NOVICE EDUCATORS' UNDERSTANDINGS OF CURRICULA AND PEDAGOGY: PERSPECTIVES FROM UGANDA

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ABSTRACT

How educators understand and engage with curricula and pedagogy critically influences their effectiveness in the teaching-learning environment. Educators develop such understandings through different types of learning and within practice. This paper explores the understandings of curricular and pedagogy in the practices of novice adult educators in a rural-based NGO in mid-western Uganda. The major focus of the NGO is community development. A variety of trainers from different professional backgrounds are engaged in a range of educational activities directed towards community development interventions. They also train selected community members as grass root community development workers (CDWs) to implement the programmes of the NGO in fields such as agriculture, health and environmental protection. The NGO provides training to CDWs to prepare them for their primary roles as community resource persons, community health workers and traditional birth attendants. While education remains a key intervention for influencing change in the community, there is no structured system for training the trainers for their educational role. These novice educators therefore develop their understandings of curricula and pedagogy through a variety of non-formal and informal ways in the course of their practice. This paper therefore takes a critical look at the understanding and practice of issues related to curricular and pedagogy in the organisation. The paper uses the educational theories of Julius Nyerere (1973) and Paulo Freire (1972) as a theoretical lens to explore educators' understandings of curricula and pedagogy. Lessons are then drawn from this experience and what this means for curriculum and pedagogy in higher institutions of learning in the face of information age. Recommendations emerging from this study point to the need for higher education to adopt curricular and pedagogical practices that are appropriate, context–based and capable of accommodating changing times and cultural practices.
Keywords: Pedagogy, curricula, novice educators, community development

THE NATIONAL QUESTION: A RE-ASSESSMENT OF NIGERIA'S NIGERIA'S CONSTITUTIONAL AND POLITICAL ISSUES

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ABSTRACT

Between 1861 and 1914, the British subdued the different nationalities in the Nigerian region and brought them into one fold through a combination of forces. Nigerians were not consulted on the terms of the amalgamation of the parts of the country in 1914. The discussions and arguments were between the colonial officials in the protectorates and the colony of Lagos with Lord Lugard prevailing over everybody else. The political leaders and the British negotiated all the constitutional developments that took place prior to independence. On no occasion were the people consulted. At least, framers of every constitution naturally should draw from the unique experience of their people in framing or amending their constitutions. Considering the ethnic diversities of the country and the circumstances through which the country was brought together as one, Nigeria's constitutional developments had experienced significant changes from 1922 up to 1960 when independence was achieved. During these periods, many controversial constitutional and political issues were raised and not settled. The lack of consensus on such very critical issues with different epochs of inordinate tinkering of the constitution in the post-independent era have undoubtedly resulted into plethora of contradictions in the country's federal system. The effect of this was the subsequent political conflicts and instability which have hindered Nigeria's quest for sustainable corporate existence. The paper deals extensively with the thematic issues upon which the plank of the agitation for National Question rested. The objective of this paper is to expatiate on those contentious constitutional and political issues which remained unresolved at various levels of Nigeria's constitutional developments and the subsequent perusal of how these issues have hindered the sustainability of the national unity. The paper concludes that although, there is a general notion that there cannot be a perfect constitution, this cannot be sufficient justification for disallowing a thorough discussion on how the people wish to be governed, if at all their corporate existence is to be sustained. There should be a resolve, determination and commitment on the part of Nigerian leadership to establish a system in which justice and equity would be the watchword.

Keywords: Constitution, Politics, the National Question

INFLUENCE OF URBAN RESIDENCE ON USE OF PSYCHOTROPIC MEDICATIONS IN PENNSYLVANIA, USA: CROSS-SECTIONAL COMPARISON OF OLDER ADULTS ATTENDING SENIOR CENTERS

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ABSTRACT

Differences in medication use by geographic region may indicate differences in access to specialist medical care, especially in the case of prescriptions for psychotropic medications. We assessed the effect of more or less urbanized residence on likelihood of psychotropic medication use in a large cohort of older adults in Pennsylvania, USA.

Methods Community-dwelling older adults were recruited from senior centers across PA. Participant residences were geocoded and categorized according to U.S. Department of Agriculture Rural-Urban Continuum Codes. We used the codes to identify respondents who live in relatively urban counties with 250,000 or more residents (n=1360) or less urban counties with fewer than 250,000 residents (n=401). Participants reported prescription medications in a clinical interview. Psychotropic medications were categorized by class. Logistic regression models were estimated to assess the independent effect of residence on likelihood of psychotropic medication use.

Results Geographic region was significantly associated with use of psychotropic medications. Psychotropic medication use was higher in less urban areas (19.7%) relative to more urban areas (14.2%), p =.007. In adjusted models, degree of urban residence was a significant correlate in models that adjusted for sociodemographic features and medical status (odds ratio, 1.62; 95% confidence interval 1.13–2.31, p < .01). Use of psychotropic medications on the Beers list also increased with less urban residence (13.0% vs. 8.3%, p = .005).

Conclusions Older adults living in less urbanized areas are more likely to be prescribed psychotropic drugs. This difference may indicate a health disparity based on access to geriatric specialists or mental health care

A NEW METHOD FOR RANKING BUSINESS AND ECONOMICS JOURNALS

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ABSTRAACT

Previous studies show that "journal quality" is a multi-dimensional concept and there is no perfect measure or list of journal quality. In addition, previous studies demonstrate that two citation rankings, based on two different samples, produce different results. This paper presents a new method for university research by proposing a rating process for Business and economics journals. The proposed rating rules overcome the limitations of using a single list or indicator for journal quality.

THE RECONFIGURATION OF THE "SCHOLAR/BEAUTY" TROPE: A CASE OF SELECTED HONG KONG MOVIES

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ABSTRACT

Romance, in both cinematic and literary forms, has often been given pejorative labels such as "unprogressive", "artistically shoddy" and "feudalistic" in the Chinese artistic and academic context. However, with the rise of cultural studies and feminist perspectives of the text, the genre has received much scholarly attention in recent years. In this dissertation, I shall examine the surprising reemergence of a kind of romantic film in Hong Kong, beginning in the 1990s, which reconfigures the traditional *caizi jiaren* (scholar beauty) genre, which literally means "talented scholar and beauty" and refers to the male and female protagonists respectively in Chinese romance fiction—typically known as *"caizi jiaren xiaoshuo"* (scholar-beauty novels)—that flourished from the mid-seventeenth to the nineteenth centuries and center upon the relationship between a scholar and a beauty. Our analyses lead us to discover that it is the Hong Kong film's creative subversion and forward-looking reconfigurations of the traditional *caizi jiaren* genre that have opened new doors which will lead to an even richer *caizi jiaren* genre and even more varied permutations of the romance relationships between the new *caizi* and *jiaren*.

Keywords: Scholar beauty, *caizi jiaren*, Romance film, Hong Kong movie, scholar-beauty novel

TO DEVELOP A THEORETICAL MODEL (ANALYTICAL) BASED ON THE STATEMENTS OF THE IRANIAN SUPREME LEADER OF THE ISLAMIC CIVILIZATION

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ABSTRACT

This grounded theory study on developing a theoretical model (analytical) based on the statements of the Iranian Supreme Leader of the Islamic civilization. In this process, all statements leadership since 1379 has been analyzed since 1379, started the process of discussing the subject of the goals of the Islamic Revolution, the leader of the project. A conceptual model illustrating the grounded theory of developing an Islamic civilization is presented.developing a theoretical model Islamic civilization was connected to the categories of faith and trust in God and divine laws, disregarding the interest assessment target material and lack of spirituality, humble and supplication and remembrance, genuine and sincere efforts for God, knowledge, transparent and unambiguous, miraculous scientific movement, Islamic compassion as causal internal conditions; Muslim integration and against the arrogance and dependence on outsiders as causal external conditions؛ Be inclusive of the Islamic world to the Islamic civilization, Islamic society as a context sample؛ Challenges of the Muslim world in the establishment of Islamic civilization and the Islamic Republic of Iran's position as a contingencies conditions؛ Religion came in all ages (due to the revival of religion and spirituality); the reproduction of modern Islamic civilization in the process of achieving the goals of the Islamic؛ power of Find people as a consequence of Islamic civilization and Islamic civilization is the core category of the review of the above issues involved.

Keyword: grounded theory- Islamic civilization Iranian Supreme Leader -

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THE OPERATIONAL PERFORMANCE AND BUSINESS STRATEGY OF WORLD IRON AND STEEL INDUSTRY BASE ON DYNAMIC NETWORK DATA ENVELOPMENT ANALYSIS AND DYNAMIC MALMQUIST PRODUCTIVITY INDEX

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ABSTRACT

This paper examined the operating performance and its determinants of the 33 of top 55 global integrated steel producers which were grouped into five regions, i.e., North America, developed Asia, European Union, the Southern Hemisphere and other areas (China and Russia), by utilizing both dynamic network data envelopment analysis (DNDEA) and dynamic Malmquist productivity index via cross-period efficiency and total factor productivity during 2004~2013. As the results indicate, while the dynamic Malmquist productivity index, decomposed into the dynamic technical efficiency and the dynamic technical change, as a whole had grown slightly, only European Union and other area grew increasingly. Therefore, due to the improvement of input resources allocation efficiency, the overall productivity had grown slightly, caused mainly by the dynamic technical efficiency growth, in spite of the technical decline.

Keywords: Operating Performance, Dynamic Network Data Envelopment Analysis, Dynamic Malmquist Productivity Index, Cross-Period Efficiency

INTRODUCTION

The iron and steel industry is one of the fundamental industrial sectors of the national economy in most countries in the world, which are indispensable to the development of other industries, particularly for the development of an integrated national industry complex (Liu et al. 1996). It has the functionality of improving the industrial structure and driving the entire economic growth, which both the developed and developing countries adopt a much more proactive approach to vitalizing their steel industry.

With the high-tech advancement and production efficiency enhancement, the incessant increase of output has resulted in overproduction in steel industry. Therefore, in recent decades the operational environment steel industry now faces has been more fiercely competitive. According to the statistics of International Iron and Steel Institute (IISI), for the world crude steel production China, Japan, the United States and India ranked in the world's top four, while for the yield growth rate China, India and Russia were on the top three. Since 1996, China has become the world largest steel producer, where China's crude steel production was at an average annual growth rate of 13.9%, with the production from 101.24 million tons in 1996 to

626.65 million tons in 2010, and the world share from 13.5% in 1996 to 44.3% in 2010 (He et al., 2013), Despite leaping in steel production, China's technology efficiency is still low in addition to heavy environmental pollution and huge energy consumption (He et al., 2013) as predicted of huge carbon dioxide emissions increase without policy targets (Gielen and Changhong, 2001). Via the Top-1000 Energy-Consuming Enterprises program with a target of reducing energy intensity by 20% by 2010 in China, lots of efforts and recommendations are made to reduce energy consumption in the largest industrial companies (e.g., Liu et al. 1996, Price et al. 2010, Price et al. 2011, Watanabe and Tanaka 2007). More recently, the European Commission (EC) also set the objective to reduce annual consumption of primary energy by 20% by 2020 (Bunse et al. 2011). As Oda et al. (2012) presented, industrial energy efficiency is of paramount importance both for conserving energy resources and reducing carbon dioxide emissions, in which they evaluated and compared specific energy consumption in fossil power generation, steel, and cement sectors among countries (see also, Arens et al. 2012, Tanaka 2008). Therefore, measuring and improving industrial energy efficiency such as steel industry is very important to reduce world's energy consumption.

The iron and steel industry, though it plays a very important role in European economy, is one of the five energy-intensive industrial sectors contributing largely to carbon dioxide emissions and energy consumption (Arens, et al., 2012, He, et al., 2013, Price et al., 2002), a reduction of which was two main goals of European Union's climate and energy policies (Flues et al. 2015). As indicated by Siitonen et al. (2010), the biggest carbon dioxide emissions reduction compared to baseline emissions can be achieved in iron and steel and cement sectors. Thus, the reduction of carbon dioxide emissions with measures, as identified by Flues et al. (2015), is likely to result in additional operational cost and in turn to lower domestic production. Under the pressure of reducing carbon dioxide emissions, cutting costs and increasing innovative, sustainable steel production has become highly topical to stimulate growth in the EU steel sector (Flues et al. 2015). Earlier in 2001 in the US iron and steel industry, Worrell et al. (2001) also presented an in-depth analysis of cost-effective energy efficiency and carbon dioxide emissions reduction possibilities.

Over the past decades the world steel industry has been researched in numerous studies and various factors have been identified. Earlier two decades ago, Ray and Kim (1995) used nonparametric methods to get upper and lower bounds on the levels of technical and overall cost efficiency in the US steel industry during the period 1958-86. Worrell et al. (2001) also studied energy efficiency technologies for the steel industry in the US. Jefferson (1990) applied loglinear production function to evaluating the 1986's total factor productivity of China's 120 large and medium sized steel mills. Price et al. (2002) further discussed the methodology of energy use and carbon dioxide emissions from steel production in China and suggested best practice technology. Therefore, with the growing concern about global climate and sustainable development where many studies have done on the energy efficiency and carbon dioxide emissions of the iron and steel industry (Siitonen et al. 2010), to use energy more efficiently has become an indispensable energy strategy in many countries (Ang 2006). As emphasized by Arens et al. (2012), energy efficiency is one of the key measures to reduce carbon dioxide emissions and energy consumption in addition to production costs.

Energy efficiency is defined to reflect whether the energy has been used efficiently (Cui et al. 2014), where the inputs and outputs of energy efficiency are calculated. In terms of efficiency, much earlier Farrell (1957) has proposed the measurement of productive efficiency. Based on Farrell (1957), data envelopment analysis (DEA), a well-established approach proposed by Charnes et al. (1978), and related work by Färe et al. (1985) and Banker et al. (1984), has gained great popularity in energy and environmental modeling to evaluate the relative efficiencies of a set of comparable entities called decision-making units (DMUs) with multiple inputs and outputs (Cooper et al., 2000; Zhou and Ang 2008). In many studies, energy

efficiencies are calculated by DEA in the broad area of energy and environmental analysis (Zhou et al. 2008).

From a production theoretic perspective, Mukherjee (2008) utilized the DEA method to analyze the energy efficiency for the aggregate manufacturing sector in the U.S. manufacturing sector (also Azadeh et al. 2007) Lee (2008) applied DEA to calculating overall energy efficiency of government buildings. Hu and Wang (2006) presented a total-factor energy efficiency index by using DEA to analyze energy efficiencies of 29 administrative regions in China. Productivity is defined as the ratio of outputs to inputs. And total factor productivity change consists of two main parts: technical efficiency change and technological change. To achieve better performance, the technical efficiency and technological change (Candemir and Deliktas 2007), the energy efficiency improvement is decomposed into two components: technical change (production frontier shifting effect) and technical efficiency change (catching up effect) over time (Wei et al. 2007). Cui et al. (2014) also used economic value added method and Data Envelopment Analysis (DEA) and Malmquist index to calculate the energy efficiencies of nine countries.

Zhang et al. (2011) indicate that that energy efficiency improvement can be achieved, in the literature, by total-factor productivity improvement or total-factor energy efficiency using DEA. The former method focuses on measuring total-factor productivity change based on the DEA–Malmquist index (e.g., Forsund and Kittelsen 1998, Honma and Hu, 2009, Wei et al. 2007). The latter one uses the total-factor energy efficiency index first proposed by Hu and Wang (2006) and later applied by Honma and Hu (2008). Following Forsund and Kittelsen (1998), Honma and Hu, (2009), and Wei et al. (2007), this paper uses DEA theory to examine the total factor productivity (TFP) of global integrated steel mills.

The energy efficiency has been widely research in most papers and literature review. However, few papers take the intermediate inputs into account, particularly for large integrated steel mills. Therefore, This paper, considering the intermediate inputs and thus also the factor of cross-period influence, uses dynamic technical change, dynamic technical efficiency change and dynamic Malmquist total-factor productivity change index to straighten the theory.

This paper examined the operating performance and its determinants of the 33 of top 55 global integrated steel mills which were grouped into five regions. We sampled 7 enterprises in north America, 8 in developed Asia, 6 in European Union, 6 in the southern hemisphere and 6 in other areas (China and Russia). Both dynamic network data envelopment analysis (DNDEA) (Banker et al. 1984, Charnes et al. 1978, Färe 2005) are employed to examine this five groups' dynamic technical change, dynamic technical efficiency change and dynamic Malmquist total-factor productivity change index (Malmquist 1953) via cross-period efficiency and to explore the critical factors affecting operational performance with the provision of business strategy over the period 2004-2013.

The remainder of this paper is structured as follows. In section 2, Research Design is to give the research procedure, including the selection of inputs and outputs, dynamic network model, dynamic Malmquist productivity index, and building regression model. In section 3, empirical analysis is conducted for dynamic energy efficiency and productivity. Finally we conclude in section 5.

1. Research Design

We apply our methods to a sample of 33 of top 50 largest integrated steel producers in the world over the period 2004~2013. Thus, the 33 producers are the number of decision making units (DMUs).

2.1. The selection of inputs and outputs

For the DEA analyzing productive efficiencies, as decision making units are determined, the next step is to make sure the selection of inputs and outputs. In that, DEA can

simultaneously be applied to multi-inputs and multi-outputs, whereas traditional productivity analysis cannot provide the effective solutions for the issues of multi-inputs and multi-outputs. This paper therefore applies DEA method to examine the productivity performance with the multi-input and multi-output factors used by the World Steel Dynamics (WSD) where DEA is a suitable tool for analyzing TFP growth at enterprise level of steel industry producers.

The evaluation items of inputs and outputs in this study are chosen from WSD, in which there are four inputs comprised of steel sector's total assets, capital outlays, labor cost deflated by WPI(2000=100, Wholesale price index 100 based on year 2000), and material & other costs, and three inputs comprised of sales, crude steel production, sector employees' added value. The intermediate input is referred to as total output value minus sector employees' added value.

Sample

The sampled 33 of top 50 largest integrated steel producers in the world over the period 2004~2013 were grouped into five regions, in which North America has 7, developed Asia has 8, European Union has 6, the Southern Hemisphere has 6, and other areas (China and Russia) has 6 as the following Table 1.

Table 1. List of researched sample

North America	US STEEL, AK Steel, Nucor Steel, Carpenter Technology, Steel Dynamics Inc., Commercial Metal Co., Essar Steel Algoma Inc.
developed Asia	Nippon Steel Sumitomo Metals, JFE Steel, Kobe Steel, Nisshin Steel, Tokyo Steel, POSCO, China Steel (Taiwan), BlueScope Steel
European Union	Thyssen Krupp, Salzgitter, Svenskt Stal, Rautaruukki, Voest-Alpine, Arcelor Mittal
Southern Hemisphere	CSN, Gerdau, ISCOR, Highveld, TATA, SAIL
other areas (China and Russia)	Severstal, Magnitogorsk, Novolipetsk, Evraz, Baosteel, Maanshan

Source: Adjusted from WSD

2.2. Dynamic Network Model

The main difference between the dynamic network model and the static network model is that the former add time factor. If there are three periods, i.e., t-1, t, and t+1, where each period has individual sub-production activity P^τ, τ= t-1, t, or t+1. One of the dynamic network model characteristics is that the decision of prior period is likely to influence the next period's production activity. For example, if a person in the current period deposits his or her salary at post office ("decision"), then the next consumption (sub-production activity) is likely to increase. In other words, these sub-production activities' outputs are characterized by the cross-period effects, expressed by $_\tau^{\tau+1} y \in R_+^M$. If τ=1, then $_t^{t+1} y$ representing the output of period t and used as the intermediate input of period t+1.

Each sub-production activity P^τ uses the exogenous input x^τ to produce final output and intermediate input. If we add the initial situation (the distribution process of dynamic model) and the cross-sectional situation (the sunk in outputs of dynamic model), then it forms dynamic network model (Figure 1).

In Figure 1, $^i \bar{y}$ represents the initial situation which can be viewed as the initial existing stocks of capital, and x^{t-1}, x^t, and x^{t+1} are respectively the exogenous inputs of three sub-production activities of P^{t-1}, P^t, and P^{t+1}. The $_{t-1}^f y$, $_t^f y$, and $_{t+1}^f \bar{y}$ are respectively the final

outputs of those three sub-production activities. In addition, $_{t-1}^{i}y$, and $_{t}^{i}y$ are intermediate outputs, used as the next period's inputs, and $_{t+1}^{i}\bar{y}$ is the final capital stock.

The dynamic network model is comprised of several static network models which interact in-between. Let's take the example of sub-production activity P^{τ}. This time's production activity uses exogenous input x^t, and intermediate input $_{t-1}^{i}y$ to produce two outputs of $_{t}^{f}y$, and $_{t}^{i}y$, in which $_{t}^{f}y$ is final output and $_{t}^{i}y$ is intermediate output used as the input of the period $t+1$. We may express sub-production activity P^{τ} as the linear programming of formula (1).
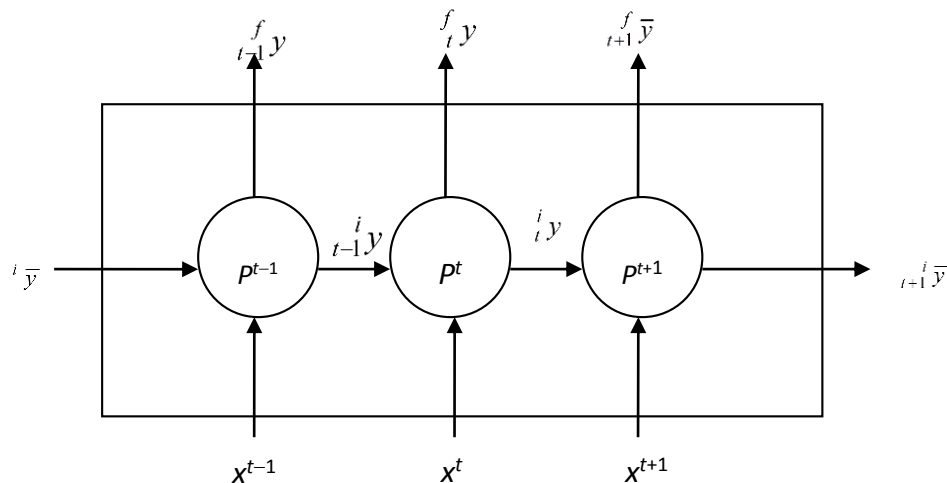

Figure 1 Dynamic Network DEA Model

$$P^t(x^t, {}_{t-1}^{i}y) = \{({}_{t}^{f}y + {}_{t}^{i}y):$$

$$({}_{t}^{f}y_m + {}_{t}^{i}y_m) \le \sum_{j=1}^{J^t} \lambda_j^t({}_{t}^{f}y_{jm} + {}_{t}^{i}y_{jm}) \qquad m = 1,\ldots,M,$$

$$\sum_{j=1}^{J^t} \lambda_j^t {}_{i}^{t-1}y_{jm} \le {}_{i}^{t-1}y_{j^tm} \qquad m = 1,\ldots,M, \tag{1}$$

$$\sum_{j=1}^{J^t} \lambda_j^t x_{jm}^t \le x_{j^tn} \qquad n = 1,\ldots,N,$$

$$\lambda_j^t \ge 0, \qquad\qquad j = 1,\ldots,J^t\}$$

2.3. Dynamic Malmquist Productivity Index

There also exists the difference between Dynamic Malmquist Productivity Index and initial Malmquist Productivity Index, where the former has the additional use of intermediate

input. The following formulas (2) ~ (4) respectively represent dynamic technical efficiency change, dynamic technical change, and dynamic total factor productivity change.

Dynamic technical efficiency change can be expressed as the following:

$$\text{DEFFCH} = \frac{D_i^{t+1}(x^{t+1}, k^{t+1}, y^{k+1})}{D_i^t(x^t, k^t, y^k)} \tag{2}$$

Where x, y and k respectively represent input, output, and intermediate input.

Dynamic technical change can be expressed as the following:

$$\text{DTECH} = \left[\frac{D_i^t(x^t, k^t, y^k)}{D_i^{t+1}(x^t, k^t, y^k)} \frac{D_i^t(x^{t+1}, k^{t+1}, y^{k+1})}{D_i^{t+1}(x^{t+1}, k^{t+1}, y^{k+1})} \right]^{1/2} \tag{3}$$

Dynamic total factor productivity change can be expressed as the following:

$$\text{DTFPCH}$$
$$= \frac{D_i^{t+1}(x^{t+1}, k^{t+1}, y^{k+1})}{D_i^t(x^t, k^t, y^k)}$$

$$\times \left[\frac{D_i^t(x^t, k^t, y^k)}{D_i^{t+1}(x^t, k^t, y^k)} \frac{D_i^t(x^{t+1}, k^{t+1}, y^{k+1})}{D_i^{t+1}(x^{t+1}, k^{t+1}, y^{k+1})} \right]^{1/2} \tag{4}$$

2.4. Building Regression Model

This paper's regression model uses dynamic efficiency value as explained variable, and nine variables of inventory turnover ratio, machinery equipment to assets ratio, average machine age, operation rate, output rate, employee number, steel price index, revenue per employee, capacity as explanatory variables. Tobit regression model is as follows.

$$\text{dynamic efficiency}_{it} = \alpha + \beta_{1,it} \times \text{inventory turnover ratio}$$
$$+ \beta_{2,it} \times \text{machinery equipment to assets ratio}$$
$$+ \beta_{3,it} \times \text{average machine age} + \beta_{4,it} \times \text{operation rate}$$
$$+ \beta_{5,it} \times \text{output rate} + \beta_{6,it} \times \text{employee number}$$
$$+ \beta_{7,it} \times \text{steel price index} + \beta_{8,it} \times \text{revenue per employee}$$
$$+ \beta_{9,it} \times \text{capacity} + \epsilon_{it}$$

2.   Empirical Analysis
3.1. Dynamic Productive Efficiency

In this paper we examined the operating performance of the 33 of top 50 largest integrated steel producers in the world over the period 2004~2013. With the inputs and outputs data collected during that period, the results of dynamic productive efficiency were calculated as shown in Table 2.

Taken as a whole, it was found that the overall productive efficiency for all integrated steel producers reached 0.801. Among them, North America performs best with the dynamic productive efficiency reaching 0.940, other areas (China and Russia) second reaching 0.827, European Union third reaching 0.814, the Southern Hemisphere fourth reaching 0.814, and developed Asia the last reaching 0.754.

There are thirteen steel producers who have continuous ten years' **productive** efficiency value of one.   They are AK Steel, Nucor Steel, Carpenter Technology, Steel Dynamics Inc., and Commercial Metal Co. in North America, China Steel (Taiwan) in developed Asia,

Salzgitter in European Union, CSN, and ISCOR in the Southern Hemisphere, Magnitogorsk, Novolipetsk, Evraz, and Baosteel in other areas (China and Russia). On the other hand, several steel producers perform far below the value of one. They are Russia's Severstal, India's SAIL, Austria's BlueScope Steel, and Japan's Nippon Steel Sumitomo Metals, Kobe Steel, and Nisshin Steel, whose dynamic productive efficiency was below 0.6. Obviously, due to the influence caused by the low productive efficiency of Japan's steel mills, developed Asia ranked last.

During 2004~2013 for these 33 integrated steel producers, the dynamic productive efficiency has shown growth in the period from 2004 to 2005, decline from 2005 to 2008, steadiness from 2008 to 2011, decline from 2011 to 2012, and the biggest growth from 2012 to 2013. While in the places of the Southern Hemisphere, the European Union, and other areas the productive efficiency was more vibrating, the developed Asia and North America are comparatively steady. The decline in 2008 was influenced by the global financial crisis of 2007~2008. The decline in 2012 was caused by the increase of steel mills' capital expenditure which resulted in the increase of assets, plus material price hike without the output increase proportionally.

Because steel industry is a mature industry, the technical level is relatively steady. Thus, after the peak period in 2005, the integrated steel mills' productive efficiency has shown the trend of slight decrease. Until 2013, it emerged another peak. The bigger growth areas almost appeared in the areas of the Southern Hemisphere and the developed Asia, most of which were the last entering integrated steel producers. Taken as a whole, the productive efficiency growth of the last entering integrated steel producers was significant.

Table 2

The Comparisons of Each Area's Dynamic Productive Efficiency

Area	Name List	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average Value	Rank
N.A.	US Steel	0.673	0.718	0.701	0.798	1.000	0.623	0.788	0.505	0.590	0.677	0.697	25
	AK Steel	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Nucor Steel	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Carpenter Technology	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Steel Dynamics Inc	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Commercial Metal	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Essar Steel Algoma	1.000	1.000	1.000	0.538	0.552	1.000	1.000	1.000	1.000	1.000	0.884	17
N.A. average value		0.953	0.960	0.957	0.905	0.936	0.946	0.970	0.929	0.941	0.954	0.940	1

Category	Company											Average	Rank
D.A.	Nippon Steel Sumitomo Metals	0.550	0.662	0.646	0.644	0.563	0.572	0.571	0.506	0.458	0.640	0.573	29
	JFE Steel	0.634	0.707	0.741	0.692	0.639	0.724	0.610	0.462	0.404	0.745	0.605	27
	Kobe Steel	0.580	0.627	0.580	0.553	0.519	0.661	0.590	0.515	0.450	0.814	0.576	28
	Nisshin Steel	0.545	0.553	0.528	0.524	0.367	0.307	0.546	0.503	0.476	0.715	0.475	31
	Tokyo Steel	1.000	0.997	0.668	0.673	0.957	0.549	0.539	1.000	1.000	1.000	0.816	20
	POSCO	0.764	0.871	0.850	1.000	1.000	1.000	1.000	1.000	1.000	0.858	0.932	15
	China Steel	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	BlueScope Steel	0.634	0.707	0.741	0.692	0.639	0.724	0.610	0.462	0.404	0.745	0.518	30
D.A. average value		0.721	0.755	0.683	0.709	0.723	0.712	0.673	0.658	0.642	0.786	0.687	5
EU	Thyssen Krupp	1.000	1.000	1.000	1.000	0.564	0.522	1.000	1.000	1.000	1.000	0.870	19
	Salzgitter	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Svenskt Stal	0.809	1.000	1.000	1.000	0.646	0.495	0.589	0.506	0.482	1.000	0.711	23
	Rautaruukki	0.790	1.000	1.000	1.000	1.000	0.427	1.000	1.000	1.000	1.000	0.877	18
	Voest-Alpine	0.480	0.541	0.564	0.470	0.489	1.000	1.000	1.000	1.000	1.000	0.699	24
	Arcelor Mittal	1.000	1.000	1.000	1.000	0.645	0.686	0.697	0.538	0.368	0.847	0.727	22
EU average value		0.846	0.923	0.927	0.912	0.724	0.688	0.881	0.841	0.808	0.975	0.814	3
S.H.	CSN	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Gerdau	1.000	1.000	0.646	0.655	0.551	1.000	1.000	1.000	0.664	0.812	0.804	21
	ISCOR	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
	Highveld	0.689	1.000	1.000	1.000	1.000	1.000	0.505	0.541	0.239	1.000	0.678	26
	TATA	0.687	1.000	1.000	1.000	0.722	1.000	1.000	1.000	1.000	1.000	0.932	16
	SAIL	1.000	1.000	1.000	1.000	0.028	0.104	0.051	0.068	0.045	1.000	0.110	32
S.H. average value		0.896	1.000	0.941	0.942	0.717	0.851	0.759	0.768	0.658	0.969	0.754	4
O.A.	Severstal	0.024	0.009	0.007	0.003	0.009	0.746	0.727	0.662	0.004	0.002	0.006	33

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average	Rank
Magnitogorsk	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
Novolipetsk	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
Evraz	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
Baosteel	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1
MAANSHAN	0.662	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.958	14
O. A. average value	0.781	0.835	0.834	0.834	0.835	0.958	0.955	0.944	0.834	0.834	0.827	2
Total average	0.836	0.888	0.860	0.853	0.788	0.827	0.841	0.821	0.774	0.898	0.801	

Note: N.A., D.A. EU, S.H., and O.A. stand for North America, developed Asia, European Union, Southern Hemisphere, and other areas.
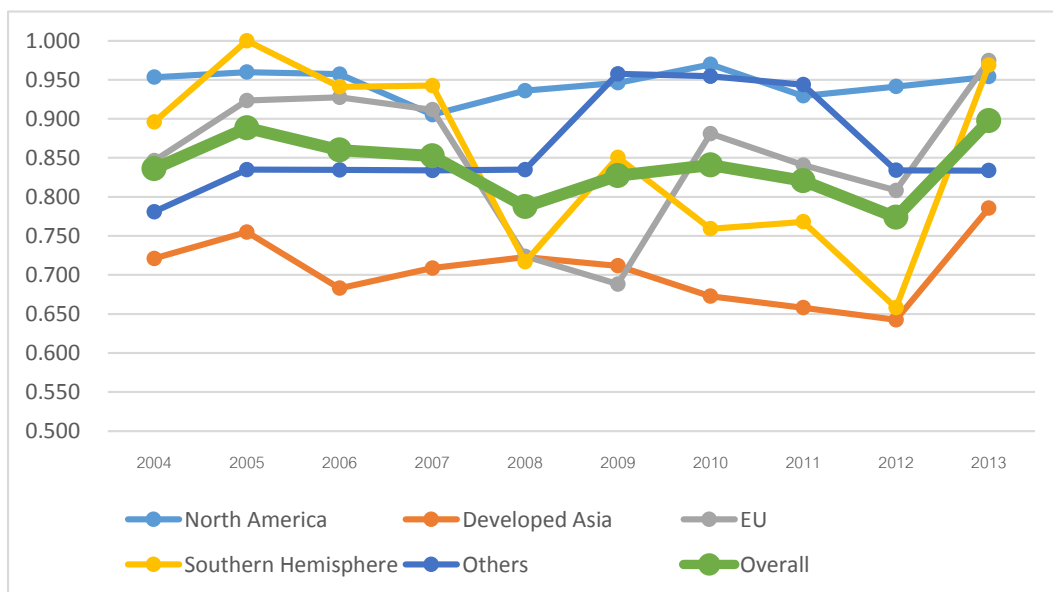

Figure 2. Each area's dynamic productive efficiency change

3.2. Dynamic Malmquist Productivity Index
● **Dynamic Technical Efficiency Change Analysis**

Dynamic technical efficiency change refers to the change of each DMU's dynamic technical efficiency during the period of years. In Table 3, the results in the current research show that the 28 enterprises' dynamic technical efficiency reveals the trend of growth, and another 5 enterprises appear to decline in trend. The geometric mean of the total dynamic technical efficiency change is 1.639, which reveals that in the past 10 years the integrated steel producers made good progress in the whole dynamic technical efficiency. Among them, the other areas' dynamic technical efficiency made the most progress, followed by the Southern Hemisphere, European Union, and developed Asia, and North America was the last.

Table 3.
Dynamic Technical Efficiency Change of Each Area

Areas	2004-2013 Dynamic technical efficiency change average value	Progress number of enterprises	Decline number of enterprises
North America	1.024	6	1
developed Asia	1.065	7	1
European Union	1.111	5	1
Southern Hemisphere	1.456	6	0
other areas	1.939	4	2
Sum		28	5
Geometric Mean	1.639		

As shown in Figure 3., during 2008~2009 while the dynamic technical efficiency change in the other areas, the Southern Hemisphere, and North America grew substantially, developed Asia and European Union were flat in performance and improved significantly during 2009~2010. However, the change in developed Asia was very steady, perhaps due to the rise of emerging markets. Hence, Asian steel factories may have the advantage of location convenience so that they positively increased efficiency and capacity, which also reduced the impact of the global financial crisis during 2008. In addition, the Southern Hemisphere was advantageous in material source, which help enhance its technical efficiency.
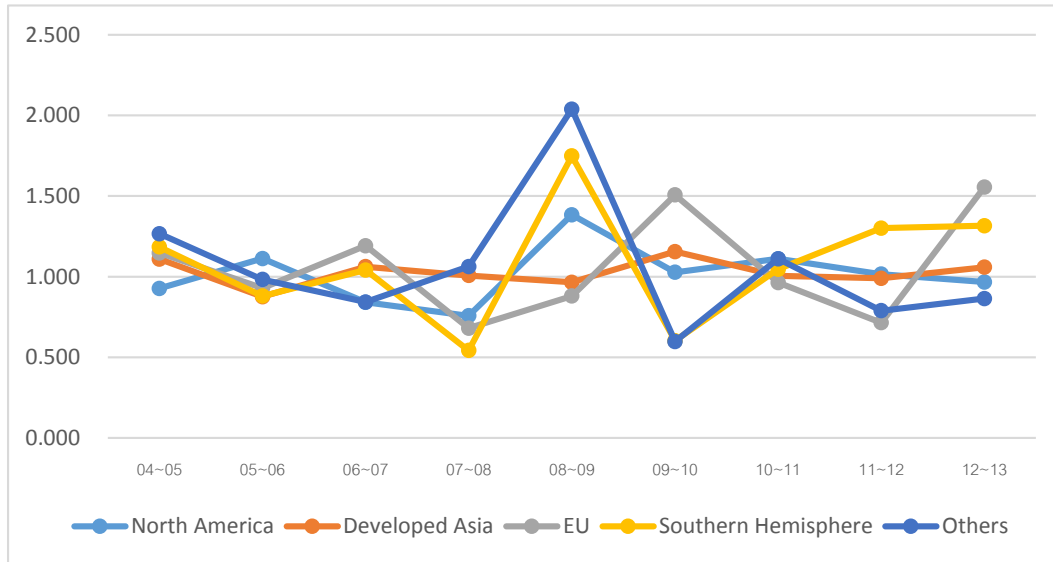

Figure 3. Each area's dynamic technical efficiency change

- **Dynamic Technical Change Analysis**
    As to dynamic technical change, it refers to the change of each DMU's dynamic technical level between different periods such as years. As the results shown in Table 4, while the 4 enterprises' dynamic technical level presents a growing trend, and another 29 enterprises signifies a declining trend. The geometric mean of the total dynamic technical change is 0.956, which reveals that over the past 10 years the integrated steel producers regressed in trend in the whole dynamic technical level. Particularly, all the 6 enterprises of European Union presented

a growing trend, which resulted in the worst performance for European Union compared with others. The developed Asia, except Japan, consists of newly developed countries, whose technology was to some extent laggard, and as followers the performance of technical change was comparatively poor.

Table 4
Dynamic Technical Change of Each Area

Areas	2004-2013 Dynamic technical change average value	Progress number of enterprises	Decline number of enterprises
North America	0.974	1	6
developed Asia	0.922	1	7
European Union	0.915	0	6
Southern Hemisphere	0.940	1	5
other areas	0.994	1	5
Sum		4	29
Geometric Mean	0.956		

In Figure 4, the dynamic technical change of all areas bottomed out during 2008~2009, reached the peak during 2009~2010, and revitalized during 2010~2011, where before 2013 the trend of the dynamic technical change was very consistent for all areas. During 2012~2013, it is unusual that only European Union presented a declining trend.
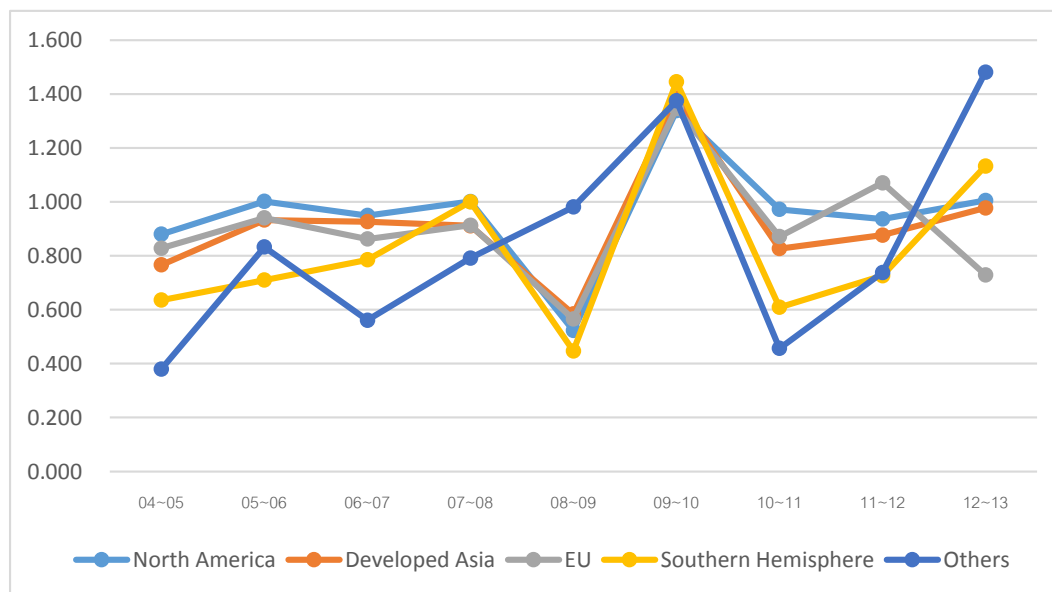

Figure 4. Each Area's Dynamic Technical Change

It often presents a phenomenon that the technical efficiency change runs counter to the technical change. As the technology develop to mature, the technical change get smaller and smaller and the technical efficiency get higher and higher. On the other hand, as the requirements for new technology emerge, new technology will be researched and developed. When new technology comes out, the technical efficiency is relatively low. In other words, the technical change has enhanced, but the technical efficiency change instead gets smaller.

The first-entry steel producers to some extent lead in the technology and when they

research on and successfully develop new technology, it will enlarge the gap with the last-entry steel producers. For the last-entry steel producers, the technical change gets worse. However, as the last-entry steel producers learned well new technology, their technical change turns good. According to the theory of learning curve, the last-entry steel producers continuously raise their technical efficiency to a higher stage and catch up the first-entry steel producers who need to maintain technical lead lest they should lose the competitive advantage.

The research and development of steel industry is driven mainly by enterprise's interior objectives that require increasing the productive efficiency. The increase of productive efficiency is manly expressed in the way of reducing capital expenditure, lowering operation cost, increasing production quantity, decreasing the usage of material and energy source, etc.

3.3. Dynamic Total Factor Productivity Change Analysis

In our analysis, it reveals that during the period 2004~2013 while the 10 enterprises' dynamic total factor productivity demonstrates a trend of growth, another 23 enterprises declines in the trend. The geometric mean of the total factor productivity change is 1.282, which reveals that during the past 10 years the integrated steel producers made slight progress in trend. It can be found in the further analysis, the main decline cause of the 23 enterprises' total factor productivity is resulted by the technical factor.

Due to the characteristics of steel industry and the movement of production factors getting much easier, as shown in Figure 7, the curve of each area since 2008 was very consistent. This indicates that the development of steel industry has reached relatively steadily mature. As such, there were no crucial breakthrough in procedure and equipment and each steel industry's capabilities are getting closer. Moreover, along with the advancement of transportation techniques and the eradication of trade barriers, the local restriction is also lowered down, which make the development of steel industry more homogeneous.

Table 5
Dynamic Total Factor Productivity Change of Each Area

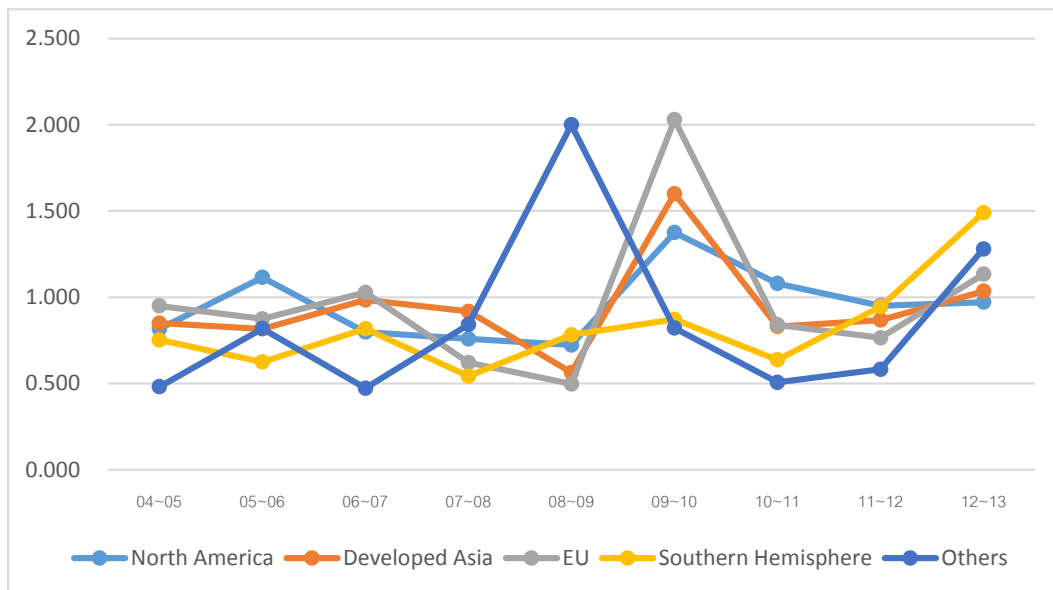| Areas	2004-2013 Dynamic Total Factor Productivity Change change average value	Progress number of enterprises	Decline number of enterprises
North America	0.992	2	5
developed Asia	0.966	2	6
European Union	1.005	2	4
Southern Hemisphere	0.989	2	4
other areas	1.503	2	4
Sum		10	23
Geometric Mean	1.281		

Figure 5. Each Area's Dynamic Total Factor Productivity Change

3.4. The Cross-Period Comparison of Efficiency and Productivity Change

In our analysis, it reveals that during the period 2004~2013while the 10 enterprises' dynamic total factor productivity demonstrates a trend of growth, another 23 enterprises declines in the trend. The geometric mean of the total factor productivity change is 1.282, which reveals that during the past 10 years the integrated steel producers made progress in trend. It can be found in the further analysis, the main decline cause of the 23 enterprises' total factor productivity is resulted by the technical factor.

As we look at the nine cross periods of three efficiency and productivity change dynamic technical change and dynamic total factor productivity, except that in 2007~2009 the trend were mutually inverse, in other periods they almost overlapped (Figure 6). The fluctuation of dynamic technical efficiency was bigger during 2007~2009and 2011~2012, the variation in other cross periods was steadier. This justifies that the development of steel industry has reached the mature stage, the technology of which is relatively mature and stable. Both 2009 and 2012 are two good years of efficiency for the integrated steel producers, in which hence the efficiency change is in the growing trend. In 2008, the global financial crisis had an enormous impact on the operation of the steel mills, which following world economy hit the bottom and bounced back in 2009. This also justifies that the technical efficiency and the total factor productivity grew substantially during 2008~2009.
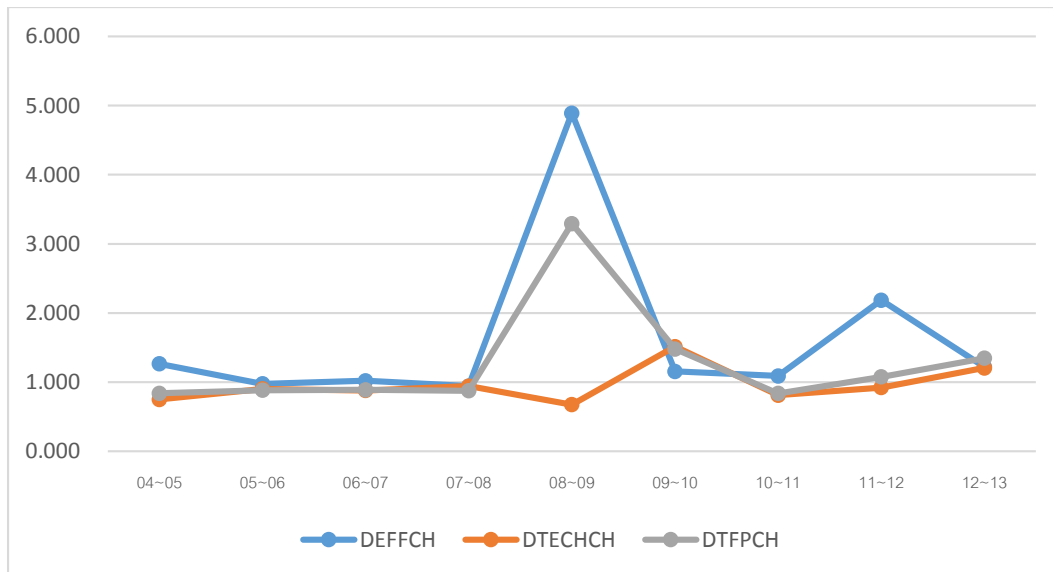
Figure 6. Cross-Period Efficiency and Total Factor Productivity Change

3.5. Analysis of Factors Influencing Operation Efficiency

Tobit regression model has been described above. The reason we adopted Tobit regression is that dynamic technical efficiency index is between 0 and 1 using censored data. Therefore, it is appropriate to use maximum likelihood estimation to eliminate the bias of ordinary least squares regression. This situation is suitable to conduct Tobit regression analysis. Since the sample has been categorized into five groups, the empirical results can be discussed accordingly as follows.

North America—Tobit Regression Analysis

In Table 6, according to the results of Tobit regression analysis, the value of Adjusted R-squared is 49.53%, indicating the model fitness is suitable. In North America, both "Machinery Equipment to Assets Ratio" and "Employee Number" have significant negative influence on "Operation Performance for the integrated big steel producers.

Table 6
North America—Tobit Regression Analysis

	Coefficient	Std. Error	z-Statistic	P-value
Constant	1.0017	0.2539	3.9454	0.0001***
Inventory Turnover Ratio	6.47E-05	0.0069	0.`0098	0.9922
Machinery Equipment to Assets Ratio	-0.4249	0.0955	-4.4492	0.0000***
Average Machine Age	0.0039	0.0039	1.0119	0.3116
Operation Rate	-0.1419	0.1453	-0.9762	0.3289
Output Rate	0.3116	0.2318	1.3443	0.1788
Employee Number	-6.86E-06	2.71E-06	-2.5315	0.0114**
Steel Price Index	-0.0006	0.0009	-0.6398	0.5223

	Coefficient	Std. Error	z-Statistic	P-value
Revenue per Employee	8.11E-05	7.17E-05	1.1309	0.2581
Capacity	2.84E-05	0.0032	0.0088	0.9930

R-squared: 0.5684; Adjusted R-squared: 0.4953; Log likelihood: 71.6552

Note：*P<0.1, **P<0.05, ***P<0.01

Developed Asia—Tobit Regression Analysis

In Table 7, based on the results of Tobit regression analysis, the value of Adjusted R-squared is 58.49%, indicating the model fitness is suitable. In Developed Asia, for the integrated big steel producers, "Inventory Turnover Ratio", "Steel Price Index" and "Capacity" have significant positive influence on "Operation Performance", but "Average Machine Age", "Employee Number" and "Revenue per Employee" have significant negative influence on "Operation Performance".

Table 7
Developed Asia—Tobit Regression Analysis

	Coefficient	Std. Error	z-Statistic	P-value
Constant	0.8647	0.3189	2.7111	0.0067***
Inventory Turnover Ratio	0.0297	0.0062	4.7665	0.0000***
Machinery Equipment to Assets Ratio	-0.2699	0.2442	-1.1049	0.2692
Average Machine Age	-0.0142	0.0032	-4.4499	0.0000***
Operation Rate	0.0717	0.1495	0.4799	0.6313
Output Rate	-0.3045	0.2290	-1.3296	0.1836
Employee Number	-4.14E-05	6.84E-06	-6.0458	0.0000***
Steel Price Index	0.0075	0.0019	3.9064	0.0001***
Revenue per Employee	-0.0002	5.42E-05	-4.5756	0.0000***
Capacity	0.0181	0.0028	6.5281	0.0000***

R-squared: 0.6374; Adjusted R-squared: 0.5849; Log likelihood: 51.0463

Note：*P<0.1, **P<0.05, ***P<0.01

European Union—Tobit Regression Analysis

In Table 8, according to the results of Tobit regression analysis, the value of Adjusted R-squared is only 8.06%, indicating the model fitness is moderately low. In European Union, for the integrated big steel producers, only "Operation Rate" has significant positive influence on "Operation Performance".

Table 8
European Union—Tobit Regression Analysis

	Coefficient	Std. Error	z-Statistic	P-value
Constant	-0.5709	0.7909	-0.7219	0.4704
Inventory Turnover Ratio	0.0396	0.0408	0.9703	0.3319
Machinery Equipment to Assets Ratio	-0.1965	0.4005	-0.4905	0.6237
Average Machine Age	0.0011	0.0081	0.1309	0.8958
Operation Rate	0.5922	0.2497	2.3717	0.0177**
Output Rate	0.6602	0.4776	1.3823	0.1669
Employee Number	-5.43E-07	7.29E-07	-0.7453	0.4561
Steel Price Index	0.0024	0.0033	0.7460	0.4556
Revenue per Employee	-0.0002	0.0002	-0.8893	0.3739

	Coefficient	Std. Error	z-Statistic	P-value
Capacity	0.0005	0.0017	0.2889	0.7726

R-squared: 0.2365; Adjusted R-squared: 0.0806; Log likelihood: 15.4043

Note：*P<0.1, **P<0.05, ***P<0.01

Southern Hemisphere—Tobit Regression Analysis

In Table 9, based on the results of Tobit regression analysis, the value of Adjusted R-squared is only 18.39%, indicating the model fitness is moderately suitable. In Southern Hemisphere, for the integrated big steel producers, both "Machinery Equipment to Assets Ratio" and "Output Rate" have significant positive influence on "Operation Performance", but "Steel Price Index" has significant negative influence on "Operation Performance".

Table 9
Southern Hemisphere—Tobit Regression Analysis

	Coefficient	Std. Error	z-Statistic	P-value
Constant	0.1176	0.4821	0.2439	0.8073
Inventory Turnover Ratio	-0.0062	0.0277	-0.2249	0.8221
Machinery Equipment to Assets Ratio	0.5889	0.3472	1.6961	0.0899*
Average Machine Age	-0.0008	0.0094	-0.0929	0.9260
Operation Rate	0.0871	0.3809	0.2287	0.8191
Output Rate	0.8885	0.3821	2.3251	0.0201**
Employee Number	-1.95E-06	1.83E-06	-1.0656	0.2866
Steel Price Index	-0.0020	0.0010	-1.9547	0.0506*
Revenue per Employee	0.0004	0.0004	1.0307	0.3027
Capacity	-0.0005	0.0076	-0.0765	0.9390

R-squared: 0.3222; Adjusted R-squared: 0.1839; Log likelihood: 1.2198

Note：*P<0.1, **P<0.05, ***P<0.01.

Other Areas (China and Russia)—Tobit Regression Analysis

In Table 10, according to the results of Tobit regression analysis, the value of Adjusted R-squared is relatively low (only 0.51%), indicating the model fitness is relatively low. In Other Areas (China and Russia), for the integrated big steel producers, only "Revenue per Employee" has significant positive influence on "Operation Performance", but "Capacity" has significant negative influence on "Operation Performance".

Table 10
Other Areas(China and Russia)—Tobit Regression Analysis

	Coefficient	Std. Error	z-Statistic	P-value
Constant	1.0537	1.4985	0.7032	0.4820
Inventory Turnover Ratio	0.0130	0.0371	0.3509	0.7256
Machinery Equipment to Assets Ratio	0.6889	0.4774	1.4367	0.1508
Average Machine Age	0.0074	0.0102	0.7331	0.4635
Operation Rate	-0.4873	0.6960	-0.7002	0.4838
Output Rate	0.1104	1.2174	0.0912	0.9273
Employee Number	4.24E-06	3.40E-06	1.2470	0.2124
Steel Price Index	-0.0007	0.0005	-1.3127	0.1893
Revenue per Employee	0.0009	0.0005	1.7016	0.0888*

Capacity	-0.0379	0.0209	-1.8106	0.0702[*]

R-squared: 0.1739; Adjusted R-squared: 0.0051; Log likelihood: -11.0563

Note：[*]P<0.1, [**]P<0.05, [***]P<0.01.

Overall Steel Mills—Tobit Regression Analysis

In Table 11, based on the results of Tobit regression analysis, the value of Adjusted R-squared is only 12.97%, indicating the model fitness is moderately suitable. In Overall Steel Mills, for the integrated big steel producers, only "Inventory Turnover Ratio" has significant positive influence on "Operation Performance", but "Average Machine Age" has significant negative influence on "Operation Performance".

Table 11
Overall Steel Mills—Tobit Regression Analysis

	Coefficient	Std. Error	z-Statistic	P-value
Constant	0.9819	0.1764	5.5645	0.0000[***]
Inventory Turnover Ratio	0.0193	0.0059	3.2742	0.0011[***]
Machinery Equipment to Assets Ratio	0.0239	0.1214	0.1972	0.8437
Average Machine Age	-0.0117	0.0021	-5.6836	0.0000[***]
Operation Rate	0.0453	0.1050	0.4310	0.6664
Output Rate	-0.0552	0.1589	-0.3473	0.7283
Employee Number	-6.86E-07	4.28E-07	-1.6004	0.1095
Steel Price Index	-0.0003	0.0002	-1.6156	0.1062
Revenue per Employee	-1.33E-05	4.04E-05	-0.3299	0.7414
Capacity	-0.0001	0.0011	-0.1210	0.9037

R-squared: 0. 1561; Adjusted R-squared: 0. 1297; Log likelihood: 14.4512

Note：[*]P<0.1, [**]P<0.05, [***]P<0.01

CONCLUSIONS

On the whole, this paper aims to analyze the operational performance and business strategy of world leading largest integrated iron and steel industry over the period 2004~2013. During that period, it is found that the overall steel mills for the integrated big steel producers, there is only inventory turnover ratio has significant positive influence on operation performance, and average machine age has significant negative influence on operation performance. The results presents the development of steel industry has reached relatively steadily mature. Although with the advantage of high technology, advanced transportation techniques and less trade barriers, machine age is the main problem.

Overall, over the period 2004~2013, dynamic technical efficiency change had slight growth. In that, although North America has the advantage of dynamic technical efficiency (0.94 in Table 1), it's the average value of dynamic technical efficiency change is relatively low (1.024 in Table 3), in which other areas (China and Russia) performed best. Regarding dynamic technical change, it regressed in trend in the whole dynamic technical level (0.956 in Table). Finally, over the period 2004~2013, the dynamic total factor productivity grew slightly in trend (1.282 in Table 5), in which other areas (China and Russia) made good growth and EU grew very slightly. However, the North America, the developed Asia, and the Southern Hemisphere even, though slightly, regressed. Therefore, according to the results, technical

decline is the main cause that even though the growth of technical efficiency is larger than technical decline, the total factor productivity has been significantly influenced. In sum, the slight growth of the total factor productivity is mainly resulted by the improvement of input resources allocation efficiency.

REFERENCES

Ang, B.W., 2006. Monitoring changes in economy-wide energy efficiency: from energy—GDP ratio to composite efficiency index, Energy Policy, 34, 574-582.

Arens, M., Worrell, E. and Schleich, J., (2012), Energy intensity development of the German iron and steel industry between 1991 and 2007, Energy, 45, 786-797.

Azadeh, A., Amalnick, M. S., Ghaderi, S. F., and Asadzadeh, S. M., (2007), An integrated DEA PCA numerical taxonomy approach for energy efficiency assessment and consumption optimization in energy intensive manufacturing sectors, Energy Policy, 35, 3792–3806.

Banker, R. D., Charnes, A., and Cooper, W. W. (1984). Some Models for Estimating Technical and Scale Inefficiencies in Data Envelopment Analysis. Management Science, 30, 1078-1092.

Bunse, K., Vodicka, M., Schönsleben, P., Brülhart, M., and Ernst, F. O., (2011), Integrating energy efficiency performance in production management e gap analysis between industrial needs and scientific literature, Journal of Cleaner Production, 19, 667-679.

Candemir, M. and Deliktas, E., (2007), Production Efficiency and Total Factor Productivity Growth in Turkish State Agricultural Enterprises, Agricultural Economics Review, 8(2), 29-41.

Charnes, A., Cooper, W. W., and Rhodes, E. (1978). Measuring the Efficiency of Decision Making Units. European Journal of Operational Research, 2, 429-444.

Cooper, W. W., Seifordb, L. M., and Zhuc, J., (2000), A unified additive model approach for evaluating inefficiency and congestion with associated measures in DEA Socio-Economic Planning Sciences, 34, 1-25.

Cui, Q., Kuang, H.-B., Wu, C.-Y., and Li, Y., (2014), The changing trend and influencing factors of energy efficiency: The case of nine countries, Energy, 64, 1026-1034.

Edvardsen, D. F., and Fbrsund, F. R., (2003), International benchmarking of electricity distribution utilities, Resource and Energy Economics, 25, 353-371.

Färe, R. S., Grosskopf, S., and Whittaker, G. (2005). Network DEA. Discussing Paper: Chapter 9.

Färe, R., Grosskopf, S., and Lovell, C. A. K. (1985). The Measurement of Efficiency Production. Kluwer Academic Publishers, Boston.

Farrell, M. J. (1957). The Measurement of Productivity Efficiency. Journal of the Royal Statistical Society, Series A, 120 (3), 253-281.

Flues, F., Rübbelke, D., and Vögele, S., (2015), An Analysis of the Economic Determinants of Energy Efficiency in the European Iron and Steel Industry, Journal of Cleaner Production, 104, 250-263.

Forsund, F. R., and Kittelsen, S. A. C., (1998), Productivity development of Norwegian electricity distribution utilities, Resource and Energy Economics, 20, 207–224.

Gielen, D., and Changhong, C., (2001), The CO2 emission reduction benefits of Chinese energy policies and environmental policies: A case study for Shanghai, period 1995–2020 Ecological Economics, 39, 257–270.

He, F., Zhang, Q., Lei, J., Fu, W., and Xu, X., (2013), Energy efficiency and productivity change of China's iron and steel industry: Accounting for undesirable outputs, Energy Policy 54, 204–213.

Honma, S., and Hu, J. L., (2008), Total-factor energy efficiency of regions in Japan. Energy Policy, 36, 821-833.

Honma, S., and Hu, J. L., (2009), Total-factor energy productivity growth of regions in Japan, Energy Policy, 37, 3941-3950.

Hu, J. L, and Wang, S. C., (2006), Total-factor energy efficiency of regions in China. EnergyPolicy, 34(17), 3206-3217.

Jefferson, G. H., (1990), China's iron and steel industry: Sources of enterprise efficiency and the impact of reform, Journal of Development Economics, 33(2), 329–355.

Lee, W.S., (2008). Benchmarking the energy efficiency of government buildings with data envelopment analysis. Energy and Buildings 40, 891–895.

Liu, Z., Liu, J. and Wang, Y., (1996), Energy consumption in the iron and steel industry in P. R. China, Energy for Sustainable Development, 3(3), 18–24.

Malmquist, S. (1953). Index Numbers and Indifference Surfaces. Trabajos de Estatistica, l4, 209-242.

Movshuk, O., (2004), Restructuring, productivity and technical efficiency in China's iron and steel industry, 1988–2000, Journal of Asian Economics, 15 , 135–151.

Mukherjee, K., (2008), Energy use efficiency in US manufacturing: a nonparametric analysis, Energy Economics, 30, 76-96.

Oda, J., Akimoto, K., Tomoda, T., Nagashima, M., Wada, K., and Sano, F., (2012), International Comparisons of Energy Efficiency in Power, Steel, and Cement Industries, Energy Policy, 44, 118-129.

Price L, Levine MD, Zhou N, Fridley D, Aden N, Lu H., (2011), Assessment of China's energy-saving and emission-reduction accomplishments and opportunities during the 11th five year plan. Energy Policy; 39(4): 2165-2178.

Price, L., Sinton, J., Worrell, E., Phylipsen, D., Xiulian, H. and Ji, L., (2002), Energy use and carbon dioxide emissions from steel production in China, Energy, 27(5) , 429–446.

Price L, Wang X, Yun J., (2010), The challenge of reducing energy consumption of the Top-1000 largest industrial enterprises in China. Energy Policy; 38(11): 6485-6498.

Ray, S. C. and Kim, H. J., (1995), Cost efficiency in the US steel industry: A nonparametric analysis using data envelopment analysis, European Journal of Operational Research, 80, 654-671.

Siitonen, S., Tuomaala, Mari., and Ahtila, P., (2010), Variables affecting energy efficiency and CO_2 emissions in the steel industry, Energy Policy, 38, 2477-2485

Tanaka K., (2008), Assessment of energy efficiency performance measures in industry and their application for policy. Energy Policy, 36(8):2887-2902.

Watanabe, M. and Tanaka, K., (2007), Efficiency analysis of Chinese industry: A directional distance function approach, Energy Policy, 35, 6323–6331

Wei, Y. M., Liao, H., and Fan, Y., (2007), An Empirical Analysis of Energy Efficiency in China's Iron and Steel Sector, Energy, 32, 2262-2270.

Worrell, E., Price, L., and Martin, N., (2001), Energy Efficiency and Carbon Dioxide Emissions Reduction Opportunities in the US Iron and Steel Sector, Energy, 26(5), 513–536.

Zhang, X.-G. and Zhang, S., (2001), Technical Efficiency in China's Iron and Steel Industry: evidence from the new census data, International Review of Applied Economics, 15(2), 199-211.

Zhang, X.-P., Cheng, X.-M., Yuan, J.-H., and Gao, X.-J., (2011), Total-factor energy efficiency in developing countries, Energy Policy, 39, 644-650.

Zhou, P., and Ang, B. W., (2008), Linear programming models for measuring economy-wide energy efficiency performance, Energy Policy, 36, 2911- 2916.

Zhou, P., Ang, B.W., Poh, K.L., (2008), A survey of data envelopment analysis in energy and environmental studies. European Journal of Operational Research, 189, 1-18.

THE STUDY OF THE IMPACT OF "COMMUNICATION APPLICATIONS" OF SMART PHONES ON INTERPERSONAL COMMUNICATION FROM THE VIEWPOINT OF THE STUDENTS OF AZAD UNIVERSITY OF DAMAVAND

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ABSTRACT

The population consists of all students studying at the University of Damavand in 2015. The sample includes 370 students in associate, undergraduate and postgraduate degree which was obtained by stratified sampling method. Field data collection was chosen and the research tools include a researcher's made questionnaire. To test the validity of the questionnaires, the method of S.H. Lawshe was used, and for the reliability of the research, Cronbach's alpha test was used.

The questionnaire raises questions such as the extent of the friendship circle, the duration of the use of the communication applications of the smart mobile, time periods of using mobile communications applications. The SPSS software was used for data analysis. To analyze the data collected from the central indexes as well as distribution has used Kolmogorov-Smirnov statistical tests (the normality of the data) and for the correlation between the research variables, Pearson correlation test was used.

Data analysis showed that there is a significant relationship between the use of smart phones apps and interpersonal communication. There was a meaningful link between the duration use of these apps as the independent variable of the study and the increase interpersonal relationships. No link was observed with the extent of friendship circles. The rest of the variables studied showed strong and very strong relationship with students' interpersonal communication.

Keywords: Smart phone, applications, Viber, WhatsApp, interpersonal communication, students

PREDICTING THE ACCEPTANCE OF USING CLOUD COMPUTING IN JORDAN BANKS

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ABSTRACT

The purpose of this study is to extend the TAM model in the context of using Cloud Computing in the banking sector of Jordan. The hypothesized model is validated empirically using a sample collected from 307 valid responses. Data were collected from managers, employees, and possible users of Cloud Computing through the participating banks in Jordan. To examine the reliability and validity of the measurement model, the confirmatory factor analysis was performed whereas multiple regression analysis was conducted to evaluate the associations between the constructs in the proposed model. This study indicate that all variables have a significant positive impact on users' attitude toward Cloud Computing acceptance. Among them, the perceived ease of use had the most significant direct influence. Indirectly, it was found that system quality has the strongest indirect impact on attitude toward Cloud Computing acceptance. Bank institutions should establish stronger organisational culture and build trust between users and new technology. Moreover, IT developers should give more attention to system and service quality to assist users perceptions toward Cloud Computing usefulness and its ease of use. Additionally, the perceived usefulness of using Cloud Computing is very crucial to assure its success. This study synthesizes the Information System Success model and the Technology Acceptance Model, to explain and predict the users' attitudes toward using Cloud Computing.

Keywords - Cloud Computing, Information Systems, Technology Acceptance Model, Jordan.

HUMAN TRAFFICKING AND ORGAN TRADE

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ABSTRACT

Human trafficking and organ trade are intricately related to each other. In the South Asian region, India has emerged as the leading market in the trade of kidneys. People from the lower strata of the society are lured into the trade either due to the abject crisis of their situation or due to their own ignorance wherein the organs are removed without their consent or knowledge.

Poverty often pushes humans into the abyss of deep, dark trades; when the pangs of hunger strike the peril of life is often ignored, morality and law are given a desolate send off and man begins charting his way into ***the world of crime, the lurking dangers, and often to death***.

There is ***little scope of reprieve for the victims*** as the doctors, big businessmen and often the Mafia has a nefarious nexus and the victim cannot hope to compete against their money power in the court of law.

In India, there exist laws against the illegal transfer of organs like the Transplantation ***of Human Organs Act, 1994***. But due to a thriving black market, the ***implementation of the provisions of this law has been close to non-existent*** till date. At the international level, despite treaties made by the European Union and the United Nations, the trade of organs continues and ***India emerges as a bountiful supplier***.

Organ trade is illegal in most countries except some like Iran, which leads us to the philosophical ***debate of legalizing the trade of organs as*** legalizing the trade may reduce the human trafficking cartel associated with it but will also lead to large scale trade of organs by poor people in order to attain an easy livelihood.

Keywords: *Human Organs Act,* European Union, Iran, *trafficking**, trade*.

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GUARDIANSHIP ROLE OF TURKEY MILITARY: SOME EVIDENCE FROM SOLDIERS' LIFE NARRATIVES

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ABSTRACT Military's attitude towards political realm is problematic in Turkey. While on one hand they accept the notion of civilian supremacy; on the other hand they exercised tutelary functions if not overtly intervened in politics. This study argues that political thoughts of soldiers have an explanatory power in understanding this dilemma. Examining a set of more than 150 life narratives written by soldiers, this article focuses on the political thoughts of soldiers in Turkey. Memoirs, autobiographies and journals are relatively more convenient platforms in terms of explaining one's personal thoughts. An elaboration on those texts suggests that soldiers have an ambivalent perception toward political realm which serves as a basis for legitimization of their political actions. The implicit idea that they are the ultimate guardians of the country is embedded in the fact that they are respectful to democracy and are in favor of civilian supremacy in their discourses.

KeyWords: Military in Turkey, Political Thoughts, Military Intervention, Democratic Control of Military, Memoirs

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SUSTAINABLE COMMUNITY BASED TOURISM DEVELOPMENT: KEY SUCCESS FACTORS FOR TOURISM IMPLEMENTATION

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ABSTRACT

This research aimed to develop sustainable communitybased tourism by adapting the concept of participatory action research model or PAR model for a case study of Ubolrat district, Khon Kaen province, Thailand. The data was investigated from questionnaires, site surveys covering 68 villages, in-depth interviews, and seven-time brainstorming with key policy-makers in the district and provincial level. The research results were found that the key success factors of sustainable community based tourism development were 1) People: all of the key stakeholders needed to be engaged into the tourism implementation; 2) Process: the tourism implementation plan and process needed to be based on the key stakeholders' objectives and requirements; and 3) Participatory: all key stakeholders needed to take part since the planning level and participate as a network for sustainable tourism development.

Keywords: Community Based Tourism, Sustainable Tourism, Tourism Development, Participatory Action Research

INTRODUCTION

Nowadays tourism development is concerned with sustainability and positive impacts on local communities. Though, realistically tourism implementation is difficult and tourism policy planners should emphasize their significant goals. According to the Tourism and the Sustainable Development Goals contributed by the World Tourism Organization (UNWTO) in Madrid, Spain (UNWTO, 2015), as well as the growth of Thailand's tourism industry, this research aimed to analyze threats of tourism sustainability and their solutions amid a case study pertaining to Ubolrat district, Khon Kaen province, Thailand. Ubolrat district an important area of Khon Kaen province which is in the northeastern part of Thailand. Also, it is a well known tourism destination boasting water-sports, a golf course, national parks and traditional culture. However, in the previous decade, the tourism situation in this area has

been declining continuously and has created cumulated conflicts between the key stakeholders. Poor tourism management in the site had created negative impacts in every field such as environmental impacts by trespassing to the area of Nampong National Park and building inharmonious decorated resorts or disclaiming responsibilities to food-waste, garbage, or fat oils from water-side restaurants for example.

Therefore, this research was focused on the finding of possible solutions and key success factors for the current tourism situation and ways to sustain and the benefits local communities' quality of life. In order to complete, the goals, the appropriate research method was a participatory action research which began with the analysis of the real problems by engaging all the key stakeholders into the whole research processes in addition to problem-solving. The success of this research was also applied as one of the sustainable tourism development models for similar community based tourism destinations in the provincial context.

LITERATURE AND THEORY

1. Sustainable Tourism

Due to the growth of mass tourism and the convenience of travel and information reach, many destinations have been developed and destroyed by tourists and tourism managers. Mowforth & Munt (2009) suggested that to create sustainability in tourism, managers should be concerned with the criteria of participation by locals, aid to conservation, culture, society, environment, economy and education. In the Asia-Pacific context, cultural tourism and ecotourism were represented. At the same time that tourism was introduced to tourists, all tourism businesses and services were established and expended uncontrollably. Especially in Thailand, Pleumarom (2003) mentioned that the impacts of mass tourism were disproportionate to construction and infrastructure as well as the promotion of over-consumption of local resources giving rise to 'spoilt' destinations. Hence, to enhance sustainability in tourism, it is necessary to ensure that tourism development plans balance economic goals and conservation goals at the same time (Hall & Lew, 1998 and UNWTO, 2015).

2. Community Based Tourism

Community based tourism in Thailand was promoted as a tool to sustain tourism resources and increase local residents' quality of life (CBT-I, 2013). Meanwhile, Okazaki (2008) mentioned that the concept of community based tourism concerns not only tourism sustainability but also community participation. He defined that community participation should provide the sharing of knowledge and opportunities of self-development by involving all stakeholders, such as local government officials, local citizens, architects, developers, business people, and planners, in the decision-making process. Consequently, to use community based tourism to fulfill the goal of tourism sustainability, Pathumporn (2012) suggested that tourism planners should emphasize on 1) people: all key stakeholders need to be engaged in the tourism implementation; 2) process: the tourism

implementation plan and process need to be based on the key stakeholders' objectives and requirements; and 3) participatory: all key stakeholders need to take part from the planning level and participate as a network for sustainable tourism development.

3. Participatory Action Research

Green et al. (2003) defined the term 'participatory research' as the systematic collection of data for analysing and practicing for changes and developments. Meanwhile, Kemmis & McTaggart (2005) mentioned that a participatory action research is a Philosophy of social research focusing on community development, social change and human rights in the study area. They also stated that other terms relating to this method could be called 'shared ownership of research projects, community-based analysis of social problems or an orientation toward community action', which consists of many spirals or circles in the study starting from: planning a change; acting and observing the process and consequences of the change; reflecting on these processes and consequences; replanning; acting and observing again; reflecting again, and so on. Kindon et al. (2007) also argued that the participatory data analysis varies and is dependent on the situation and the negotiated process. Similarly, Capriello (2012) mentioned that 'researchers need to focus on observing reality and merely recognizing the causes of failure in destinations' alliances to playing an active role in identifying concrete actions that would facilitate collaboration between stakeholders'.

METHODS

1. Data sources and collection

Important data was investigated from both qualitative and quantitative tools and applied to the research results for tourism implementation in each circle by adapting the concept of the PAR Model (Kemmis & McTaggart, 2005 and Kindon et al., 2007) which was divided into four steps for each circle: planning, acting, observing and reflecting.

The PAR model of this study consists of three circles: 1) the investigation of problem finding and the analysis of tourism capacities; 2) the policy development and practicing of community based tourism at the site; and 3) the evaluation of sustainable tourism development and plan revising. The tourism development application in each circle of the PAR model (as shown in figure 2) is based on the research findings from 322 questionnaires of tourists' satisfaction, site surveys covering 68 villages, in-depth interviews with local residents in 65 places of interest, seven-time brainstorming with key policy-makers from 17 government organizations and 72 tourism entrepreneurs at the district and provincial level.
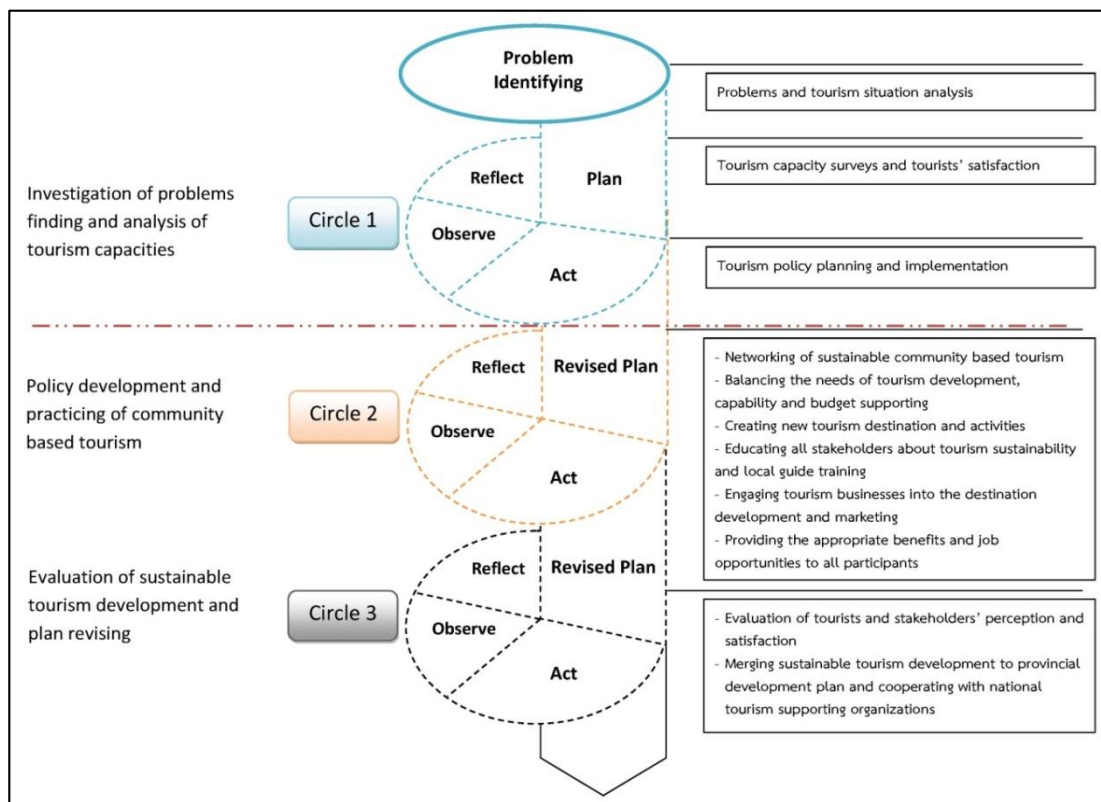
Figure 1: The PAR Model for Community Based Tourism Development
Source: Adapted from Kemmis & McTaggart (2005) and Kindon et.al. (2007)

2. Data analysis methods

Regarding the research process of this study which was a mixed method research, data analysis occurred in every circle of the PAR model altogether with the implementation of the results. Qualitative data was analysed by content analysis and triangulation rechecked altogether with descriptive statistic analysis for the quantitative data. After that all data was used for SWOT Analysis in order to prepare guidelines for tourism policy planning and practicing.

RESULTS

Regarding to the three-circle participatory action research, it indicated that the key success factors to sustain tourism development and management in the site were educating and engaging stakeholders' participation, especially since trying to understand the root of problems.

1. Investigation of Problems Findings and Analysis of Tourism Capacities

To understand the situation and reality of the current collaboration, the first step of this research was started with the problem investigations separated to two main parts which were tourism situation analysis and tourists' satisfaction. For the problems and tourism situation analysis in the first circle of the PAR model, the data was collected via brainstorming with local residents, key policy-makers and tourism entrepreneurs in the district. It was found that the tourism situation at the site had been declining, the numbers of visitors had been decreasing and there were some serious conflicts between the local residents and tourism related business people. The causes of this serious situation were business related competition, over-consumption of tourism resources and development of new tourism destination in neighbouring districts. Whereas, tourists' satisfaction from 322 questionnaires found that most tourists' purpose of travelling was holiday and relaxation; they were searching for tourism information, accommodation and services from the internet; costs involved with travelling were meals, accommodation, and transportation; they were satisfied with destinations, activities, accessibility, and accommodation; but recommended to improve tourism information provision, new tourism routes and activities, and interesting souvenir developments and designs. Moreover, the research teams, key policy-planners and national park officers also surveyed current tourism destinations nearby districts and inspected 65 more interesting places. The results indicated that the district met problems with over-consumption in the current destinations, uninteresting activities, conflicts between business sectors, and the lack of new tourism destination developments and support.

Hence, the discussions about the solutions and tourism rejuvenation occurred in the second-time brainstorming between the research teams, local residents, tourism entrepreneurs, tourism policy-makers and national park boards. For this stage, all stakeholders agreed to solve the problems and plan for tourism policies based on sustainability concerning local residents' benefits and resource capacity with their integrated collaboration and budget sharing.

2. Policy Development and Practicing of Community Based Tourism

For the second circle of the PAR model in this study, all key-stakeholders focused on community based tourism policy development and practicing through four-time brainstorming. They started their participation by networking of a sustainable community based tourism club in the district while balancing the needs of tourism development, capability and budget sharing from relevant government organizations and local authorities. With reference to the qualitative, quantitative and SWOT analysis, the appropriate tourism strategies for the current situation were attended to three main issues: new tourism destination development, creative tourism activity preparing, and tourism destination marketing and promotion. Furthermore, the key policy-makers and national park boards also provided opportunities for local residents and business people to share the ideas of tourism promotion and obtain acceptable benefits from new destination developments, which went along with educating all stakeholders on tourism sustainability and local guide training.

3. Evaluation of Sustainable Tourism Development and Plan Revising

The final circle of this PAR model, was focused on the evaluation of sustainable tourism development and practicing through the new tourism route and destination development, numbers of tourism activities and events at the site, together with tourists' perceptions and satisfaction. It was found that the implementation of the tourism development plan and practicing has been very successful and created significant changes in the site, especially, the integrated collaboration between all key-stakeholders and conflict-solving. This success in participatory action research and sustainable community based tourism development was an important inspiration for all stakeholders and local residents in regards the sustainability ideal. All the stakeholders have been continuing the tourism implementation; merging the local sustainable tourism development to provincial development plan and cooperating with the national tourism supporting organization. Moreover, it was an achievement related motivation to the nearby districts to learn and apply this PAR model in their areas as well.

4. Key Success Factors of Sustainable Community Based Tourism Development

The conclusion from research results indicated that the key success factors of sustainable community based tourism development were 1) People: all of the key stakeholders needed to be engaged into the tourism implementation; 2) Process: the tourism implementation plan and process needed to be based on the key stakeholders' objectives and requirements; and 3) Participatory: all key stakeholders needed to take part since the planning level and participate as a network for sustainable tourism development.

REFRENCES

[1] UNWTO. (2015). *Tourism and the Sustainble Development Goals.* Retrieved October 9, 2014, from http://www.e-unwto.org/doi/pdf/10.18111/9789284417254

[2] Mowforth, Martin. & Munt, Ian. (2009). *Tourism and Sustainability: Development, Globalisation and New Tourism in the Third World.* New York: Routledge.

[3] Pleumarom, Anita. (2003). How Sustainable is Mekong Tourism? *In Sustainable Tourism: A Global Perspective.* Edited by Harris, Rob., Griffin, Tony., & Wlliams, Peter. UK: Elsevier, 140-166.

[4] Hall, C. Michael & Lew, Alan A. (1998)**.** *Sustainable Tourism: A Geographical Perspective.* New York: Addison Wesley Longman.

[5] CBT-Institute. (2013). *Standards of Community Based Tourism.* Chiang Mai: Payap University.

[6] Okazaki, Etsuko. (2008). A Community-Based Tourism Model: Its Conception and Use. *Journal of Sustainable Tourism.* 16(5), 511-529.

[7] Pathumporn, Jinnapas. (2012). Community Based Heritage Tourism (CBHT): A Key Success Factor for Cultural Heritage Conservation or Threat? A Case Study of Phuthai Villages in Northest Thailand. *International Journal of Culture and Tourism Research.* 5 (1), 25-38.

[8] Green, Lawrence W., M. Anne George, Mark Daniel, C. James Frankish, Carol P. Herbert, William R. Bowie and Michael O'Neill. 2003. "Appendix C: Guidelines for Participatory Research in Health Promotion," in Minkler, Meredith and Nina Wallerstein (eds), Community-Based Participatory Research for Health. San Francisco, CA: Jossey-Bass Inc.

[9] Kemmis and Mctaggart (2005). *Participatory Action Research: Communicative Action and the Public Sphere.* Retrieved August 13, 2014, from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.473.4759& rep=rep1&type=pdf

[10] Kindon, Sara., Pain, Rachel., & Kesby, Mike. (2007). *Participatory Action Research Approaches and Methods: Connecting People, Participation and Place.* London: Routledge.

[11] Capriello, Antonella. (2012). Participatory Action Research for Stakeholder Collaboration: Lessons from a Rural Area in Piedmont, Italy. *In* Field Guide to Case Study Research in Tourism, Hospitality and Leisure. Published online: 2012; 323-343.

THE INFLUENCE OF REFLECTIVE TEACHING ON CLASSROOM EFFECTIVENESS OF PRESCHOOL TEACHERS

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ABSTRACT

This study investigated the impact of reflective teaching on classroom effectiveness of preschool teachers. The study adopted survey design and the participants consisted of 100 preschool teachers selected from two states of the southwestern Nigeria. Questionnaire was administered to collect information on the perception and classroom practices of the teachers. Data collected were analyzed using descriptive and inferential statistics. The result of the data analysis showed that most of the preschool teachers were aware of reflective teaching. A significant proportion of the preschool teachers between 0 to 10 years in the service recognized that there is a need for mentorship in the profession. The results further showed that teachers do not welcome the opinion or perceptions of their learners about what goes on in the class, rather they use their performance as feedback from them. Again, it was revealed that peer observation enriches the teacher's effectiveness in the classroom. This study concluded that reflective teaching should be encouraged in the preschools with the aim of enhancing the effectiveness of teachers in the classroom.

Keywords— Classroom Effectiveness, Reflective Teaching, Preschool Teachers.

INTRODUCTION

Globally, teachers are significant at any educational level, be it preschool, primary, secondary and tertiary. The saying that no nation rises above the quality of its teacher explains the prominence place teachers occupy in the society. According to Oyekan (2000) teachers are the heartbeat of manpower development, training for prudent use and sustenance of resources in nation building. The relevance of teachers to individual and national development rest solely on their inescapable role in providing functional education and grooming to the scholars. Masters within the guild are the polished products of teachers from the educational system because they have at one time or the other went through a teacher.

Teachers at the preschool involves building lives and training young ones to become responsible citizens in the future. It is time consuming to teach young children than the older ones. The role of preschool teacher is physically, mentally and emotionally tasking and demanding because it entails that the teacher must be constantly on alert and always seeking for way to

broadening the children's exploration, findings and enhance their learning. Therefore, it is imperative for teachers at the preschool to be effective and be up to the challenging task at hand.

Teacher's effectiveness is measured by the students, achievement and performance. Collins (1990) sees an effective teacher as someone who is committed to students and learning, knows the subject matter, responsible for managing students, think systematically about their own practice and is a member of the learning community. Vogt (1984) in Markey (2004) relates effective teaching to the ability of a teacher to provide instruction to different students of different abilities while incorporating instructional objectives and assessing the effective learning mode of students. To Wenglinsky (2000) teachers' effectiveness in based on the classroom practices and they are critical to learning. It is also what determine how a teacher teaches. These classroom practices can be viewed in reflective teaching. Reflective teaching should be self-satisfactory and enjoyable for teachers and improves growth in the quality of education provided for children.

This study investigated the influence of reflective teaching on classroom effectiveness of preschool teachers'. Specifically, the study examined the use of the teacher's journal, peer observation, mentor's assistance and feedback from learners.

LITERATURE REVIEW

The study is predicated on the work of Dewey (1933) who proposed that reflective action involves willingness to engage in constant self-appraisal and development. Among other things, it implies flexibility, rigorous analysis and social awareness (Pollard, Collins, Maddock, Simco, Swaffield, Warin and Warwick, 2005). Pedro (2005) also sited Dewey in 1933 that the use of reflective practice encourages teachers to think critically about their practice. Dewey also argued that learning from experience is enriched by the reflecting on experience. In particular, reflecting on our experience helps one to extend his ability in observing your philosophy, ideas, thoughts and beliefs. Schon (1987) theory proposed that reflection is important in justifying how practices, experiences and understanding improves the classroom activities.

According to Pollard *et al* (2005), the notion of Dewey on reflective action when developed and applied to the teaching is both challenging and exciting. Its implication was classified into that seven key characteristics of reflective practices. To mention few, reflective teaching is an active concern with aims and consequences, as well as means and technical efficiency; it requires competence in methods of evidence-based classroom enquiry, to support the progressive development of higher standards of teaching; reflective teaching, professional learning, and personal fulfillment are enhanced through collaboration and dialogue with colleagues; and enables teachers to creatively mediate externally developed frameworks for teaching and learning.

Reflective thinking actually brings about reflective teaching. In reflective thinking, we observe, analyze and review our actions or classroom practices. Reflective thinking is necessary for teachers to take control of their teaching and become empowered decision makers (Rodman, 2010). Reflective thinking is the first step to reflective teaching. Reflective teaching is the act of engaging in self-observation, self-criticism and self-evaluation, and using feedback from learners

and colleagues to correct lapses as well as reinforce best practices in the class (Ali, 2011). Reflective teaching is an indispensable tool for self-evaluation and professional growth as a teacher. A seasoned teacher must be constantly involved in reflective teaching. Reflective teaching could also be referred to as activities or processes in which teaching experience is elicited, pondered and evaluated. It is a reaction to previous experience and involves conscious recollection of experiences as a foundation for self-evaluation and planning for the future. Bartlett (1990) in Richards (1991) points out that becoming a reflective teacher involves moving beyond a primary concern with instructional techniques and "how to" questions and asking "what" and "why" questions that regards instructions and managerial techniques not as ends in themselves, but as part of broader educational purposes.

Many different approaches can be employed to become a reflective teacher, including the teacher's journal; peer observation; mentor's assistance; and feedback from learners. The first step in reflective teaching is gathering information. The information gathered during the teaching and learning process are recorded in a journal. Keeping a journal of classroom activities helps to teacher to record all the teaching experiences, ideas, thoughts, observations, work out pedagogical problems, reflects on successes and problems encountered in the classroom with the aim of proffering solutions and putting the pasts insights to work in planning for the future (Ali, 2011; Platt, 2011). Tice (2007) in Merglová (2008) defines a teacher's journal as the easiest way to begin a process of reflection since it is purely personal. She suggests that after each lesson a teacher should write down what happened, he/she can also describe their own reactions and feelings and those of the students. The teaching journal is an invaluable resource that contains a teacher's teaching philosophy statement or a teaching portfolio, and can be used to train the future generation. Having a consistent and detailed record of one's insights and particular pedagogical successes will make the task of telling stories about your teaching substantially easier, and will make those stories more persuasive. Keeping up with a teaching journal will continue to help a teacher through the career (Platt, 2011).

According to Boyd and Boyd (2007) teaching journal is one of the most productive methods of self-education and continued instructional improvement. It helps to create more accountability and preserve observations and ideas about teaching so they can benefit future students. They explained that it is not just about reflection, but about reflection must lead to action, and action that creates improvement. It also provides motivation, reading about the past successes and lessons increases the teacher's energy level. They further expounded that it helps to get back into the context of the class and renews enthusiasm for the students.

Peer observation is the process of colleagues observing others in their teaching, with the overall aim of improving teaching practice (Hendry and Oliver, 2012). Hammersley-Fletcher & Orsmond (2004) stated that peer observation a process of evaluating teaching in such a way that it can offer formative feedback to assist in the development of reflective processes of the teacher and to provide qualitative evidence to substantiate student evaluations. Peer observation can provide opportunities for teachers to reflect on their practices by viewing each other's teaching and comparing different teaching styles as well as monitor own teaching styles.

Peer observation lay emphasis on helping colleagues to develop the teaching through a reciprocal exercise with staff observing each other, sharing insight and providing mutual support (Bell, 2005). It is also viewed that it can provide opportunities for colleagues to learn from each other and give a constructive feedback about the teaching. Researches have shown that peer observation goes beyond feedback about one's teaching, it arranges for improving the quality of teaching and learning by reflecting on the open discussion and systematic critiques about one's teaching;xdxd4 help to cultivate a collegial atmosphere through dialogue about common issues of concern (Hendry and Oliver 2012; University Teaching Development Centre 2004). Hendry and Oliver (2012) reported peer observation as part of formal teacher-development program, that observing a colleague teaches can both show the observing teachers how new strategies work and enhance their confidence to apply them in their own teaching.

Functioning as a mentor is a form of reflective practice for teachers. Mentoring is a nurturing process, in which a more skilled person, serving as a role model, teaches, sponsors, encourages, counsels and befriends a less skilled or less experienced person for the purpose of promoting the latter's professional development (Anderson and Shanno, 1988 cited in Cain, 2009). In the teaching profession, mentor's assistance involves a process where the mentor will share his classroom experiences with the inexperienced teacher and provide solutions to improve the teaching skills. An experience teacher can successfully mentor a young teacher by using journals, histories and group discussion about their personal experiences in the course of the profession to help them reflect on and expand their practices. Ferraro (2000) opined that at any level of in-service teaching, critical reflection upon experience continues to be an effective technique for professional development. Uzat (1998) in Ferraro (2000) presents mentoring as a realistic and systematic approach to ongoing teacher improvement through focused reflection on teaching methods. Uzat also relates the concept of mentoring to self-efficacy.

Feedback from learners' can be referred to as a way whereby teachers gather information from the learners on their opinions, feelings, views or observations on what goes on in the class. Feedback can provide us with the impetus to engage in reflective practice analytically and meticulously, and also the proof we need to make conclusions about the performance of a teacher. Atkins (1994) recognizes a key feature of lifelong learning as being able to "reflect on one's own practice and use feedback to assess and manage one's own performance" (cited in Zalipour, 2015).

Glendenning and Cartwright (2011) cited in Zalipour (2015) provide structure for reflecting on feedback about teaching. They asserted that it is useful to encourage teachers to reflect on the feedback they have received in the past. The process of reflection on feedback also assists to shape thoughts and ideas around what types of feedback we would like to receive in the future to support our teaching. Learners' opinion about what goes on in the classroom is essential to every teaching and learning process, for it can be used to evaluate the overall effectiveness of the process. In reflective teaching, going over the opinion of the learners can assist the teacher to improve which will in turn produce a better result.

In Nigeria, there are currently no reliable data on the contributions of reflective teaching on the classroom effectiveness of preschool teachers. Although it has not been inculcated into the

curriculum of teacher education programme yet the in-service teachers were aware of it. This study, therefore attempts to investigate the influence of reflective teaching based on the teacher's journal, peer observation, mentorship and learners' feedback on the classroom effectiveness of preschool teachers.

METHODOLOGY

Participants in this study consisted of 100 preschool teachers (Male = 6, Female = 94) selected from 2 states of the Southwestern Nigeria. The participants were randomly selected from 21 schools of the study area. Participants have spent between 0 to over 20 years in the service. The selection of participants was not necessarily random as they were teachers who teaches at the preschool level. The research instrument Preschool Teachers Reflective Teaching Scale was developed and validated. The scale is a 24-item instrument consisting of items intended to find out the extent to which teachers made use of reflective teaching. The items cover four aspects of reflective teaching, namely teachers' journal; peer observation; mentorship assistance; and learners' feedback. The items reliability was tested at with Cronbach's Alpha values of 0.85, 0.75, 0.78 and 0.75 respectively.

RESULTS

In order to ascertain the awareness of reflective teaching, gender, qualification and year of service among the participants, data collected were from the administration of the questionnaire were subjected to descriptive analysis.

Table 1
Frequency Table

		N	Percentage %
Gender	Male	6	6%
	Female	94	94%
Awareness	Yes	64	64%
	No	36	36%
Qualification	SSCE	12	12%
	NCE/TC II	58	58%
	B. Sc/B. Ed	28	28%
	M.A/M.Ed	02	2%
Year of Service	0-10 years	64	64%
	11-20 years	26	26%
	20years & above	10	10%

Table 2. T-test Analysis of the Forms of Reflective Teaching

		Mean	Std. Deviation	t-value	p-value

Teacher's Journal	0-10 years	22.12	3.22	8.21	0.00*
	11-20 years	21.98	2.17	6.39	0.00*
	20 & above	22.1	3.14	5.79	0.01*
Peer Observation	0-10 years	13.33	2.84	6.94	0.00*
	11-20 years	12.61	2.49	5.89	0.01*
	20 & above	13.9	3.17	1.47	0.22
Mentorship Assistance	0-10 years	13.97	3.1	5.96	0.01*
	11-20 years	14.31	3.4	0.17	0.67
	20 & above	13.2	2.44	1.88	0.28
Learners' Feedback	0-10 years	8.17	8.17	2.9	0.09
	11-20 years	8.18	8.18	0.13	0.72
	20 & above	8.9	2.8	8.05	0.00*

*significant level p = < 0.05

As shown in Table 1, 36 participants representing 36% of the total sample reported that they are not aware of reflective teaching while 64 participants representing 64% were aware of reflective teaching. Also, the study revealed that most of the preschool teachers were female 94%. The result also showed that 58% who were majority of teachers are Nigeria Certificate in (NCE) and Teacher Training Certificate (TC II) holder, followed by 28% first degree (B.Ed/B.A./B.Sc). It was observed that only 2% were Master's degree holder while 12% were Senior Secondary School Certificate (SSCE) holder. Furthermore, the table revealed that 64% of the participants had spent 1-10 years in the service while 10% of the participants had spent 16-20 years in the service.

As shown in Table 2, teachers who have spent between 0-10 years, 11-20 years and 20 years and above keep journals for classroom effectiveness. The result yielded t-value of 8.21, 6.39 and 5.79 respectively, which is significant at $p < 0.05$. This suggests that teachers' journal as an approach in reflective teaching is highly significant for preschool teacher effectiveness in the classroom. The mean value of teachers who have spent between 0-10years ($\bar{x} = 21.12$) was higher than the mean values of other teachers. This indicates that teachers who were younger than 11 years in the service keep journal more than others.

Peer observation in reflective teaching of teachers who have spent between 0-10years and 11-20 years in the service using the t-test statistical analysis, yielded t-value of 6.94 and 5.89 respectively, which is significant at $p < 0.05$ level. Also, t-test statistical analysis of mentorship assistance of teachers between 0-10years, yielded a t-value of 5.96 which is significant at $p < 0.05$. This implies that mentorship in the teaching profession as an approach of reflective teaching is highly significant in the classroom effectiveness of the preschool teachers. However, learners' feedback revealed significance among the preschool teachers who have spent 20 years and above in the classroom, t = 8.05, $p < 0.05$. This suggests that teachers who spent below 20 years did not take into cognizance feedback from their learners.

DISCUSSION

Based on these findings, preschool teachers' classroom effectiveness can be enhanced through reflective teaching emphasizing teacher's keeping day-to-day activity journals. The journal should not only be their lesson note which must be up-to-date before the class, it should also include activities that take place during and after the class. Additionally, keeping journals will also assist the teacher to note the hidden curriculum such as the norms, values, attitudes and beliefs of her class. This collaborates with the work of Tice (2007); Boyd & Boyd (2007) that emphasizes self-development, self-education and instructional improvement. Also, peer observation contributes to the effectiveness of classroom teachers, it provides opportunities for colleagues to learn from each other and give constructive feedback on the teaching. It also helps the teacher to improve her teaching strategies, methods or techniques of presentation. The work of Hendry and Oliver (2012) reported peer observation as part of formal teacher-development program which involves observing a colleague teach can assist both the observed and observer to learn new strategies, how the strategies work and enhance their confidence to apply them in their own teaching. Furthermore, mentorship in the teaching profession is very essential, it assists the inexperienced teachers to learn and be able to attain high professional attainment. The experienced teachers that have expended over 10 years in the service can assist in mentoring the upcoming teachers. Uzat (1998) presents mentoring as a realistic and systematic approach to ongoing teacher improvement through focused reflection on teaching methods. He also relates mentoring to self-efficacy of the teachers which will help improving their classroom effectiveness. On the contrary, the study revealed that preschool teachers do not acknowledge learners opinion, they considered the learners to be too young to have something meaningful they can contribute to their classroom. They established that the feedback from their learners can be measured by their performance. Although, studies have contributed to the fact that learners' feedback has played immensely to the classroom effectiveness of teachers. Ali (2011) opined that learners' feedback on reflective teaching assisted the teacher in engaging in self-observation, self-criticism and self-evaluation, and using feedback from learners to correct lapses to reinforce good practices in the class.

CONCLUSION

This study has established that teachers in the preschool with the study area are aware of reflective teaching regardless of the fact that they were not taught or introduced to it during their the teacher education programmes. Though how they got to know about it was not established. The teachers also recognized that journal keeping is very important to classroom effectiveness, but must not be limited to prior to the class in the form of a lesson plan and lesson note, it should be extended to recording all the activities that take place in the classroom for them to be able to make reference to it from time to time to enhance their effectiveness in the classroom subsequently.

Classroom teachers should encourage collaborative academic endeavours among themselves through peer observation to promote healthy classroom effectiveness. When teachers are made to

work co-operatively and in collaboration with one another, they develop healthy relationships that tend to enrich their classroom.

Teachers who have spent over ten years in the service should mentor the upcoming ones, especially those with less than five years in the service for professional development. By so doing, their competency will increase, high standard of education will be sustained and the learners will future will not be jeopardized. Because for every error made by the teacher in the classroom, a learner is at the receiving end

Another vital aspect of this study that must be put into consideration is the learners' feedback. Most of the teachers depend only on their learners' performance as the only process of getting feedback from the learners. Classroom effectiveness can also be improved when teachers allow the opinion and perception of their learners to count. As they reflect on their contributions, their classroom practices tend to be better and the learners will be happy as well.

REFERENCES

[1]. Collins, A. (1990). *Transforming the Assessment of Teachers: Notes on a Theory of Assessment for the 21st Century.* Paper presented at the annual meeting of the National Catholic Education Association, Boston, MA.

[2]. Richards, J.C. (1991). Towards Reflective Teaching. http://www.tttjournal.co.uk

[3]. Ferraro, J. M. (2000). Reflective Practice and Professional Development. Eric Digest. Available at *http://files.eric.ed.gov/fulltext/ED449120.pdf*

[4]. Oyekan, S.O. (2000). *Foundations of Teacher Education.* Ebun Ola Printers, Okitipupa. Pp 5-14.

[5]. Wenglinsky, H. (2000). How teaching matters: Bringing the classroom back into discussions of teacher quality. Princeton, NJ: The Milken Family Foundation and Educational Testing Service. Pp 11-15. Available at *https://www.ets.org/Media/Research/pdf/PICTEAMAT.pdf*

[6]. Hammersley-Fletcher, L. and Orsmond, P. (2004). *Evaluating our peers: is peer observation a meaningful process?* Stud Higher Educ 29:489–503.

[7]. Markey, T., (2004). Defining the Effective Teacher: Current Arguments in Education. Available at *http://www.usca.edu/essays/vol112004/markey.pdf.*

[8]. Pollard, A., Collins, J., Maddock, M., Simco, N., Swaffield, S., Warin, J., & Warwick, P. (2006). *Reflective Teaching.* 2nd Edition. Anthony Rowe Ltd, Wiltshire. Pp 25-36.

[9]. Boyd, J. and Boyd, S. (2007). Reflect and Improve: Instructional Development through a Teaching Journal. *College teaching*, Vol. 53, No. 3, p 110. ERIC. 17 Jul. 2007.

[10]. Merglová, S. (2008). Reflective Teaching and its Influence on Classroom Climate. A Thesis submitted to the Department of English Language and Literature, Faculty of Education, Masaryk University. Available at *http://is.muni.cz/th/221576/pedf_m/Diplomova_prace.pdf?lang=en*

[11]. Cain, T. (2009). Mentoring & Tutoring: Partnership in Learning. Mentoring & Tutoring: Partnership in Learning Vol. 17, No. 1, February 2009, 53–66. Available at http://www.tandfonline.com/loi/cmet20.

[12]. Rodman, G. J. (2010). Facilitating the Teaching-learning Process Through the Reflective Engagement of Pre-service Teachers. *Australian Journal of Teacher Education, 35*(2). http://dx.doi.org/10.14221/ajte.2010v35n2.2

[13]. Ali, A.I., (2011). Reflective Teaching. A Presentation at A Capacity Building Workshop on SbTD for Colleges of Education Officials in UNICEF B-Field States, Oyo, Oyo State, October 23-26, 2011.

[14]. Platt, J. (2011). Keeping a Teaching Journal. Available at *http://www.gradhacker.org/2011/06/15/keeping-a-teaching-journal/*

[15]. Zalipour, A. (2015). Reflective Practice. Available at *http://www.waikato.ac.nz/tdu/pdf/Booklets/2015/ReflectPrac.pdf*