

Community Development – A Community based learning and Outreach

Supporting Community Learning with Digital Technologies and Knowledge for Societal Development: Open and Distance Learning to Educate Rural Farmers by Enhanced Blended Learning Management System through School ICT Laboratory in Malaysia

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Abstract

Purpose – This research was attempted to examine the feasibility of open and distance learning on educating rural farmers in improving the quality of their knowledge and upgrading their livelihood through the school ICT Laboratory in the village vicinity. The rural farmers could use the internet facilities and connectivity of the school ICT laboratory not only to communicate but also to acquire knowledge on agriculture. The culture of using technologies in acquiring first hand agro knowledge and the fluctuating produces prices have great influence in determining the quality of their livelihood.

Design/ methodology/ approach – Five dimensions of enhancing open and distance learning to educate and improve livelihood of Malaysian farmers through the secondary school ICT laboratory (demographic, technology availability, rural farmers; learning culture and leadership of village chieftains) were examined to determine the success of supporting community learning in the digital age: enhancing open and distance learning to educate and improve livelihood of Malaysian farmers.

Finding - In general, there are significant differences among factors stated above which will upgrade the rural farmers' livelihood and be competitive with their peers from other sectors. The usage of the school ICT laboratory by enhancing open and distance learning could be beneficial to the rural farmers by upgrading their knowledge on seeding, cloning, fertilization, proper usage of agro chemical and bio technology etc in fostering the production quality agriculture produces' as well as avoiding the agro middleman's preying when there is fluctuation of the agro produces price. In addition, the rural farmers could use the ICT facility to foster friendship, exchange of ideas and networking among their peers in the region.

Research limitations/ implications – This study represents an addition to the extant literature on supporting community learning in the digital age: enhancing open and distance learning to educate and improve livelihood of Malaysian rural farmers through the school ICT laboratory.

Practical implications – Enhancing digital technology in improving farmers' livelihood is of paramount important in the upgrading of not only the farmers livelihood but national economy. It is utmost important for the maximization in the utilization of digital technologies provided by the government initiative to improve its efficiency and integrity on quality assure of ODL in producing quality human capital.

Originality/ value – This study provides further groundwork for the quality utilization of open and distance learning platform in educating rural farmers.

Keywords: Open and distance learning, Farmers, Blended Learning, school ICT Laboratory.

Introduction

The Malaysian digital technology system and application has charted itself as front runner and advance among its counterparts in the Asia Pacific region. The introduction of ICT laboratories in the education system throughout the country is the earliest e-learning projects by the Malaysian government (MOE (C) 1996). This pioneer project and later connected has proven its worth as the foundation of modern mode of education delivery system in Malaysia, the literacy programs and computer as a subject in the public examination has widen the scope of open and distance by enhancing the e learning platform and later has paved the way and act as platforms for the bridging of digital divide as well as fostering advance education for the nation but also form the basis of uses as platform for other means like educating the rural farmers through open and distance learning by managing the blended learning management system. The initial initiatives has actually taken as examples in advancing the introduction of digital technology to the rural folks by far-sighted parliamentarian to facilitate their networking with their constituencies as well as disseminate knowledge to the rural folks in term of upgrading their livelihood and building human capital. Furthermore, there is increasing utilization of public schools for community gain, as Butcher (2004) quoted that 21st century community learning centers program encourages schools to partner with outside agencies and organizations to address the educational, health, social, recreational and cultural needs of the entire community. Therefore this is true that Ruffed (2002) suggested that e-learning concept, which is described as the way people communicate and learn electronically in interactive online learning and web-based training will be useful to the Malaysian rural farmers in acquiring basic agriculture knowledge and edge over others. Lee (2009) also found that with the introduction of a connected digital technology learning management system that would enable the creation of a community learning platform for the rural farmers to benefit from the current digital knowledge dissemination that is much needed by the rural farmers in developing countries. Furthermore, this is another step in the introducing of lifelong learning concept to all in Malaysia not only increasing the productivity, competitiveness and value added which will enable the rural society to enjoy the advancement of digital technology for everyday living and realizing Malaysia as a developed nation by 2010. By far the digital technologies have been commissioned and utilized but the question of management and good governance of the digital technologies application among the rural farmers need to be addressed.

Related Literature

Many projects on distance, collaborative and e learning have been done on education proper but rarely have been done on rural farmers by enhancing the state-of-art digital technologies to serve the rural farmers and upgrade the economy of the country. In fact distance and collaborative e-learning environment can be used widely either for educational or training purposes (Shirley, 2001, Alstete, 2001) but the problem which still exists is the efficient and effective management and application of the contents and its effectiveness to the users especially the rural farmers. One has to be prepared for the computer literacy and the other thing which has to be looked into is the language, learning culture and acceptance.

Other questions that may seem difficult to answer are distance, collaborative and e- learning for adult learners like the rural farmers at the school computer laboratory or at their homes in rural areas where one work. They can also learn on open and distance learning after school sessions, that is during the evening or weekends face-to-face instructions with the instructors in the learning centers or totally distance learning with the aid of internet at the school computer laboratory

through the usage of blended e-learning platform which will be set up by the government. Therefore as Koatas M., Psarras, J. and Stefanos P.(2002) stated, academic community is addressing more and more on the rise of on-line community that will be instrumental in the realization of advanced learning society. Internet on-line environment enables new and interesting designs for the support of traditional learning for the development of new methodology of learning, for example the after school hour rural blended learning management system (BLMS)

To some extent, certain quarters would prefer to combine both the electronic-enabled learning system and traditional one because Young (2001) suggested that e- learning works best within a blended training solution which incorporates traditional methods as well as technology-led learning. One method is to utilize it as a way of providing a consistent level of skills within a team of delegates prior to them participating in an instructor-led session so that they can get the most out of the training and the instructors' time and knowledge. Eisinger (2000) also mentioned that by combining traditional learning characteristics with the unique environment available on-line, elements that emerge will differentiate excellent in e-learning, namely the sharing of knowledge which will suit the rural farmers' circumstances.

The suitability of knowledge offered will have some impact towards the rural farmers' learning process, as Young (2001) suggested that within the web-enabled environment, individuals can have access to courses on individual topics and performance support resources at any time from the office, at home or while traveling. Standard web browsers offer a consistent and seamless user interface across a wide variety of workstation platforms and networks. One might also ask for the fulfillment and requirements of the topic and the content relevancy because course managers need to upload whatever knowledge to tailor for the needs of the rural farmers, as Morris (1996) quoted in distance and collaborative interactive project. The production of teaching materials during the curriculum development process could be enjoyed nationwide by academic staff participation, irrespective of their location. New ideas and materials would become immediately available for discussions and trials after dispatch by e-mail to a central server.

Fry (2001) has noted a series of benchmarks for ensuring distance, collaborative and blended e-learning quality. Evaluating program effectiveness includes a documented technology plan, with password protection, encryptions, back-up system and reliable delivery, established standards for course development, design and delivery, good facilitation of interactive and feed back and also the application of specific standard for evaluation.

On the other hand, Lalita (1996) also noted that effective, cost-efficient instruction that can match the needs for skills related to technological change can be delivered interactively, at the convenience of the rural farmers as the learner, no matter where their physical location would be. They should be able to interact with the provider or instructors, with the content and with one another in synchronous and or asynchronous mode. This is tele- learning. As digitalization allows the mergers of tele-communications and computer giving us information technology, new ways of learning and teaching will challenge the traditional methodology, not to replace it but to provide alternatives especially towards the upgrading of rural farmers' livelihood. There are ready commissioned computer laboratory setups in every school in the rural areas in Malaysia in the 1900s.

Therefore, the salient characteristics of providing education to the rural farmers in the information society are; language, learners, age, providers or local school, availability and source of learners' needs with some minor changes in the language use.

Koubek, and Jandl, (2000) listed out 4 choices of media for the specific support that depends on the needs of the individual. The evaluation is based on the fact that there is no best medium for a specific area or learning institution. The context depends on the specific situation of the individual; the greater the variety of media available to be used the more flexible will be concerning the individual needs of the learner. Media independent designs would be desirable.

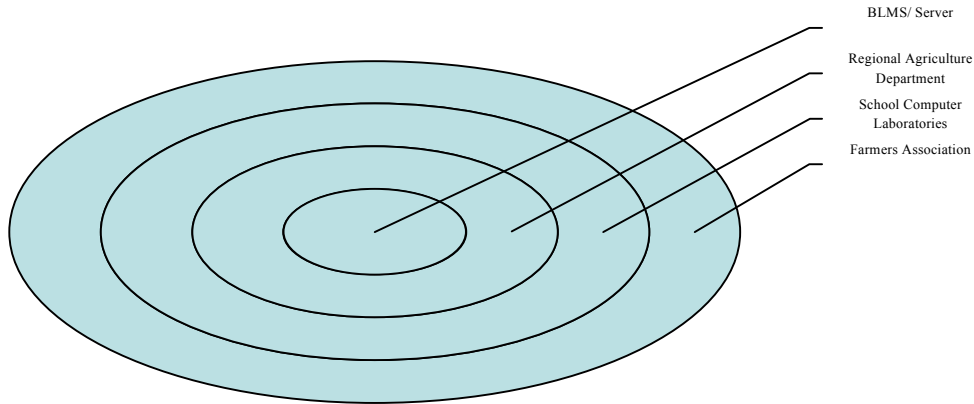
Effectiveness in the management of distance, collaborative and e-learning platform needs to have certain quality. As Roffe (2002) proposed, elements of quality control and assurance system in distance learning should produce learning materials and monitoring correspondence learning activities. However, sheer newness of e-learning for many individuals and groups will bring pressure on evaluation to yield information about its effectiveness and efficiency as a learning solution. What more of the problems faced by the rural farmers learning in the school ICT laboratory?

Research has proven that computer and Internet are an added advantage towards educational application because of its effectiveness in Computer Aided Instruction (CAI) in the teaching and learning process. The computer assisted learning approach is in fact a very useful and effective tool in learning process. It has proven that faster learning process is easily remembered. Positive attitude and active response towards the application of computer in learning process and the best part is acquired learning flexibility. This enabling the rural farmers to constantly upgrading themselves with the latest knowledge and indirectly upgrade their livelihood.

On the other hand, the management of ICT, its application and blended learning management system in distance, collaborative and e-learning are of utmost importance to ensure the success of the rural farmers in the andragogical approaches of teaching and learning. All these must be taken into consideration. By doing so, we are able to see the impact and its effectiveness towards the implementation of a wholesome distance, collaborative and blended e-learning to cater the rural farmers' needs.

The blending of education and agriculture sector in Malaysia through community learning and its sustainability is important towards the Malaysian economic growth. The Malaysia government has determined to upgrade its agriculture sector into the third engine of the country's economical growth. The effort to move the economy up the value chain by increasing the productivity, competitiveness and value added of the increase in earnings of major commodities, which enabled the sector to retain its sustainability. Starks and Bukenya (2008) quoted that there has been an increase in 'value-added' in agriculture sector due to changing in consumers' taste and preference. The value added in agricultural sector is to economically add value to a product by changing its current place, time and from one set of characteristics to the others that are more preferred in the marketplace" (Boland, 2007). Therefore under the 9th Malaysian Economic Plan, the projected growth of agriculture sector is expected and an average rate of 6 per cent per annum for the period 2006 – 2010 and 6.5 per cent for the period 2011- 2020. Abaidoo (2000) has looked into industry that radically transforming agriculture production relation and one major effect of the transformation is the redefinition of farmers as contract grower by the life industry. Therefore Malaysia has to look into this transformation by the option of Digital technologies that are provided in schools throughout the country that could be beneficially utilized collaboratively to upgrade human capital of the rural farmers.

Diagram 1: Rural Farmers' Distance and blended e Learning Model



Research Objectives

1. To determine the feasibility of utilizing existing school ICT laboratory for social gain during the off school hours.
2. To determine the readiness of the rural farmers' acceptance on using digital learning tool for ODL through the blended or guided learning management system by using the wi-fi connected school ICT laboratory during the off hours.
3. Investigates the efficiency of school administrators in managing the schools distance and collaborative e-learning project and the effectiveness of e-learning among rural farmers as they are local PTAs members.
4. To determine the collaborative of dissemination of knowledge for all among distance, collaborative and blended e learning platform provider, regional agro agencies and local farmers' association that will benefit the rural farmers in upgrading their livelihood and national economy.

Theoretical Framework

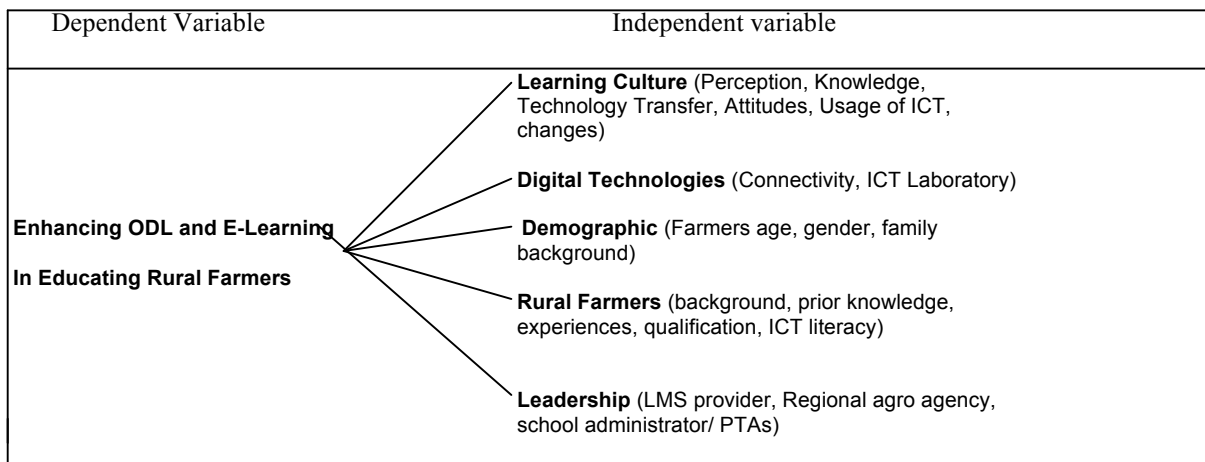


Figure 1: Framework

Research Methodology

A survey questionnaire was given to 100 rural farmers from 4 different farmers' association from 4 states. The questionnaire comprised of 50 questions divided into 2 parts: Part 1 consists of questions on the respondent's demographics and Part 2 on the dependent and independent factors. Likert 5-point scale was used for the questions in Part 2.

Table 1: Results of Pearson correlation tests.

| Correlation test between | r | p value | N |
|---|----------|----------------|----------|
| 1. Rural farmers' academic level and eager to learn learning culture through the school ICT laboratory | 0.646 | < 0.001 | 100 |
| 2. Rural farmers' academic level and the extent of instructors' guidance using ICT and digital technologies in school ICT laboratory | 0.583 | 0.001 | 100 |
| 3. Instructors' commitment and the standard of maintenance in school ICT labs | 0.795 | <0.001 | 100 |
| 4. School administrator's leadership commitment and the effectiveness of the collaborative and e-learning programs to educate rural farmers | 0.639 | <0.001 | 100 |

Note: $\alpha = 0.05$; r = correlation coefficient; N= Total respondents

Tables 1.1 shows there is a strong positive relationship between rural farmers' academic level and their eagerness to learn through the school ICT laboratory. In 1996, the government funded only the basic ICT infrastructure to schools namely a computer laboratory with 20 workstations. Later, the government has installed and commissioned almost all the school system with computer laboratory and commissioned with internet and wi-fi facility. Even in year 2002, the government also funded 10-35 laptops and 10 LCDs to every school for another teaching program. However, if the facilities were to be used by the rural farmers during the school off hours by instructors among the generous school teaching staff, then the government's effort of not only educating the students during the day hours but also educating the rural folks especially the farmers as well will be achieved. These will buildup the human capital to prosper the country, socially and economically.

Table 1.2 shows there is moderate relationship between rural farmers' academic level and the extent of instructors' guiding using ICT and digital technologies in school ICT laboratory. They are able to learn better when the instructors teach by using ICT in the computer laboratory using the digital technology enhanced blended teaching and learning methodology. The teaching and learning process could be transmitted not only through the school computer laboratory but also through the Learning Management System. Moreover most of the farmers' children possess internet facilities at home. Therefore, all the digital facilities in the country could be put to better usage by the society. The ultimate goal may not be just transmitting knowledge to the rural

farmers. On the other hand, the rural farmers' experiences and knowledge shared. Novak and Wurst (2005) quoted that there is interactive tool created to collaborative knowledge visualization for cross community learning, namely the collaborative elicitation and visualization of community knowledge perspectives based on the construction of personalized learning knowledge maps and shared concept networks that incorporate implicit knowledge and personal view of individual users and it also supports explicit and implicit exchange of knowledge between the members of different communities.

Table 1.3 shows that there is strong relationship between instructors' commitment to maintain the laboratory after school hours because the rural farmers are part of the society and are using the school computer laboratory through a regional blended LMS platform to learn. The standard of maintenance in school ICT laboratory must follow the guidelines formulated by the ministry. This duty depends on the work ethics of the ICT coordinators or the instructors in charge of the laboratories.

Table 1.4 shows that there is a strong relationship between the school administrators' leadership commitment and the effectiveness of collaborative and blended e-learning programs to educate rural farmers using the school ICT laboratory and blended LMS platform. The effectiveness of collaborative and blended e-learning programs depends on the level of priority given to the program. If the ICT facility and time frame as well as place are insufficient to cater to the needs of the users, then the responsible school administrators' and village chieftains will put up effort to raise funds to fulfill the needs.

Discussion

The five contributing factor of enhancing open and distance learning to educate and improve livelihood of Malaysian farmers through the secondary school ICT laboratory during the school off hours are demographic, technology availability, rural farmers, learning culture and leadership of village chieftains. Each is equally important. In any public school in Malaysia, the school administrators are entrusted with duties of not only managing the school as a whole but also other unit in school. Therefore as for social responsibility and obligation, they are supposed to contribute to the good cause of not only to educate the young but also to fervently educate the rural farmers who form the bulk of the local society. Otherwise, the school computer laboratory will be left idle and not in use during the off school hours, therefore not benefiting anyone.

Therefore, school administrators' challenges are to choose the best management models to manage school ICT laboratory, collaborative and blended e-learning application upon the incorporation of ICT laboratory and blended e-learning platform in their school and adhere to the philosophy of 'Education for All'. Administrators could choose the departmental approach as 'Top-Down' organization based upon the grouping of various activities because an organization is a large machine that develops laws and principles, which governed the machine's activities (Lucey, 1995). As for the off hours education for the rural farmers, it is part and parcel of school administrators and teachers' social obligation as they too are from the local society.

There are no general guidelines provided by the government in managing the appropriate procedure to be practiced. Therefore, the effectiveness in school ICT laboratory management depends much on the administrator's experiences and their management knowledge. The teaching and learning may not be an easy one because the rural farmers have to be guided properly in using the sophisticated digital facilities. Caution may be the key issue here but generally usage to transmit knowledge to educate the rural farmers will be much better off then to

let the digital technologies left not functioning during the school off hours which will be of wastage to mankind.

A committed administrator will yield the successful implementation of collaborative and e-learning application in the society. Otherwise the rural farmers will be illiterate, not because of the lack of resources but due to human factors. The successful implementation of ICT and blended e-learning application need to attract the audience by offering the learner a resource that seems to be appealing, valuable and productive to their goals and aspiration (Henri, 2001). Leaders will play their roles by helping everybody in the organization as well as the society where they originated; including gaining more insightful view of current reality and this is also in-line with a popular emerging view of leaders as coaches, guides or facilitators. Therefore a strong and well-respected leadership with a clearly defined task would get the best result (Lucey, 1995).

The school and regional networking facilities, as well as the Learning Management System and all the hardware and software supply by the government to schools could be put into maximum usage for the normal school ICT laboratory, collaborative and blended e learning platform in school as well as for the society during the schools' off hours as many Malaysian schools close after 2pm in the afternoon.

School administrators' duty is to oversee adequate and safety of ICT infrastructure and its effective utilization. This will involve the school PTAs and the local folks who are farmers and they could contribute in providing the extra facilities by equipping the school with extra ICT infrastructures from their initiatives and contribution from the Ministry of Agriculture or other means

The increase of users in many schools have prompted administrators' to adopt a more moderate approach by seeking extra funding from individuals or the school Parent-Teachers Association (PTAs) who are the rural folks or farmers. This may accommodate extra bandwidth to their existing technology as John Chambers of CISCO System said 'by sticking to the two fundamental equalizers in life namely internet and education', to fuse the two. It provides an efficient way to empower workforce with the skills and knowledge it needs to compete amid the rapid pace of change where knowledge management involves a mix of cultural, organizational, process, management and technology initiatives (Wild, Griggs and Downing, 2002).

The cost, sources, time frame, infrastructures, management process and curriculum are of significant towards the managing and implementation of ICT and collaborative and blended e-learning application in the school system for the rural farmers. What more about the collaborative and e learning portal provided by the government? The government plays its pivotal roles in terms of cost, sources and infrastructure. The supply and commission of the basic ICT infrastructures to school ICT laboratory, some total enrollment of students amounting to 4.6 million enjoying the facilities (Ministry of Education, July 1997). What more about the usage during the school off hours by the rural farmers? Therefore the tangible and intangible resources are of utmost importance to the school administrators' effort in effective utilization and managing of ICT laboratory and internet connectivity in schools. The government spent money in funding to facilitate all the resources and setting up of 5000 ICT laboratories for schools nationwide and coupled with wi fi facilities, even in the remote part of certain states. The government also installed solar panel and electricity supply to facilitate the usage of digital technology in education. This shows the education sector in Malaysia is a big winner in ICT allocation under the Budget 2003 (Computimes, October 2002). Another 200 schools nationwide will be equipped with the wi-fi technology in 2005 (Berita Harian, 13, 2004) and eventually to all schools in the country.

Therefore, support of the education process also are all in the way with key elements inclusive of provision of learning materials, providing facilities for practical work or simulations, enabling questions and discussion, assessments and provision of student support services (Alexander and McKenzie, 1998) which could be used to educate the nation's rural farmers as well.

The rural farmers' experiences, education level and their basic computer literacy in the teaching and learning process actually are in doubt. They may lack experiences, qualification, and ICT literacy. This may be accounted for the difficulties and effectiveness in disseminating the required knowledge. This may need the instructors' initiatives to minimize the difficulties. But eventually, the problem will be solved as Malaysian are diligent and perseverant, both young and old.

The maintenance of digital facilities in the school ICT laboratory which includes selection of the location, stocks and inventory, safety measures and auditing are also important since the ICT facilities will be used not only by the students but also by the rural farmers. This may need the school ICT coordinators to maintain the facilities properly or otherwise if the school administrators who lack ICT maintenance knowledge. They have to delegate the maintenance duty to school ICT coordinators and or otherwise a lot of discrepancy will occur.

Therefore knowledge gained by rural farmers through the distance, collaborative and blended e-learning application empowers them to know more and learn faster with less cost, and to harness the power of information and knowledge which can result in greater productivity, increase profitability and enhance employees' loyalty (Gunasekaran, 2002). This will prosper the country through the agriculture sector as the third engine of Malaysian economical growth.

Learners' culture of using school ICT laboratory in the distance, collaborative and blended e learning and teaching process may depend on the rural farmers' background, attitude and prior knowledge of ICT application. School administrators may find difficulties in managing the school ICT laboratory and its infrastructure. Since ICT is the core of education of future citizen and the kind of changes designed in each vicinity, how the changes modified the learning culture and the changes that happened in the way instructors actually used ICT in their teaching and learning process (Azinian, 2001). To rid of the existing conventional school learning culture, teachers are the agent for change. They are the most respected group of people in the Malaysian society. The conceptual framework for teachers development calls for an integrated approach to the problems that is the various forms for teachers training and continuing support are combined with activities aimed at influencing the system in which the teachers work daily. (Nikolave, 2001).

Therefore the school instructor must use the advancement of the ICT to up-grade themselves in the teaching and learning process before they could contribute to the good course of helping the rural to gain the invaluable agriculture knowledge that is much needed by the society and country in upgrading the human capital. This can be done by life-long learning concepts and practices. It is important because almost every household poses at least a desk-top today and use the Internet daily. Furthermore, Kilpatrick (2000) quoted that there are clear signs that community learning is the way to a more sustainable future for the community especially the rural ones. It not only will bring cultural changes to school but as well as to the local society where the students, instructors, school administrator and the rural farmers come from. Changes of school culture are inevitable. One has to ask the willingness of organization to invest in a paradigm shift from knowledge hoarding to knowledge sharing. Organizations that succeed in knowledge management are likely to view knowledge as an asset and to develop organizational norms and values to support the creation and sharing of knowledge (Devenport et.al, 1998). Therefore the

country will have success in dissemination of the necessary knowledge to the various groups and level of people from the society.

Conclusion

The Malaysian government's effort has to be appreciated and be praised highly because of the building of ICT laboratories throughout the school system; setting the wi fi facility; supplying and commissioning the basic and advance digital infrastructures. The formulating and setting up of the bases of distance, collaborative and blended e-learning application which not only suit the normal school system in the country but could be utilized to educate the rural farmers as well. This would also help to facilitate the theme of education for all. The setting up of the connectivity throughout the school system also form the basis and platform of the blended learning management system through the national e-learning portal at all levels of the secondary school system directly under Education Technology Division of MOE; technology division of every states education department; districts and secondary schools with far fetching effects in forming of a knowledgeable society and creating knowledgeable workforce that will inculcate the new techno - education culture, culmination to the utilization by others like the rural farmers and realizing the country's vision and mission to be a developed nation by the year 2020.

The school administrators' effective managing of ICT laboratory in facilitating the distance, collaborative and blended e-learning application and platform for the rural farmers will be shared among the visionary Malaysian citizens. Software in the ICT laboratory has been coordinated and distributed. The initiative of ICT project and laboratory in all schools in the country has to synchronize to be in line with the national ICT education syllabus for the normal students during the school hours and the rural farmers during the school off hours and standardize the national distance, collaborative and blended e-learning Management System platform to be fully utilized by all to upgrade the livelihood of rural farmers to be knowledgeable and also agriculture as the third engine of the national economical growth.

The success in the managing of school ICT laboratory and the distance, collaborative and blended e-learning platform both for students and rural farmers in the school requires a team of skillful, dynamic, experienced, confident and committed school administrators, ICT instructors, local PTAs members and village chieftains who are social and wellbeing at heart. School administrators and teachers make a difference in influencing learners' learning and it has been postulated that competency in delivering effective instruction is a function of teachers or instructors' knowledge and skill.

The collaborative perspectives in utilization of digital technology among the education fraternities and rural community which form the Malaysian society will definitely transform Malaysian citizens from all walks of life into an online learning community and it suits the philosophy of 'Education for All' and 'Learning for Development'.

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