ERKOWIT CONFERENCES AND KNOWLEDGE ECONOMY: ANALYTICAL STUDY

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ABSTRACT

Purpose: making an analytical comparison of the knowledge maps of Erkowit conferences with the four pillars of the knowledge economy.

Design/Methodology/Approach: A Dewey decimal classification technique was used to map Erkowit papers. After this classification the paper explored the concept of development through different time series. Finally the paper compared the occurrences of Erkowit topics as percentages in the four pillars of the knowledge economy.

Findings: From mapping Erkowit conferences, it was found that there were 15 fields and 37 subfields, and 6 sub-subfields and 326 papers. Mapping the four pillars of the knowledge economy framework onto a topic map of Erkowit conferences, it appeared that nine topics from a total of 15 topics followed three of the four pillars of the knowledge economy.

Originality/value: The paper introduces Knowledge Mapping, Topic-based analysis, and develops a framework analysis of Erkowit conferences to reveal the importance of the conferences, which were an early attempt to regularly address Sudan's development problems.

Keywords: Knowledge Economy, Knowledge Map, Erkowit Conferences, Human Development.

INTRODUCTION

ERKOWIT CONFERENCES

After independence in 1956, national governments faced miserable situations in all aspects of life as left by British colonization. Thus in the early 1960s the University of Khartoum organized a series of conferences entitled Erkowit Conferences to deal with the development problems. The Conferences were first held in the Erkowit summer resort at the top of the red sea cliffs, and then moved to different places within Sudan while keeping the same name. Each conference was dedicated to a major topic of development and a total of 13 conferences were held: they stopped completely after 2000. The government continuously provided financial and logistic support for holding this annual conference (Ali, 2014).

The conference theme was social and economic development towards social and economic development (holistic development). Erkowit conferences discussed the development problems of Sudan and sometimes issued recommendations as plans for national development (Agib, personal communication, January 2016). The most important trait of Erkowit conferences was the holistic view of discussing development problems; this was clear to the participants because they were from different domains and areas of specializations. In addition, when the conference was held in one of the regions of Sudan the conference organizers used to invite government employees, elites and local business men to participate in the conference. This ensured that the people living or working in the targeted area would have a chance of discussing the problems of development from their own perspective (Agib, personal communication, January 2016).

The objective of this paper is to give an analytical comparison between the knowledge maps of Erkowit conferences to the four pillar framework of the knowledge economy. According to the Organization for Economic Co-operation and Development (OECD), the knowledge will be central to "economic development" (OECD, 1996). Comparing the knowledge economy framework (KE) (this framework will help in achieving development) to a conference dedicated to

human development may help to analyse and understand this conference. This is a history that reflects an early collaboration between government, research and business to identify development problems and make national development plans.

HUMAN DEVELOPMENT CONCEPTS

In a report on human development (UNDP, 1990), the economist Mahbub ul Haq defined human development as a "process of enlarging people's choices". These choices range from political, economic and social freedom to opportunities for being creative and productive, enjoying personal self-respect, and guaranteed human rights. The human development report concluded that income alone is not the answer to human development (UNDP, 1990).

SUSTAINABLE DEVELOPMENT CONCEPTS

The thoughts on environment and development have been adopted by many world leaders and scholars through a series of international conferences since 1972 (Pezzey, 1992; Drexhage and Murphy, 2010). The sustainable development concept was first publicized in 1980 by the World Conservation Strategy (Pezzey, 1992). However, the term sustainable development was popularized by the World Commission on Environment and Development (WCED) in 1987 through the Brundtland report. This report defined sustainable development as "the development that meets the needs of current generations without compromising the ability of future generations to meet their own needs" (Drexhage and Murphy, 2010). However, the term had a political consideration at Rio Summit (1992), a UN Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil.

KNOWLEDGE BASED ECONOMY

According to Godin (2008), the Australian economist, Fritz Machlup, was the first to mention the concept of the knowledge economy in 1962. Machlup published a study about measuring the production and distribution of knowledge in the United States, rather than just measuring the production of scientific knowledge (research and

development): this broadened the knowledge concept (Godin, 2008). Further, in 1996, the Organization for Economic Co-operation and Development (OECD) publicized the Knowledge-Based Economy (KBE) concept, defined as "an economy which is directly based on the production, distribution and use of knowledge and information". The OECD states that the term "knowledge-based economy" results from a fuller recognition of the role of knowledge and technology in economic growth: knowledge, embodied in human beings as "human capital" and in technology (OCED, 1996). Some scholars have defined and explained the knowledge economy concept. Brinkley (2006) mentioned many definitions for knowledge economy in his paper "Defining the knowledge economy". He stated that earlier definitions of the knowledge economy or knowledge workers had not been precise: he explains this problem as being that some of the underlying concepts are inherently difficult to pin down (Brinkley, 2006).

KNOWLEDGE ECONOMY FRAMEWORKS

There are several knowledge-based economy assessment frameworks developed by different international organizations.

• The OECD framework in 1996 mentioned earlier;

• In 1999 the World Bank developed a KBE framework using a Knowledge Assessment Methodology (KAM). The aim of the framework was to help the countries to know their level of knowledge-based economic development and as a policy input to the achievement of sustainable economic growth;

• The Asia-Pacific Economic Co-operation (APEC) mid-1999 (Afzal and Lawrey, 2012).

• The Australian Bureau of Statistics framework (ABS) (Trewin, 2002).

Each framework is characterized by a number of dimensions, each dimension being characterized by a number of characteristics (Tocan, 2012).

THE FOUR PILLARS FRAMEWORK OF THE KNOWLEDGE ECONOMY

The four pillar framework was developed by the World Bank to help countries adopt strategies for their transition to a knowledge economy. The four

pillars are: Pillar one (Economic and Institutional Regime), Pillar two (Education and Skills), Pillar three (Information and communication infrastructure), Pillar four (Innovation System). There are two indices to the knowledge economy: the index for the first pillar is the Knowledge Economy Index (KEI) while the last three pillars have one index, which is the Knowledge Index (KI) (Sundac and Krmpotić, 2011).

RESEARCH METHODOLOGY

Based on the papers' titles, each paper was classified using Dewey decimal classifications. This resulted in a knowledge map that contained main fields, subfields, sub-subfields and number of papers (see Appendix 1). This type of map is termed a "Topic Map" (Egbu and Suresh, 2008). In addition, the author conducted a semi-structured interview with Professor Agib.A. Abelrhaman, one of the founders of the Erkowit conferences, to find out about the conferences, their aims, and the procedure followed to achieve their success.

This paper maps Erkowit conferences with international development conferences as shown in Figure 1, showing the evolution of development concepts. Finally the paper maps the four pillars of the knowledge economy to Erkowit's main fields, and maps the rate of holding of Erkowit conferences as related to the government regimes.
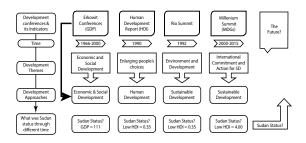

Figure 1: Concept of development and their indicators over time

Source: Compiled by author from Erkowit conference proceedings (1966-2000), human development report (1990), UNCED (1992), UNDP (1990, 2015), Millennium summit proceedings (2000), Wikipedia (2016) and SDGF (2016)

Figure 1 shows different concepts of development; economic and social development,

human development, sustainable development and Millennium Development Goals (MDGs). From 1966 until 2000, different indicators were used to measure human development. In the 1960s, the main measurement was the gross domestic product (GDP), in 1990 this changed to the Human Development Index (HDI), and then changed again in 2000 to the MDGs. This explains that a shift happened in development concepts, from an economic perspective only in the 1960s, to the concept of enlarging peoples' choices in 1990s (UNDP, 1990), to the concept of environment conservation and development at Rio Summit (UNCED, 1992), and finally an international commitment and action through the Millennium Declaration toward sustainable development (SD) (UN, 2000). It is worth mentioning that the GDP indicator was, and still does, dominate in measuring development. According to Drexhage and Murphy (2010), GDP is a universal measure for "standard of living".

The figure maps the Erkowit conferences (local summit) with global conferences; the link between the four summits is that all of them were dedicated to the discussion of human development. However, it was not only development problems that were discussed at the global summit; suggestions for the adoption of a framework, goals, measurable goals and indicators to measure and achieve human development were also discussed. This method of mapping will help see the trend of the human development concept globally and locally. It shows Sudan's past status, and would therefore help towards better planning in the future, planning that should start now.

The lower unit in the illustration looks at Sudan's status over different periods. It shows that GDP per capita was 111 in 1966 (Wikipedia, 2016); it also shows that the Human Development Index was always in the low range (0.33-0.4) (UNDP, 1990, 2015). For more information about Sudan's economic status through these periods, see the paper by Ali and Elbadawi (2004) entitled "Explaining Sudan's Economic Growth Performance".

The last part in the figure looks to the future, asking what new concepts will be, or which old concepts will continue; the big question is what Sudan's rank will be in the future. It worth mentioning that there are now new global

development goals (17 goals) for the period 2015-2030; these are SDGs (Sustainable Development Goals) (SDGF, 2016).

RESULTS AND DISCUSSION

The classification of Erkowit papers resulted in a Knowledge Map containing 15 fields, 37 subfields, 6 sub-subfields and 326 papers (see Appendix 1).

Table 1: Mapping the four pillars of the knowledge economy to Erkowit topics:

Knowledge economy pillars	Discussed topics on Erkowit	The percentage at Erkowit
Pillar 1 Economic and institutional regime	Economics	46.6 %
	Public administration	4.6%
	Trade	0.31%
	Agriculture	10.4%
	Law	0.6%
Pillar 2 Education and skills	Education	4.0%
	Human resources	9.5%
Pillar 3 Information and communication Infrastructure	Transportation and communication	3.4%
	Journalism	0.31%
Pillar 4 Innovation system	no paper discuss the innovation system	0.0%

Source: Compiled by author from the four pillars from the World Bank, the topics and their percentages from Erkowit conference proceedings (1966-2000)

It can be seen from mapping knowledge economy pillars to Erkowit topics that there are nine topics discussed at Erkowit that can be classified under the three pillars of knowledge economy. By looking at their percentage at Erkowit conferences, it can be seen that the majority (more than 50%) appeared under the economic and institutional regime pillar. This supports the fact that the majority of Erkowit papers discussed economy, and this may be due to the fact that the majority of Erkowit conferences (11 conferences out of 13) were held before 1990 (Ali, 2014). Even more, the last two conferences had the same approach as the previous conferences and

there is no mention of the knowledge economy framework.

Despite the fact that the knowledge economy concept appeared in 1996, the last conference held in 2000 did not discuss this concept. The percentage of the papers that discussed education was 4%, while human resources was 9%. The third pillar has the lowest percentage of papers and some papers discussed information and communication technology (ICT) and their infrastructure: this is still an important issue. No paper discussed innovation, or innovation systems.

There are topics discussed at Erkowit conferences that could not be included in the knowledge economy pillars adopted by the World Bank. These topics are mainly Politics, Religion, Sociology, Ecology, Archaeology, and Social problems and services. This is in agreement with Tocan (2012), who suggested strengthening the four pillars of the knowledge economy. Also the knowledge economy is a framework for economic development, and the economy is one of the pillars of development.

Table 2: The type of organizations that participated in Erkowit conferences based on the authors' organizations

Type of authors' organization	Frequency	Percent
Government	118	53.20 %
Academia	87	39.20 %
Business	13	5.90 %
UN organization	2	0.90 %
Nongovernmental organization (NGO)	1	0.45 %
Government and academia	1	0.45 %
Total	**222**	**100 %**

Source: Compiled by author from Erkowit conference proceedings (1966-2000)

From Table 2 it can be seen that the majority of participation was from government and academia; business participation is meagre, and UN participation is less than 1%.

Mapping erkowit conferences rate to sudanese government systems

In order to map the rate of Erkowit conferences with Sudanese government systems, the number of conferences held during that regime was divided by the number of years of that political regime. From Figure 2 it can be seen that the trend shows that the rates decline over time; this indicates poor scientific studies on development and low commitment from the government over time.
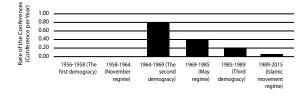

Figure 2: Rate of Erkowit conferences and government systems

Source: Compiled by author from Erkowit conference proceedings (1966-2000)

CONCLUSIONS

The knowledge mapping technique is a useful tool for exploring, analysing and understanding information. Mapping Erkowit conferences with knowledge economy framework helps to have more insight of Erkowit conferences, which then shows an appreciable extent of the problems of development in Sudan. The majority of papers were under the first pillar (economic and institutional regime), because the Erkowit conferences treated the development problems from an economic perspective, therefore showing the GDP needed for measuring the knowledge economy, e.g. measuring knowledge input, stocks and flows, outputs and learning (human capital) (Batagan, 2007).

Some topics discussed could not be included under the knowledge economy framework; this may be due to the fact that the knowledge economy is a framework for measuring and developing the economy; it is not a framework for development. However, it does help to achieve sustainable development.

From mapping Erkowit conferences to government regimes the rate of the conferences declined over time and with different governments. Despite the fact that the government organizations had more than 50% participation in the conferences, the percentage alone is not a good indicator, as qualitative information is more important.

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NOTES

The classification of Erkowit according to the Dewey decimal classification was undertaken by Bashir Mohamad Ahmed Ali, Head of Department of Cataloguing, University of Khartoum library, Sudan (April, 2015).

Semi-structured interview with Prof Agib. A. Abelrhaman. (24 January 2016), Fatima Salah, Khartoum, Sudan.

Table 2: There are missing data as not all authors knew their organizations.

BIOGRAPHY

Fatima Salaheldin Mohamad Ali works as researcher at the National Center for Research (NCR), Sudan. She also works as a volunteer in the executive committee of the Sudanese Knowledge Society (SKS). Ms Ali holds a BSc degree in Science (Botany) and an MSc in Remote Sensing and GIS. She is the one of the founders of SKS, and was also heavily involved in knowledge management workshops that have been organized by SKS since 2012. Fatima Salah is interested in how to blend local knowledge with new technology in order to solve development problems.

Appendix (1): Knowledge map of fields and subfields of Erkowit

No. of papers	Sub-sub fields	Sub fields	Fields	No. of field
1	Journalism			1
2	Religion			1
3	Sociology	Cultural anthropology		6
		Racial, ethnic and national groups		4
		Social planning and development		4
4	Political sciences	Political conditions		7
		International relations		5
		Political conflict		5
		Political ideology		5
5	Economics	Agriculture economic		29
		Finance		14
		Economic development		15
		International assistance		14
		International economics		1
		Planning		9
		Production and industry	Products and services	27
		Natural resources	Water recourses	9
			Range management	8
			Forestry	1
			Geology and mineral resources	7
			Tourism	16

No. of papers	Sub-sub fields	Sub fields	Fields	No. of field
		Socialism		2
6	Law			2
7	Public administration	Human resources		31
		Government administration		13
		Local government		2
8	Social problems and services	Social problems		3
		Health services		4
		Housing		2
9	Education	Labour		3
		Planning		2
		Curriculum		3
		Education and society		5
10	Trade			6
11	Transportation and communication			1
12	Geology			4
13	Ecology	Wildlife		2
		Environment		
14	Agriculture	Agriculture extension		
		Agriculture research		3
		Plant diseases		4
		Field crops		3
		Irrigation		7
		Animal production		13
		Horticulture		1
		Forestry		1
15	Archaeology			3