

# The Evolution of Human Resource Development: Social Network Approach

# Table of Contents

# Motivation

## A Brief History of HRD

The Evolution of HRD: SNA approach | Chungil Chae | chadchae@gmail.com

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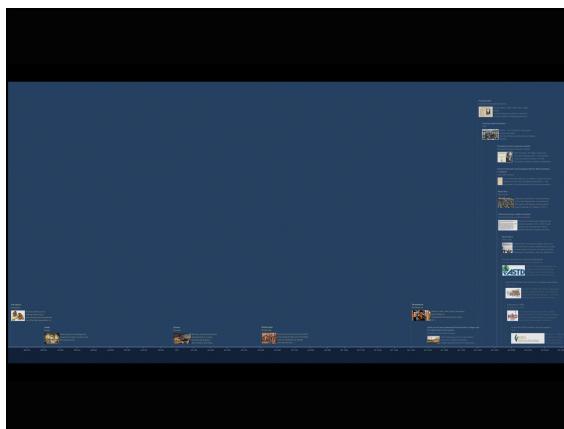
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**Pre-historic**  
Prehistoric



Survival skills such as making simple tools and cooking were transferred from the older generation to...

**Greek**  
Seeking for knowledge and meaning of nature, form, and the environment.

700 BC 500 BC 300 BC 100 BC 1 AD 500 AD 1000 AD 1500 AD 1800 AD 1900 AD 1950 AD 2000 AD

**Survival**

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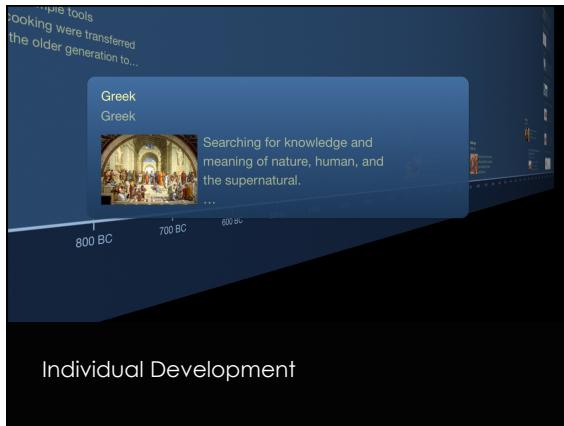
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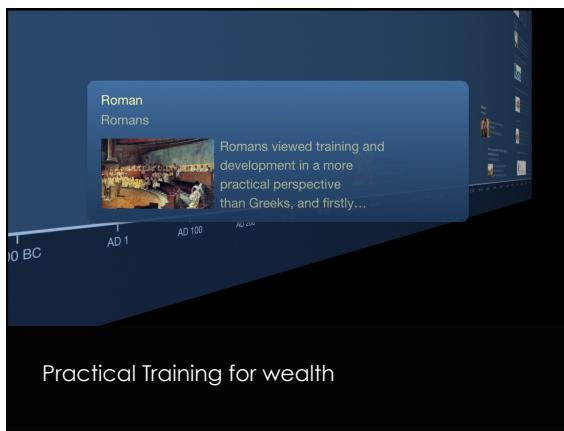
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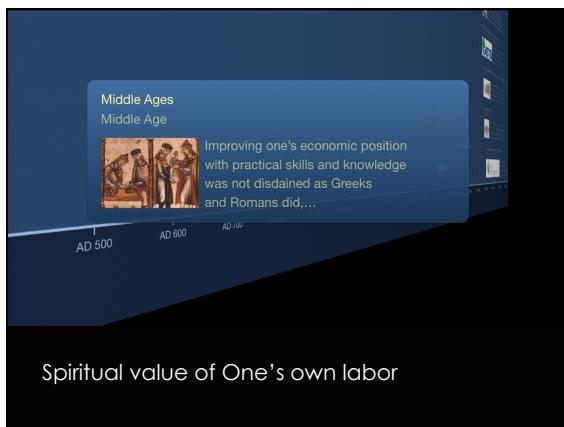
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Renaissance

Renaissance



Martin Luther, John Locke, Rousseau, and Pestalozzi :

Emphasized the learning by experience...

Ability to read and understand the capital laws of the country  
Colonial and Industrial America

At the beginning of the United States  
American colonists rejected English representation and experienced

AD 1500 AD 1600 AD 1700 AD 1800 AD 1900 AD 2000

Scientific and philosophical thinking

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Ability to read and understand the principles of religion and the capital laws of the country

Colonial and Industrial America

At the beginning of the United States:  
American colonists replicated  
English apprenticeship and expanded...

A horizontal timeline diagram showing historical events from AD 1500 to AD 1800. The timeline is represented by a blue bar at the bottom, with major tick marks labeled 'AD 1500', 'AD 1600', and 'AD 1700'. Above the timeline, there are several small images and text boxes. One box on the left contains a portrait of Martin Luther and text about him. Another box further along the timeline contains a portrait of John Locke and text about him. A third box near the end of the timeline contains a portrait of Rousseau and text about him. A fourth box on the far right contains a portrait of Pestalozzi and text about him. The main text area above the timeline discusses the ability to read and understand religious principles, capital laws, and colonial/industrial America, and includes a statement about English apprenticeship.

Ability to read and understanding basic skill

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Practical skills

Colonial and Industrial America



Horace Mann (1796-1859) then, established a public education system to enhance practical skills by integrating practical...



Training Industrial Workers  
1820  
800s - 19c: Factory & Corporation schools provided technical training in the skills and trades needed...  
...modern experts

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 Horace Mann (1796-1859) lobbied for a public education system to ensure practical skills by 1820.

**Training industrial Workers**  
1820

 1820s ~ 19c: Factory & Corporation schools provided technical training in the skills and trades needed...

 Developing mass production experts  
Developing mass production experts  
1912, Frederick W. Taylor introduced "Scientific Management," and inspired "mass production system" at Ford. The system required a cadre of engineers...

**Training industrial workers**

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 Focus ~ 1890: Factory & Corporation schools provided technical training in the skills and trades needed...

**Developing mass production experts**  
Developing mass production experts  
 1912, Frederick W. Taylor introduced "Scientific Management," and inspired "mass production system" at Ford. The system required a cadre of engineers...

**Developing mass production experts**

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 1912, Frederick W. Taylor introduced "Scientific Management," and inspired "mass production system" at Ford. The system required a cadre of engineers...

**Ensure employees were equipped with the skills necessary to perform**  
early 20th Century

 In the early 20th Century, two distinct camps could be identified within many vocational association – one composed of mostly educators and one composed o...

**World War I**  
1914–1918  
 During the world war, Drexel Director of the War Department Committee for Education and Special Training developed materials for colleges to fill in...

**Ensure employees were equipped with skill**

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**World War I**  
1914–1918

In the early 20th Century, two distinct camps could be identified within many vocational associations composed of mostly educators and business leaders.

During the world war I, Dooley (director of the War Department Committee for Education and Special Training) developed materials for colleges to fill the skills necessary.

Technical training in public education

Technical training was integrated into public education. 1917, Smith-Hughes Act was enacted after intense debates between progressive educators and traditionalists.

**Fill the army's need**

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**World War II**  
1939–1945

During the world war I, Dooley (Diez, Allen, and Kane) used their wartime experiences to fundamentally shape the history of training the War Manpower Commission, and they established the ASTD.

Technical training in public education

Technical training was integrated into public education. 1917, Smith-Hughes Act was enacted after intense debates between progressive educators and traditionalists.

**Technical training in public education**

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**World War II**  
1939–1945

In World War II, Dooley et al (Diez, Allen, and Kane) used their wartime experiences to fundamentally shape the history of training the War Manpower Commission, and they established the ASTD.

Provide 'Standards' for Training Professionals

Provide Standards for Training Professionals

Many TWI Services (certified individuals) improved their original procedures and established their own training departments in their organizations.

**War resource with lower costs and higher quality**

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In World War II, Dooley et al. (Dooley, Kane) used their wartime experiences to help shape the history of training and development.

Provide 'Standards' for Training Professionals

Provide 'Standards' for Training Professionals

Many TWI Service certified individuals returned to their original profession and established training departments in their organiz...

Meet the extended role for trainers in business organizations 1960–1979

During the 1960s and 1970s, professional trainers realized that their role extended beyond the training classroom. The move toward employee involvement in man...

Provide standards for training professionals

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Training Professionals Many TWI Service certified individuals returned to their original profession and established training departments in their organiz...

Meet the extended role for trainers in business organizations 1960–1979

During the 1960s and 1970s, professional trainers realized that their role extended beyond the training classroom. The move toward employee involvement in man...

Emergence of HRD

In the late 1970s and early 1980s, ASTD approved the term 'human resource development' to encompass growth and change of training and development profession...

Meet the extended role for trainers in business organization

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During the 1960s and 1970s, professional trainers realized that their role extended beyond the training classroom. The move toward employee involvement in man...

Emergence of HRD

In the late 1970s and early 1980s, ASTD approved the term 'human resource development' to encompass growth and change of training and development profession...

To lead the HRD profession through 1993

On May 20, 1982, the Academy of Human Resource Development (AHRD) was founded by 1200 members.

Emergence of HRD

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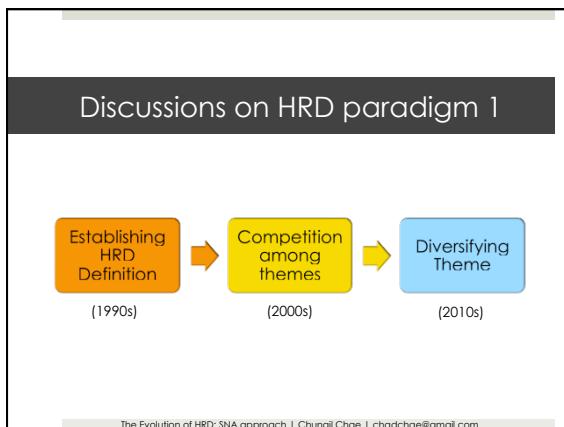
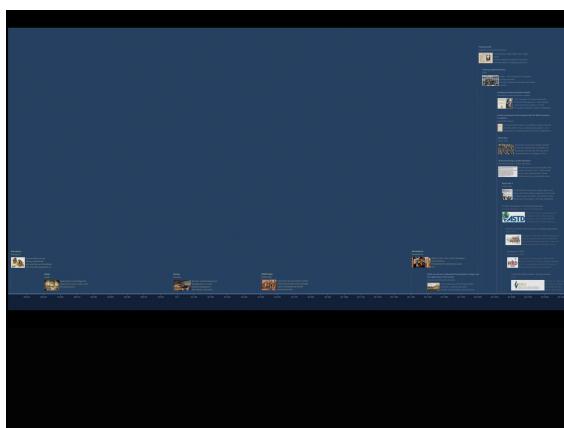
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## Discussions on HRD paradigm 2

The diagram illustrates the progression of HRD paradigms through three colored boxes connected by arrows:

- Training centered paradigm** (orange box)
- Learning centered paradigm** (yellow box)
- Performance centered paradigm** (blue box)

The boxes are arranged horizontally, with arrows pointing from left to right, indicating a sequential flow.

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## Discussions on HRD paradigm 3

- Nature of HRD (from Ruona, 2016)
  - Extensive review of history and philosophy of HRD (Gosney & Hughes, 2016)
  - Fixation on definitional issues (Hamlin & Stewart, 2011; Weinberger, 1998; Ruona 2000a, 2000b)
  - Boundary Issue (McLean & McLean, 2001; Lee, 2001)
- "Clearly, the field has been intensely concentrated on learning and development as related to and/or in work since its inception" (Ruona, 2016, p.2)

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## Discussions on HRD paradigm 4

- Boundaries of the field are constantly expanding with some of the older and mature themes losing momentum and new themes coming to the forefront of scholarly interest (Ghosh et al, 2013)
- Core purpose of HRD are embedded explicitly or implicitly within the respective HRD definition examined (Hamlin and Stewart, 2010)
- HRD journals have made impressive research impact by generating worldwide scholarly citations in multiple languages (Sun & Wang, 2013)
- HRD's strengths, weaknesses, opportunities, threats and action (Stewart, 2007)

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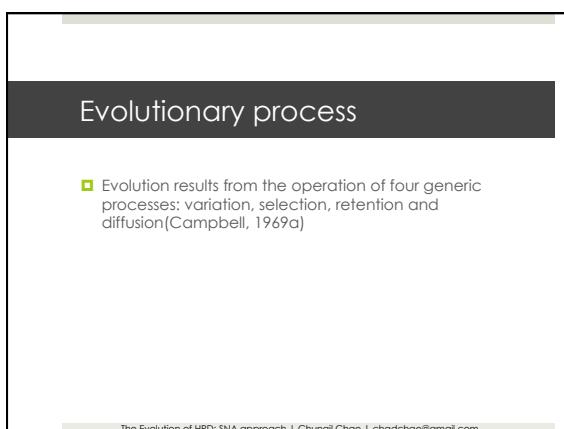
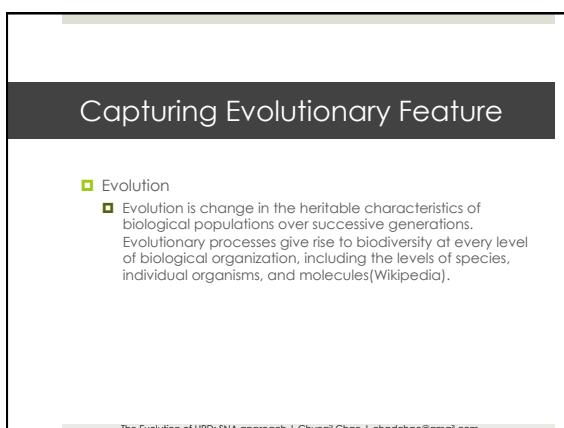
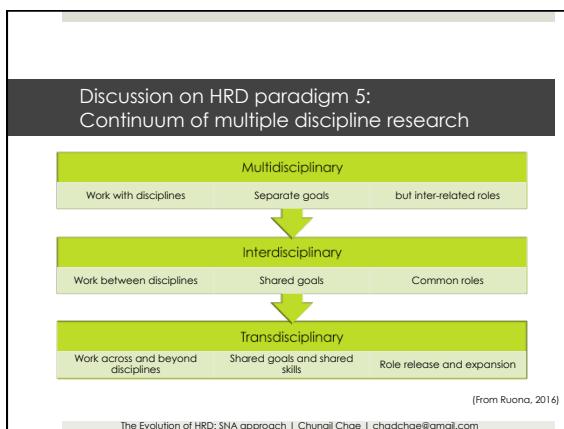
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## HRD as system

The diagram illustrates the Human Resource Development (HRD) system as a process flow. At the top, an oval labeled 'Environment' contains 'Economic Forces', 'Political Forces', and 'Cultural Forces'. Below it, a box labeled 'Organization' contains 'Mission & Strategy', 'Organization Structure', 'Technology', and 'Human Resources'. The central part shows a flow from 'Inputs' through 'Processes' (labeled 1, 2, 3, 4, 5) to 'Outputs'. The 'Processes' box is specifically labeled 'HUMAN RESOURCE DEVELOPMENT'. Arrows indicate the flow from inputs to processes, from processes to outputs, and from the environment and organization to the processes.

Swanson, R. A. (1995). Analysis for improving performance: tools for diagnosing organizations & documenting workplace expertise.

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## Scientometrics

- Scientometrics is concerned with the quantitative features and characteristics of science and scientific research. Emphasis is placed on investigations in which the development and mechanism of science are studied by statistical mathematical methods.

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## Social Network Approach

- Social network analysis is a set of technique and theories in order to investigates complex phenomena that constitute interactions and relations between social objects (Wesserman, 1994)
- Graph theory is the mathematical basis of social network analysis
- Complex phenomena can be represented as graph that constitute of node and ties

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## Co-citation network

Co-citation, like Bibliographic Coupling, is a semantic similarity measure for documents that makes use of citation relationships. Co-citation is defined as the frequency with which two documents are cited together by other documents (Wikipedia).

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## Co-author network

The coauthorship of articles in learned journals provides a window on patterns of collaboration within the academic community. Coauthorship of a paper can be thought of as documenting a collaboration between two or more authors, and these collaborations form a "coauthorship network." (Newman, 2004)

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## Keyword co-occurrence network

Co-occurrence networks are generally used to provide a graphic visualization of potential relationships between people, organizations, concepts or other entities represented within written material (Wikipedia).

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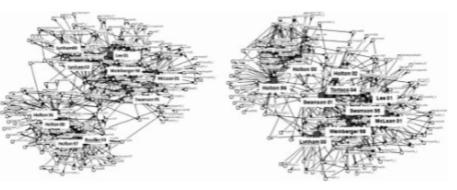
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**Recent Findings 1:**  
co-citation

(A) Combined Ego Network of High Frequency. (B) Combined Ego Network of High Centrality



(Jo et al, 2009)

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**Recent Findings 1:**  
co-citation

1. The HRD citation network is characterized as high cohesiveness locally and low separation globally.
2. HRD texts tend to gather around texts dealing with three significant topics.
3. A reduced citation network generated based on cliques is divided into four blocks.
4. A geographical position of a text in the citation network is highly associated with the topics (theory building or training transfer) and with the nature of the study (foundational or applied).

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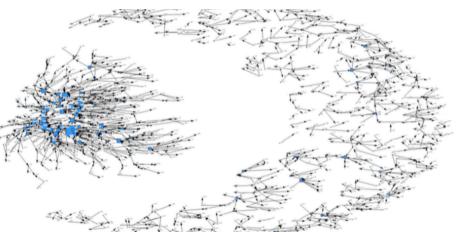


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**Recent Findings 2:**  
co-authorship (1999 - 2013)



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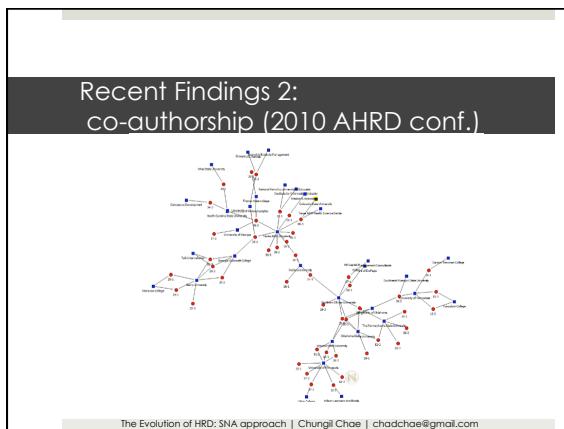
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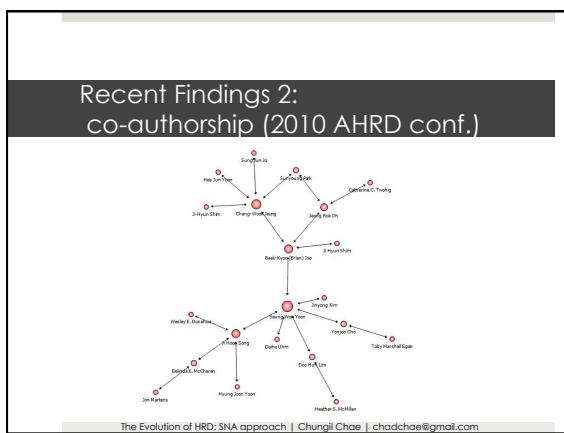
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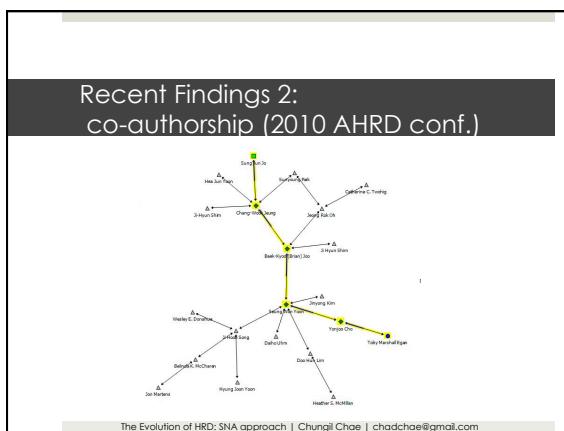
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Recent Findings 2:  
co-authorship

1. AHRD co-authorship network mediated by the 1st author will show small-world network characteristics.
2. Co-authorship ties are more likely to form in proportion to the number of mutual ties.
3. Co-authorship ties are more likely to form when its configuration has a tendency toward transitivity in two paths
4. Co-authorship ties are more likely to form when its configuration has a tendency toward a network closure with edge wise shared partner configurations.

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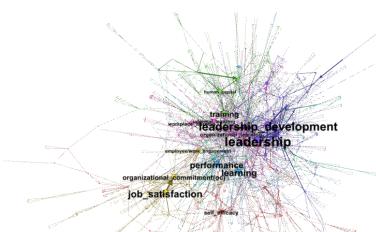
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Recent Findings 3:  
keyword co-occurrence



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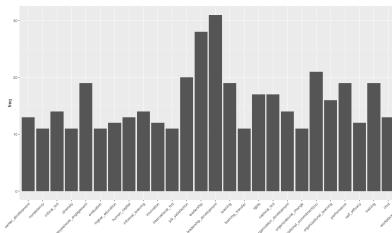
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Recent Findings 3:  
keyword co-occurrence



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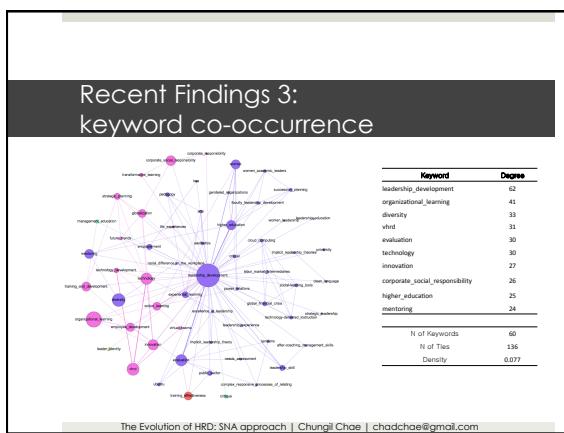
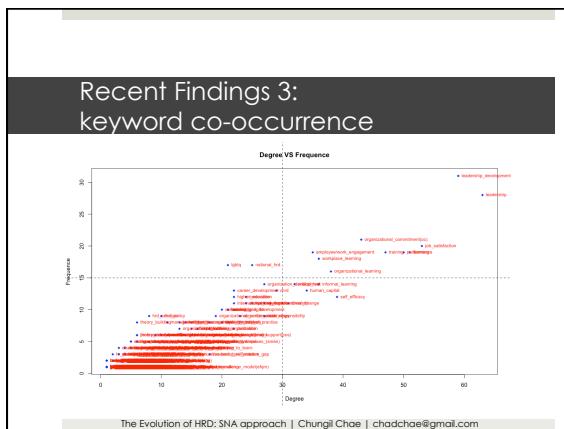
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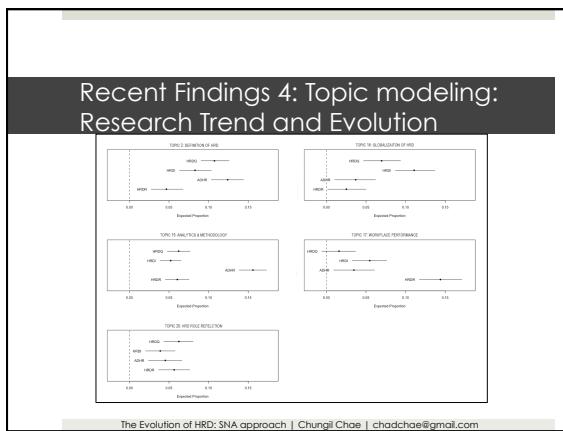
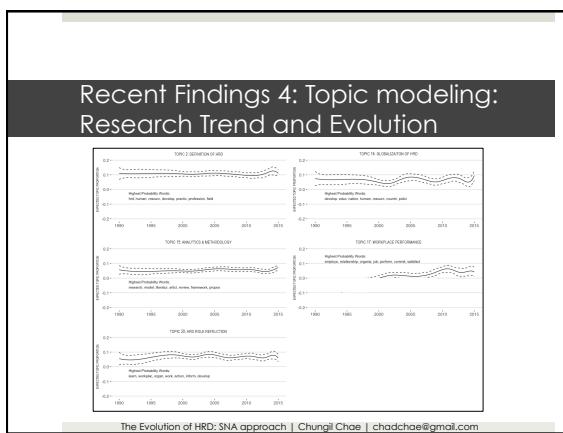
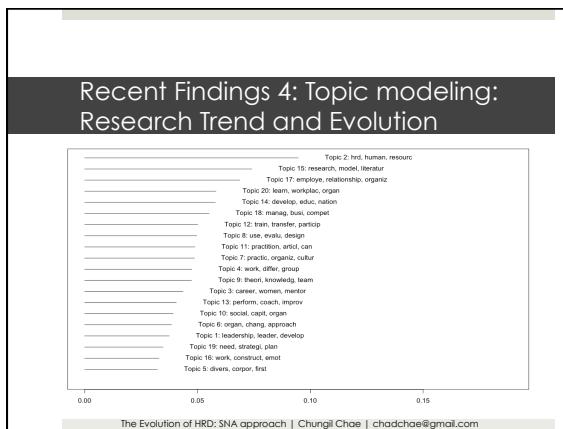
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- ### Recent Findings 3: keyword co-occurrence
- There is a large component of keyword network
  - The keywords are cohesively connected with other keywords
  - Ego network of a keyword reflect collectively constructed cognition of a concept in the scholarly community
  - Typologically, the concepts are clustered as core-concepts, peripheral concepts, special interest concepts, basis concepts
- <http://chadchae.github.io/Projects/network/>
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Recent Findings 4: Topic modeling:  
Research Trend and Evolution

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Recent Findings 4: Topic modeling:  
Research Trend and Evolution

| Year | Black (HRDQ) | Red (HRDR) | Blue (ADHR) | Green (HRDI) |
|------|--------------|------------|-------------|--------------|
| 1990 | 0.15         | 0.10       | 0.05        | 0.03         |
| 1995 | 0.12         | 0.08       | 0.04        | 0.04         |
| 2000 | 0.09         | 0.06       | 0.03        | 0.05         |
| 2005 | 0.07         | 0.04       | 0.02        | 0.06         |
| 2010 | 0.05         | 0.02       | 0.01        | 0.04         |
| 2015 | 0.03         | 0.01       | 0.00        | 0.02         |

Training Evaluation  
Black: HRDQ | Red: HRDR | Blue: ADHR | Green: HRDI

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Recent Findings 4: Topic modeling:  
Research Trend and Evolution

- Dominant themes were the following: Definition of HRD, Globalization of HRD, Analytics and methodology, Workplace performance, HRD role reflection.
- Workplace performance was emerging topic since 2000
- There is a preference of journals; a specific topic proportion were higher in a specific journals

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## Conclusion

- ❑ The history of HRD has evolved over time. It is important to understand specific concepts surrounding HRD in order to gain insight into the evolution of human resource development as a study.
- ❑ Within this historical trace or evolution, there has been a continuous effort to define HRD.
- ❑ Historical changes or perspectives on HRD have been archived in the form of journal articles and shared widely to scholars and practitioners in many publications.

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## Conclusion

- ❑ Structures of key concepts, authorship, citation information that remain in these publications are important empirical evidence that reflect the discussions on HRD paradigm and historical change.
- ❑ These issues have been studied in Scientometrics which is known as science of science.

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## Conclusion

- ❑ In spite of the relatively short history of the study of HRD as a scholarly discipline, the HRD paradigm has been evolving in the scholarly community

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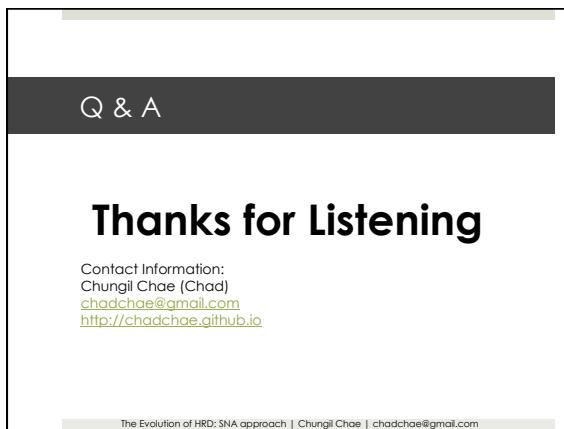
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