHRD—Are marginalized populations considered in the NHRD plan? If yes, how? How may NHRD plan for marginalized populations differ from other groups?
6. Implementation of NHRD plans—are NHRD plans being implemented? If so, at what levels? What aspects of NHRD plans are easy to be implemented? What are the challenges in implementing NHRD plans? And why?

7. Evaluation of the outcome of NHRD efforts—to what extent are NHRD efforts being evaluated? What methods are used to evaluate the effectiveness of NHRD efforts? What are critical considerations in evaluating NHRD outcomes?
8. Cases of NHRD in addressing general societal development issues (e.g., child labor, corruption, commercial sex trade, HIV/AIDs, human trafficking, corporate social responsibility, McLean et al., 2012)—Is NHRD being used to address general societal issues as listed here? How effective is it?
9. Relationship between contextual characteristics (e.g., population, culture) and NHRD policies and practices—how does a contextual element affect NHRD policy formation and implementation?

Methodological Recommendations

The studies reviewed adopted the case study methodology as the most popular approach to NHRD research. I commend the authors for such a choice because this methodology has the greatest potential to address the holistic and complex nature of a phenomenon (Torraco, 1994) and contribute to theory development, particularly in areas where existing theory is inadequate (Eisenhardt, 1989); so it is highly appropriate to study NHRD. However, above 95% of the case studies included in this review are not empirical, meaning they base their analysis on available secondary data. Such approach does not help identify new concepts or theories. Therefore, I encourage NHRD researchers to take more the field-based approach to case studies including both qualitative and quantitative data.

Second, I call for more variety of approaches to NHRD studies. Specifically, I advocate for the use of the grounded theory approach because this approach is highly effective when there is no established theoretical base to understand a specific phenomenon. Further, I encourage more empirical studies than conceptual work to be done to provide much-needed evidence which can shed more light on the impact or outcomes of NHRD. Empirical evidence is a powerful way to inform the decision of policy makers and NHRD practitioners. Given the scarcity of empirical studies in NHRD, qualitative and quantitative studies, as well as mixed method studies would be highly valuable.

Finally, I call for more attention to the rigor of research process. Based on my review, I have some concern about the design and quality of the previous NHRD studies. I intentionally chose to focus on peer-reviewed articles because I believe the blind review process helps enhance the rigor of research. I chose not to rate the quality of the journals because I want to build an exhaustive literature base for an emerging phenomenon. To my surprise, many articles I reviewed do not contain the essential components of a quality research paper. This could be in part due to the purpose of the paper and specific journal requirements; nevertheless, I believe all research papers should meet certain minimum criteria in order to be credible. A common theme I found is there lacks sufficient description of the research methods. For example, literature review articles do not always tell readers the scope of literature reviewed, nor how the literature was selected for review. In the few empirical studies I identified, research methodologies and methods were very briefly discussed, often without providing any

justification. Therefore, I strongly urge NHRD researchers to pay more attention to the quality issue, because in an emerging field such as NHRD which lacks a shared conceptual understanding sound guiding theories, it becomes even more critical that researcher produce high-quality data to add credibility to the field.

Conclusion

In this systematic literature review, I identified and systemically examined NHRD research by integrating multiple disciplinary views. The findings indicate that the construct of NHRD has been investigated in various national context, and has gained research attention gradually over time. In addition, this topic has been studied from various theoretical perspectives and with multiple research methods. Both theoretical and empirical research was conducted to build the NHRD literature base. These efforts have expanded and enriched our understanding of current NHRD research. Based on my systematic review, I offered some suggestions for theory development, methodological development, and content building. It is my hope that by providing a comprehensive review and critical examination of current status of NHRD research, I have offered opportunities for scholars, practitioners and policy makes, so that I can foster a stronger partnership and have a better grasp of NHRD in terms of its goals and application. With a clearer sense of this notion, NHRD professionals will be better positioned to use it as a strategic tool to serve the public good.

CHAPTER III

NATIONAL HUMAN RESOURCE DEVELOPMENT: A HOLISTIC CONCEPTUAL FRAMEWORK FOR POLICY DEVELOPMENT AND IMPLEMENTATION

Summary

National Human Resource Development (NHRD) has received increasing attention from HRD scholars in the last 15 years. Due to its emerging nature, there has been ongoing efforts in developing NHRD models using HRD principles. In this article, I reviewed the body of literature on NHRD in order to understand its current state. I also reviewed the research to date on NHRD policies and practices. Considering the complex issues of national goals, stakeholders, finance and NHRD context (social, cultural, political and economic), I propose a holistic conceptual framework for NHRD policy development and implementation. In doing so, this model provides a flexible roadmap and starting point for national human resource planning, implementation and evaluation.

Introduction

Poverty is one of the leading global challenges of our lifetime. Poverty is the primary cause of hunger, deaths, homelessness, access to healthcare, and education. It is also a major reason for economic, social, and political marginalization. In 2016, the world population crossed 7.3 billion. According to the World Bank's poverty update (World Bank, 2016), 13 percent of the world's population (almost 900 Million people) live below the international extreme poverty line of \$1.90 a day. Sub-Saharan Africa has the most concentration of poverty estimated at 35% of the population in 2015. The

World Bank projects (actual data lags by a few years) extreme poverty to reduce to 9.6% by 2015, which means there are still 702 million poor people. In 2015, the United Nations General Assembly formally adopted the 2030 Agenda for Sustainable Development, which guides global action over the next 15 years. Consisting of 17 Sustainable Development Goals (SDGs) and 169 associated targets, this new agenda builds on the achievements of the Millennium Development Goals (MDF), but is far wider in scope and ambition (Word Bank, 2016).

Poverty reduction starts with human development. Harbison and Meyers (1964) argued, decades ago, that “people are the real wealth of a nation” (p.15). Education and skill development are at the forefront of human development. In fact, the relationship between education and poverty reduction is well documented. According to Psacharopoulos & Patrinos (2004), “the average rate of return to another year of schooling is 10%. The highest returns are recorded for low-income and middle-income countries” (p.112). According to the Asian Development Bank, educated people have higher income earning potential, and are better able to improve the quality of their lives (Bauer & Thant, 2010). Empirical evidence has confirmed that education is closely linked to virtually all dimensions of development: human, economic, and social (Kim & Terada-Hagiwara, 2010).

In the field of Human Resource Development (HRD) that focuses on development through learning-based interventions, developing human resources at the national level aligns well with its core mission. Storberg-Walker (2012) reminded us that in challenging economic times, “HRD research and practice should be in service of

better society” (p.589). McLean (2004) argued that for many developing countries with little or no natural resources, human resource development is critical for national development. National Human Resource Development (NHRD) can play a significant role in providing the methods and tools needed for the underdeveloped and transitional countries to address their social issues such as poverty. Advancing research and development of NHRD will not only elevate the field of HRD to greater importance, but it is also the responsibility of HRD scholars to contribute to the greater good.

Emergence of NHRD

In the human resource development (HRD) scholarly community, it is generally agreed that HRD consists of three main domains: training and development (T&D), organization development (OD), and career development (CD). As a field oriented toward improvement, HRD has historically focused on organizations, teams and individuals. With the emergence of diverse philosophical paradigms and theoretical assumptions, the focus and mission of HRD are also changing. As Torraco (2005) noted, HRD has expanded in breath by extending beyond the three traditional domains to include issues such as diversity, ethics, human and social capital development, and strategic change. Meanwhile, HRD has also expanded in scope, from focusing exclusively on organizations to considering communities, regions, and nations (McLean & Mclean, 2001; McLean, Osman-Gani, & Cho, 2004). It is this integrated perspective that has led HRD into a truly multidisciplinary profession (Torraco, 2005).

Since this concept was first proposed by McLean in 2004, National Human Resource Development (NHRD) has received increasing attention from HRD scholars.

This is evidenced by collections of publications in three NHRD focused issues of *Advances in Developing Human Resources (ADHR)* in 2004 (NHRD status and policies), 2006 (NHRD in transitioning societies), and 2012 (HRD for societal development). Meanwhile, a number of individual research (both conceptual and empirical) on NHRD conducted in different contexts and in comparison to disciplines other than HRD has been published in HRD journals (e.g., Alagaraja & Wang, 2012; Bartlett, 2011; Budhwani & McLean, 2012; Demartis, Mathews, & Khilji, 2012; Johnson & Barlett, 2013; Kim, Lee, & Jung, 2009; McLean, 2012; Oh, Choi, & Choi, 2013; Oh, Ryu, & Choi, 2013; Storberg-Walker, 2012; Wang, 2008).

In addition to scholarly publications, researchers have also used other venues to engage the HRD community in continuing dialogues about the topic of NHRD. An example is the offering of innovative sessions at the Academy of HRD annual international research conferences (e.g., Wang, Alagaraja, Mclean, & Yumol, 2009; Wang, Wang, McLean, Bartlett, & Lynham, 2007). These systematic efforts have not only helped build the NHRD literature in the HRD field, but also advance our knowledge about this emerging topic.

Well-planned and executed national training and development strategies, policies and practices have contributed substantially to the human and economic development of many nations. Many countries have realized successes in HRD through systematic implementation of technical and vocational education systems (Escardíbul & Llinas-Audet, 2010; Géhin & Jobert, 2001; Lehner & Dikany, 2003). Some countries such as Germany, New Zealand, Finland and Spain has implemented policy and legislation to

improve adult education through public and private funding mechanisms (Attwell & Rauner, 1999; Elkin, 1998; Hearty & Collings, 2006; Hytönen, 2003; Lucio & Stuart, 2003).

NHRD has the potential and can play a vital role in helping shape a country's human development policies and strategies. Many of the developed nations have invested heavily in strategic NHRD planning and implementation and linking human resource development to economic development and growth. However, developing a sound NHRD plan and implementing it is a challenge for many countries and regions. This is due to multiple constraints (e.g., financial and social) and expertise (know-how) available to undertake and manage such a huge endeavor. Careful long-term planning, implementation and evaluation are critical to the success of NHRD programs.

The literature pertaining to NHRD is very nascent and shows some advancement in the theory and research. Research to date focus on definitions, scopes/boundaries of NHRD, country specific case studies and policy briefings. However, there is little work done to date on the model building, framework development, or design, application and evaluation of NHRD strategy, policies and practices. This article attempt toward this direction.

Significance of the Study

National economic and social development is a major global challenge and the field of HRD can play a significant role in providing the methods and tools needed for the developing and transitional countries. Understanding the role of national development plans is an important step towards enhancing the role of HRD in national

development. This critical research has the potential to assist policy makers at national and regional levels in developing and implementing sound HRD plans. Many of the developed nations have invested heavily in strategic HRD planning, implementation and linking it to economic development and growth. In fact, the relationship between education and poverty reduction is already established (Psacharopoulos & Patrinos, 2004).

Even though NHRD research is relatively new, many countries are in the process of implementing NHRD policy planning and implementation (Cho & McLean, 2004). Cho and McLean suggests that “the concept of HRD as national policy is a reality throughout the world” (p.382). Case studies of applying OD principles to NHRD show examples of capacity building, societal, community and educational development in various countries (McLean, Kuo, Budhwani, Yamnill, & Virakul, 2012). HRD principles has also been applied to various national and regional development activities such as tourism (Johnson & Bartlett, 2013), HIV/AIDS (Johnson, Barrlett, Cunningham, Lynham, & Von der Marwitz, 2010), women development (Razvi & Roth 2010) and Community/Lifelong learning (Byun & Ryu 2012).

HRD methods and tools in the area of organization development, career development and training and development has the potential to bring value to NHRD policy design, development, implementation and evaluation. These tools and methods can aid researchers and practitioners to realize the return-on-investment in NHRD policies and practices. This article helps to contribute to the body of research by documenting the current state of model development and various NHRD practices in the

HRD domain. Additionally, advancing NHRD research has the potential to bring interdisciplinary collaborations between the fields of HRD, economics, sociology, health and international development.

Research Purpose

The primary purpose of this article is to explore NHRD research on models, policies and practices. The overarching objective is to address the following two questions:

1. What is the current status of NHRD model development?
2. What are the various NHRD policies and practices documented in the literature?

In addition to addressing the questions above and considering the complex issues of national goals, stakeholders, finance and NHRD context, I seek to develop a multi-level holistic NHRD framework for policy development, implementation, and evaluation.

Methodology

To address the research questions proposed above, I adopted a systematic literature review (SLR) approach. SLR provides an objective, replicable, systematic, and comprehensive review and is reported in the same manner as for reporting empirical research (Weed, 2005). A SLR is defined as “a review in which there is a comprehensive search for relevant studies on a specific topic, and those identified are then appraised and synthesized according to a pre-determined explicit method” (Klassen et al., 1998, p.700). SLRs originated in the medical and policy fields where they have been used to provide clinical and policy decisions (Cook et al., 2007; Teansfield et al., 2003). The purpose of

conducting a SLR is to provide transparency, clarity, accessibility, and impartial inclusive coverage on a particular area (Thrope, 2006).

SLR Process

The SLR process was completed at four phases and guided by a set of pre-developed inclusion and exclusion criteria.

Phase 1: Establish the baseline of NHRD model research: At the initial stage, my goal was to build a comprehensive literature base of publications related to NHRD model development and NHRD practices. Therefore, I conducted a preliminary search first through Google Scholar, using the following general terms independently and in combination: national human resource development, NHRD, model, framework, strategies, national development, policies, practice and planning. Using general terms afforded flexibility and captured relevant literature (Nolan & Garavan, 2015), allowing us to establish a broad baseline of literature on NHRD. This initial search yielded more than 1,200 publications of all types (e.g., book reviews, book chapters, books, journal publications). No criteria were used to guide this initial search.

Phase 2: Conducting focused database search: Once I established the baseline, I determined the databases to be used for further literature search. Recognizing the interdisciplinary nature of the research topic, I included an extensive range of disciplines to ensure a broad coverage. I used multiple databases available in my home institution. The databases I used were Google Scholars, ABI/INFORM (ProQuest), Science Direct (Elsevier), EBSCO, and Web of Science (ISI). This search yielded appropriately 800 publications.

Phase 3: Applying inclusion and exclusion criteria: Once the publications were gathered, I applied two primary criteria to guide the screening process. First, I decided to include only academic journal articles as I believe that academic publications offered more reliability than non-academic ones. Second, I decided to include academic journal articles that went through the blind review process or dissertations, as I believe such process helps boost the robustness of research. Then, I used the following questions as additional inclusion criteria as they set the conceptual boundaries for the article screening. If the article met at least one of the six criteria, I deemed it fell within the conceptual boundaries of the study, hence I included it for my review.

1. Does the article address one or multiple areas of model development, framework development, policies and/or practices related to NHRD?
2. Does the publication focus on reviewing, suggesting or developing NHRD policy or strategy for certain countries or regions?
3. Is the publication an example of NHRD implementation or evaluation?
4. Does the publication focus on Training and Development programs at the country / regional level?
5. Does the publication focus on public policy or law making in a particular country related to human resource development?
6. Does the publication focus on implemented NHRD related programs, interventions or practices?

Applying the criteria above, a total of **53** publications were included for final analysis. **15** articles focus on model development and **38** articles focus on NHRD policy and/or practice.

Phase 4: Abstraction and synthesis: The selected publications were included for the final analysis and organized in review matrix tables following Garrard's (2010) Matrix Method. Qualitative data analysis techniques such as open coding were used to identify common themes across reviewed publications. Table 12 presents a summative overview of publications related to NHRD model development. A review of NHRD model development and knowledge gaps are presented.

Then, I examined NHRD policy and practices in multiple countries and research to date on these topics. Table 13 provides summative overview of publications on policies and practices. A synthesis of practice and knowledge gaps are presented following table 13.

Boundaries of the Research

This research focuses on the nascent field of NHRD with the intention to understand the current state, extent and depth of research related to NHRD models as well as the current state of research related to NHRD policy and practices. This research does not focus on extensive review of the related fields such as international development, developmental economics, adult education and Technical Vocational Education and Training (TVET). In addition, this research does not aim to document

every strategy, policy, practice related to NHRD, but rather focus on understanding a collection of models, policies and practices in the literature.

Based on the following systematic review of literature and synthesis, I documented the knowledge gaps in NHRD model and policy development. I propose a holistic conceptual framework for NHRD policy development, implementation and evaluation. This framework provides a flexible roadmap and starting point (not a solution) for national human resource planning, implementation and evaluation. This effort will expand and enrich current NHRD research on model development. In conclusion, implications for future research and practice are discussed.

Review of NHRD Model Development

A systematic review of literature show that NHRD model and framework development is still at its infancy. A total of 14 peer-reviewed articles and one dissertation addressed and/or proposed NHRD models or frameworks. Ten of the article proposes a model and five of them propose a framework. Except Briggs (1987) and Rojewski (2002), all other NHRD models and frameworks were proposed since McLean & McLean's (2001) first defined NHRD, arguing for the expansion of the HRD domain and benefits to national development. Table 12 below summarizes the different NHRD model focus, summary of description, dimensions and variables addressed. Dimensions are broad area or category of the model's primary focus. Variables are the aspects of the dimensions that the model addresses change or improvement through the use of interventions.

Briggs (1987) outlined the three dimensions of HRD economic policy model. His model advocated skills and capability development in addition to maintaining accessibility in labor market. Three dimensions of his HRD economic policy model are: (1) Quantitative dimension – aggregate amount of human resources available and utilized. (2) Qualitative dimension – employment development and capabilities of society (3) Labor Market – No artificial barriers imposed to prevent equal opportunity and access. Rojewski (2002) suggested a framework focused on career and technical education. He focused on major components of career and technical education such as curriculum, instruction & delivery options, student assessment, clientele and program evaluation (accountability). He also suggested that external and internal influencing forces for success are emergent economy, educational reforms, student learning and societal expectations.

Table 10. NHRD Models and Frameworks

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Alagaraja & Githens (2016)	Multilevel framework for understanding capacity and capability building and assessing national development priorities.	<ul style="list-style-type: none"> Financial, industrial, and workforce capacities and the alignment between them as an important determinant of how countries resolve their NHRD priorities. Alignment of workforce development strategies must also consider capacity building at national, organizational and individual levels. 	<ul style="list-style-type: none"> National, organizational & individual levels Skills Development 	<ul style="list-style-type: none"> Capacity & Capability Financial Industrial Workforce
Alagaraja, Kotamraju & Kim (2014)	Conceptual TVET (Technical vocational Education and Training) framework integrating HRD and NHRD.	<ul style="list-style-type: none"> Nine sub-themes that make an effective TVET system. Effective TVET systems connect the four TVET components (skills, education, innovation and knowledge) to the strategic goals of workforce development, economic development and social development. 	<ul style="list-style-type: none"> Policy Development Workforce Development Skills Development Social Development 	<ul style="list-style-type: none"> Training Curriculum Development Stakeholder coordination Innovation & Knowledge
Alagaraja & Wang (2012)	Emerging NHRD Strategy Model	<ul style="list-style-type: none"> Nine different models identified – from HRD and non-HRD related fields. Models focus on education led systems such as vocational education or skills development. Models focus on labor market, economics, role of the state and industry demands. Proposed emerging NHRD strategy model shows transition from centralized to transitional to neo-market and government initiated partnerships 	<ul style="list-style-type: none"> Skills Development Role of government 	<ul style="list-style-type: none"> Education Labor Market Economics Role of industry / Stakeholders Vocational education Partnerships

Table 10. Continued

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Ahn & McLean (2006)	Regional HRD (RHRD) model	<ul style="list-style-type: none"> • Labor economy model focused on solving imbalance between supply and demand of personnel. Doesn't consider innovation & lifelong learning. • Education model focusing on lifelong learning and development of learning ability, but excluding vocational ability development. • Balanced approach that combines industrial innovation at the regional level and education innovation system. 	<ul style="list-style-type: none"> • Vocational Education • Regional development 	<ul style="list-style-type: none"> • Labor market • Education / Learning • Industrial Innovation
Baeka & Kim (2014)	Stakeholder based HRD model.	<ul style="list-style-type: none"> • Stakeholder-based HRD (SBHRD) model as a tool for identifying the interactions between HRD and society. • The SBHRD model enhances the value of social responsibilities of corporations and ethical management, enlarges the scope and beneficiaries of HRD activities, increases the opportunities of collaboration with adult education, and points to different modes of communication in practice. 	<ul style="list-style-type: none"> • Societal development 	<ul style="list-style-type: none"> • Stakeholders • Adult education

Table 10. Continued

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Briggs (1987)	National economic policy model.	<ul style="list-style-type: none"> • Three dimensions of HRD economic policy model: <ul style="list-style-type: none"> • Quantitative dimension – aggregate amount of human resources available and utilized. • Qualitative dimension – employment development and capabilities of society • Labor Market – No artificial barriers imposed to prevent equal opportunity and access. 	<ul style="list-style-type: none"> • Skills development • Capability development 	<ul style="list-style-type: none"> • Labor Market • Accessibility
Cho & McLean (2004)	Five emerging NHRD models	<ul style="list-style-type: none"> • Centralized NHRD • Transitional NHRD • Government initiated NHRD • Decentralized / free market NHRD • Small-nation NHRD 	<ul style="list-style-type: none"> • Cross country analysis 	<ul style="list-style-type: none"> • Country size, background, resources • Country government and market structure • Capacity / Capability

Table 10. Continued

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Frank (2015)	Multi-level model to guide the NHRD policy for practice	<p>Model comprises of seven constructs:</p> <ul style="list-style-type: none"> a) National background and current characteristics b) National resources (including human resources) c) Governance and power structure amongst actors, stakeholders potential partners d) National economic, political, and socio-cultural environment e) Integration at the individual/organizational, community/regional, and national levels f) National governance structure g) Global megatrends shaping the world community. 	<ul style="list-style-type: none"> • Government structure • Global trends 	<ul style="list-style-type: none"> • Resource constraints • Stakeholders • Social, political, cultural, historical background •
Garavan, Wang, Nagarathnam (under review)	Integrated multi-level NHRD framework	<ul style="list-style-type: none"> • Proposed framework based on three components - NHRD Context, the NHRD system and NHRD Outcomes • These three components are connected based on linear and causal relationships. NHRD context determines the NHRD system that will be in place; and the NHRD system will leads to certain outcomes. 	<ul style="list-style-type: none"> • Skills development • NHRD system & strategies 	<ul style="list-style-type: none"> • Stakeholders • Cross-cultural issues • Finance & investment • Leadership • Resources (physical/social) • Labor market

Table 10. Continued

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Metcalf & Rees (2005)	International Human Resource Development model	<p>International HRD in the global arena can be categorized under three groups:</p> <ul style="list-style-type: none"> • Global HRD • Comparative HRD • National HRD <p>Proposed model for investigating the effectiveness of HRD strategies. Model divisions include:</p> <ul style="list-style-type: none"> • International bodies and agencies • National culture • Sector • Organization • Individual 	<ul style="list-style-type: none"> • Skill development • History & culture 	<ul style="list-style-type: none"> • Stakeholders including international bodies and scholars • Economic sectors • Institutional analysis • Employment policy
Murphy & Garavan (2009)	Conceptual framework to explain the adoption and diffusion of NHRD	<ul style="list-style-type: none"> • Adoption and diffusion of HRD practices can be explained by institutional concepts such as structural equivalence, social cohesion and normative and mimetic isomorphism. • Adoption of NHRD standards results from the interaction of technical and institutional factors. • Model includes organizational characteristics, HR system and early / late adopters' motivations. 	<ul style="list-style-type: none"> • Organizational structure 	<ul style="list-style-type: none"> • Accreditation • Industry sectors • Professional bodies • Geography / size / Ownership • HR systems

Table 10. Continued

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Oh, Ryu & Choi (2013)	Model to assess and evaluate the competitive advantage of a country's HRD system.	<ul style="list-style-type: none"> • The model consist of four factors – supply conditions, demand conditions, environment, and support systems. • The four factors consist of 10 sub-categories and 45 indicators. • An NHRD system competitiveness index is developed as a result of the model. • Competitiveness scores of OECD countries were compared to other variables and indices to examine validity of the index. 	<ul style="list-style-type: none"> • Competitiveness 	<ul style="list-style-type: none"> • Employment rates / Labor force participation • Educational achievement • Technology access • Labor force • Industrial sophistication • Investment in education • Policy infrastructure
Rojewski (2002)	Conceptual framework for career and technical education	<ul style="list-style-type: none"> • Major components of career and technical education are: curriculum, instruction & delivery options, student assessment, clientele and program evaluation (accountability). • Philosophy provides the motivation and impetus for actual practice. • External and internal influencing forces are emergent economy, educational reforms, student learning and societal expectations. 	<ul style="list-style-type: none"> • Vocational and technical education 	<ul style="list-style-type: none"> • Curriculum, instruction and program delivery • Learning and assessments • Program evaluation •

Table 10. Continued

Author & Year	Model Focus	Model Description	Dimensions Addressed	Variables Addressed
Shim, Lee, Oh, Im (2015)	Conceptual model for Korean NHRD	<ul style="list-style-type: none"> • Model to align Korean NHRD consumers, providers, approvers, administrators and policy makers. • Model to operate an integrated, quality management of vocational education and increase efficiency of NHRD system in Korea. 	<ul style="list-style-type: none"> • Vocational education policy 	<ul style="list-style-type: none"> • Training institutions • courses / evaluation • Facilities • Curriculum development & assessment • Job readiness • Employment • Finance and cost of training
Storberg-Walker (2012)	Conceptual model of workforce development through HRD	<p>HRD is placed in the center of two spheres:</p> <ul style="list-style-type: none"> • Public sphere - political and educational • Private sphere - employers, foundations, private and for-profit educational and not-for-profit organizations. • HRD domain with four areas of responsibility: advocacy research, HRD programs (degree and non-degree), strategic human capital planning and development, and building collaborative cultures and structures for all actors. • The concepts can generate changes in the workforce through job creation, workforce development policy and HRD competencies, theories and interventions. 	<ul style="list-style-type: none"> • Workforce development 	<ul style="list-style-type: none"> • Educational systems including public, private, non-profit and for-profit. • Strategic planning • Collaboration • Competencies • Training interventions

Cho and McLean (2004) suggested that the NHRD model used by any country is based on social, cultural, economic and political aspects of the country. They presented five emerging models of NHRD plans:

(a) Centralized NHRD: Under this model, the “central government plays a critical role in planning, implementing, and assessing HRD policies and strategies” (p.383).

This top-down approach is usually linked to 5-year national development plans. The private sector has minimal role in education and training.

(b) Transitional NHRD: In this model the HRD policies are implemented by a tripartite approach with coordination of employers, unions, and the government. “The tripartite relationship ensures that there is agreement over the strategies and necessary steps for implementing the NHRD policies” (p.384).

(c) Government-initiated NHRD towards standardization: A model where the government sets standards, evaluation and certification of education and training. The government works with and acts in an advisor role to industry, community and labor unions. U.K, Australia and South Africa are some countries using this approach.

(d) Decentralized / free-market NHRD: In this model “the major forces pushing HRD efforts come from the competitive market. HRD has been normally regarded as activities at the enterprise level. The private sector is mostly responsible for education and training, although the state supports the private sector in an indirect way”. (p.385)

(e) Small-nation NHRD: Small countries often need to work with other smaller nations in their region to implement HRD policies. One example is countries in Pacific Islands.

Lynham and Cunningham (2006) argue that there are four other interconnecting and interacting dimensions that shape the NHRD models. They are explained by

Lynham and Cunningham (2006) as:

- Political system - From continuum of new to established
- Economic system – Ranges from conservative to liberal
- Social system – Ranges along developmental continuum of fractured to integrate.
- Education system – Range along a quality and access continuum of elite to equal.

Lynham and Cunningham (2006) add that “each of these dimensions, separately and together, informs the needs and necessary goals of NHRD. This is particularly true of NHRD in developing nations where the development of their human resources is so critical to their national wealth, health, and well-being and where an interacting balance among these dimensions must be achieved. (p.124).

NHRD models and frameworks developed since Cho & McLean’s (2002) suggestion of emerging NHRD models focus on one or more of the following five thematic areas:

- Adult education, training, technical/vocational education, and lifelong learning:
The primary focus of these models (Alagaraja & Githens, 2016; Alagaraja, Kotamraju & Kim, 2014; Alagaraja & Wang, 2012; Rojewski, 2002; Shim, Lee, Oh & Im, 2015) are to improve the skills and knowledge of the population through various educational programs.

- Labor force/market and economic/financial variables focused models: The primary focus on these models (Alagaraja & Wang, 2012; Ahn & McLean, 2006; Briggs, 1987; Oh, Ryu & Choi, 2013) are to align labor market needs to HRD development policies. Emphasis is also placed on the funding, supply / demand conditions and technology.
- Enhancing capacity/capability building: The primary focus of these models (Alagaraja & Githens, 2016; Alagaraja, Kotamraju & Kim, 2014; Alagaraja & Wang, 2012; Briggs, 1987) are to focus on enhancing competencies and skills development at the national, regional, organizational and individual levels. This includes developing institutions, teacher training and employment development.
- Partnerships and stakeholder collaboration: The models (Baeka & Kim, 2014; Frank, 2015; Metcalfe & Rees, 2005; Stoberg-Walker, 2012) in this category focus on developing the involvement, collaboration and commitment of various stakeholder including government (national and regional), labor unions, private sector, communities, non-governmental organization and individuals. Successful collaboration depends on social, political, cultural and historical backgrounds.
- Policy, sectors, structure and systems: These models (Alagaraja & Githens, 2016; Baeka & Kim, 2014; Frank, 2015; Murphy & Garavan, 2009; Stoberg-Walker, 2012) emphasize the importance of NHRD success to institutional structure, political and educational structure (Stoberg-Walker, 2012) and HR systems.

Additionally, the variables and dimensions addressed by these models and frameworks can be categorized under (1) Educational, (2) Financial, (3) Structural or (4) Social. They are summarized in the table 12 above in the variables column. The various stakeholders cited in various models include government, industry/businesses, social/development/NGO groups, and/or individuals are defined for each of the models.

Knowledge Gaps

Based on the above research, NHRD models developed over the past 15 years provided an attempt by HRD scholars to address the complexities involved in the development of human resources at national level. However, these models are fragmented across various research domains of adult / vocational education, economics, public policy, structure & system, and stakeholders. All of the proposed models are conceptual except two which are based on empirical studies (Oh, Ryu & Choi, 2013; Shim, Lee, Oh, Im, 2015). In summary, the knowledge gaps can be summarized into three focus areas:

- All of the models proposed are typically focused on a small number of variables or dimensions. Some focus on education related dimensions (Alagaraja, Kotamraju, & Kim, 2014), while others focus on economic and labor market variables (Briggs, 1987). Some models advocate the importance of building the structure, system and capacity (Murphy & Garavan, 2009). However, I have not seen a holistic model that considers all aspects, needs and variables involved in human resource development at the national level.

- Most models are descriptive and not prescriptive. Except two, which provides actionable and measurable practices (Oh, Ryu & Choi, 2013 & Shim, Lee, Oh, Im, 2015), most models address NHRD at the conceptual level.
- Additionally, most models discuss macro-level development strategies / policies (Metcalf & Rees, 2005) and do not suggest specific micro-level practices. In other words, they address ‘what’ steps need to be taken, but does not suggest ‘how’ to do so.
- None of the models include the evaluation and improvement component. While this is an essential element of corporate HRD practice, it is lacking in the NHRD domain. Evaluation provides an important assessment mechanism to validate the effectiveness of the policy or intervention in NHRD context as well as serve as a feedback mechanism for continuous improvement.

Review of NHRD Policies and Practices

The systematic literature review yielded **38** articles focusing on NHRD policy and practices in multiple countries and research to date on these topics. Articles describing country HRD needs, and recommending solutions were not considered. Only articles that described actual policies and practices with a country or region were included for analysis. Table 13 below provides summative overview of research focus, policies, practices and findings from each of the articles.

In analyzing the various countries’ the articles are focused on, majority of the policies and practices are from very high or high human development index countries (e.g., U.S, U.K, France, Netherlands, Germany, Finland, Brazil, China, Singapore,

Australia, Norway Korea and Austria). Only five of the medium human development countries' policies and practices are documented (India, Morocco, Philippines, Ghana and South Africa). The Table 13 below outlines specific policies and practices of each of the countries. Policies are laws and mechanisms for NHRD development. Practices are specific plans, activities and actions to implement the policies. NHRD infrastructures are public or private institutions that design, develop, accredit, certify, manage or evaluate the policies and practices. As seen from the Table 13 below, certain practices such as apprenticeship, educational taxes and infrastructure such as national certification organizations and training institutes have been adopted by multiple countries.

Table 11. NHRD Policies & Practices

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
Arthur-Mensah & Alagaraja (2013) Ghana	<ul style="list-style-type: none"> • TVET plays a major role in skills development in Ghana • Educational system reforms in 1987 introduced vocational education in the pre-tertiary school curriculum. 	<ul style="list-style-type: none"> • Pre-secondary TVET focuses on preparing students for further education or low-skilled jobs. • At the senior secondary level, vocational education is integrated in the general curriculum. 	<ul style="list-style-type: none"> • National Vocational and Technical Institute (NVTI) provides entry level apprenticeship training. 	<ul style="list-style-type: none"> • Formal TVET training within a specific timeframe results in certification. 	<ul style="list-style-type: none"> • TVET curriculum to be improved to enhance student's employability and reflect labor market needs. • Employer participation in TVET is low and challenging. • TVET institutions are underfunded.
Attwell & Rauner (1999) Germany	<ul style="list-style-type: none"> • Well established dual system of apprentice training. 	<ul style="list-style-type: none"> • 4 different legislation regulate Dual system. • Training is provided at employer's expense. 	<ul style="list-style-type: none"> • Trainee contracts with employers are registered and supervised by the chambers of trade and commerce. 	<ul style="list-style-type: none"> • Apprenticeships last between 3 to 3.5 years in one of 376 recognized trades. • Dual system trainees spend two days a week at an occupation specific vocational school. 	<ul style="list-style-type: none"> • About 70% of youth undertake vocational education though the Dual System in Germany. • T&D is firmly embedded in the SMEs, service and professional sectors.
Budhwani & McLean (2012) Minnesota Community	<ul style="list-style-type: none"> • HRD plays a role in developing members of the Ismaili community in Minnesota. 	<ul style="list-style-type: none"> • Community-level HRD should be linked to societal development efforts at religious education center (REC). 	<ul style="list-style-type: none"> • Two formally structured institutions that focused on HRD were volunteer corps and the religious education center (REC). 	<ul style="list-style-type: none"> • REC activities included training, coaching, and mentoring of teachers. • HRD efforts focused on women include English language classes, 	<ul style="list-style-type: none"> • The process of community development requires dialogue, creativity, and research. • Community-level HRD should be explicitly linked to and

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
				driving classes, job skills training, career workshops, and social adaptation skills training.	reflective of societal development efforts.
Byun & Ryu (2012) Korea (Region)	<ul style="list-style-type: none"> Lifelong learning programs (LLCP) in Korea (learning cities) has been successful in creating development, networking and job opportunities. 	<ul style="list-style-type: none"> Cities or regions have autonomy to design, administer and promote different learning activities LLCP successful by developing programs that link learning, labor, and welfare through networks and partnerships.. 	<ul style="list-style-type: none"> 82 lifelong learning cities in Korea. Lifelong programs offered at local resident service centers, also known as community service centers 	<ul style="list-style-type: none"> Educational programs mainly consist of culture and leisure, citizenship education, public health, community development, personal development, and specialized regional services. 	<ul style="list-style-type: none"> LLCP has created more opportunities for the underprivileged to receive education. Demonstrates OD applications for Societal Development that include change management in governmental organization, stakeholder participation, partnerships and change agents or OD practitioners.
Cox, Al Arkoubi, Estrada (2006) Morocco	<ul style="list-style-type: none"> Morocco has progressed to a medium HDI country and is in a transitional model of NHRD since independence. Reform-minded monarch, passage 	<ul style="list-style-type: none"> Ministry of National Education, Higher Education Management Training, and Scientific Research shares responsibility with at least nine other ministries, which are involved 	<ul style="list-style-type: none"> The Office for Professional Training and Labor Promotion (OFPPT) is the primary design and delivery mechanism for vocational and technical training. 	<ul style="list-style-type: none"> Skill standards have been developed for 360 occupations. 	<ul style="list-style-type: none"> Persistent problems of poverty, unemployment and corruption are impeding factors. The number of participating companies in skills

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	of reform measures and desire for development by people are enabling factors for NHRD implementations.	<p>in managing education or training institutions.</p> <ul style="list-style-type: none"> • This makes policy implementation difficult. • A Professional training tax is levied on companies, which is equivalent to 1.6% of total wages. 	<ul style="list-style-type: none"> • 186 training centers around the country. 		development programs are still quite small.
Eguiguren-Huerta, Llinàs-Audet & Parellada-Sabata (2008) Andora	<ul style="list-style-type: none"> • Training investment trend in Andorran companies are increasing. • Training best practices from Spain and France are being considered to establish a national system. 	<ul style="list-style-type: none"> • Government involvement in training and development is limited. • Companies invest 2.54 percent of gross payroll in training. 	<ul style="list-style-type: none"> • Most of the training is in-house and universities are used the least. 	<ul style="list-style-type: none"> • Predominate training areas are in processes, financial management, management and improvement of quality. • 	<ul style="list-style-type: none"> • The future training needs focus on customer loyalty, worker satisfaction and quality management. • Recommends creation of educational routes via universities in tourism, commerce and finance.
Elkin (1998) New Zealand	<ul style="list-style-type: none"> • New Zealand's structural reforms in 80's and 90's combined with economic reform has contributed to the human resource development. 	<ul style="list-style-type: none"> • HRD initiatives such as National Qualification Framework, Skills New Zealand and Industry Training Organizations has expanded systematic training responsive 	<ul style="list-style-type: none"> • New Zealand Qualifications Authority (NZQA) coordinates training and conducts examinations. 	<ul style="list-style-type: none"> • A National Certificate is gained by completing units in Levels 1–4. • A National Diploma is gained by 	<ul style="list-style-type: none"> • Positive outcomes include increase in quality and quantity of training, establishment of formal structures, fostering training culture and accessibility, and the portability /

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
		to the needs of the industry.		completing units in Levels 5–7. <ul style="list-style-type: none"> • A Degree is gained by completing units up to Level 7. • Higher qualifications are gained by completing units up to Level 8. 	comparability of qualifications. <ul style="list-style-type: none"> • The NZQA system might be unique in being the first to cover both vocational and general education.
Escardíbul & Llinas-Audet (2010) Spain	<ul style="list-style-type: none"> • In Spain, supply-driven training programs focus on employer provided training and demand-driven training program focus on enhancing social-equity and training the unemployed. 	<ul style="list-style-type: none"> • Tripartite organization (employer, public authorities and social agents) acts as the foundation for T&D success. • Training levy of 0.7 per cent of gross salary. (0.6 % by employers and 0.1 % by employees). 	<ul style="list-style-type: none"> • Training for employed and unemployed are provided under one system. 	<ul style="list-style-type: none"> • National Catalog of Professional Qualifications contains 390 qualifications. • Working/training programs last from 6 months to 2 years. 	<ul style="list-style-type: none"> • New policies emphasize control over training centers and the quality of training provided.
Foucher & Hassi (2013) Quebec (Region)	<ul style="list-style-type: none"> • Quebec has three distinct characteristics: • Only North American region with a majority French speaking population. • Government regulation of the 	<ul style="list-style-type: none"> • Legislation requires 1% of revenue investment in training for companies with more than CAD \$1 Million. • This has led to a training culture in the workplace. 	<ul style="list-style-type: none"> • 300 Vocation and Technical Training (VTT) programs offered by various institutions across the province. • VTT is managed by 70 school 	<ul style="list-style-type: none"> • SMEs focus on task-oriented training and employ informal training practices such as OJT. 	<ul style="list-style-type: none"> • Training remains limited with small business that account for 63% of Quebec’s economy.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	labor market is the most extensive in North America. <ul style="list-style-type: none"> The percentage of workers who are unionized is the highest in North America. 		<ul style="list-style-type: none"> boards operating 196 VTT centers. 		
Gehin & Jobert (2001) France	<ul style="list-style-type: none"> The influence of school-based model and strong institutionalization of continuing vocational training has contributed to the success of T&D in France. 	<ul style="list-style-type: none"> France has school-based model with vocational education spread within the schools. Companies spend 3.2% of wages on training, twice required by law. 	<ul style="list-style-type: none"> Administration of skills development is regionalized. 	<ul style="list-style-type: none"> Vocational education leads to national diplomas with standards and broad recognition. The standards classification grids of the collective agreements negotiated by employers and unions. 	<ul style="list-style-type: none"> Training is on upward trend but inequalities in access still exist. The move from centralized to regionalized administration of T&D (coordinating and standardizing functions) has been mixed.
Goodwin, Hills & Ashton (1999) United Kingdom	<ul style="list-style-type: none"> The education and training system in UK consist of five permeable tracks: top private universities, state schools, general National Vocational Qualifications at 	<ul style="list-style-type: none"> Education and training policies & provisions are regionalized in U.K. 	<ul style="list-style-type: none"> In addition to National Vocational Qualifications, skills development programs include Investors in People (IiP) and 	<ul style="list-style-type: none"> Delivery of training is thrust on the employers and employees. This has resulted in de-regulated labor market. 	<ul style="list-style-type: none"> Disparity in training exist between higher levels and lower levels of occupational structure and company size.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	intermediate and lower occupational levels and un-skills/low wage work.		University for Industry (UfI) <ul style="list-style-type: none"> • Other programs include Modern Apprenticeships (NVQ Level 3) and Youth Training and National Traineeship (NVQ Level 2). 		
Heraty & Collings (2006) Ireland	<ul style="list-style-type: none"> • The Industrial Training Act of 1967 and Labor Services Act of 1987 gave way for competency-based, industry-oriented training of 1990s. 	<ul style="list-style-type: none"> • Large proportion of state funding is channeled into early education and training/retraining of unemployed. • Approximately 3.5% of payroll is spent on training. 	<ul style="list-style-type: none"> • The National Qualifications Authority of Ireland (NQAI) provides a mechanism for accrediting prior learning. • Other bodies include Further Education and Training Awards Council (FETAC) and the Higher Education and Training Awards Council (HETAC) 	<ul style="list-style-type: none"> • Training of the employed remains the responsibility of companies. 	<ul style="list-style-type: none"> • Two industry surveys reflects a structured approach to training delivery and a concerted effort to start to measure some of the returns on investment through evaluation and transfer. • Adult education in Ireland remains a critical issue.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
Hasler, Thompson & Schuler (2006) Brazil	<ul style="list-style-type: none"> While Brazil recognized the need for vocational education and training in 1940s, the efforts has limited success due to inequalities in funding, quality and access. 	<ul style="list-style-type: none"> NGO participation in Brazil is high in areas like job skills training, community development and literacy training. 	<ul style="list-style-type: none"> National Services of Industrial (SENAI) and Commercial (SENAC) Learning has been established to foster government-industry linkage. 	<ul style="list-style-type: none"> SENAI is centered on technical education in the industrial sector and SENAC is focused on service sector. MNCs play an important factor in successful implantation of HRD practices. 	<ul style="list-style-type: none"> The government is beginning to address the disparity in access and funding to education and training to unemployed, poor and tribal regions.
Hytönen (2003) Finland	<ul style="list-style-type: none"> Finland has high levels of education among its workforce. Adult education and training is widely available. Private sector employer participation is high. 	<ul style="list-style-type: none"> Finnish Workplace Development Program is a government program which supports workplace-initiated projects. Companies invest about 2.4% of labor cost in training. 	<ul style="list-style-type: none"> Adult education and training is available in over 1000 institutions 	<ul style="list-style-type: none"> T&D is autonomously organized and administrated by the employer. Key HRD strategies include improving knowledge sharing, implementing competence management and improving employee learning. 	<ul style="list-style-type: none"> The difference in the level of education between older and younger generations, the growing demand in knowledge-intensive fields and fall in manufacturing and construction are among the challenges.
Ke, Chermack, Lee & Lin (2006)	<ul style="list-style-type: none"> China has an excess of unskilled and semiskilled 	<ul style="list-style-type: none"> HRD as national policy and strategy bears the following components: 		<ul style="list-style-type: none"> Education policy, strategy and implementation 	<ul style="list-style-type: none"> HRD policies and initiatives struggling to keep pace with economic

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
China	workers but a serious shortage of professionals and managers.	<ul style="list-style-type: none"> • (a) It is a top-down approach to achieve the nation’s goal of economic growth • (b) it has strong emphasis on social & moral implications • (c) traditional values of harmony and balance are still strong 		<p>is still nascent in China.</p> <ul style="list-style-type: none"> • State-owned, collective-owned enterprises and multinational corporations are implementing T&D programs with various levels of success. 	<p>development since 1980s.</p> <ul style="list-style-type: none"> • The concept of HRD is in transition with top-down approach, underfunded and emphasis on social & moral values.
Lee (2004) United Kingdom	<ul style="list-style-type: none"> • Industry, educational institutions and individuals’ investment contribute to the success of skills development in U.K. 	<ul style="list-style-type: none"> • The multi-stakeholder managed Sector Skills Councils (SSCs) and Learning and Skills Council (LSC) play a vital role in workforce development. 	<ul style="list-style-type: none"> • Qualifications and Curriculum Authority (QCA) oversees the vocational qualifications. • QCA administers GCSEs (General Certificates of Secondary Education, A Levels, certificate, diploma, and master’s qualifications. • Investors in People (IIP) fosters investment in SMEs. 	<ul style="list-style-type: none"> • National Occupational Standards and Modern Apprenticeship Frameworks foster competency, quality and certification. 	<ul style="list-style-type: none"> • Despite increasing standardization, the scope of HRD as a subject has changed dramatically in the U.K during the past decade.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
Lehner & Dikany (2003) Austria	<ul style="list-style-type: none"> Primary, secondary and tertiary education in Austria is largely regulated. 	<ul style="list-style-type: none"> Vocational training and apprenticeship is shaped and adapted to the needs of SMEs. Management training and post tertiary education is much more diverse and less regulated. School and universities are fully publically funded. 	<ul style="list-style-type: none"> WIFI – chamber of commerce and BFI – Chamber of labor provides operational training. 	<ul style="list-style-type: none"> The structure and system of vocational education is well defined and managed. Apprenticeships with specialization prepare employees for workforce. 	<ul style="list-style-type: none"> The Austrian system has provided lifelong continuing education to more than 52% of the population.
Lucio & Stuart (2003) Spain	<ul style="list-style-type: none"> Spain has one of the highest unemployment rates in the E.U. with 1/3 of employees on temporary contract. 	<ul style="list-style-type: none"> 0.7 per cent levy for training is split across employees and employers. 	<ul style="list-style-type: none"> Three levels of vocational education through Formacio´n Profesional Reglada (FPR), Formacio´n Profesional Ocupacional (FPO), Formacio´n Continua (FC). National Institute for Qualifications (SNC) coordinates different training 	<ul style="list-style-type: none"> Tripartite system of life-long learning program have been implemented since 1990s. 	<ul style="list-style-type: none"> T&D in SMEs is low and overall training effectiveness is poor.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
			processes and regulatory bodies		
Lynham & Cunningham (2004) South Africa	<ul style="list-style-type: none"> South Africa's post-apartheid priority of human resource development led to emphasis on education, policies and legislation. 	<ul style="list-style-type: none"> Sector Education and Training Authorities (SETAs) collect and manage 1% of payroll levy for training. 	<ul style="list-style-type: none"> South Africa has implemented National Qualification Framework (NFQ) and several employment and skills development acts. 	<ul style="list-style-type: none"> Companies are required to register a workplace skills plan or forfeit their levy. Such a plan entails T&D needs analyses and the identification of skills needed. Standards established by NFQ are structured to allow for movement of qualifications. 	<ul style="list-style-type: none"> Implementation challenges include bureaucracy, lack of support from industry, funding and HIV/AIDS epidemic.
Marquardt, Nissley, Ozag & Taylor (2000) United States	<ul style="list-style-type: none"> T&D emerged in the US in 1940s during World War II. 	<ul style="list-style-type: none"> Tax credit (Hope and Life Long Learning) promotes continuous learning. 	<ul style="list-style-type: none"> Departments of Labor and Education focus on training and workforce development. Each state establishes a business-led State Workforce Investment Board to develop 	<ul style="list-style-type: none"> Government intervention is focused on unemployed and re-training employees. The office of Vocational and Adult Education provides programs, grants and events. 	<ul style="list-style-type: none"> Industry struggles with demonstrating ROI on investment in training. Future challenges include globalization, technology, knowledge-based workers, and innovation.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
			<ul style="list-style-type: none"> a 5-year strategic plan for training delivery. Tax credit (Hope and Life Long Learning) promotes continuous learning. 	<ul style="list-style-type: none"> Industry investment in training to has been steadily growing. 	
McLean, Kuo, Budhwain, Yamnill, & Virkul (2012) Multiple Communities	<ul style="list-style-type: none"> HRD principles and theories can be used for societal development via the general improvement of the welfare of people usually outside of the workplace, primarily in communities. 	<ul style="list-style-type: none"> Nine case studies / articles are used as illustration to show capacity building, community development and addressing societal problems. 		<ul style="list-style-type: none"> HRD tools used include: Training / Coaching Action Research Organizational analysis Career Development Knowledge management Leadership development Formative / summative evaluation 	<ul style="list-style-type: none"> The nine case studies show that traditional HRD tools can be applied in a variety of situations, context and background to achieve desired results.
Mulder & Tjepkema (1999) Netherlands	<ul style="list-style-type: none"> Netherland's national policy trend is very much in favor of training and development with incentives to 	<ul style="list-style-type: none"> Employment training is subsidized by public sources at local, regional, national or European level. 	<ul style="list-style-type: none"> Strong system of vocational education consist of three levels. 	<ul style="list-style-type: none"> T&D in Netherland is primarily left up to market forces. Companies, industries and sectors develop and implement 	<ul style="list-style-type: none"> Netherland a strong system of vocational education and life-long learning programs.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	individuals and companies.	<ul style="list-style-type: none"> Under certain conditions, organizations can deduct the training costs from the consolidated gross profits of the organization. 		<p>their own training.</p> <ul style="list-style-type: none"> Survey shows that 45% of all companies provide training. 	
Osman-Gani (2004) Singapore	<ul style="list-style-type: none"> Singapore's Human resource strategies are continuously revised and adjusted in conjunction with other national strategic economic policies. 	<ul style="list-style-type: none"> Employers contribute 1% of payroll to Skills Development Fund (SDF). Employers can claim 90% subsidy for employee training. 	<ul style="list-style-type: none"> National Manpower Council (NMC) along with Employment Review Committee (ERC) support sets medium (3-5 years) and long term (5-10 years) strategies. Workforce Development Agency (WDA) implements the national plans. 	<ul style="list-style-type: none"> The tripartite system ensures agreement over strategies and implementation. 	<ul style="list-style-type: none"> Macro level human capital development strategies show strong correlation to economic success.
Osman-Gani, & Tan (1998) Singapore	<ul style="list-style-type: none"> HRD strategies adopted in Singapore had let to its top five competitive nation. Its lessons can be used for other countries' 	<ul style="list-style-type: none"> Singapore has multidisciplinary approach to HRD integrating it with economic policies involving multiple ministries, boards and institutions. 		<ul style="list-style-type: none"> HRD strategies include multi-department approach, tripartism, education delivery systems, innovation, HRD 	<ul style="list-style-type: none"> It can be observed that human resource development strategies have played a critical role in Singapore's economic development.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	HRD development.			<p>policies and R&D.</p> <ul style="list-style-type: none"> • Delivery systems include general educational system and specialized training with on-the-job training. 	
Osman-Gani, & Tan (2000) Singapore	<ul style="list-style-type: none"> • Singapore’s only resource is its people. It has made HRD as a key strategy for economic development since its inception. • Its economic success story is entwined with the training and development of its workforce. 	<ul style="list-style-type: none"> • Continuous training and skills development has been possible through close cooperation of tripartite group with several policymaking institutions. 	<ul style="list-style-type: none"> • The delivery system for T&D in Singapore involves elements of the national education system and private sector. 	<ul style="list-style-type: none"> • Universities, polytechnics, trade schools, training network and private organizations deliver training and education. 	<ul style="list-style-type: none"> • Singapore’s approach to long-term planning, integrated planning and development process for training and skills development has yielded successful results.
Panda (2005) India	<ul style="list-style-type: none"> • India has 2.8 million students in 117 universities studying via distance education through a network of 105 regional centers and 4,229 study centers. 	<ul style="list-style-type: none"> • Open universities, however, have been successful in developing academic programs that are quite diversified, unconventional, and oriented to 	<ul style="list-style-type: none"> • 117 universities studying via distance education through a network of 105 regional centers and 4,229 study centers. 	<ul style="list-style-type: none"> • Distance education programs offered in areas of life-skills, technical programs, niche programs and language. 	<ul style="list-style-type: none"> • Distance learning in India and its contribution to national development. • Distance Learning has also helped with community development, women empowerment, and

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
		social development		<ul style="list-style-type: none"> • Programs offered in multiple regional languages. • In addition to internet, programs are offered through radio, television, and audio and video cassettes. 	development of new sectors.
Pino & Cox (2012) Chile	<ul style="list-style-type: none"> • In Chile, the public investment in education by the state is about 4% of GDP. 	<ul style="list-style-type: none"> • National Training Board is a tripartite body of the Ministers of Labor, Finance, Economics and Education and representatives of workers and employers. 	<ul style="list-style-type: none"> • National Training and Employment Service (SENCE) through direct investment in the National Training Fund (FONCAP) provides grants and tax relief that enables businesses to invest up to 1% payroll on training. 	<ul style="list-style-type: none"> • In addition to education, training and vocational education focuses on social development, competency development of targeted groups. 	<ul style="list-style-type: none"> • NHRD challenges in Chile are in four areas: the implementation of the national system of certification of job skills, the inclusion of social dialogue in the training system, the development of individual incentives for post formal education and the development of research in the training area.
Pio (2007) New Zealand	<ul style="list-style-type: none"> • In New Zealand, government and the corporate 	<ul style="list-style-type: none"> • Firms spend an average of 3.7 percent of payroll 	<ul style="list-style-type: none"> • The Tertiary Education Commission 	<ul style="list-style-type: none"> • Six strategies act as a blue print for training, 	<ul style="list-style-type: none"> • Both the government and the corporate sector work to

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	sector work together to strengthen system capability and quality, to increase opportunities for on-the-job experience and to raise the skills.	on training; the median is 2 percent.	(TEC) along with Ministry of Education, New Zealand Qualifications Authority (NZQA), Career Services and Ministry of Social Development (MSD) are responsible for T&D.	capability and quality skills development. <ul style="list-style-type: none"> • Industry training organizations (ITOs) deliver training in a wide range of industries. • 90% of firms provide training. Industry training is more informal than formal training. 	strengthen system capability and quality, to increase opportunities for on-the-job experience and to raise the skills for participation in a knowledge society.
Rao (2004) India	<ul style="list-style-type: none"> • Given the size and nature of the population, education, for millions of people, becomes the focal point of NHRD policies. • Indian workforce - 64% agriculture, 16% industry and 20% service. 	<ul style="list-style-type: none"> • Universal education through access, retention and achievement addresses the basic needs of HRD. • HRD in large corporations is well developed. 	<ul style="list-style-type: none"> • The Department of Education regulates non-formal education, adult education, primary education, secondary education, higher education, technical and specialized education. 	<ul style="list-style-type: none"> • Common syllabi or curricula, common values, common cultures have all been the focal points of NHRD policy. 	<ul style="list-style-type: none"> • The complexity India makes it difficult to have integrated HRD systems at the national level. • Lessons and experiences learned from corporate sector are rarely used in NHRD formulation.
Skule, Stuart & Nyen (2012) Norway	<ul style="list-style-type: none"> • Norway's comprehensive reform of vocational education include 	<ul style="list-style-type: none"> • In Norway, initial education is regulated and financed by the government. The 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Vocational education is 2+2 model with two years of school-based education 	<ul style="list-style-type: none"> • Current challenges include developing an all-inclusive system of lifelong education, training and learning.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	public involvement in the vocational education and adult training.	vocational education has been recently reformed.		followed by two years of enterprise-based training. <ul style="list-style-type: none"> Adults who have acquired trade skills can get certified through examination. 	
Smith (1999) Australia	<ul style="list-style-type: none"> Australian vocational education reforms in 1990s include creation of industry-based competency standards, the use of competency-based training and a system for the national recognition of training. 	<ul style="list-style-type: none"> The Training Guarantee levy of 1.5% of payroll requires companies to invest in training. 	<ul style="list-style-type: none"> New entry-level training arrangements and the development of an ‘open’ training market. 	<ul style="list-style-type: none"> Under the Australian Recognition Framework, Training Packages are recognized. Training Packages are based on industry competency standards, assessment guidelines and qualification levels and titles. 	<ul style="list-style-type: none"> Industry expenditure and inclination for training is lower than public sector investments.
Sparkman (2015) Brazil	<ul style="list-style-type: none"> The complex relationship between the Brazilian government, its people and organizations, multinational and 	<ul style="list-style-type: none"> Economic, social and political factors contribute to unequal access, funding and planning for education and training. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Educational reforms include the expansion of private sector institutions, the increased availability of school loans and 	<ul style="list-style-type: none"> Concerns with NHRD development include race, gender and educational equality.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	indigenous organizations are factors and conditions that influence national development needs.			scholarships and the establishment of the University for All Program, and low taxes for profit-driven institutions.	
Stewart, Mills, & Sambrook (2015) U.K	<ul style="list-style-type: none"> HRD education in the U.K is largely influenced by three key stakeholders: the government, the Chartered Institute of Personnel and Development (CIPD) and the academy. 		<ul style="list-style-type: none"> CIPD-awarded and CIPD-approved systems of qualification based on Qualifications and Credit Framework (QCF) and the European Qualifications Framework (EQF). 	<ul style="list-style-type: none"> Curriculum, content quality and education provisions are defined under different levels to achieve foundation, intermediate or advance CIPD qualifications. 	<ul style="list-style-type: none"> The system of qualifications framework, institutions has yielded progress. This article doesn't address funding issues.
Udani, Sunio, Dado & Udani (2012) Philippines	<ul style="list-style-type: none"> T&D is vital to Philippines for modernizing and industrializing Philippines economy. Highest budgetary allocation to education. Industry investment in 	<ul style="list-style-type: none"> Educational system similar to U.S. with free primary and secondary education. 	<ul style="list-style-type: none"> Three bodies managed education: DepEd, the Commission of Higher Education (CHED), and the Technical Education and Skills Development 	<ul style="list-style-type: none"> TVET program provides majority of the skills training required for the skilled jobs. TVET institutions to focus T&D efforts on 23 priority sectors that are critical 	<ul style="list-style-type: none"> Challenges include limited participation of industry sectors in developing competency standards and curricula; (2) societal bias against TVET; (3) the need to upgrade the quality of HE programs, (4) the need to broaden and rationalize the access

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	training is high in Business process outsourcing (BPO) sector while lacking in other sectors.		Authority (TESDA).	for national and international competitiveness	to tertiary education; and (5) continuing job–skills mismatches
Villar, Llinàs-Audet & Escardíbul (2013) Mexico	<ul style="list-style-type: none"> While Mexico invest 6.6% of GDP in education and training systems have improved, there is still need for investment in training to boost skills and productivity. 		<ul style="list-style-type: none"> National Employment Service (SNE) vocational provides guidance, technical assistance and information and, where appropriate, training or financial support to the unemployed and underemployed. 	<ul style="list-style-type: none"> PROCADIST offers large number of distance education courses to companies. Employment Support Programs (PAP) provides several training and productivity improvement programs. 	<ul style="list-style-type: none"> Greater efforts are required to develop nearly half the working population earning less than US\$14 a day.
Xie & Wu (2001) China	<ul style="list-style-type: none"> Public policy on education, educational reform, and vocational education in China is centrally managed by the government. China’s places cultural 	<ul style="list-style-type: none"> The 10th Five-Year plan has included several HRD plans. 1.5% payroll is levied for Vocational Education. 	<ul style="list-style-type: none"> Vocational education is provided in 61 types of technical work in over 300 institutions. 	<ul style="list-style-type: none"> 9 Years of compulsory education. 	<ul style="list-style-type: none"> T&D infrastructure in weak in rural and remote areas. State Owned Enterprise’s focus on T&D in minimal.

Table 11. Continued

Author(s) Year Country or Region	Research Focus	NHRD Policy	NHRD Infrastructure	NHRD Practice	Findings
	importance to lifelong education.				
Yadapadithaya (2000) India	<ul style="list-style-type: none"> India's public policy places emphasis on education to alleviate poverty and improve employment. 	<ul style="list-style-type: none"> T&D in corporate sectors is gaining importance. Training needs assessment, lack of training transfer and lack of evaluation are common challenges. 	<ul style="list-style-type: none"> University Grants Commission oversees all higher educational institutions. 	<ul style="list-style-type: none"> The National Literacy Mission (NLM), National Policy on Education (NPE) provides more than 150 vocational courses in six major areas. 	<ul style="list-style-type: none"> Adult education, vocational education and higher education reforms has yielded mixed results.
Yang, Zhang, & Zhang (2004) China	<ul style="list-style-type: none"> After the open-door policy of 1978, China began to adopt HRM and HRD policies. 	<ul style="list-style-type: none"> Chinese characteristics such as top-down approach, strong social and moral implications, and traditional influences are being used to develop the national policy and strategy. 		<ul style="list-style-type: none"> HR functions are divided among three agencies: Organization Department of the Communist Party, Ministry of Personnel (Bureau of Personnel) and the Bureau of Labor and Social Security. 	<ul style="list-style-type: none"> SOEs are slow adopt HRD concepts and principles.

In synthesizing the research to date on NHRD policies and practices, the following eight themes emerged as common thread for HRD design, and implementation with positive outcomes at various national levels. The table 14 on the next page provides examples for each of the NHRD themes identified with country examples of policy or practice. They are:

1. Structured national laws and policies to foster education and development (Attwell & Rauner, 1999; Goodwin, Hills & Ashton, 1999).
2. National framework on education and training standards and certification (Goodwin, Hills & Ashton, 1999; Hearty & Collings).
3. Well defined traditional and vocational educational system including apprenticeships (Attwell & Rauner, 1999; Lehner & Dikany, 2003).
4. A System of national institutions and accrediting bodies for administering and implementing the HRD policies and practices (Lehner & Dikany, 2003; Lucio & Stuart, 2003).
5. Funding priorities and mechanism to finance the HRD interventions including payroll tax or levy (Gehin & Jobert, 2001; Lucio & Stuart, 2003; Osman-Gani, 2004).
6. Stakeholder involvement in the HRD activities including government, industry, trade unions, and the individuals (Osman-Gani, 2004; Stewart, Mills & Sambrook, 2015).
7. Defining HRD priorities – Many countries focus their investment on improving poverty and providing training and skills development programs for the

unemployed and underprivileged. The labor market and industry providing training for the employed (Hearty & Collings, 2006).

8. Enacting periodic planning and reforms, for example, countries such as Singapore, India, China has developed a four year planning cycle and reforms are planned and implemented (Panda, 2005; Rao, 2004; Yang, Zhang & Zhang, 2004).

Table 12. Examples of NHRD Policy & Practices

	NHRD Components	Country	Examples of policy	Examples of practice
1	National laws and policies	Germany	→ 4 different legislation regulate dual system	→ Dual system trainees spend two days a week at an occupation specific vocational school
		Ireland	→ Industrial Training Act & Labor Services Act	→ Large proportion of state funding is spent on education, training and retraining.
		Finland	→ Finnish Workplace Development Program	→ Employer participation in T&D is very high.
2	National Framework of standards and certification	New Zealand	→ National qualification Framework, Skills New Zealand	→ 90% of firms provide training.
		Spain	→ 390 National Catalog of Professional Qualification	→ Working – training programs last from 6 months to 2 years.
		U.K	→ Investors in People (IiP), National Vocational Qualification (NVQ)	→ Delivery of training is entrusted to employers and employees.
3	Educational system & apprenticeships	Germany	→ 3-3.5 Year apprenticeships	→ Apprenticeship in one of 376 recognized trades
		Spain	→ Training for employed and unemployed is provided under one system.	→ Working/Training Programs last 6 months to 2 years

Table 12. Continued

	NHRD Components	Country	Examples of policy	Examples of practice
		Québec	→ Legislation requires 1% of revenue invested in training.	→ 300 Vocational and technical training (VTT) programs managed by 70 schools and 196 VTT centers.
4	National Institutions and bodies	Ireland	→ National Qualification Authority of Ireland (NVQI)	
		Brazil	→ National Organizations – SENAI & SENAC	
		Austria	→ Chamber of Commerce and Chamber of Labor	
		Singapore	→ National Manpower council	
		South Africa	→ Sector Education and Training Authority (SETAs)	
5	Finance & Taxes	Morocco	→ Professional training tax of 1.6% of wages.	
		Andorra	→ 2.54% of payroll in training levy	
		France	→ 3.2% of wages on training	
		U.S	→ Hope & Life Long Learning tax credits	
		Singapore	→ 1% payroll to Skills Development Fund	
6	Stakeholder involvement	Spain		→ Tripartite system of employers, public authority and social agents
		U.K		→ Multi-stakeholder Sector Skills Council
		U.S		→ Workforce Investment Board
7	Development Priorities	Ireland	→ Large proportion of funding to early education, training/retraining of unemployed	
8	Periodic planning & reforms	China	→ HRD as a national policy and strategy for development	
		India	→ Five year national development plans by Planning Commission	

Knowledge Gaps

The above review of research and documentation of NHRD policies and practices provides rich source of information on policies and practices used at the country level. It also illuminates the gaps in knowledge that are not documented or understood well. These include:

- The connection between HRD policies, practices and their outcomes are not well documented. This lack of knowledge may hinder the evaluation of the effectiveness of these policies and practices. Additionally, proper evaluation will aid in the continuous improvement and fine-tuning of these policies and practices.
- There is a lack of research on the policy evaluation and planning methods, metrics and tools on the HRD practices and outcomes. This area of research is very important for better understanding the needs, constraints, environment and resources before proposing HRD policies or implementing practices.
- There are only few examples of NHRD policies and practices from developing nations (India, Morocco, Philippines, Ghana and South Africa). There is a need for additional research, documentation and understanding of NHRD policies and practices from Asia, South American and African nations.

A Holistic Conceptual Framework

The above review of research on NHRD models shows a nascent and diverse approach. The review also shows most models focusing on few dimensions and variables. The review of research on NHRD policies and practices in various countries

provided key thematic areas to focus for successful implementation of HRD practices. However, there was a lack of research on practice evaluation and improvement.

Based on the above review, I propose a holistic conceptual framework for National Human Resource Development. Miller (1996) explained that a conceptual framework contains (a) *principles* or "generalizations that state preferred practices and serve as guidelines for program and curriculum construction, selection of instructional practices, and policy development," (p.58) and (b) *philosophy* which "makes assumptions and speculations about the nature of human activity and the nature of the world... Ultimately, philosophy becomes a conceptual framework for synthesis and evaluation because it helps vocational educators decide what should be and what should be different" (p. xiii). Additionally, Rojewski (2002) outlines that a "conceptual framework does not necessarily solve all problems or answer all questions present in profession, but it should provide a schema for establishing the critical issues and allowing for solutions, either conforming the problem to the framework or vice versa (or perhaps both). Frameworks should be fairly stable but have the capacity to change over time and adapt to external factors" (p.8).

The conceptual framework I propose in figure 4 below is a flexible roadmap. It is proposed as a starting point and not a solution for any and all HRD needs at national levels, but rather to be used a guide by researchers, practitioners and HRD professionals. In other words, the conceptual framework below is not a one size fits all. Additionally, this framework should be considered with due regard to differences in regional or national background, history, culture, values, resources and developmental needs. This

model was developed based on the ADDIE model used in training and development. The rationale for using this model is based on the above mentioned knowledge gaps of analyzing needs, considering multiple variables and background during design, and evaluation methods in NHRD policy and practice development.

Overview of the Conceptual Framework

The holistic conceptual framework is proposed in two distinct parts. They are (a) overarching background and context, and (b) holistic NHRD policy and practice framework. The latter consist of six parts: (1) NHRD Needs assessments (2) NHRD policy design, (3) NHRD structure, (4) NHRD practices (5) NHRD Outcomes & metrics and (6) NHRD evaluation.

The overarching background and context are composed of the following four areas: goals, stakeholders, economics and finance and NHRD context. I will briefly discuss each component below.

- *Goals:* These are the country or region's overall goals related to economic and human resource development. The goals selected will be based on the country's current status, constraints and opportunities. For example, national goals can vary from reducing poverty and corruption in Morocco (Cox, Al Arkoubli, Estrada, 2006), combating HIV/AIDS in South Africa (Lynham & Cunningham, 2004) to increase the skill levels of workforce in Singapore (Osman Gani, 2004).



Figure 6. NHRD Holistic Conceptual Framework

- Stakeholders:* Stakeholders are an important part of executing any policy or plan. For any NHRD policy or intervention to be successful, most countries realize the importance of engagement from multiple stakeholders. These include government at various levels (national, regional, local), industry, trade groups, and individuals. The success of tripartite and multi-partite are outlined in Spain (Escardíbul & Llinas-Audet, 2010), Singapore (Osman Gani Tan, 1998) and U.K through Sector Skills council (Lee, 2004).

- *Economics & Finance:* This section is divided into two parts. Income is how a country plans to fund the NHRD practices. Funding mechanism include taxation in the form of levy, policies to encourage training and budget allocation from the government. Examples include public investment in education in Chile (Pino & Cox, 2012), Training Guarantee Levy of 1.5% in Australia (Sparkman, 2015) and investment in training and support for unemployed in Mexico (Villar, Llinàs-Audet & Escardíbul, 2013).
- *NHRD Context:* The NHRD contexts are categorized in to (a) social, (b) cultural, (c) political, (d) economical and (e) environmental. The contexts are specific to each country or region. They should be considered during the NHRD needs assessment, policy development and implementation stages. The above context elements can influence the success of NHRD policy and practices. Examples include consideration of population, lack of infrastructure and agriculture being major workforce in India (Rao, 2004) to lack of any natural resource for competitive advantage in Singapore (Osman Gani, 2004).

The NHRD policy and practice implementation process is presented as six logical steps or parts based on the ADDIE (Analyze – Design – Development – Implementation - Evaluation) principle. They are (1) needs assessment, (2) policy design, (3) structure, (4) practice, (5) outcomes and metrics and (6) evaluation and improvement. These six steps are organized in a circular loop to facilitate continuous improvement. The steps are: policy development – policy implementation – practice assessment – continuous

improvement. The following section outlines each of the six steps of the NHRD framework and their components:

1. *NHRD Needs Assessment*: This section of the framework emphasizes the need for conducting assessments before considering or designing any NHRD policies.

Factors that should be considered during needs assessment includes:

demographics, education / literacy, labor market needs, economy, skills and competencies levels, industries and technology development. Special consideration should be given to the history, culture, readiness for change, politics, rule of law, corruption, stability and institutional structure of the country. The needs assessment outcome should guide the policy design explained in the second stage.

2. *NHRD Policy Design*: Policy design should consider needs assessment, the goals of the country, resources and methods to achieve those goals. Multiple stakeholder involvement at this stage is critical. Policy design consideration should include the following elements:

- Planning
- Stakeholders engagement
- Building capacity
- Building capability
- Addressing non-formal and informal sectors
- Development prioritization
- Funding mechanisms

- Integrating in to national development plans
- Models of management

3. *NHRD Structure*: The structure involves the institutions, bodies and agencies responsible for implementing the policies into practice. Many of the examples provided in the research above can serve as template and benchmarks for countries to model after. However, the effectiveness of these institutions depends on the funding, governance and accountability that is placed on them.

Some of the elements to address during this step include:

- Recognition, Validation, Certification and Accreditation of Education
- National Qualification / Training Framework
- National Training Agencies
- Clusters – Specialized Education
- Career Pathways
- K-12 Educational Institutions
- Community Colleges
- Higher Educational Institutions
- Financial Aid / Loans and other incentive Programs

4. *NHRD Practice*: HRD practices help bring a policy to positive outcomes. They range from technical / vocational education (Gehin & Jobert, 2001), apprenticeship (Attwell & Rauner, 1999), adult education (Hytönen, 2003), women’s development to industry partnerships (Osman-Gani, 2004). This stage of NHRD is where “rubber meets the road”. Executing these practices require

competent educators, administrators, industry participants and motivated individuals. This is where most of the developing countries lack capacity and capability. Some of the methods to implement NHRD practices include:

- Technical & Vocational Education (TVET)
- Trade Schools
- Workforce Development
- Apprenticeship / OJT
- Adult & Continuing Education
- Women's Education and Development
- eLearning / Distance Education
- Government-Industry partnerships
- Teacher / Educator Development

5. *NHRD Outcomes & Metrics*: The outcomes of NHRD practice implementation should be managed, measured and improved. Some of the elements or tools to achieve intended NHRD outcomes should include:

- Performance Management
- Quality Assurance
- Educational Technologies
- Accountability
- Training Curriculum
- Mentoring
- Building Capability & Capacity

- Teachers, Instructors and Trainers
- Change Management
- Innovation & Entrepreneurship

6. *NHRD Evaluation & Improvement*: Evaluation and improvement is an important step of the framework to measure the intended outcomes of the NHRD policies and practices. The effectiveness of the policies and practices should be measured using sound and international accepted measures. Some of the internationally recognized macro measures are Human Development Index (HDI), GINI index, GDP, income levels, primary education achievements etc. Micro measures to measure specific interventions include completion rates for educational programs, job placement rates, unemployment rates, job placement rates, etc. as outlined in the conceptual framework, NHRD research in this area is lacking and an opportunity to advancing the research. This provides key data and input to policy makers to adjust, update or modify legislation and or funding related to the NHRD policies.

Implications for Future Research and Direction

The review of literature yielded a total of **53** publications that included **15** articles focus on model or framework development and **38** articles focus on policy and practice in action. I outlined some of the gaps in research and knowledge and proposed a holistic NHRD framework. In this section, I offer some directions to advance NHRD research in the areas of research and practice.

Future Direction for Research

The review of literature on models indicates NHRD model development is a relatively new with most models developed since 2004. So I believe this is the area which has the greatest potential for development. In this spirit, I offer two challenges.

1. *Multi-disciplinary*: Most of the models proposed to date have been developed based on HRD or educational theories. I encourage researchers to develop multi-disciplinary models that brings theoretical concepts from developmental economics, international development and sociology. This will enhance NHRD research with knowledge and perspectives from various fields.
2. *Details and depth*: Many of the proposed models only address macro level factors such as economical, educational, political or social. Additionally, most of the research addresses only few variables or dimensions involved in the NHRD policy and practice, thus limiting the scope to a narrow focus area. I challenge the researchers to develop models that consider even a wider range of variables and parameters reflective of real world scenarios.

The review of literature on policy and practice at national or regional levels mostly produced documentation of current national policies and practices. I recommend the following theoretical development challenges for future research.

1. The connection between HRD policies, practices and their outcomes are not well documented. I encourage researchers to advance the research on the

policy and practice outcome measurement and metrics. Researchers should also consider the cost, time and feasibility of these measurement as the NHRD practices are implemented on a country level. Additionally, researchers should consider short term and long term impact measurements.

2. I encourage researchers to develop methods and tools for NHRD practice evaluations and improvement. None of the literature to date document any evaluation methods or tools. This is a critical area of research that can aid in the evaluation of the investments made with HRD development practices.

Content Areas for Future Research

The review of NHRD literature shows relatively high level model development and country specific NHRD policy and practice documentation. The following are some of the content areas for future research.

- NHRD Models that include large number of dimensions and variables that closely resembles real-world scenario.
- NHRD models that address severely resource constrained countries. What steps can they take? What practices can they implement?
- Develop new and robust NHRD needs analysis, assessment and evaluation tools and methods. Document real-world case studies.
- Research and development in the area of funding and financing NHRD practices. This will help understand the cost implications and challenges associated with implementation.

- Improve our understanding of capacity and capability building. Few of the articles addressed capacity and capability building from an educational and TVET standpoint, but there is a lack of research on resources needed for NHRD policy and practice development, implementation and evaluation. What competencies are needed? How to develop them?
- Research, documentation and understanding of NHRD policies and practices from Asia, South American and African nations.

Future Direction for Practice

The review of research on NHRD practice show a detailed documentation of policies, interventions, and practices in many countries. However, majority of the focus is on very high and high HDI countries. Also, there is little research on metrics, evaluation and improvement of these practices. Based on the current state of research on NHRD practices, I suggest the following areas for future research:

- Research and documentation of NHRD practices and challenges in developing countries.
- In depth research on the process of national HRD policy making. How policies are shaped, stakeholder are engaged and readiness assessment are conducted.
- How policies and practices are shaped to address the venerable population – unemployed, under-employed, unskilled, women, ethnic and margined groups.
- Research on how to develop regional and national institutions, bodies and organizations who are involved in the implementation of the NHRD policies.

- Additional research on capacity and capability building, especially in the developing countries in areas such as teacher education, educational program development, entrepreneurship, technology and geographical reach.
- Enhance the application of traditional HRD tools and methods to NHRD settings and societal benefits.
- Development of macro and micro level metrics for evaluation of NHRD policy and practice at national, regional and local level.
 - Validation of research development on models, frameworks, policies and practices by practitioners, national and international organizations.

These research and practice advancements will help expand the body of literature on NHRD models, policy and practice and aid HRD researchers and practitioners to contribute to national development.

Conclusion

In this review of literature on NHRD models, I identified and analyzed them based on their focus, variables considered, and proposed methods. The findings indicate a nascent research domain with most of the publications since 2004. All of the models proposed are typically focused on a small number of variables or dimensions. Most models are descriptive and not prescriptive. Except two, which provides actionable and measurable practices, most models address NHRD at the conceptual level. Additionally, most models discuss macro level development strategies / policies and do not suggest specific micro level practices. None of the model includes evaluation and improvement component. Additionally, the review of research on the use of NHRD policies and

practices provided a documentation of practices from multiple countries. Eight key themes were identified as the leading factor for the successful policy outcomes.

However, the research lacked on metrics, evaluation and improvement methods. Based on the research gaps identified, I proposed a holistic NHRD framework with overarching NHRD contexts and a six step NHRD policy and practice design, implementation and evaluation process. I believe that this compressive review and critical examination of research on NHRD models, policies and practices will help to advance future research and development. I hope the proposed holistic NHRD framework serves as a starting point for scholars, practitioners and policy makers to design, develop and implement sustainable and inclusive human resource development.

CHAPTER IV

CONCLUSIONS

The aim of this dissertation was to understand and explore the research in the field of National Human Resource Development through two article format dissertation. The overarching goal for the first article is to examine the body of theoretical and empirical literature on NHRD in order to understand its evolution and current state. The overarching goal for the second article was to explore NHRD research on models, policies and practices. In addition to addressing the above, I seek to develop a holistic NHRD framework for policy development, implementation and evaluation.

The first article on systematic literature review systemically examined **104** NHRD research articles by integrating multiple disciplinary views. The findings indicate that the construct of NHRD has been investigated in various national context, and has gained research attention gradually over time. In addition, this topic has been studied from various theoretical perspectives and with multiple research methods. Both theoretical and empirical research was conducted to build the NHRD literature base. These efforts have expanded and enriched our understanding of current NHRD research. Based on the systematic review, some suggestions for theory development, methodological development, and content building were offered. It is my hope that by providing a comprehensive review and critical examination of current status of NHRD research, I have offered opportunities for scholars, practitioners and policy makes, so that I can foster a stronger partnership and have a better grasp of NHRD in terms of its

goals and application. With a clearer sense of this notion, NHRD professionals will be better positioned to use it as a strategic tool to serve the public good.

The second article identified and analyzed NHRD models and frameworks based on their focus, variables considered, and proposed methods. The findings indicate a nascent research domain with most of the publications since 2004. The models are also based on varied and few theoretical underpinnings. Additionally, the review of research on the use of NHRD policies and practices provided a documentation of practices from multiple countries. Eight key themes were identified as the leading factor for the successful policy outcomes. However, the research lacked on metrics, evaluation and improvement methods. This effort expanded and enriched our understanding of NHRD models as well as policies and practices in use. Based on the research gaps identified, a holistic NHRD framework with overarching dimensions and a six step NHRD policy and practice implementation process is proposed.

Research Limitations

While the systematic literature review and synthesis provides an understanding of the current state of NHRD research, the following are some of the limitations of this dissertation:

- The systematic literature review conducted for both articles are based on content and conceptual analysis due to the fact that over 90% of the research to-date are conceptual or case study articles. Empirical studies at country or regional levels would provide rich and in-depth understanding of the NHRD policies and practices.

- The literature review only includes publications in English language. There may have been NHRD publications in others languages, which were not included. As a result, the literature reviewed is unlikely to be exhaustive, and the analysis may not capture the entire picture of NHRD.
- Due to difficulty in data collection from practitioners, educators, and policy makers in various countries for practical constraints, such as accessibility, the conceptual model proposed is purely based on the content analysis of literature obtained through library research, as well as the gaps I identified. I was not able to validate the newly proposed model with practitioners, policy makers or international organizations.
- Only peer-reviewed journal articles were included in this dissertation due to consideration of the rigor and quality of research. Therefore, I excluded other publications on NHRD such as conference proceedings, theses and interviews, which may likely inform and enrich our understanding of this topic.

In conclusion, it is my hope that by providing a comprehensive review and critical examination of NHRD research, and offering a holistic NHRD framework scholars, practitioners and policy makers, will obtain useful information from this dissertation that will enable them to design, develop and implement sustainable and inclusive human resource development policies and practices. Advancing research and development of NHRD will not only elevate the field of HRD to greater importance but also contribute to the greater good of the society. It is my hope that this dissertation will prompt actions to be taken towards this goal.

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Bharani Nagarathnam

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Summary

Motivated, innovative, productive & result oriented individual ★ More than 15 years of experience in applied research, research administration, academic programs management and business development ★ More than 10 years of managerial, administration & project management experience ★ Hired, trained, motivated, developed and support more than 20 research & administrative staff ★ Experienced in development of graduate programs, labs, consortiums & university international operations.

Significant Activities

- Developed and currently manage the Operations and Student Services of *Master of Industrial Distribution* graduate program. In the last 5 years, increased enrollment by **5X** and revenues by **5X** to over 2.5 million dollars. The program is now the largest distance education degree in the College of Engineering.
- Developed and implemented *Mobile Learning* experience with iPad, eBooks and educational apps – First of its kind at Texas A&M University for working professionals in distance education graduate program.
- Significant contribution to propel the *Global Supply Chain Systems Laboratory* and the ‘*Thomas & Joan Read Center for Distribution Research & Education*’ into a leader in distribution research and education through marketing, process improvement, talent management and increasing operational effectiveness.
- Coordinated program development activities that include alumni/donor/industry relationship management, lab/facility developments and assisting with acquiring endowments, scholarships and gifts.

International Development:

- Currently coordinate the support and management of ‘*Global Supply Chain Laboratory*’ projects in Mexico.
- Develop, market and conduct multiple short courses in Middle East & Asia region
- Manage business development in Central America by establishing industry contacts and professional development programs.

Research Programs:

- Coordinated and managed the ‘*México - Texas Trade Corridor Consortium*’ – a government - industry initiative to create manufacturing opportunities for the Texas and the México region with funding in excess of \$1.75 Million.

- Planned, managed & executed more than 50 research, professional education, and development projects.

Management:

- Instrumental in recruiting and managing a productive team of 25 people.
- Manage finance, HR and development for the Industrial Distribution Program.
- Coordinate collaborative initiatives, consortiums, and lab development activities with industry.
- Assist in writing and coordinating research/development proposals.

Education

Ph.D. in Human Resource Development (GPA 4.0) Dec 2016
Texas A&M University, College Station, TX.

Master of Science in Industrial Engineering May 2002
Texas A&M University, College Station, TX.

Bachelor of Engineering in Production Engineering May 1998
University of Madras, Chennai, India.

Work Experience (15+ Years at Texas A&M University)

- **Associate Director – Graduate Programs** Sep 2012 - Present
Associate Research Engineer – Texas A&M Engineering Experiment Station
Dept. of Engineering Technology & Industrial Distribution
Dwight Look College of Engineering, Texas A&M University
 - Manage *Master of Industrial Distribution* program marketing, development and operations. Responsible for recruitment, e-Learning platform, student services and alumni relations.
 - Develop and grow international programs, research projects and continuing education.
 - Manage research and continuing education proposals, contracts, and industry relationships for the Industrial Distribution Program.
 - Manage finance, human resource and research facilities for the Industrial Distribution program.
- **Assistant Director & Associate Research Engineer** Sep 2007 – August 2012
Dept. of Engineering Technology & Industrial Distribution
Dwight Look College of Engineering, Texas A&M University
 - Manage research projects, professional development programs, proposals, contracts, and customer relationships for the Industrial Distribution Program.
 - Coordinate special initiatives/projects of the department such as developing and marketing the '*Global Manufacturing & Distribution Initiative*' in Mexico.
 - Manage finance, human resource and research facilities for the Industrial Distribution program.

- **Engineering Research Associate IV** Mar 2005 – Aug 2007
 Dept. of Engineering Technology & Industrial Distribution
 Dwight Look College of Engineering, Texas A&M University

 - Conducted applied research on various topics in Supply Chain Management, Logistics, Distribution Management and Information Technology.
 - Assisted in writing and coordinating research proposals for submission to industry, state and federal government agencies.
 - Managed research projects, resources and personnel.

- **Project Manager** Sep 2004 – Feb 2005
 Dept. of Engineering Technology & Industrial Distribution
 Dwight Look College of Engineering, Texas A&M University

 - Designed, developed and implemented strategic, tactical and technological solutions for companies.
 - Contributed in preparing refereed journal papers, case studies and articles.

- **Sr. Research Associate** Jan 2002 – Aug 2004
 Dept. of Engineering Technology & Industrial Distribution
 Dwight Look College of Engineering, Texas A&M University

- **Graduate Research Assistant** Oct 1999 – Dec 2001
 Dept. of Engineering Technology & Industrial Distribution
 Dwight Look College of Engineering, Texas A&M University

- **Product Development Engineer** May 1998 – Jun 1999
 Govel Plastics (P) Ltd., Chennai, India

 - Managed and scheduled various projects.
 - Supervised a team of 10 workers and coordinated the design, development and testing of ultra precision plastic injection molding tools.
 - Designed and developed 13 ultra precision injection molding tools for Ford Motors fuel pump parts.

- **Project Intern – Senior Year (Part-Time / Senior Project)** May 1997 – Apr 1998
 Govel Plastics (P) Ltd., Chennai, India.

 - Performed materials management (procurement and inventory)

Honors & Awards

- 15 Year Service Award - for dedicated service to the Industrial Distribution Program, Texas A&M University, 2015
- Texas A&M College of Engineering - Key Contributor Award, Inaugural Recipient, 2014
- Department of Engineering Technology & Industrial Distribution – Distinguished Staff Achievement Award, 2011
- Professional Association for Industrial Distribution, Excellence in Service Award, 2009
- Best undergraduate project award for design & development of an injection-molding tool, 1998
- Recipient of State class Bank of India scholarship for educational excellence during undergraduate program, 1994-1998.

Invention Disclosure

1. Lawrence F.B., Krishnadevarajan P.K., Nagarathnam B., Rao B., Sellamuthu S. and Gunasekaran S. "Pricing Optimization", Texas A&M University System, November 2007.

Conference Presentation

2. Nagarathnam, B., & Wang, J., "National Human Resource Development Research: A scoping Study", conference presentation at the 2014 AHRD International Conference in the Americas, Academy of Human Resource Development, Houston, February 19-22, 2014.

Books

3. Lawrence F.B., Nagarathnam B. and Krishnadevarajan P.K. "Quantifying the Value of Authorized Distribution: An Outlook on the Electronic Industry Authorized Distribution Channel", National Electronic Distributors Association – NEDA, Alpharetta, GA, ISSN: 1543-9976, March 2004.

Refereed Publications

4. Nagarathnam, B., & Wang, J., "National Human Resource Development Research: A scoping Study", Peer-Reviewed Publication, 2014 Proceedings of the Academy of Human Resource Development,
5. Lawrence, F.B., Nagarathnam, B., Krishnadevarajan, P.K., Gunasekeran, S., Sellamuthu, S., "Wholesale Distribution Operational Excellence: Best Practices in Information Management: Rebates & Claimbacks Management, Pricing Management, Distribution Performance Management", Review of the Electronic and Industrial Distribution Industries, Volume 7, Number 1, December 2007.
6. Lawrence, F.B., Krishnadevarajan, P.K., Gunasekeran, S., Nagarathnam, B., Sellamuthu, S., "Wholesale Distribution Operational Excellence: Best Practices in Information Management: Warehouse Management, Transportation Management, Network Management, Distribution Replenishment", Review of the Electronic and Industrial Distribution Industries, Volume 6, Number 2, 124-184, December 2007.
7. Lawrence, F.B., Nagarathnam, B., Sellamuthu, S., Krishnadevarajan, P.K., Gunasekeran, S., "Wholesale Distribution Operational Excellence: Best Practices in Information Management: Introduction, Demand Management, Inventory Stratification", Review of the Electronic and Industrial Distribution Industries, Volume 6, Number 1, 96-145, August 2007.
8. Lawrence, F.B. and Nagarathnam, B., "Understanding the Cost of Inventory – A NEDA Value Study Perspective" Review of the Electronic and Industrial Distribution Industries, Volume2, Number2, pp 15-31, 2004.
9. Lawrence, F.B., Jennings, D.F., Nagarathnam, Bharani, "A Framework To Quantify The Value Of Authorized Distribution In The Electronics Distribution Channel," Review of the Electronic and Industrial Distribution Industries, Spring 2003, Vol. 2, No. 1, pp 1-17.
10. Lawrence, F.B., Thompson, S., Zoghi, B., and Nagarathnam, B., "Agility to Market: Variable Resource Management for the Electronics Industry," Review of the Electronic and Industrial Distribution Industries, Spring 2003, Vol. 2, No. 1, pp 45-54.

11. Lawrence, F. B., and Nagarathnam, B., "Supply Chain Connectivity: Simulation of Supply Chain Systems in the Industrial Channel," Review of the Electronic and Industrial Distribution Industries, Spring 2003, Vol. 2, No. 1, pp65-81.

Articles

12. Lawrence, F. B., Krishnamurthi, R., and Nagarathnam, B., "Who's in Charge Here? Controlling and Coordinating Information in the Supply Chain," Modern Distribution Management, Vol.33, No.02, January 2003.

Research Reports

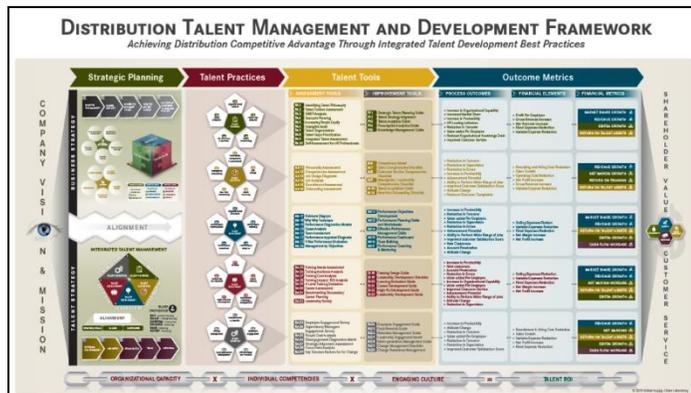
13. Lawrence, F.B., Gunasekaran, S., Krishnadevarajan, P.K., Sellamuthu, S. and Nagarathnam, B. "Distributor Profitability Kit: Distribution Process Assessment Workbook, Distribution Profitability Framework, Poster/Chart, Distribution Best Practices Roadmap – SOURCE, STOCK, SELL, SHIP, SUPPLYCHAIN PLANNING & SUPPORT", Optimizing Distributor Profitability Consortium, Texas A&M University, May 2008.
14. Lawrence, F.B., Nagarathnam, B., "Best Practices in Enterprise Resource Management: Information Technology for the Wholesale Distribution Community", Information Systems Consortium, Texas A&M University, August 2004
15. Lawrence, F.B., Nagarathnam, B., A Study on Neutral and Non-Neutral Market Maker, Published in the "Findings of the Information Systems Consortium for Supply Chain Integration, Volume II", September, 2001
16. Lawrence, F.B., Nagarathnam, B., The Value of Trust in the E-business model, Published in the "Findings of the Information Systems Consortium for Supply Chain Integration", Volume I, September, 2000.

Research Interest

Distribution Talent Management ★ Performance Planning ★ Inventory Management ★ Pricing Optimization ★ Lean Distribution ★ Sales & Marketing Optimization ★ Profitability & Performance Management ★ Supply Chain Best Practices

Research Projects

- “Optimizing Distributor Human Capital Consortium”, Sponsors: **18 companies**, F. Barry Lawrence, Principal Investigator, Contribution 30%, Dr. Jia Wang, Co-Principal Investigator, Contribution 30%, Daniel. F. Jennings, Co-Principal investigator, Contribution 20%, Bharani Nagarathnam, Co-Principal investigator, Contribution 20%, **\$450,000**, April 2013 – December 2015.



- “Texas A&M University **Global Research Center** at Monterrey’s Research and Innovation Technology Park”, sponsor, Vice President of Research & College of Engineering Dean’s office, Texas A&M University, F. Barry Lawrence, V. Jorge Leon, Jay Porter, Jyhwen Wang and Chalam Narayanan, \$ 335,559, 2007.
- “Software Evaluation for Industrial Distribution Channels: Channel Needs and Functionality Analysis”, Salient Corporation, sponsor, F. Barry Lawrence, Principal Investigator, Ben Zoghi, co-Principal Investigators, 2004.
- “Software Evaluation for Industrial Distribution Channels: Channel Needs and Functionality Analysis”, Salient Corporation, sponsor, F. Barry Lawrence, Principal Investigator, Contribution: 90%, Ben Zoghi, co-Principal Investigator, Contribution: 10%, \$24,529, 2003.
- “Development of a Graphical User Interface and User Manual for the Distribution Value Calculator”, National Electronic Distributors Association, sponsor, F. Barry Lawrence, Principal Investigator, Contribution: 100%, 2003, \$16,304.
- “McNaughton and McKay: A Logistics Project.” McNaughton and McKay, sponsor. F. Barry Lawrence, Principal Investigator, Contribution: 70%, Ben Zoghi, Daniel Jennings, and Brian Reynolds, Co- Principal Investigators, 2002, Graduate Research Students: 2, \$77,187.
- “Matching Best Practices in Distribution to ERP software functionality”, J.D Edwards, Intuit Eclipse, Prelude Systems, Dimasys Software sponsors, Barry Lawrence, Principal Investigator, 2002-2003.

- “Quantification of Distribution Value.” National Electronic Distribution Association, sponsor. F. Barry Lawrence, Principal Investigator, Contribution: 50%, Daniel Jennings, and Brian Reynolds, Co- Principal Investigators, 2000, Contribution: 50%, Graduate Research Students: 4, \$190,000.
- “Factors in Distribution Value.” National Electronic Distribution Association, sponsor. Gail Zank, Principal Investigator, Contribution: 95%, Robert Vokurka, Gary Stading, Daniel Jennings, Brian Reynolds, and F. Barry Lawrence, Co- Principal Investigators, Contribution: 5%, 2000, Graduate Research Students: 4, \$50,000.
- “Development of a Graphical User Interface and User Manual for the Distribution Value Calculator”, National Electronic Distributors Association, sponsor, F. Barry Lawrence, Principal Investigator, 2004.
- Three projects in “An Information Consortium to Study Supply Chain Integration.” IBM, Prelude Systems Inc., Rexel, Siemens Energy & Automation, and other firms sponsors. F. Barry Lawrence Principal Investigator, Daniel Jennings and Ben Zoghi Co-Principal Investigators, 1999- 2004.
- A Study on Neutral and Non-Neutral Market Maker, Information Systems Consortium for Supply Chain Integration: Various companies, Volume II, September, 2001.
- The Value of Trust in the E-business model, Information Systems Consortium for Supply Chain Integration, Sponsor: Various companies, 2000.
- Customer Service metrics and Customer Relationship Management Study for Avnet Electronics: Designed, developed and conducted a customer satisfaction metrics survey. Analyzed customer purchasing patterns and processes for one of the world’s largest electronic component distributor to streamline the supply chain and increase customer loyalty. Sponsor: Avnet Electronics, 2000.
- B2B E-Commerce business models for materialnet.com: A study of e-procurement business models in the metals industry. The study analyzes different market maker models, opportunities and risks involved and include a guide to evaluate market places. Sponsor: MaterialNet, 2000.
- E-Business Resource and Implementation Guide for ec4business.com: A detailed study and documentation of resources, tools, and information needed to establish an e-business for a distributor. Sponsor: BSW Consulting, 1999.
- E-Commerce Tools, Sponsor: EC4Business, F. Barry Lawrence Principal Investigator, Contribution: 100%, Daniel Jennings, Graduate Research Students: 8, 1999.

Course Development & Teaching Assistance

- **Master of Industrial Distribution Mobile Learning:** Designed, tested and implemented a mobile learning environment that includes iPad, eBooks, educational & productivity apps and mobile device management system. The mobile learning system for working professionals is a first of its kind for a distance education program at Texas A&M University.
- **IDIS 655:** Global Distribution 2010, 2011, 2012, 2013, 2014, 2015.
Issues in global distribution on a small to large scale; emphasis on competitive global business strategies, cultural and exchange issues, distribution practices of other countries, global distribution networks, and transportation issues across the globe; an one week international trip to solidify foundation in international distribution concepts and strategies.

Assisted with course content development, eCampus setup and video recordings. Coordinated the Global Trip with pre-trip visit planning, company case studies, video recordings, logistical planning, and travel with the class for smooth execution of the program.

- 2013 – Norway & Sweden
- 2014 - India
- 2015 – Singapore & Malaysia
- **IDIS 644:** Industrial Distributor Information and Technology Management 2001, 2002
Industrial distributor's use of information systems to manage operations; combination of information systems and automation to achieve increased cross docking drop ships and automated tracking of industrial distributor operations metrics. Assisted with course material development and eLearning system.
- **IDIS 614:** Industrial Distributor Networks 2002, 2015
Industrial distributor's network channel in distribution centers, warehouse management systems, hot-shot and standard truck fleets, forecasting and purchasing strategies for technical products; an examination of the integration of the field and inside sales force into distributor network strategy. Assisted with course materials, suggested readings and videos.
- **IDIS 622:** Capstone Project 2013, 2014
Graduate Course: The capstone project is a research project that a MID student conducts to complete the degree. Advised multiple students and assisted with research methods and student services.
- **IDIS 344:** Distributor Information and Control Systems 2001, 2002, 2003, 2004
Junior/senior level course covering distribution information systems. Helped develop class presentations and Lab exercises. The lab involved students working on commercial ERP and Business Intelligence systems.
- **IDIS 444:** Lean Distribution 2006, 2007

Senior Level course in Application of Lean Concepts and Principles to Distribution & Supply Chain. Helped develop class presentations and reading materials.

Development Activities

Personnel Management

- Recruit, train, motivate and energize people.
- Manage the team for smooth project execution and completion on time
- Maintain priorities and focus on innovation.

Resource Management

- Manage technology needs, procurement and accounting.
- Financial budget management for payroll, travel and procurements.
- Lean resource management of personnel, facilities, equipment, and travel expenses

Professional Membership

- CSCMP - Council of Supply Chain Management Professionals
 - AHRD - Academy of Human Resource Development
 - ATD - Association for Talent Development
-