Tracing the Development of eCoPs via the eCPDelT Project: From Conception to Implementation*

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Abstract

The implementation of the Smart schools project was one of the seven flagships’ initiatives of the Malaysian Government aims at optimalising ICT utilisation in schools in line with Malaysia’s aim to position the country as a globally competitive knowledge-based economy. However, research studies reported a lack of success of the project towards promoting effective ICT usage and developing teacher professionally. This situation became the impetus for the development of the e-CPDelT research project which intends to develop an online learning system based on action research and personal involvement for Smart school teachers. The model adopted is loosely based on the successful UK-based Improving the Quality of Education for All (IQEA) project (Ainscow et al., 1994) and the Communities of Practice (CoP)’s approach (Wenger, 1998). The data were obtained from the blog entries made by the 20 participating Smart schools teachers and triangulated with focus group interviews and mentor reflections. The preliminary findings revealed both internal and external problems. Drawing upon these findings, the eCPDelT learning system was designed and steps were undertaken to promote the new system. However, the response to this promotion was far from satisfactory. The paper concludes by discussing the reasons for such disappointing results and proposes a new plan of action that involves the introduction of the Critical Friends Group technique.

Key words: online learning; e-CPDelT; CALL; ICT

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Introduction

The Malaysian government recognises the importance of strengthening the ICT sector in order to position the country as a globally competitive knowledge-based economy with full access to knowledge and information through ICT. The main thrust of the Malaysian Ministry of Education policy is the optimisation and utilisation of ICT in schools nationwide (Ministry of Education, 1997). Under the 8th Malaysian Plan, covering the period 2001-2005, a total of RM1.82 billion was allocated for the Multimedia Super Corridor (MSC) flagship application which aimed to provide the most conducive environment to achieve the government’s goal of becoming a world-class information and multimedia player in the information age (Economic Planning Unit, 2001). One of the seven flagship applications of the MSC was the Smart School Project which was initiated in 1999.

The Smart schools can be considered as technology-rich schools which have been equipped with computers and ICT facilities in the computer laboratories and classrooms. To prepare the Smart school teachers, the Teacher Education Division (TED) of the Ministry of Education set up a series of training courses for these teachers in order to upgrade and update their professional knowledge, competence and effectiveness. The TED courses adopted “training the trainers” and cascade models that prepared selected teachers to pass on their learning to colleagues in schools. The selected teachers were responsible to devise in-service training in their schools to help teachers integrate computers in the teaching and learning process and to function as resource persons (Ministry of Education, 1999; Thang et al., 2010a).

However, feedback from a review conducted by the Ministry of Education and the Telekom Smart School team in 2003 reported that teachers did not find the in-house training and the Smart school courseware very helpful. They felt the training was not sufficient and the courseware was not in line with the needs of their students and did not reflect the curriculum (Multimedia Development Corporation, 2005). Subsequent studies undertaken on Smart schools also revealed only moderate success. The main problems highlighted in these studies are: teachers’ heavy workload, limitations in infrastructure, exam-oriented nature of the educational system, and lack of commitment among teachers and school administrators (Sham Ibrahim, 2003; Siti Suria Salim & Sharifah Mohd. Nor, 2005; Hajar Mohd. Nor, 2005; Azizah Yaacob et al., 2005; Mohd. Mokhtar Hj. Nawawi, 2005; Wan Zah Wan Ali et al., 2009). Bismillah Khatoon Abdul Kader (2008) interestingly, found a common misconception among some teachers with regard to the intended purpose of the courseware. These teachers were of the opinion that the software was designed to take on their role and this led to students’ unsupervised use of the courseware. Teachers who understood the purpose of the software claimed that using the courseware actually took up more of their preparation time and effort and hence were reluctant to use them. The reported findings clearly revealed the lack of success of the Smart school project and this was further reiterated by Lee (2007) who in his PhD thesis explained that the Smart School Continuing Professional Development (CPD) system seemed to succeed in raising the awareness of the teachers about the innovation but appeared less effective.
in equipping them with a clear understanding of the practices needed for classroom applications. The current Malaysian model as pointed out by Lee is generally a top-down model which takes the form of an entirely unidirectional management style rather than a “directly collegiality one” (Trowler, 2003: 136). Thus, it is evident from the findings that the current CPD system for teachers of the Malaysian Smart schools needs to be revisited and reviewed. This realisation was the impetus for the development of the eCPDelT research project which intends to develop a system based on action research and personal involvement for Smart school teachers.

eCPDelT Research Project

The main objective of the eCPDelT Project is to provide online CPD for teachers of English, Mathematics and Sciences in improving their use of ICT in teaching in Smart schools. The proposed teacher training model is loosely based on the successful UK-based Improving the Quality of Education for All (IQEA) project (Ainscow et al., 1994). In the IQEA project, the teachers (in groups of 6-8) comprising subjects in a range of hierarchy, experience, age etc. meet and work together to bring about changes in their respective schools by reflecting on and sharing their teaching practices which include exploring teaching models and looking into practices that work and things that do not (Hopkins et al., 1996).

For this project, the team will draw on and adapt the CPD hub and spoke model based on a critical relationship between a number of school-based cadre of change-agents (spokes) and a Higher Education Institutions (HEI)-based research team (hub) as shown in Figure 1 below.

![Figure 1. The CPD hub and spoke model in e-CPDelT Model](image)

In this study the spokes are five schools with four teachers (of English, Mathematics and Science) from each school and the hub is the researchers from the Higher Education Institute (HEI) research team from three universities: The National University of Malaysia (UKM), University of Nottingham, UK and University of Sabah, Malaysia. The researchers from the HEI research team also play the role as mentors in this project (Thang et al., 2010 a & b).
Thang et al. (2010a) explain that the proposed eCPDeLT model differs from the IQEA in two important aspects. The sharing in the case of the IQEA was mostly face-to-face whereas in the present study the sharing between the teachers is done online. Second, the goal of the proposed project extends beyond bringing changes in teaching and learning. It extends to giving teachers an opportunity to work with ICT from the start so that they are aware of all the problems involved when they attempt to apply the skills in their teaching while at the same time impart the skills to their students. These are important aspects of the model. It is further believed that the sharing of teachers through online communities of Practice (eCoPs) will lead to shared and expanded knowledge that help enhance their teaching and support their applications of ICT in their classroom activities.

Wenger (1998: 98) described a CoP as a group of people who come together to share an issue of concern, problems, or an interest in a topic. Through this sharing knowledge and skills are enhanced. The three key characteristics of CoPs are mutual engagement, joint enterprise and a shared repertoire. A CoP is developed when members engaged meaningfully with others, are mutually accountable to each other and share common practices. In the case of an online CoP, eCoP or Virtual CoP, it is described by Hunter (2001) as a group of people who interact with each other, learn from each other’s work, and provide knowledge resources to the group related to certain agreed-upon topics of shared interest online whereas Zhu and Baylen (2005) described it as virtual spaces where members meet, exchange experiences and work collaboratively to create a spirit of community.

In the eCPDeLT project, participating teachers from five schools were grouped as a CoP, based on their subject expertise, by design. The platform that is created for the online CoP or eCoP is aimed at creating a virtual avenue for the teachers to share and reflect on their experiences and challenges through postings on a blog and video clips. It provides them with an opportunity to self-reflect on their practices and work collaboratively with other members of the group, who do the same. Like the IQEA project, the implementation of the model follows the principles of action research at two levels: the researcher and the practitioner.

At the researcher level the research team members observe and participate in the cycle of experiences shared by the teachers who are the practitioners, in their attempt to understand and explain the processes that the teachers go through. The team members, as mentors in the project, engage in a process of dialogue and encounter (McNiff & Whitehead, 2002) to understand better how to improve the methodology of the research and the design of the model for the development of a successful eCoP. Meanwhile at the practitioner level the teachers undergo a process of action and reflection when they are asked to share their classroom practices and then self-reflect and receive feedback from fellow members of the CoP. In essence the teachers analyse their own practices and build an understanding of what they do and why they do it based on self-critique and member feedback, recognising what is good and building on strengths as well as understanding what needs attention and taking action to improve it and then produce evidence to show in what way their practice has improved in their next posting. The action research cycle adopted for the eCPDeLT Model is depicted in Figure 2.
The Preliminary Study

The eCPDelT model was piloted in five Smart schools, around Kuala Lumpur, the capital of Malaysia. From each school, four teachers (of English, Mathematics and Science) participated in the preliminary study. These teachers were divided into three eCoPs respectively.

The first online CPD activity that the participating teachers were introduced to was Blogging. The teachers were provided face-to-face and hands-on training workshop on using the Google blogs. For their first blogging activity, the teachers were assigned two tasks; they were asked to post a description of a successful lesson and a less successful one in their blog. They were also asked to comment on each other’s blog postings. Each subject group was assigned a main mentor from the research team who functioned as a facilitator and participated by posting comments as well.

The second online CPD tool the teachers were introduced to was the Virtual Interactive Platform (ViP), a technological tool developed by a team of researchers from the School of Education, University of Nottingham to support teacher professional development through video clips sharing. The participating teachers were requested to upload selected video clips of lessons in which they had integrated the use of ICT in their teaching and classroom activities. The contributing teacher retrospectively comments or self critique the lesson based on the selected clips. In response, members in the eCoP would post their comments as well. The interaction that developed from this exchange should encourage, support or direct teacher practices in using ICT in their teaching and knowledge towards enhanced eCoP development.

In the eCPDelT model the participating teachers were initially given a time frame of approximately three months to post their ICT classroom activities on the ViP, as well as to post examples of a good and poor lesson they had conducted in the blog to be shared with their fellow eCoPs. This therefore was the testing ground for the potentials of conducting online CPD. However, the blog postings and the posting of video clips on the ViP were slow to come in with only a few teachers posting their comments despite prompts from the moderators. An online discussion was carried out among the research team members.
in which they tried to identify the reasons for the lack of participation. This was followed by focus group discussions with the three subject-based CoPs where the teachers were encouraged to give their views on the blogging activity and share the problems and challenges they faced in doing the activities assigned to them both as practitioners in the classroom as well as research participants in the project. The problems identified as requiring immediate action was a need for more time, more guidance on how to use ViP and more moral support from the team. In response, the research team added two mentors to each CoP, conducted another cycle of hands-on session on how to use the ViP and gave the teachers more time to complete their assigned tasks. This is a vital component of an action research cycle. The reinforcement helped improve their understanding of how to use the ViP and the teachers’ participation in the blogging activity.

**Findings from the Preliminary Study**

Data from Blog and ViP entries made by the teachers, interview transcriptions from the focus group interviews and the mentor reflections were collated for the preliminary phase of the study to reveal the potential of an online CPD system such as the eCPDeIT model in building eCoPs across five participating schools. While the participating teachers and schools indicated enthusiasm for the potential of the model and welcomed the opportunity to create interschool communities of practice, the preliminary findings unfortunately generally revealed that the desired communities of practice (CoPs) as envisioned were not established. Thang et al. (2010b) examined the reasons for this outcome from the perspectives of Brinkerhoff’s framework (2006).

The four barriers discussed by Thang et al. (2010b) in their research findings were: 1) resources; 2) institutional and administrative barriers; 3) institutional barriers relating to training and experience; and 4) barriers related to teachers’ attitudes and fear. Each of the four barriers mentioned above are further elaborated below.

Resource barriers are issues related to the technological tools used and their applications. For the participating teachers, these barriers were experienced on two planes. As a teacher in the classroom the barriers to using ICT include outdated hardware and software as well as poor Internet connection at the schools. Whereas as a research subject, the teachers found the ViP too complicated to use and hence did not post their lessons to be shared with the eCoPs. The interview transcripts revealed that all the teachers faced problems in using the ViP. In fact, only 30% of the teachers tried very hard to overcome their problems with the ViP while majority of them gave up readily as they felt they were wasting their time. On the other hand, the teachers had very few problems with the blogging activity even though they had some complaints regarding it initially. Despite that, their contributions to the blogs were far from satisfactory. The number of contributions made in four months was only fourteen and five related responses. Some teachers actually made no contribution at all. However, it should be noted that the number of contributions increased to 21 and the responses to 38 in the next three months following the second ViP workshop and first focus group interview. Additionally, the continuous effort by
the mentors in encouraging and engaging the teachers in the blogs helped sustain their participation in the CoP to a major extent (Thang et al., forthcoming).

Institutional and administrative barriers relate to contextual and cultural factors, teaching schedules and time constraints. All the teachers highlighted a lack of time as a major barrier towards active participation in the online CoP activities for the research. Heavy workload was the major reason for this. The teachers complained that they had to constantly juggle with teaching responsibilities, administrative work and co-curricular activities. On top of that they had to prepare their students for public examinations.

Institutional and administrative barriers, such as a lack of support from school, were also indentified as barriers. The teachers felt that some consideration should be given for their involvement in the project with regard to allocation of workload and accessing computers in schools. Another administrative problem was a mismatch between class levels and specialisation among some participating teachers in the sense that the teachers may be of different class levels and disciplines (i.e. biology, chemistry and physics).

Barriers related to teachers’ attitudes and fear were evident in more than 60% of the teachers who had a negative perception of their online skills and competency. As a result, they were not motivated to use the online tools. However, there was also a small group of teachers who use the Internet frequently and they were disappointed with the lack of participation from the rest.

The data clearly revealed that many barriers need to be overcome before the desired communities of practice (CoPs) could be established. Important lessons that could be learned from the study included the following: 1) technological tools employed must be more user-friendly; 2) tasks given to teachers should be more creative and adventurous; and 3) teachers should be co-designers and engage in the design processes as informed participation (Thang et al., 2010b).

In a related study by Thang et al. (forthcoming) explored other internal factors that led to the low participation rate. They identified the lack of trust and rapport among the teachers, as well as between the mentors and teachers as one of the main reasons. As Olson (1998), Bambino (2002), and Andreu et al. (2003) pointed out trust is an important factor for successful implementation of professional development activities which involves evaluation processes and criticisms. Some teachers further admitted to a sense of discomfort when they had to interact with unfamiliar colleagues from other schools. Other problems identified by Thang et al. (forthcoming) were performance anxieties and lack of relevance of the blog entries. Following on from the action research cycle, the problems identified in the preliminary phase of the study were taken into consideration by the research team and became the basis for redesigning the model and introducing a new aspect to the original eCPDelT Model resulting in the eCPDelT Learning System (LS).

The eCPDelT Learning System

This learning system (LS) is user-friendly in that the interface is simple and relatively easy to use, even for teachers who are less competent in ICT. Secondly, the tasks are interactive,
flexible and encourage creativity among the teachers. Thirdly, to overcome the problem of lack of time, the tasks are made available for the teachers to access at any time convenient to them and they can work at their own pace.

Reflecting on the feedback given and also the availability of resources, the improved LS is built upon Moodle which is an open-source Course Management System (CMS) or Learning Management System (LMS). Moodle is a free web application which can be used to create effective online learning sites easily. Figure 3 illustrates the front page of the newer version of the eCPDeiT Learning System.

**Figure 3.** The frontpage of the e-CPDeiT Learning System

The Interactive activities are designed to help teachers in their teaching and learning. In the first module, there are six units of interactive step-by-step guide on how to create a variety of powerpoint slides. These units begin with basic application to more advance application of MS powerpoint and are accompanied by audio sound and music. Figure 4 shows the learning content of these six interactive activities.

**Figure 4.** Interactive learning units on how to create powerpoint slides
Teaching units are also incorporated and the units available now include learning styles and teaching styles. The purpose of these units is to help teachers understand how they themselves teach and how their students learn. Research studies (Chammilard & Sward, 2005; Reid, 1998) have shown that it is essential for instructors to be sensitive to the learning styles of their students in order to create an environment that accommodate diverse learning styles. However, before they can do that they need to be aware of their own teaching styles first which is not the case with many teachers. Learning strategies and learner autonomy will be incorporated at a later stage. Teachers also need to know about learner strategies and learner autonomy in order to create a learning environment where learners can “learn how to learn” and experience autonomy themselves (Murphy, 2008). Research studies more relevant to the local scene will be included to make the units more relevant to the Malaysian context. These include research studies by Siti Hamin Stapa (2003) and Thang (2003) on learning styles; Nambiar (2009) and Gurnam Kaur Siddhu (2009) on learner strategies; Thang and Azarina Alias (2007), Thang (2009), Lum (2009), and Chia (2009) on learner autonomy.

On top of that, online resources for Mathematics, Science and English teachers are added on at a regular basis. The discussion forum is the online tool made available for the teachers to share issues related to their teaching and learning as well as other issues of interest to them. Murugaiah et al. (2010) who investigated the use of the discussion forum by the English cohort of teachers in this research project revealed that the sharing and exchanges in the forum exposed the teachers to all seven skills required for CALL instruction as identified by Hampel and Stickler (2005) and helped them in enhancing their existing competences. Through online collaboration, these skills were shared with others and some teachers even managed to integrate the skills in their classroom teaching. Thus, revealing evidence of improvement in practice brought about by the sharing and exchanges between the CoP members through the discussion forum.

Promotion of the eCPDeiT Learning System

The introduction of the eCPDeiT Learning System (LS) as an improved CPD system from the original eCPDeiT Model is evidence of the impact of the action research cycle employed in this study. The plan, act, observe and reflect cycle employed led to the research team negotiating and adjusting to the feedback and needs of the participating teachers in their endeavour to develop a virtual CoP through an improved online CPD platform. Unfortunately, the new improved version experienced similar lag in participation as its former model when it was set up for its test run in the continual process of the action cycle. Despite extending personal invitations to register as members in the LS to the 20 teachers who participated in the preliminary, only one teacher responded and registered as a member in the LS. Other measures of invitations such as information flyers were also distributed out at conferences to recruit new members from the larger teacher population. Sadly from this larger group only one teacher requested to register as a member. Nevertheless, voluntary enquiries from two schools gave the team hope of
accessing new schools with the LS system, while one of the schools who participated in the preliminary study requested for the team to introduce the new LS system for their viewing. Teachers who were contacted to ask why they were not signing up for the system gave the same excuse as the preliminary study group; that is, they were overburdened and did not have the extra time to participate online. This rejection to participate in the CoP in which so much time and effort was invested to produce and improve the CPD system is disheartening to the research team. However, we recognise and respect the reasons given by the teachers and the fact that they comprise experienced teachers who are holding administrative responsibilities and who possibly perceive themselves as already possessing sufficient teaching experience and knowledge. With this revelation, in our follow-up cycle of the action plan the research team decided to turn to pre-service teachers who may be less bogged down with work and hence, more interested to try new ideas to improve themselves. With this new target audience in mind, the research team demonstrated how to use the LS to a group of 45 final-year pre-service teachers undergoing a Bachelor of Education (TESL) programme at a workshop. Disappointingly the feedback from these pre-service teachers towards the system was also lukewarm rising from similar concerns and related barriers as aired by previous target groups. Although 45 pre-service teachers attended the workshop only six registered, while only one pre-service teacher posted a comment on the discussion forum later.

On further discussion with them, it was revealed that most of them were not keen to implement the system because the schools they were teaching in lacked the necessary ICT facilities. One said that due to vandalism, his school now did not have any ICT facilities and a few others said that it was difficult to book a computer lab as there were only one or two functioning labs in their schools. One trainee teacher who was teaching in a well-equipped school in the heart of the city came forward to share his disappointment that the use of ICT was something the teachers in his school did not bother with and it was also not encouraged by the school administrators. This was shocking news to the research team and a lecturer from the training college when consulted did not deny this. The research team recognised the challenges aired by the pre-service teachers as additional evidence of the negative values and practices in the school community that impede on the success of ICT use in the schools, despite the government’s efforts of promoting it through various educational campaigns. Contradictory situations such as these have implications on the introduction of any innovations brought to the school context as these interventions need a collective intent from participants to be successful.

The Way Forward

Cognizant of the imperative need to create a cadre of participants with a collective intent, the eCPDeIT project team planned to undertake a more directed approach by utilizing the Critical Friends Group (CFG) technique in the next cycle of the research project. According to Dunne and Honts (1998), Critical Friends Groups (CFGs) are practitioner-driven study groups that reflect the growing trend for site-based professional development
in which practitioners behave as managers of their own learning (in Franzak, 2002: 260). In a typical CFG, 10 to 12 teachers meet once a month for at least two hours to share their practice and improve student learning using structured protocols. Franzak (2002: 261) explained that there are three types of CFG protocols: 1) discussion of students’ work, 2) peer observation and 3) problem-solving. The theoretical premise for CFGs is that teachers belonging to a group learn to collaborate by participating in professional development activities such as examining student and teacher work (ibid.).

The four participants in the CFG of a recent study by Vo and Mai Nguyen (2010) reported the following benefits: 1) colleagues’ feedback to their teaching performance, 2) opportunities to exchange professional ideas, 3) opportunities to learn from colleagues, and 4) the development of good work relationships and a professional community. The participants believed that through the CFG model, they could learn about each others’ teaching and reflect on their own, through fostering the sense of professional community.

The CFG is strongly advocated in the literature as an effective model of teacher professional development and positive findings have been reported in Slater and Simmons (2001), Andreu et al. (2003), and Arnau, Kahrs, and Kruskamp (2004). The many benefits of CFG reported in previous research with Western teachers have been found in a Vietnamese context by Vo and Mai Nguyen (2010). In view of the fact that the situation in Malaysia is so very challenging (as revealed by the findings discussed so far) it would be very interesting to investigate whether such benefits can be reaped and if yes, to what extent and if not what are the factors that are detrimental to its success. Germane to the CFG model is the participation of teachers on a voluntary basis and not recruited or forced into the combination by circumstance.

In the third continual spiral cycle of the research project, ten pre-service teachers who are interested to participate in this professional development activity using the CFG model and the LS system will be fostered and their progress monitored. The CFG process will be carried out online. The key researcher who is also the mentor will be responsible for scheduling a CGF meeting online every three weeks via an online chatroom that allows recording of the online interactions. It is hoped that in time the CFG members will be interested enough to participate actively on their own accord. Related findings from this third developmental phase of the research will be reported in a subsequent publication.

**Discussion & Conclusion**

This paper started by tracing the development of virtual CoPs or eCoPs for Science, Mathematics and English subject groups through the online CPD platform created to promote the use of and skills in ICT among the aforementioned subject teachers. It further provided a description of the three cycles of development the project underwent that consequently resulted in two significant outcomes. Firstly, it entailed the development of an improved version of the online CPD system which evolved from the eCPDeiT Model, with only blogging and a virtual interactive platform (ViP) as tools: The eCPDeiT Learning System which provided a workbench of selected tools created based on the views
shared and opinions exchanged between the participating teachers and the mentors in the research. Secondly, the continual cycles of discovering reasons for teacher actions, and understanding barriers that they identified as impeding their practices in the use of ICT, as well as their use of the CPD online system in the project, revealed the importance of creating a cadre of people who share a collective intent and cultural understanding for a successful development of eCoPs. To this end the research team employed two models in their methodology—the more structured hub and spoke model based on a critical relationship between a number of school-based cadre of change-agents (spokes) and a Higher Education Institutions (HEI)-based research team (hub) and later the less formalised Critical Friends Group (CFG) technique.

In reviewing the extent to which the two important aspects that the eCPDeIT Model initially aimed to achieve, it can be concluded that the potential of an online CPD system is perceived as highly plausible and enthusiastically received. Additionally, the second aspect of the model which endeavors to provide teachers with opportunities to learn about and engage in ICT activities through the CPD system was evidently successful based on the positive feedback received from the preliminary study (Thang et al., 2010 & forthcoming). In contrast, the hope that the two aspects will lead towards the creation of an online communities of Practice (CoPs) as an outcome of the interactions and exchanges about their teaching and applications of ICT in their classroom activities, was not achieved.

The most disconcerting realisation that emerged from this study is that the proposal for the development of eCoPs within the organisational settings (i.e. the schools) and the potential of generating knowledge collectively for wider education benefit is up against the history, practices and values of a school culture and a larger community that does not share the same perspective and collective intent. Findings from the study suggest many ontological and epistemological issues that need to be addressed and explained when tackling the challenges of creating virtual or eCoPs effectively in an environment where sets of values are radically at odds with each other as reported in this study. For example the school and teacher participants expressed an interest to adopt the CPD system introduced but in practice was not willing to set aside time for online sharing and exchanges nor were they ready to integrate the system into their work culture and schedule, effectively, rendering the CPD as cumbersome rather than as a facilitative ongoing integrated process of their professional development. These controversies essentially distinguish the rate of success between the locally applied CPD model from the highly successful IQEA model.

Furthermore, similar controversies are highlighted by way of the four barriers discussed earlier in this paper: 1) resources; 2) institutional and administrative barriers; 3) institutional barriers relating to training and experience; and 4) barriers related to teachers’ attitudes and fear. The success of the IQEA model is rooted in the concerted efforts and collective intent of all stakeholders in the ecology of the select community. For the Malaysian context, until these contradictions are resolved at all levels of the education community (comprising teachers, principals, education officers, curriculum designers, parents among others), the desired communities of practice (CoPs) will not be established as envisioned.

It is, however, ironic to learn that in a country such as Malaysia, where most
innovations are directed from political will, the drive to integrate ICT in daily use and teaching practices at the ground levels are seemingly impeded by local, social and cultural paradoxes that permeate the unconscious realm of the education community. In this dilemma, the central issue is how to transform individual knowing into collective intent and collective knowing to become part of individual intent so as to achieve mutual engagement, joint enterprise and a shared repertoire. In this view, the current research project continues to explore models such as the CFG technique and improve the methodological platform to generate transformation in pursuit of becoming an enlightened community with a collective intent.

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