ICT’S ROLE IN RESTRUCTURING CLASSROOMS AND CREATING AN EFFECTIVE ENVIRONMENT FOR TEACHING AND LEARNING
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Abstract
This paper aims to propose some important concepts about how to restructure classrooms and create an effective environment for teaching and learning by integrating ICT as the significant role in teaching and learning process in schools. The initial thoughts based on the facts that nowadays, politician, business, community, parents, and stakeholders are calling for change that means restructuring education therefore is in the public spotlight. They strongly contend that educators must rethink how children are supposed to be educated, if they demanded to be successful learners and be prepared for life both in global and technological society. This paper will introduce a restructured approach to schooling that addresses the needs of today’s learners. Furthermore, it will describe how technology or ICT can significantly improve teaching and learning, particularly in terms of some major changes in what students learn (how they find, think, and synthesize information rather than how to memorize it) and how students learn (through investigation/exploration, collaborative group-work, and critical examination rather than obtaining information mainly from teachers and textbooks). Finally, using and integrating ICT effectively in classrooms will enable teachers and students to be more successful on restructuring classrooms.

Keywords: ICT, Restructuring Classrooms, Effective Environment, Teaching and Learning.

Introduction
The traditional system and model of education believe that schools should be modeled and characterized as teaching is telling, knowledge is facts, and learning is recall (Cohen, 1988). On the other hand, most advocates of restructured schools strongly argue that this model is outmoded or obsolete since nowadays, the enormous amount of knowledge required to participate in an advanced post-industrial economy and considerably substantial for the globalization era. Moreover, the rapid changes and information explosion considerably alter the nature of knowing from the ability to recall information to the ability and capability to define problems, retrieve information selectively, and solve problems flexibly (Linn, 1986).
Therefore, it is essential for schools to transform from an emphasis on the recall of knowledge to enabling students to think abstractly, problem-solve, cooperate and collaborate with others, and search for creative solutions. Critically, educators must stop teaching facts, skills, and concepts as if they were furnishings of the mind to achieve, occasionally dusted, and used for the rest of their lives. Instead, educators should help students learn to think for themselves and be able to construct and produce knowledge. In the other words, Knapp and Glenn (1996) contend that teachers need to get out of the “information-providing” business and into the “question-asking” business, by stimulating and promptly encouraging students to seek information and learn to process it so that they could find facts and develop strategies to solve problems they will confront in the future. Nevertheless, education goals must shift from facts and concepts to find facts and develop strategies as the information explosion and the rapid advance changes the nature of knowing and the nature of learning (from the ability to recall information to the ability to define problems, retrieve information selectively and critically, and deal and solve the problems flexibly; from the need to master all topics in class to the need to learn autonomously). Table 1 below describes some of changes expected in schools.

Table 1. Educational Transformation and Recommended Changes (Knapp and Glenn, 1996: 7)

<table>
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<tr>
<th>Elements</th>
<th>Conventional Schools</th>
<th>Restructured Schools</th>
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<tbody>
<tr>
<td>Learning</td>
<td>Students learn by absorbing information and skills presented through listening to teacher’s lectures and reading textbooks.</td>
<td>Students learn by constructing their own knowledge through inquiry, experience, teachers, textbooks, and other resources.</td>
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<td>Teaching</td>
<td>Teachers introduce information and skills, provide exercises to practice skills and memorize information, and check students’ ability to remember these.</td>
<td>Teachers engage students in activities that require them to think critically, solve problems, and seek answers to their own questions. Teachers serve as</td>
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<td>Curriculum</td>
<td>Curriculum emphasizes mastery of skills and concepts through a curriculum divided into subject areas. Students are sometimes assigned to upper and lower tracks according to how well they do on specific tests.</td>
<td>Curriculum promotes student inquiry, and is designed to engage students in solving real problems that extend into all subject areas. In-depth knowledge of important concepts is emphasize.</td>
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<td>Classrooms</td>
<td>Classrooms are primarily isolated setting where teachers deliver information, and students practice skills and answers questions. The focus is on the individual and competition.</td>
<td>Classrooms are multipurpose rooms where learners engaged in research and problem-solving activities related to specific topics of study. The focus is mainly on cooperation and team building.</td>
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<td>Assessment</td>
<td>Assessment focuses on short answer and essay tests that emphasize the ability to recall information, rather than understand it or apply it in some meaningful way.</td>
<td>Assessment focuses on students’ demonstrations and performances of their ability to express apply and defend knowledge and skills. Students also have opportunities for self-assessment, and the overall attitude is one of continual improvement and in-depth learning.</td>
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<td>Technology</td>
<td>Educational “technologies” have traditionally included pencils and paper, chalkboards, textbooks, manipulative, and other resources that help students develop basic skills, concepts, and generalizations.</td>
<td>A variety of technologies is now available to assist learners in the creation of knowledge and skills. Many of these new technologies can support research, analysis, problem-solving, and communication processes more effectively than the traditional resources.</td>
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Schools are demanded and being asked to participate in meeting changes particularly on rethinking the way they are structured, the curriculum, and instructional strategies. Moreover, schools should focus more on the skills and a comprehensive understanding students’ need for information and technology’s age, including higher-level thinking, collaborative problem solving, and fostering an ability to create and construct new knowledge. Some studies also contend that learners develop their own understandings based on their own experiences and observations, which mean that learning by doing by involving, and integrating the role of ICT into teaching and learning process would be significantly important.

One of the most remarkable changes of the last twenty years has been the incredible advance in technology. Information and Communication Technologies (ICT) such as personal computers, video products, internet, and communication devices have changed the world. The implication is the more schools have the access to these technologies, the greater educators have had opportunities to discover, investigate, and explore different ways to teach and design instruction. So what do these mean for the classroom? This paper aims to explore more about the important concepts about how to restructure classrooms and create an effective environment for teaching and learning by integrating ICT as the significant role to be implemented in schools. Furthermore, this paper will discuss about the fact that the emerging technologies provide the opportunity for educators to move forward far beyond the conventional or traditional system does, since the appropriate ICT or technologies would help teachers and students to organize the classroom and create an effective environment for teaching and learning process.
Role of ICT in Restructuring Classroom

The ideal schools are supposed to support teachers to do more coaching and tutoring than telling and lecturing. It means that coaching, for example by drill and practice, simulation, or demonstration would provide an information-rich learning environments where students and teachers can utilize a variety of technologies to support the materials design, instructional design, message delivery system, communication of knowledge, and as well as the storage and retrieval of information. In fact, ICT is one of the significant components in restructuring classrooms. Means and Olson (1993) contend that technology: (a) Frequently stimulates teachers and educators to be able to present more complex tasks and material; (b) Tends to support teachers in becoming coaches rather than dispensers of knowledge; (c) Provides a safe context for teachers to become learners again and to share their ideas about curriculum and method; (d) Can motivate students to attempt harder tasks and to pay more attention in crafting their work; and (e) Adds significance and cultural value to school tasks, particularly the local values that could bring much more contextual content for students.

In general, ICT provides one or more of three general roles or it could provide all of those three roles, which are: (1) Provide information: The ICT works and operates as a repository of information that can be accessed both in linear form, via one-way communication, and two-ways communication or known as interactive communication where the communication or technology devices could provide both audiences with direct and/or indirect feedbacks as they required; (2) Develop knowledge and skills, such as interactive computer programs where students could access all learning content and materials used for developing knowledge and skills. This computer program would help students to manage their tasks, construct the
knowledge, produce some formulas for problems-solving scenario, and finally build and create their own knowledge capacity. (3) Link different location as some ICT devices provide individuals to be able to connect with others live, real-time, or maybe delayed such as when someone uses an electronic network.

Due to the different roles of ICT as it mentioned above, as a consequences, teachers should make choices in terms of the appropriateness of the technology or ICT devices to meet specific learning outcomes as the technology has some different attributes. First, the depth and quality of the amount of information provided which may vary from one to another. Second, different technologies and their application have direct implications in terms of the manner in which the classroom is organized. Third, a fact that technology differs on cost and amount of integration needed to utilize them. Lastly, the nature that technologies way too varies in the flexibility of use. Therefore, the ability and capability to utilize a particular or certain piece of technology on a more flexible schedule directly affects teacher selection and use.

Some researchers found that integrating technology into classrooms has direct impact on the teachers. They firmly believe that teacher teaching with technology would expect more from their students particularly on taking more care in preparing their work; can present more complex material and students tasks; believe that students understand more difficult concepts and skills; can meet the needs of individual students and students differences better; can be more students-centered rather than teacher-centered in their teaching and learning process; are more open to multiple and multiframe perspectives on problems and solutions; are more willing to experiment and experience; and feel more professional and capable as they spend
less time dispensing information and more time helping students learn and gain information and new knowledge and skills.

However, as teachers begin restructuring the classrooms with ICT, a number of questions need to consider. Those questions are especially concerning on how technologies can be infused and blended into teaching and learning process; how students will react to technology, as adapting to using technology in the classroom could be complicated particularly in terms of different learning style which is not all students will find the same type of experience with technology rewarding. Second question concerns to how technologies will affect the concept of knowledge and change the location of teaching and learning, classrooms, and the relationship with students. And, how much time is needed and what kind of classroom management problem will arise when using technologies: planning, executing, organising, and evaluation (Knapp and Glenn, 1996).

**Effective Environment for Integrated Teaching and Learning with ICT**

As the amount of technology integrated in teaching and learning process has increased significantly in schools, the most consideration should be taken in terms of how to create an effective environment that is conducive to its effective use. In addition, some teachers in Indonesia context still less competent in operating such technologies to support teaching and learning, not to mention on how to construct the learning materials using the appropriate technologies. Therefore, teachers simply cannot be expected to acquire the needed skills to incorporate and integrate technology into instruction or teaching and learning process without a supportive environment and the availability of some technical assistance.
Means and Olson (1993) have examined some of specific conditions substantially needed for a technologically favorable teaching and learning environment as follows: *First*, appropriate technology must be available. Most of teachers use the technology that is most readily available. Therefore, the LCD projector and the power point presentation nowadays are the most commonly used piece of technology in schools, despite the computer or laptop or any other tools. The more sophisticated implementation or application is the use of online courses or internet where teachers put or publish some learning materials on the website and students can access them online. *Second*, it will take time and practice to integrate technology into instructional program or teaching and learning process, which means planning and organizing would be highly important. It is believed that the effective use of technology usually occurs in classrooms of teachers who had a previous knowledge and experiences using the technology. This fact is particularly true for teachers who want to use computers and computer-related technologies such as internet, online courses, etc.

*Third*, some supports are needed particularly in terms of technical support (internet provider, computers, computers software, LCD projectors, etc) and experts to assist teachers utilize the technologies and provide them with the best source and encouragement. Computer technology has received the most attention during the last decade. It is proven by the significant commitments of schools to provide computers with the expectation that students performance would improve and the quality of teaching and learning process would enhance when ICT is integrated into classrooms. Moreover, effective computer software programs actively engage the student’s participation and provide them with considerable learner control where the nature of feedback is immediate, helpful, and without embarrassment (this is significantly
important for students who have problems with expressing ideas, opinions or even posting questions). Last but not least, fourth, colleagues and administrators need to support innovation since mostly as what happened to Indonesian teachers, innovative teachers barely could get any supports about their exciting and bright ideas to bring such brilliant changes in schools. Therefore, the innovative teachers should always seek out colleagues or partners who are interested or have same vision and mission in change and new ways of thinking about teaching and learning.

Needless to say, the nature of environment and ICT are always changing, it is especially perceived by the potential users of ICT, i.e., teachers in their classrooms. The characteristics of the change, its size, complexity, prescriptiveness, and practicality for teachers also served as a dynamic process. Put positively, the more factors or elements supporting implementation of ICT (the availability of both technical assistance and technologies) into teaching and learning process, the more change in practice will be accomplished. As a result, a positive and conducive learning environment for both teachers and students will be worthy created, despite providing teachers with workshop or courses specifically on how to deal with the ICTs changes and integrate them into classrooms; and ensuring that within these courses their developmental experiences and progress are being made. Equally important, the notion that teachers will learn and understand best by being coached by other teachers is true; this leaves the role of the training of trainers also significant.

Conclusion
In summary, the appropriate technology or ICT integrated into classrooms can assist teachers and students restructure how the classrooms is organized and mainly managed, what type of topics and learning materials are studied, and how students learn and engage actively in classroom. In addition, it helps teachers to assess the student’s performances comprehensively. Above of all, the use of ICT brings about all the needed changes are simplisistic. The presence of new technologies possibly will not change the schools, but technology, if integrated and blended it into an effective teaching and learning process and practices, can positively help restructure the classrooms. Inevitably, bringing about changes will not be easy and simple as schools definitely are complex organizations, and schools have been the subject of reform effort throughout the history. However, important changes can begin in classrooms, the most and ultimate critical location of change, not to mention the presence of innovative and dedicative teachers who always want their students to learn and succeed no matter the challenges appear so great and vary and the conditions seem so difficult to get compromised. ICT will not work miracles for teachers, nonetheless, the initial step in restructuring the classrooms definitely counted and will have some profound and enormous effect.

References

