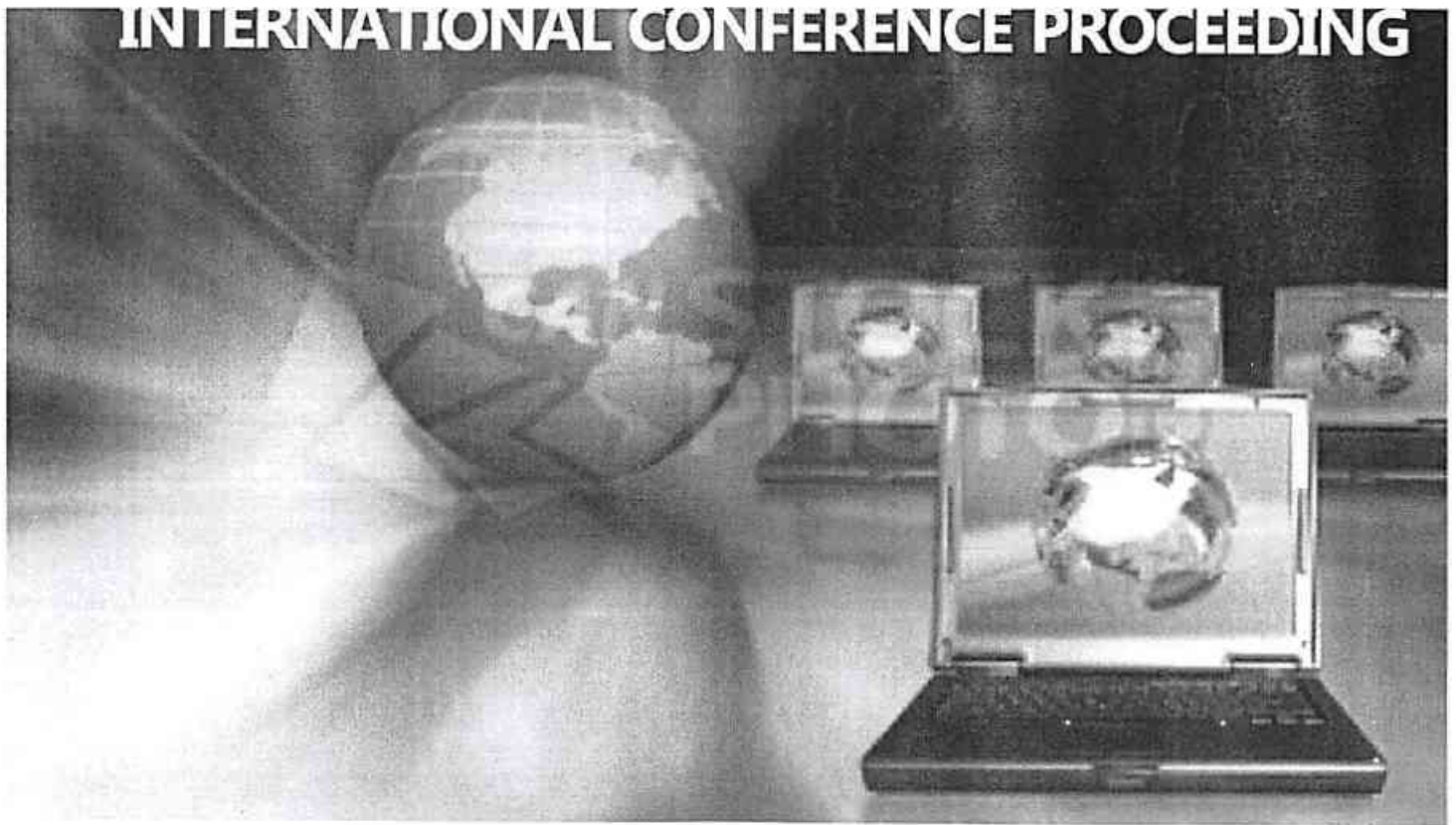


# INTERNATIONAL CONFERENCE PROCEEDING



## INFORMATION COMMUNICATION TECHNOLOGY IN EDUCATION FOR PEACE



Wednesday, May 11 2011  
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## **The Social Impact Of ICT And School Barriers In The Character Education**

By  
**Siti Irene Astuti D<sup>3</sup>**

### *Abstract*

*Schools face challenges of the change in the society life. The most difficult challenge is to respond and adapt with the change in science and technology. In fact, a school has an important role in the character education for children, to respond the social impact of ICT in a technical society. A school can solve the social impact of ICT by improving the basic principles of the ICT learning for character education through ICT learning design which applies some principles: stay safe, be healthy, enjoy and achieve, achieve economic well being, make a positive contribution.*

*Key words: Social impact, ICT, Character Education*

### **INTRODUCTION**

A school has an important role in developing a nation character. However, school is faced with social phenomena that demand a good strategy for character education. The challenge faced by education is, in fact, the revolution period of science and technology that may lead into two tendencies: either the degradation or improvement of the nation character. The first tendency is that the education is faced with the challenge of science and technology revolution that transfers the direction of education into technical knowledge and the development of modern technology devices. In addition, the social life is full of changes that lead into the decrease of the humanist social interaction. People tend to develop the individualism that is caused by the development of the technology; this marginalizes the existence of people even more. Worse than that, school power in developing the character as a foundation for human life does not get a serious attention. Meanwhile, humanity problems of which the source is the degradation of the nation character keep going on in the middle of the development of science and technology. Finally, the second tendency is that a school can develop the nation character by using ICT. However, many schools do not know it yet, so that it still needs critical thinking in making use of ICT, for the sake of the nation character education.

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Education, which is faced with the development of science and technology, must actively react on the social and cultural issues, because such development has two dimensions i.e. either improvement or degradation towards human civilization. In one side, the great significance for human life is that people can have a life that is better, safer, easier, and so on. This remembers the fact that science and technology development happens because people can use their thinking potential to be able to solve any kinds of problems; in order to create a useful creation, people keep thinking. On the other hand, the phenomenon of the degradation of human life, in fact, happens due to the intervention of technology development and its implementation in the whole aspect of human life. People become dependent on technology so that it is no wonder if the dependability of people on their own creation becomes even stronger. As the consequences, alienation appears as a respon towards the on-going phenomena. This is where the important meaning of human starts to be marginalized; even the brain function is also marginalized by the formulations of modern computer programs.

For the society, there is a tendency in which science and technology is believed as a religion that can solve the life problems. The temporary worship of people towards sience and technology is as if it is able to free them from the world transitory. They believe that those two things will give them health, happiness, luxury, comfort, even "heavenly world". By the existence of science and technology, people forget about a social-cultural power which is actually a strong foundation for the development of those two things. However, there is also a tendency that the degradation of social and cultural modality is due to the development of those two things which strongly replaces the principles of human life. Sch replacement is never predicted to have "multi-effects", such as the degradation of young generation morality due to the fast development of handphone that enables them to always access the internet of which the program and timing are uncontrollable. Another example is the fact that the development of household technology has degraded the society's social-cultural skills, while those skills actually teach them patience, carefulness, even sensitivity based on the life experience.

The development of science and technology happens rapidly; even the tendency is that people are dependent on it. The impact of human life towards the development of science-technology becomes life dynamics in Indonesian society life. People's response and adjustment towards the change of sience-technology are various, so that the dynamics of

one society are different from the others. In fact, technology shows its phenomenon in a society as an impersonal business which has autonomy to change every side of human life into a technical area. Jacques Ellul in *"The Technological Society"* (1964) does not use the word technology, but technique, although the meanings are the same (Munnandar, 1995:162).

The phenomenon of technological society merges with the education dynamics. Education world cannot avoid the dimensional impacts caused by the technological practice in all level of education practice. Education must revise both the social role and existence, either as a way for socialization or as a center for human civilizing, which can strengthen the role of character education since it is weakened when facing the challenge of technological power which marginalizes the importance of life values. This paper discusses the importance of school roles in strengthening the character education in facing the challenge of science-technology revolution by using good ICT.

## **DISCUSSION**

### **1. The Challenge for Education in Technical Society**

Human life has lost its dimension of social and cultural values that is previously deep-rooted in the society. Nowadays, a society is generally illustrated as people who face the tension caused by the implementation of technique in many stages of life. The change of people's environment and space has changed human nature. One simple example is the pattern for eating and sleeping which is no longer determined by either hungry or sleepy state, but by timing. Certain behaviours portraying rationality, artificiality, automatism, monomism, and universality that exist in human life actually mark the technical phenomenon of a society (Sastraprteja, 1980:165). In addition, rationality, of which the definition is any actions based on both careful planning and rational calculation, also becomes a crucial part of life process. Even in the education world, social education is also rational in all its practice level –in the level of either policy or education units. Artificiality is to create something that is not natural to become a part of life, even a part of the production of some products, needed by people. One example is that people are now able to create things like those that come from the nature, such as plants, flowers, and fruits, from plastic. It is in order to ease them to have the quality of those things, such as to decorate houses, without a must to put much attention and time in maintaining them –to



water and to fertilize them. Even for many reasons, artificial product is inside the human body, for example conducting some operations to beautify the body parts and to result in younger look, etc. Besides, automatism, which is marked by the use of all automatic organizing methods, eliminates non-technical activities. One example in education is the computerization of registration and announcement of examination score, which leads to the decrease of lecturer-student interaction and degrades the interpersonal relationship.

On the other hand, the symptom of monomism becomes a phenomenon that keeps going on in human life. The dependency caused by the implementation of technology becomes a part of life dynamics. In the education world, the use of online system in *PSB* is a concrete example showing that the condition of education for children really depends on how the system which has been programmed by computer which applies in all areas determines the education condition for its students. Even, students are to write the names of school that they want to enter based on the information about schools as well as their standart scores given by the computer. In addition, when they have been accepted by certain schools based on the score criteria, they can neither refuse nor question; the only choice to choose is either to take the chance to go to school or to leave it at all. Meanwhile, rationality developed by the online program i.e. transparency and both accountability and public service developed in the monomism system, in fact, influence the degradation of democratic values in children, in case that they cannot always choose the schools that they want.

The dominant technical phenomenon is universality which beomes a characteristic of a society of which the technique has exceeded the boundary of ideology as well as cultures; worse than that, it tends to control over the cultures. In fact, globalization strengthens this universality. In this case, globalization is a process of the increase of mutual-dependency in economy, culture, environment, social, and unlimited cross-country relationship, as well as the emergence of tendency to the process of global homogeneity, hybrid, and cultural differences (values, customs, and society's attitudes). In addition, the development of communication technology hastens the economic integration process and makes the world is even smaller, so that production factors can be quickly transferred among many countries (James Bank, 2007).

Besides, the technical phenomenon happening inside a society is a form of autonomy. The growing autonomy action is the very rapid development of the principles of

technology, including all aspects of human life in order to fulfill human needs. The onset of technical development is previously a part of science, or even dependent on science; now, science can even be dependent on technique. One example is the rapid development of computer technology as well as outer space satellite which enables people to get new science from them. Meanwhile, Ellul describes the broad range of technical world this way: a) Technique includes economic field, meaning that it can produce industrial products; b) Technique includes organizational fields such as administration, governance, management, law, as well as military. The example in a country organization is that for a technician, a country is simply a place for the implementation of devices produced by technique; c) Technique includes humanity field such as education, employment, sport, entertainment, and medicine; d) Humanist techniques felt by the technical society can be seen from the condition of their own life (Munnandar,1995:168)

Technology is a product of human which is aimed at organizing the environment and adjusting with themselves. It makes the environment comfortable, safe, and efficient to be stayed at or to be explored. Since the environment really affects the human life, technological environment affects it as well. In fact, the first simple technology such as those made of wood, stone, and bones, develops very slowly and very little, so that its impact on human is invisible. Nonetheless, modern technology which can develop very rapidly in a huge number can affect human life in a huge scale as well. The impacts can be direct or primary as well as indirect or secondary or tertiary (Jacob, 1988:69-71).

Among the negative impacts of technology towards human, some of them are as follows (Jacob, 1988: 69-71):

- a. **Human displacement or substitution.** For examples, the function of human muscles for doing hard jobs is substituted by technology product, so that human undergoes mental atrophy. Even, the whole function of human is replaceable by robots so that human is disreplaced from his jobs.
- b. **Limited freedom.** The choice that is available to choose relatively decreases, although probability increases as the technology develops. Indeed there are many new possible things to do, but our accomplished wish is not many. In many cases, it is we, human, who have to adjust with the technological equipments and system.
- c. **Limited personality.** Human tends to become in-uniform public human whose privacy gets lesser. He becomes only small part of central planning, but he has to participate in it. With the uniformity and conformity, individual gets limited; quantity becomes even more important than quality. Narrowness usually comes after it. There is rapid development of various equipments since the number of artefacts per capita becomes the measurement. Finally, this condition really suppresses human, both physically and mentally.

- d. **Dehumanisasi.** Human is considered as a creature which is objective and only pays attention to something which is countable or measurable, while other things are considered peripheral. These "peripheral" things do not become consideration factors in the development, education, and its improvement. Technology always develops and becomes something which is complex and expensive; it gets more autonomy because no one can hinder it.
- e. **Technological mentality.** This is portrayed in the too-much belief in equipment (technocentric), as if everything is solvable by using technology and as if everything gets better by involving equipments and numbers. Something which is actually ordinary and easy, even, needs the help of scientific experiment. In this case, science acts as a secular religion.
- f. **Balancing tool which is not adjusting.** In order to regain the balance disrupted by technology, people need something to help them to adjust with such situation. However, they sometimes look for escapism by doing drug abuse such as narcotics, psychedelic, etc. In addition, they then strengthen themselves by collecting some things as positional goods to deal with the failed adjustment. Meanwhile, to maintain the homeostatis condition, they unfortunately try some other maladaptive efforts.
- g. **Technological crisis.** Many crises happening in the whole world nowadays are mostly due to the too-rapid development of technology, so that people do not have much time to adjust and integrate with it. As a result, individual technostress, urban disease, as well as civilization disease happen. System in stress, for sure, shows pathology. Unfortunately, destructive technology develops very rapidly and continuously in the form of nuclear weapon, which makes war an obsolete solution for conflicts.

The impacts of technology need a strategic and systematic solution and is hoped to positively contribute for human life, especially for students. This is important because there is a tendency in which education only pays little attention for character education in relation to school improvement since it prioritizes technical science and the development of modern technology. As a result, the function of a school as an interaction place for students, teachers, headmasters, as well as staffs does not develop. It is as if the education quality develops technically, without the support of strong foundations of social and cultural values which have actually become our old heritage (Sodiq, 2011: 2).

The development of social-cultural life at school should be prioritized in order to provide a convenient place for both children and adults, not only to study but also to develop their good characters. Every society, institution, and school actually has social-cultural capital as a way of improving their quality. Unfortunately, the society has more recognition on physical capital, money, even human to be the tools for school quality development. In addition, physical capital includes building and land; human capital refers to its quality; while money capital refers to its ownership which becomes a capital for



school development (Sodiq, 2011: 3). This way, a school needs to strengthen its roles in character education to face the challenge of the development of science and technology, especially ICT (Information and Communication Technology) which becomes a medium in school learning.

## **2. Social Impacts of ICT**

Technical society phenomenon, especially in ICT, has social impacts. The social impacts caused by ICT, especially its use in the learning process, influence school activities, either directly or indirectly. This is possible because social practice (technology use and policy-making become a part of it) can have an effect on the benefits which members of society derive from ICT, and as well on the extent to which potential damages exert a negative influence. If one reduces technology to the blueprints of some ingenious inventor, one misses its socially constructed and appropriated character and victim falls to the trap of instrumentalism. The same is true if one assumes that technology can solve all social problems (although problem solving may often be related to technological change in one way or another).(<http://injournal.org/idea/article/view.379>).

The social impact of ICT has no revolutionary but an evolutionary nature. From a technical point of view ICT may be revolutionary, but her societal impact is not of that nature. This does not rule out that ICT contributes to important societal transformations. With ten contemporary trends it was observed that they are reinforced by ICT. Without ICT, they would also have occurred, though to a lesser extent. This would have led to major problems in a number of societal domains such as a congestion of social and economic exchange and all kinds of organizational processes. These problems are identified in the domain reports that come after this conceptual framework. The domain reports identify four common themes that go deeper into the social impacts of ICT than the general trends listed above. On these themes, all domain reports answer a number of questions. (*Conceptual Framework* University of Twente, *Social Impact, April 2010*). There are four common themes and questions of social impacts based on the conceptual framework:

### ***(1) Rationalization (effectiveness, efficiency, innovation)***

This goes for the organizational aspect in all domains. It concerns not only with production systems and the economy, but also with consumption patterns and everyday life. Partly on account of ICT in everyday life has been found to become more business-like as well, for example the effects of electronic calendars and explicit choice or preference lists in profile

sites and online dating. Rationalization as a theme enables people to look for the objectives in a particular domain which is already present before ICT arrived, but subsequently more or less supported by this technology. Further, it forces us to look at the costs that the use of ICT requires as a medium. Are the costs of this medium worthy of the achievements? Finally, ICT is a kind of innovation. What is the innovative capacity of ICT compared to some old activities and techniques? What are the traditional goals in term of effectiveness in the domain under consideration? Has the introduction of ICT brought these goals closer? What ICT expenditure has been made? Did it bring the expected returns yet in terms of efficiency, or are the main results still to come? Have the ICT applications brought forward only technological innovation or also social and organizational innovation? When the domain is non-economic in its nature, has the introduction of ICT reinforced business-like approaches of calculation, registration, economic measurement and management control?

### ***(2) Networking & Social capital***

In all domains, the (social) infrastructure of activities is changing in account of the networked character of present-day ICT. It is argued that most transformative change of ICT will be in the relations and the resources that we derive from them in the information and network society. Many expect that networking will affect the distribution of social capital and the strength of social cohesion in a society. To what extent is the domain under consideration already networked? Or does it still largely consist of separate entities that are either not online or still working offline most of the time? Has networking changed the organizational structures? Has it led to new roles, functions, jobs or organizational positions of people working? Can particular network externalities be observed? For example: has a critical mass of online connectivity already been reached? Is there a call for common standards or protocols for the networks? Can a particular growth of social capital be observed in the particular domain? Does social networking contribute to the improvements or degradations according to the accepted norms or values? What type of social capital presently dominates the domain: bonding capital (the strength of similar people), bridging capital (the weakness tied between similar but distant people) or linking capital (the weakness tied between unlike and mostly distant people)? What is the role and what are the achievements of the so-called social or participatory media? Does ICT lead to more or less social cohesion in relevant communities of the domain (e.g. health, education, leisure, and resident communities)?



### ***(3) Empowerment and participation***

The common scientific and public opinion expectation is that ICT will change power relations in many, if not all, domains in society. Some think that centralization will occur, but most think that decentralization will happen. The most popular expectation is that ICT is empowering users of all kinds: citizens, consumers, workers, patients, students and audiences. Here, the main questions are: Do/will ICTs substantially change the relations between governments and citizens, producers and consumers, doctors and patients, teachers and students, etc? Increases in participation and empowerment could be understood as key elements of beneficial, transformative change, but ICTs can potentially also be used to curtail participation and individual freedoms. What has been expected of a change of relationship between the most important actors in the domain and what has actually occurred? Have those in power yet reached more power in their control of design, investment and implementation of ICT or can a bottom-up trend be observed? Is the popular expectation true that users and user-generated content increasingly define what happens? Has the *nature of the relationship* between governments and citizens, producers and consumers, managers and workers/employees, doctors and patients or teachers and students changed on the account of ICT? Has ICT increased participation of citizens, consumers, workers, patients and students in goal settings and in the ways goals are being pursued? What is the level of access to ICT (primarily computers and the internet) in the domain under consideration? This question goes for at least three types of access: 1. physical access to computers, the internet and other digital media; 2. digital skills, and 3. use: the quantity and quality/ kind of applications.

### ***(4) Information and Lifelong learning***

The meaning of the concept of information society is that in all human activities and in all domains, information intensity increases. This implies that there is a growing part of all activities, in work and leisure time, and obviously in education consists of searching, collecting, processing, evaluating and applying information. Obviously, ICT strongly supports the opportunities of lifelong learning, both in the job of formal education and in leisure time. To what extent have information jobs and information activities grown in the domain under consideration? What are the typical ways of information processing and exchange before and after the introduction of ICT? What is the relationship between professional and lay information processing or learning? For example, how do teachers and

students, doctors and patients, civil servants and citizens, managers and employees, learn and exchange the results of learning? Do applications of ICT support these ways of learning? What are the opportunities of learning with the aid of ICT? What is the role of peer-to-peer networking at all levels? What are the opportunities of computer interfaces in interactive learning for students, workers, consumers, citizens, patients etc.? Does ICT only support the so-called 'new learning' by individual and network interaction and association or also more traditional modes of knowledge transfer (classroom and unidirectional learning)?

When applying a non-deterministic view upon technology, to acknowledge the imagination of future worlds as a legitimate part of technology development (as practiced, for instance, in *scenario-based design*) is not necessarily an argument for ignoring the importance of socio-cultural factors for technological change. On the contrary, strategies aiming at technological innovation have to take into account all relevant experiences of practice. This is to say that technological innovation (and its political promotion) may be supported by scenario-based discussion processes, trend extrapolations and similar methods. However, neither do these methods cover all available and relevant experience, nor can they themselves be reasonably executed without socio-cultural assumptions.

Technological change is not enough to understand the related blueprint of the inventors. Instead, one also has to study the perception and the use of the technology in and after the production, also its role for changing social practices in production and consumption. Only by understanding such inter-relations and inter-dependencies in practice, realistic policies can be developed. Therefore, there are two opposed dangers: to reduce ICT in one way or another to ex-ante expectations ("visions") that motivates the stakeholders of the related technology development, or to conclude from experience that the evolving practice of ICT-use diverges from any planned path, that ICT necessarily is fully uncontrollable and, therefore, endangers humanity. (<http://injournal.org/idea/article/view.379>).

"This implies to address ICT demands for some differentiation on the technology level, as well. The non-determinist stance taken here implies that the effects of ICT can differ between one way of use and another, and also regarding expected use and practical use. This is to say that the social context of production and consumption plays an important role for applications of ICT, which thus sometimes can even be altered by users (for example, in the case of end user development (EUD)). ICT applications (or "ICTs") are, therefore, socio-historical entities *sui generis*. The same is true for their patterns of appropriation. As

ICT applications relate to changing or even emerging markets, identifying them in social practice is an important part of the analysis of the social impact of ICT. The establishment of an ICT application in practice mostly turns out to be related to systematic development efforts – however, the relation between what is generally regarded as development and product cannot be described in terms of cause and effect, as there are multifaceted causes and similarly heterogeneous fields of effects." (<http://injournal.org/idea/article/view.379>).

Based on the above explanation, the conclusion is that the use of ICT at school cannot be separated from some aspects related to its social impacts. For schools, the social impacts should actually contribute to the consideration of both the consequences and the solution for the implementation of character education. In addition, positive understanding about these impacts can help to develop creative and innovative learning process for the sake of the students' quality improvement by using ICT. The same way for schools that have actively used ICT during the learning process, they need to identify the five aspects related to the social impacts in order to be able to anticipate certain problems that may be caused by the use of ICT at schools.

### **3. ICT and Character Education**

A school has an important role for character education in children. In this case, there are many factors that influence the process of character education of people; they are both *nature* (unique factors which are inborn) and *nurture* (an environment in which people grow up and develop). In fact, what is in the range of the influence of a society is not nature factors, but the nurture ones. Therefore, in the process of both character building and character developing, the focus should be on the factors that are in the range of influence – nurture. In addition, in this nurture building, the role of schools becomes very important, even central, because character is basically personal quality which develops through the learning process, either formally or informally (Raka, 2007: 7).

The education for character building basically involves substance development as well as encouraging process and atmosphere which ease people to develop their good customs existing in the everyday life. In addition, these customs appear on the basis of awareness, belief, sensitivity, and attitude of the related people. That is why, Dengan demikian, character is *inside-out*, meaning that the development of attitudes into good customs happens due to inside encouragement, not outside forcement (Raka, 2007: 6).

Problem faced during character developing is the ability to maintain permanent self identity which even gets more perfect during the perfection process as a human. Therefore,

character is not life authority. In other words, character cannot be as a mere means to achieve things like happiness, peacefulness, pleasure, etc which are basically some extension of their own psychological needs. In addition, character is a basic criterion showing which path an individual takes to fully build themselves, no matter what psychological experiences that they have. In this case, character development is a process happening continuously; character is not simply reality but the totality of attitudes. Besides, character is not simply a product or result, but life struggle. This struggle is even more effective when people anything according to their skills (Koesoema, 2004: 103).

Character is "distinctive trait, distinctive quality, moral strength, the pattern of behavior found in an individual or group" (2). Kamus Besar Bahasa Indonesia does not put the word *karakter* (character) yet, only the word *watak* (nature) which means as mental personality of human which affects all about thought, behaviours, and morals. This paper uses the first definition which means that character relates to moral strength, has positive connotation, and is not neutral. In addition, "people with character" are those who have (certain) positive moral quality. Thus, the statement says that education builds character involves personality or behavior pattern building on the basis of good moral dimension, not negative ones (Raka, 2007: 5).

In its realization, character education needs to take into account both consistency and regularity. According to Foerster (in Koesoma: 2009), there are four characteristics of this education: (1) interior regularity in which value hierarchy measures every action (2) coherence which leads to bravery makes someone either persevering, or difficult to get played up and down, or afraid of risks. In addition, coherence is a basis for building self-belief for one another, not only does coherence destroy someone's credibility. (3) Autonomy; an individual internalizes rules from the outside to become self-values. This can be seen from the self-decision without others' influence. (4) Perseverance and loyalty: perseverance is enduring power to maintain and pursue what is considered right, while loyalty is a basis for respect on the chosen commitment.

Character education relates to values. Paterson and Seligman identify 24 types of character strength. Meanwhile, CEO IDEAL temporarily develops some characters to be the choices for practice: honest, forward looking, competent, inspiring, intelligent, fair-minded, broad minded, supportive, straightforward, dependable, cooperative, determined, imaginative, ambitious, courageous, caring, mature, loyal, self-controlled, independent (Zuchdi, 2009: 44). Nonetheless, as is explained by Gede Raka, from many types of characters, there are five types which are the most important and urgent to get both developed and strengthened, i.e.: **honesty, self-belief, appreciation towards *kebhinekaan***



**(unity), learning spirit, and working spirit.** They are badly needed as a basic modal in solving big problems which are deep-rooted into becoming the causes for Indonesian nation degradation, i.e. corruption long horizontal conflicts, the assumption as second-class nation, low spirit of both working and learning (Raka, 2007).

There are many ways in doing the character education; one of them is by using ICT. ICT, in fact, has a role in character education. If the society positively understands the existence of ICT, it can be an effective medium for this kind of education, without neglecting its possible negative impacts. The process of ICT using, especially for education, is actually a medium needed for learning process. Moreover, in this globalization period, the use of ICT for the sake of a good process of both learning and management is even more important. Unfortunately, the existing tendency is that many schools are not ready yet for ICT so that its implementation has not given positive impacts. Worse, the schools may not be able yet to anticipate its negative impacts. Whereas, the right-directed use of ICT can contribute to the success of learning process, especially in scientific insight development. In other words, the right use of ICT can help to build children's character in facing the challenge of science- technology development in this global era. In this case, children become more creative and pro-active in learning and working. They have more self-belief in doing those things because they have broader insights, compared to those children who are left-behind in responding the science-technology development.

The problem that happens in education is how this can minimalize the impacts of ICT. In this case, in order to manage some problems related to the use of ICT at schools, they need to develop character values needed for the students, especially in facing certain programs or information which is not really good for the character building. Teachers' roles are very important to consistently control and effectively evaluate anything that the students get from using ICT as a learning medium. This is done through a communicative and critical dialogue between students-teachers during the learnings that make use of ICT. On the other hand, schools need to prepare certain supporting infrastructures as well as a healthy condition for the students, so that they really feel that ICT is a fun learning medium which always challenges them to improve their achievement as well as to behave positively.



In this case, Terry Freedman (2005) explains the importance of paying attention to the ICT Classroom and the 5 outcomes of Every Child Matters. In this section we look at each of the 5 outcomes and suggest some features of the ICT classroom which can be introduced or maintained in order to address them (although some of the ideas are more whole-school in nature) :

Aspect	Description
Stay safe	<ul style="list-style-type: none"> <li>a. Health and safety regulations are adhered to, eg no trailing wires from computers to printers.</li> <li>b. The monitors are positioned properly so that the corners don't present a danger to children.</li> <li>c. A "walled garden" provides a safe online environment in which children can search for information.</li> <li>d. There is restricted access to general internet messenger services...but there is safe access to moderated and closed chat rooms and forums.</li> <li>e. There is an internet safety policy in place..... and it is actually implemented!</li> <li>f. Staff (not only teaching staff) are trained in what to look for in order to keep children safe. For example, they try to ensure that children do not put personal details on their own websites or in emails.</li> <li>g. Children are taught how to protect themselves online.</li> <li>h. Internet literacy and, more broadly, digital literacy are prime objectives.</li> <li>i. For example, children are taught how to look for signs of bias in electronic material.</li> <li>j. The school's information management system enables different agencies to share information about a particular child easily...</li> <li>k. ... and can help pinpoint where a child should be at any specific time according to their timetable.</li> <li>l. Electronic cards help to track attendance and, therefore, patterns of absence – and measures are in place to prevent fraudulent registration.</li> <li>m. A home messaging service is used to alert parents if their child does not show up at school.</li> <li>n. Voice over Internet Protocol and similar technology is used to facilitate easy communications between agencies.</li> <li>o. Mobile devices with GPS tracking are used to help keep school parties safe on school trips.</li> <li>p. Children are always supervised by an adult.</li> <li>q. Official guidelines are adhered to with regard to children not being identifiable from photographs on the internet...</li> <li>r. ...a policy is in place to ensure that data protection laws are complied with.</li> <li>s. Children are taught about data protection in ways that are relevant to them personally.</li> <li>t. Children feel able to talk to an adult about cyberbullying and other forms of electronic harassment.</li> <li>u. The person in charge of ICT carries out risk analysis on a regular basis.</li> <li>v. The person in charge of ICT ensures that checks of the equipment and wiring (etc) are carried out on a regular basis.</li> <li>w. Children are not allowed to queue by the printer, which can have safety implications.</li> </ul>
Be healthy	<ul style="list-style-type: none"> <li>a. Physical well-being can be promoted by the use of portable devices in open spaces.</li> <li>b. The computer rooms have (quiet) air conditioning installed.</li> <li>c. The computer room has plenty of space and is well laid-out, ie it is not like an obstacle course.</li> <li>d. Mental well-being is promoted by learning activities which promote challenge, allow achievement and which are fun.</li> <li>e. The personalisation agenda has been adopted, meaning that each child has real choice, which helps to promote mental well-being.</li> <li>f. Co-location means that a child could be timetabled to see health or social services.</li> <li>g. There are software programs on the school network, and used in the school curriculum, which promote healthy eating (eg nutrition programs) and healthy living.</li> <li>h. Health and safety regulations are adhered to. For example, children working on extended projects are encouraged to have a ten minute break from the computer in every hour...</li> <li>i. ... anti-RSI measures and practices are in place...</li> <li>j. ... monitors are positioned properly, eg glare and strain are reduced...</li> </ul>



- k. ... the data projector light is positioned properly so that it doesn't "blind" anyone using the interactive whiteboard...
- l. ... the interactive whiteboard is non-reflective so as to reduce glare.
- m. Children are protected from, and taught how to deal with, abusive behaviour such as cyberbullying, thereby helping to maintain their psychological well-being.
- n. The chairs in the computer room are of the correct size for the children (eg are adjustable).
- o. Desks or benching are at the correct height (or are adjustable).
- p. There is plenty of space at the computers for children to work on paper and discuss the work with other children.
- q. Frustration at not being able to use programs to achieve an objective is reduced by having how-to posters on walls, thereby helping to maintain children's psychological well-being.
- r. A positive atmosphere is established by having positive behaviour rules rather than negative ones.
- s. Disaster prevention practices are in place, thereby helping to maintain children's psychological well-being.
- t. Disaster recovery practices are in place, thereby helping to maintain children's psychological well-being.
- u. Shortcuts and automation techniques are taught and encouraged, thereby reducing the amount of time the children need to spend at the computer (in theory!).
- v. Children are able to access the internet for information on health.

**Enjoy  
and  
achieve**

- a. Online learning tools enable children who are in hospital (say) to achieve as well as those in school...
- b. ... All children have the possibility of enjoying "always on" learning.
- c. Managed services are used to free up resources that the school can then use for other purposes, eg rather than pay a network manager £30,000, the school uses the money to pay for 1.5 teaching assistants.
- d. The single conversation means that the focus is on leadership and management processes that promote achievement, ie the big picture.
- e. Internet café areas in the school promote enjoyment and achievement at the same time.
- f. Flexible arrangements are facilitated by technology: there is a wireless network to promote the anywhere, any time model of learning.
- g. Space is used imaginatively to incorporate computers and other technology.
- h. Mobile devices are extensively used, which helps to facilitate personalised learning.
- i. The school buys well thought-out software that paces and challenges and rewards.
- j. The children know what Level they are working at...
- k. ... and know how to get on to the next one up.
- l. The children are challenged in ICT lessons, not bored.
- m. Activities are creative and don't have an artificial ceiling.
- n. Assessment for learning techniques are used in order to enable pupils to progress at the right pace for them as individuals.
- o. Each pupil's needs are known by the teacher and teaching assistants, and reflected in individual education plans.
- p. Software is available that enables children with special educational needs to achieve, including children identified as gifted and talented.
- q. Children with physical disabilities are catered for through devices such as head-operated mice.
- r. All classroom assistants play a full part in the planning and delivery of lessons.
- s. The children are able to use appropriate technology as and when they need to, ie there are no serious access problems.
- t. Children have control over their work, eg through the use of e-portfolios.

**Achieve  
economic  
well-  
being**

- a. Online learning enables all children to achieve economically by not missing out on their education, possibly regardless of home circumstances eg access through library, after-school club.
- b. Well-designed schools, by providing a host of different learning environments, can also help children achieve this.
- c. Children are taught why it's necessary to be computer-literate.
- d. Children are taught about current and likely future trends in computing in "the real world".
- e. Children are taught, and encouraged to think about and discuss, the social and economic effects of developments in computing in order to be better prepared for the world of work. For example, print-on-demand technology lowers the cost of self-



- publishing.
- f. The teacher in charge of ICT adheres to the UK government's regulations concerning work-related learning, namely: learning about ICT at work...
  - g. ... learning about ICT for work...
  - h. ... learning about ICT through work.
  - i. Children use dedicated computer programs to help them make career choices.
  - j. Children are taught practical skills that are valued in the workplace, ...
  - k. ... and work towards recognised qualifications, such as the European Computer Driving Licence, which could help them get a job.
  - l. Students are taught how to present work well, which should help them when applying for jobs or college courses.
  - m. Students are encouraged to apply for advanced level computer or ICT courses at school, college and university.
  - n. Children learn about other cultures through the internet and software programs.
  - o. Students are taught how to develop systems (including websites) for use by others.
  - p. Students are shown how to set up e-commerce websites...
  - q. ... or websites to act as a point of contact for potential customers in bricks and mortar establishments.
  - r. Students are taught about the economic effects
  - s. Children are taught how to, and encouraged to, evaluate the likely environmental impact of developments in computing, eg the possible effects of developments in printing on paper usage and therefore natural timber resources.
  - t. Children use computer models to investigate how the economy work.
  - u. Students are taught that mobile devices and the internet facilitate homeworking to a much greater extent than was previously possible, thereby widening their potential choice of career.
  - v. Students are taught about digital rights management and other copyright-related issues.
  - w. Students are taught how to access different kinds of information, ...
  - x. ... and how to evaluate it: information is all-important in the information society.

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**Make a positive contribution**

- a. All children can contribute to lessons through the use of interactive whiteboards.
- b. The school buys software that enables children with learning difficulties to make a positive contribution.
- c. The school adopts new collaborative tools like blogging, wikis and podcasts, which can enable young people to make a positive contribution. For example...
- d. Children are taught how to conduct themselves in forum discussions.
- e. Children are taught how to make or contribute to the production of "radio" programs through podcasting.
- f. Children are taught how to make digital videos..
- g. And how to interpret images (visual literacy)
- h. Children are taught how to use presentation software well.
- i. Students are encouraged to develop business ideas, based on technology...
- j. ... and encouraged to put them into practice e through schemes such as Young Enterprise.
- k. Children are taught how to use mind-mapping tools in order to develop their ideas,...
- l. and present them to others.
- m. Children are taught how to develop systems for others, and which take account of feedback by others.
- n. Children are taught about the digital divide, both within their own country and the world as a whole.
- o. Children from schools in different countries collaborate with each other through online forums.
- p. Teachers take advantage of the non-judgemental character of ICT to help children develop higher self-esteem.
- q. Teachers take advantage of the provisional aspect of ICT in order to encourage pupils to try out different approaches and solutions.
- r. Children are taught how to ask the right questions rather than encouraged to seek "the" answer.
- s. School buildings and infrastructure reflect the design of the curriculum, and enable technology to be used as appropriate, seamlessly. In other words, school buildings, infrastructure and individual classrooms reflect the needs of the individual child or young person.
- t. The curriculum is flexible enough to take into account individual pupils' needs..

By paying attention to those five aspects, schools still play important roles in character education process, at the same time as the use of ICT at schools without neglecting its meaning in the learning process, i.e. growing the character values needed in life. Related to Terry Freedman's argument, one assumption is that ICT use which is designed in detail in all the preparation process by schools can minimize its negative impacts. More than that, it can even strongerly build students' character in responding information revolution that keeps going on. In this case, schools need to build a synergy among the roles related to the learning process such as headmasters, teachers, students, and parents. This is in order to get positive contribution from the use of ICT for children's character building because a humanist relationship, either at schools or in families, can still be build although using ICT.

## **CONCLUSION**

The challenge for education in a technical society is complex. The complexity relates to the development of science and technology which can displace human-life existence. Social impacts of ICT need proactive response so that the ICT use at schools does not negatively affect the learning process. In this process, in order to anticipate its negative impacts, both teachers and parents always need communicative and critical dialogues.

ICT implementation needs school strategies so that the schools can always conduct character education by using ICT as medium. In this case, school condition in implementing ICT needs to consider the aspects of stay safe, be healthy, enjoy and achieve, achievement economic well being, and make a positive contribution.

The right uses of ICT for students can help the process of character building in children. However, this requires a positive appreciation towards the existence of ICT because it can actually give additional scientific insights which re useful in responding the challenge of science-technology development. Nonetheless, this challenge actually motivates students even more to learn and to improve the achievement as well as to maintain their self-belief in the flow of information revolution.

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