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## COMPREHENSIVE CAPACITY BUILDING AND INNOVATION FOR CHANGE AND DEVELOPMENT IN ICT IMPLEMENTATION IN EDUCATION: RESTRUCTURE AND RE-CULTURE

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**Abstract:**-The purpose of this study is to provide better understanding of what is the meaning being comprehensive capacity building in affording change and bring innovation for ICT implementation. Although this is just a concept paper, however, this entails a little different nuance that need to be considered in restructuring and re-culturing the capacity of individual, organization and society. Therefore, some aspects of capacity building, innovation, restructure and re-culture teacher role as leader and its power of leadership will be described.

**Keywords:** Capacity building, innovation, restructure, reculture, teacher leader, power.

### INTRODUCTION

The consequence of ICT implementation in education is a change and innovation in every angle of education. To create this, a capacity building is needed. However, the capacity building of ICT implementation in education often partial and half way which is built and much focus on individual capacity only such as limited on skill, professional development, attitude or perception and belief as had been done by some researchers such as Samak (2006), Almekhlafi and Almeqdadi (2010), Al-Zaidiyeen et al, (2010), Sang (2010), Mwalongo (2011) and Hismanoglu (2012). Therefore, ICT implementation encounters with strong critics and opposition from society, whether “rationally” or in “human values” (Feenberg, 1991). So far, very few researchers explain and touch beyond this. Some researchers that have done research in ICT implementation that combine two capacities of individual and organization although still in surface level are like Marwan & Sweeney (2010) in Indonesia, Tearle (2010) in UK, Hamid (2011), and Assan& Thomas (2012) in South Africa. However, some researchers like Mooij and Smeets (2011), Boit and friends (2012) had tried something different in term of building capacity in ICT implementation which explain individual and organization capacity although still not representative of the three capacities. In other words, the capacity building in ICT implementation in education is running on its own self-way or not holistically. This causes the implementation of ICT in education still can not do its best performance yet. For that reason, to address the problem as explained above, the writer states his research question of “How the capacity of ICT implementation should be built to bring change for better technology society in education, particularly in school”.In this case, the writer limits the study of this concept paper of ICT implementation base on capacity building perspective in education area. Finally, the purpose of this concept paper tries to give better understanding on how the implementation of ICT integration in education field in perspective of capacity building should be conducted as an endeavor to bring change in education. In line with that, some literature reviews regarding with it are explained later on.

### OBJECTIVE

The objective of this concept paper is trying to add a different perspective and understanding towards a comprehensive capacity building on ICT implementation and all at once the author also tries to provide some understanding and information of several aspects that has connection with capacity building and other elements that needed to be taken into the note by them who have the competence on ICT implementation. Although this is not a panacea, but it tries to entail a new framework towards better change for the implementation of ICT in more collaborative and innovative.

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## **METHOD**

Due to this paper in form of concept, the author uses several references of document such as journals or some articles of work that ever been conducted by previous of several researchers that have connection and relevance with the topic being discussed.

## **DISCUSSION**

### **Capacity building**

In this era of technology and information cause the expansion of innovation and change in many aspects of capacity building no exception in education that bring numerous implication and new responsibility in workplace.

Capacity building is something concern with social and also the involvement of political relationship. When we talk about capacity it should be comprehensively or holistically, in other words it is not a capacity if it is separated from one to another or in segregation way and it is a big mistake to let it run on that manner. Capacity building consists of many sectors ranging from high level of government down to the lowest level of personal individual one. Capacity building is not one stop action but it is something continual as the process in adapting the change. Capacity building also to create and to make independency for the three sectors that existed on the capacity not the reverse side (Eade, 1995).

In addition, capacity building has the same meaning as institutional and organizational building or development. Borrowing Smillie's words, in his book of "Patronage or Partnership: Local Capacity Building in Humanitarian Crisis" that it can be said also as slogan "helping people to help themselves". Capacity building according can be considered as means, process, and an end to be achieved. Sometimes it enforce on means to reach the end. However, in certain time, the process can be more important than the means or end (Smillie, 2001).

In details, capacity building has broad meaning ranging from ability toward institutional building, learning, adoption, attitudinal change, social and political relationship, approach, process, methodology, strategies to making external partnership that lead to better improvement, create and strengthening the individual, organization and societal level over time (Lusthaus et al, 1995; ADEA, 1997; Eade, 1997; Morgan, 1998; CIDA, 2000; Smillie, 2001; UNDP, 2002; JICA, 2004; EuropAid, 2005; UNESCO-IICBA, 2006).

### **A comprehensive capacity building**

The implementation of ICT into education field asking on developing on three main capacities; individual, organization, and society capacity. Firstly, individual capacity in this case are teacher and student. This sector of individual capacity basically involves some elements such as knowledge, skill, attitude, and other perception issues. Secondly, the implementation of ICT in education also involves building for organization capacity school in this case which encompasses of several sectors; human resources, physical, intellectual, structure, management, and also leadership (Lusthaus et al, 1995; Morgan, 1997; CIDA, 2000; UNDP, 1998, 2002; UNESCO-IICBA, 2006). Thirdly, as the last sector of capacity building is society capacity that much focus on policy framework, legal systems, political institutions, and market economic condition (JICA, 2004).

The actors in society capacity involve government such as central or local, public bureau, decision maker, and department, whilst in private sector may involves profit or non-profits sectors, and other or non-local community (Lusthaus et al, 1995; CIDA, 2000; JICA, 2004; UNESCO-IICBA, 2006). Capacity building also about making link or building partnership with other community that asking the involvement of external society (Lusthaus et al, 1995; Eade, 1997; Morgan and CIDA 1997, 1998; Smillie, 2001).

Below are table list of capacity building level and its components activity bases on several references that can be used to develop and implement ICT capacity in one's school as an organization.

**Table 1. Capacity building level and components bases on literature**

Capacity building level	Component	Literature
Individual	Investing in people	Eade, 1997
Organization	purpose, identity, vision, values, strategies, accountability, culture, leadership, human resources, physical resource, financial resource, system and structures	
Society	government, private sectors; NGOs, trade unions	
Individual	knowledge, skill, will, stance, health, awareness	JICA, 2004
Organization	human assets, physical assets, intellectual assets, organization structure and systems, leadership	
Society	policy frameworks, legal systems, political institution, market economy institution	
Individual	people; e.g. farmers, engineers, planers, accountants	CIDA, 2000
Organization	structures, process, management issues, link, infrastructure support	
Society/network	policies sector, strategies and program frameworks, coordination among institutional	
Individual	small interpersonal; specific client groups, segments of society, civil population at large	UNDP, 1998,2002
Organization/entity	mission and strategy, culture/structure and competencies, process, human resource, financial resource, information resources, infrastructure	
Society/system	policy dimension, legal/ regulatory dimension, management/accountability dimension, resources dimension, process dimension, (activity samples; creating opportunities, transformational of development)	
Individual	teacher; knowledge, skill, dispositions, views of self	O'Day, Goertz, Floden, 1995
Organization	vision and leadership, collective commitment, cultural norms, access to knowledge, structures and management, resources	
Society	strategies and program framework; articulating a reform vision, providing instructional guidance, accountability mechanism, restructuring governance and organizational structure	

#### **Innovation on Teacher Capacity of ICT implementation in education**

Innovation can be translated as an idea, change no matter in big or small scale, and the source of information that can trigger toward change, and strategy for spreading new technologies (Weintrobe, 1970; Roger, 1983; Fullan, and Hargreaves, 1992; Badran, 2007; Speim, et al 2008). Implementation of ICT in education field not just implicates on capacity building but innovation on individual capacity as well that is teacher in this case.

However, according to Klein and Sorra (1996) the implementation of one innovation will fail if it is less frequently used and less consistently by people than asked or demanded. Once again, ICT implementation and integration into education system needs holistic capacity building. According to Fullan (2001) to bring change into education system it takes not just build and reform the system, policy and allocating fund or what so-called as restructure but needs to develop non-physical sectors as well. This what Fullan said as "re-culturing".

There are numerous reasons why it is hard to bring innovation into capacity building in the implantation of ICT in ones' organization. Several items are stated by Nisbet and Collins (1978), as follow;

- Dispute over educational objective,
- Inappropriate innovation,
- Too narrow in change understanding,
- Lack of planning for consequence outside the target system,
- Shortage of knowledge about the dynamic of change,
- Some innovation characteristics that block its adoption,

School characteristics system that reject to change or innovate,  
Person nature that associate with innovation itself.

One thing for sure that to bring change in capacity building of ICT implementation in this case is not easy as we though. Change is a “journey and process”, not a “blueprint” (Fullan, 1993) and also “developmental process” (Rogers, 1983). In addition, ICT is also deemed can cause unstable condition as the implication of the objective being targeted (Rogers, 1983). Furthermore, change in education is also deemed as something complex, as this takes great variety of consensus and collaboration that involves many elements of elite politics, social culture-ideological, and economic sectors (Fagerlind&Saha, 1989). Change also needs creative thinking of individual, organization, and commitment in action, skills, behaviour, beliefs or understanding, motivation, change as a journey not just a design where vision and strategic planning come later, deep insights and discretionary judgment (McLaughlin, 1990; Fullan, 1991; Fullan, 1993).

Meanwhile in regard with emotion toward innovation, several writers assert that teachers' emotion toward innovation is quite variety. Some of them show happy manner or sustain the change efforts, on the other hand, some of them illustrate frustrated, loss, fear, and burned out then followed by resistant to innovation (Datnow, 1998; Datnow, Castellano, 2000; Hargreaves, 2005; Lasky, 2005; Zembylas, 2003). According to Hargreaves (1994), it is said that emotion and change are closely connected to each other. Whilst other authors note that teachers' emotional response toward change are considered as the cause of and reflection of their feeling, interpretation and evaluation toward their relationship with the changing condition occurred (Blasé, 1986).

#### **Innovation of Teachers' Rolefor becoming a Leader**

Teaching profession in this era of 21st century is not anymore limited in class activity but has evolve and widen to the outside teaching activity. Put it into clear explanation, teacher as practitioner is not only know how to teach and deliver the subject to their students but much more than that, teachers' job is redefining into wider area such as get involve in decision making, curriculum matter, collaboration, professional development, and still many others (Darling-Hammond et al, 1995; Harris, 2003). Teachers' role now innovates and disseminates to the aspect of leadership. Whether like it or not, although not a new thing but it has become an additional demand in teaching profession.

Harris and Muijs (2012) delineate that teachers' role of leadership is considered as a “new professionalism” that could contribute very clear influence towards school culture. Harris and Muijs report that teacher leadership may bring positive value towards the effectiveness of school culture if it is virtually supported by its individual, organization and external society or collaboratively work hand in hand. However, teacher leadership still not in its top performance yet as so many things that still absence in its practice ranging from the “lack of flexibility”, “ongoing commitment of time”, the additional workload of “administration”, shortage of educational leadership among teachers, numerous and overlapping definition to the traditional leadership relationship among teacher and principal (Livingston, 1992; Smylie and Conyers, 1992; Harris, 2003, Greenlee, 2007).

Apart from the word of leadership still has not reach the consensus yet in its definition because of the overlapping in explanation by some researchers, and still far away from the expectation yet possible still (Darling-Hammond et al, 1995; Harris, 2003), the leadership role doesn't belong to principal anymore in school but it has become own of every teacher as well. In other words, Teacher is not just practitioner, learner but a leader (Barth, 1985; Little, 1988; Smylie, and Conyers, 1992; Livingston, 1992; Troen& Boles, 1994; Boyd and McGree, 1995; Ketzenmeyer and Moller, 2001; Harrison and Killion, 2007; Harris and Muijs, 2012).

As a leader, Teachers are demanded not anymore act in self-oriented but more to the group –oriented or think and do collectively toward the organization change (Troen and Boles, 1994; DiRanna and Loucks-Horsley, 2001). As the leader, they also should be able act and behave like “mentor”, “specialist”, and also “advisor” (Little, 1988; Boyd and McGree, 1995), the leaders can give influence towards change of school culture and other people (Gabriel, 2005), teacher leader demands more knowledge and experience in teaching instruction (Smylie and Conyers, 1992), be willing to keep up grading his knowledge and skill in technology as one of the sources power of leadership in obtaining important information access for the need of the instruction materials (Hallinger and Richardson, 1988), and respected by his friends formally or informally (TLEC, 2011).

Some characteristic of the way teacher may act as leader elaborated by Katzenmeyer, Moller, Barth, and Darling-Hammond as cited from Greenlee (2007) are “professional teacher organization”, “decision making”, “plan for the school improvement”, “sharing ideas with his friends in his college”, “Creating partnership with other community”, “collaboration with peers”, “providing workshop for college”, “initiates school activities”, “keep doing reflection on their own practice”, “redesigning instruction based on their students assessment”, “helping in making personal decision”, “select professional development”, “influencing school financial”, and “designing school policy”.

Other source mention not much different from the previous that there are ten roles for teacher leaders. These encompass such as “resource provider”, “instructional specialist”, “curriculum specialist”, “classroom supporter”, “learning facilitator”, “mentor”, “school leader”, “data coach”, “catalyst for change”, “learner” (Harrison and Killion, 2007). Meanwhile, Paulu (1998) elaborates fourteen points that teachers can express their leadership as leader such as;

Participating in professional teacher organization  
Taking part in school decision making  
Defining what students need to know and be able to do  
Sharing ideas with colleagues  
Being a mentor to new teachers  
Helping to make personal decisions  
Improving facilities and technology  
Working with parents  
Creating partnership with community  
Creating partnership with business and organization  
Creating partnership with colleagues and universities to prepare future teachers  
Becoming leader in community  
Becoming politically involved

#### **Power for Teacher Leader**

Teacher can not lead if he or she does not have power although it can cause people to be overconfidence in term of "knowledge", (Fast et al, 2012 as cited from Moore & Healy), and may cause someone to be hypocrite in case of decision making, and "prefer status quo over change" (Inesi, 2010). The definition of power quite variety. "Old saying says that knowledge is power" and power is by having powerful friends too (Pfeffer, 1992). Pfeffer still in the same article further explains that the power of leader can be obtained from several sources such as "willingness in devoting the time" or commitment toward its organization in his workplace, "academic reputation", "popularity as teacher", and also his "personal style" of individuality. In addition, leader work-room position of what Pfeffer called as "physical location" has serious impact toward the powerlessness in one's organization. Other source state that both knowledge and power have strong inter-relation and need for each other, just like compass with its needles (Koerber& Latham, 2006). Whilst Mechanic (1962) defines that power as "function, any force that result in behaviour and can be seen as resulting from access to control other people, information, and instrumentalities".

According to Hallinger and Richardson (1988), to empower teacher leadership as leader, information access can be said as strongly affecting resource and influence factor for bringing the innovation. Whilst (Harris, 2003) suggests several tips for building and empowering teacher capacity in leadership. This include;

Setting the time for teacher leader to plan and discuss of what become the problems such as "curriculum", "developing school wide plan", "leading study groups", "organizing visits to other school", "collaboration with higher education/institutions".  
Create numerous change for "continues development".  
Improve teacher leader self-confident, and set up the structured program for collaboration and networking such as "mentoring", "observation", "peer-coaching", and "mutual reflection".

Meanwhile, Brion and Anderson (2013) assert that power can be boosted up by making alliance with other people. Brion and Anderson delineate that alliance has strong influence for injecting and maintaining power to its holder as it can distribute information access and control over it and more alliance will bring better impact to the power holder as well.

#### **RESTRUCTURE**

Restructure can not be segregated from leadership aspect, especially in generating "transformational leadership" in organization. Leithwood (1994) in his treatise of "Leadership for school restructuring" note four statements for making the transformational leadership. Firstly, he said that "the means and ends for school restructuring are uncertain". Secondly, "school restructuring needs two order of change; instructional leadership and the sensitiveness on school as organizational building". Thirdly, "school restructuring much targeted at secondary schools", and lastly, "the professionalization of teaching is a centerpiece of school restructuring agenda".

Other previous researchers, Smylie and Conyers (1992) write on their paper title "Teacher leaders and their principals in exploring the development of new working relationship" conclude from the work of Berry & Ginsberg, Darling-Hammond & Berry that leadership aspect considered as "a key element" to strengthen teaching profession and school restructure as well. In addition, Boyd, V and McGree (1995) give signal that leadership should be a part of and linked into school restructure particularly in community for details.

Meanwhile, it is also stated that in the name of service for students' need, leadership is considered as a critical factor to support for this premise and an important key to improve school and the development of professionalism in teaching capacity as well (TLEC, 2011). Therefore, some standard models of teacher leader has been produced as an effort of restructuring to catapult and build teaching profession and make it as "vehicle" to change school needs in era of 21st century (TLEC, 2010, 2011).

Nevertheless, restructure often and has tendency bring superficial change, and this kind of false clarity of change can

be in form of reform in content, objective and system or structure. In addition, reform in this proto type is considered easier than change in “re-culturing” (Fullan, 2001). This false clarity of change causes negative change to the individual mindset of capacity building ranging from negative school culture, unstable district, uncoordinated state of policy to the human psychology aspects development such as confusion, frustration, anxiety, abandonment, bored, not interested, fear, loss, and feeling of burned out finally (Fullan, 2001; Zembylas, 2005). The negative emotion mentioned above lead to the resistance of change for individual capacity.

Some examples of restructure are funding allocation, develop management information system (MIS), building collaborative relationship among inter-institutions or communities, inner and outer learning, individual and group combination. Not just that, restructure also involves the increasing in autonomy, continuity in designing organization system although sometimes bring messiness and takes long time such as in “school building level”, “site-based management”, strengthen teacher capacity in extensive training, staff development activities, “better bureaucratic system”, “innovative curricula”, and also prolong students activities or providing incentives to students who have excellent achievement (Fullan, 1993).

#### **RE-CULTURING**

In their essay of “Teaching is a cultural activity” Stigler and Hiebert assert that teaching is resemble with people with their tradition of “family dinner”. When having the meals around the table, some routine procedures are occurred during that time such as prayer before having meals, small talking anything happened at day time among parents and their children, asking and answering which then this tradition become a habit that rooted into family daily activities at night then crystallize called as culture (Stigler and Hiebert, 1998). Teaching is also has similarity with this fact. There is long series of process of norms and rules called as “mental picture of scripts” to be established ranging from teaching faculty to classroom activity that embedded and shaped into a culture in school or university and then crystallized in form of attitude and belief (Stigler and Hiebert, 1998).

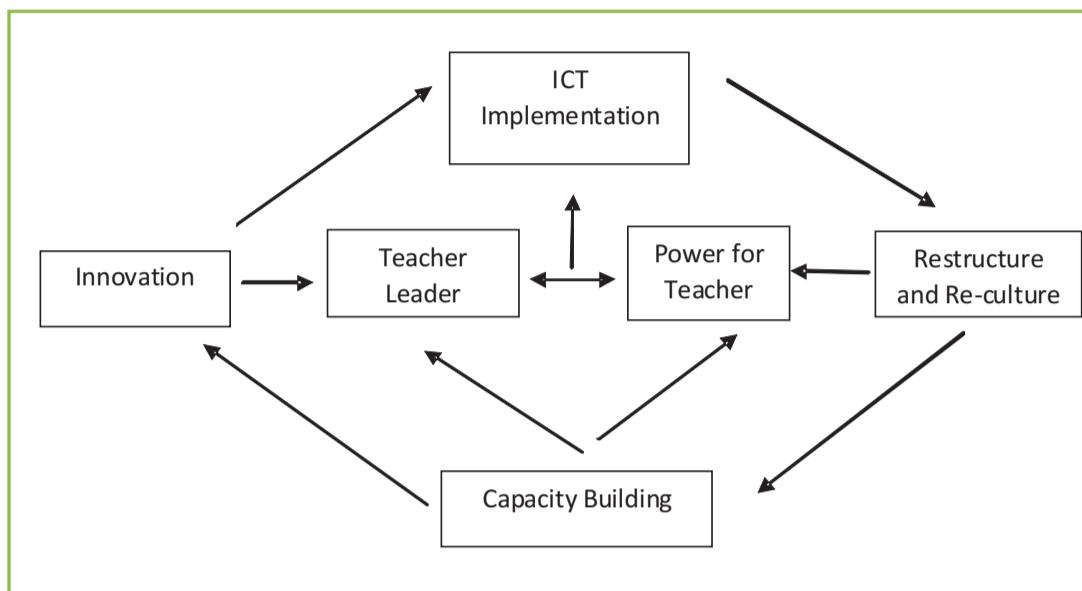
Re-culture in education is a type changing that lead and more focus to teachers' a way of thinking on something. This change is based on teachers' perspective on teaching how they reshape and rebuild their perception and understanding toward everything relates with teaching profession agenda (Ball and Cohen, 1999). This type of change then reintroduced by Fullan (2001) where he illustrated that “re-culturing” is somewhat far more complex than “restructure”.

Meanwhile, Ball and Cohen (1999) in their essay of “Developing practice, developing practitioners: Toward practice-based of Theory of professional development” asserted that to change teacher and its professional development does not mean completely bringing all facilities and infrastructures into classroom. Instruments are not a guarantee and not enough for a change and innovation in students' learning and professional teaching education according to Ball and Cohen, but this should be supported by other external capacities; reshape and rebuild their way of thinking, see and learn other's perspective, building communication and professional community into one collaboration and partnership.

Reshaping or rebuilding understanding in teaching profession, asks teachers to put themselves into self –inquiry toward better teaching in classroom such as ongoing innovation and improvisation, keep doing asking of what have been right and wrong with the method, experimenting, assessing, and willing to be ongoing learner and to adapt new system integrated into their professional education that based on practice (Ball and Cohen, 1999).

In other words, teachers should be willing to use teaching as media to practice and enhance their knowledge, skill and disposition in their series tasks of teaching and learning process such as “making plan or strategy for lesson”, “selecting suitable materials”, doing empathy in listening to students, asking questions, making class “observation” through “video recording”, watching and analyze the video records for pedagogy reflection and then redesign the strategy for next lesson (Ball and Cohen, 1999).

Meanwhile, Fullan (2001) added that to bring “re-culturing”, the change should be based on “beliefs”, style of teaching, and “materials”. These three elements can emerge if they are generated by a process of personal development in social context. The most important thing that all of this asks the support of the entire capacity building; individual, organization, and society. Putting one program to be implemented will implicate on change on other sectors as well. As what Stigler and Hiebert (1998) noted that one component is depend and link with other parts such as the system and methods or curriculum in teaching. “Re-culturing” demands whole aspect of human mindset and awareness such as deeper understanding on something, fully commitment, innovative, creativity, change in belief, and a way of thinking. This type of approach of human capacity considered by Fullan as the real change.



## CONCLUSIONS

To bring better reform and comprehensive capacity building in context of ICT implementation the three capacities; individual, school as an organization, and society are need to be pay attention and collaborated together. In addition, two types of change; restructure and re-culture and innovation are play important role. Restructure and all its aspects that explained by Fullan, Zembylas, and Leithwood indicates has tendency toward false clarity or superficial change that often end with frustration, anxiety, confusion and burned out. On the one hand, the transformation of role of leadership for teacher as leader and its power towards the improvement and upgrading their knowledge and skill of technology access of information and the facility in ICT implementation also become additional option to be manifested as an effort to bring educational change.

Whilst change in re-culture of reshaping and rebuilding individual capacity which encompasses of such way of thinking, mindset, belief, attitude and value (Stigler and Hiebert, 1998; Ball and Cohen, 1999) according to Fullan's premise shows positive reform for teacher as individual capacity therefore, re-culture has better understanding for real change. However, restructure, re-culture and innovation support for each other, this because all aspects and programs such leadership, collaborative of relationship, funding allocation, increasing autonomy and the human intellectual management and others as explained above in aspect of restructure may support for the success of teachers' re-cultures of positive belief, attitude, and good value which at the end contributes support for their innovation for better understanding and commitment in ICT implementation.

## RECOMMENDATIONS

Finally, the author hopes this concept paper may provide contribution in building ICT implementation and better understanding in developing the whole three capacities whether individually, organization, and society to work hand in hand simultaneously as an effort in supporting technology society in education, especially in school to be more optimal. In addition, the author also expect that the further research of ICT Implementation is not just limited on one capacity of individual only but should encompass other two external aspects of capacities; organization, society and their other support elements too.

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