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Bringing the 21st Century to Schools – Making it Simple for Independent and International Schools

E. GODDARD-TAME
Principal, Hong Lok Yuen International School

M. IZZARD
Curriculum Consultant

C. CURTAIN
Acting Deputy Principal, Hong Lok Yuen International School, PYP Co-ordinator

B. STATHAM
Assistant Head, (Lower School) International College Hong Kong

This paper is about implementing a software solution, which provides a collaborative environment integrating learning, teaching, communication and management of administration information in an International School in Hong Kong

Abstract

Managing change in schools, particularly International Schools, in the 21st Century presents many problems. Curriculum, in particular, struggles to stay in touch with the growth of technology. Technology development in School management systems has studiously ignored curriculum frameworks and content. The proliferation of technology solutions to school management issues has been fragmented and often wasteful requiring, doubling up on tasks and unnecessary disbursement of information. Hong Lok Yuen International School recognized this problem and took the major step to try and introduce more efficiency into school and curriculum administration, at the same time meeting those 21st Century goals of improved communication of learning and community. Those goals included finding ways to centralize and have 'single entry' administration; integrating curriculum content in general school administration; providing more ownership of learning to students, and providing parents with 'real time' information on their students learning and assessment. This was

achieved by careful analysis of both the complete administrative needs a careful analysis of the learning process and including the results in a sophisticated database and software portal package. This paper is the story of that process.

Keywords: integrated, learning, database

1. Introduction

HLYIS was implementing changes to the curriculum and decided to carry out a pilot study on using a customized software solution (technology) to bring about change more effectively.

Hong Lok Yuen International School has been established 25 years ago, in the North New Territories of Hong Kong. It is a dynamic parent-run school which caters for both expatriate and local students and until a few years ago, catered for 3-11 year olds. In 2005 however, it extended into secondary education as the start of a move towards setting up its own separate secondary school, which would enable all Year 6 students to be assured a secondary school place. This project took place just as we were on the cusp of opening our new secondary school International College Hong Kong. It was also at a time when we were just on the cusp of going through accreditation for the IB, PYP diploma for the Primary School and had just decided to implement the UK National Curriculum Key Stage 3 for the lower secondary school as a precursor to implementing IGSCE and then the IB Diploma in our new secondary school. We were therefore at a point where we were re-writing our curriculums – in the Primary changing from the UK National Curriculum to PYP and in the Secondary, creating a new curriculum.

As a school we are small in size compared with many Hong Kong schools. We are fortunate to be well resourced in the area of IT with interactive whiteboards in the primary classrooms and Year 7,8,9 students each learning through a one to one Apple Laptop programme. With regards to learning and teaching we were in a development transition stage, in particular with regards to curriculum planning, with assessment and reporting both rather discrete and unrelated affairs.

Our school office has always functioned relatively efficiently with systems in place for such activities as management of fees, enrolment and registration procedures, management of policies and communication systems. Attendance information was still recorded manually in registers.

We had a separate intranet package OUR SCHOOLS, which we used as a message board and an email system between staff. However this email system was separate from our administrative email system which used our own school domain name.

As the amount of information started to grow along with storage systems such as servers and intranets, and teachers started to increasingly use technology for planning and reporting, we realized that with the technology we had to hand, we should be provide for better integration and management of information to cut down on work and improve on the quality of service we provided.

Whilst we had investigated several ‘off the shelf’ commercial school management database software packages which espoused to integrate administrative databases with learning and teaching activities such as reporting and assessment, all were expensive, usually bound to a particular curriculum or country and generally inflexible for schools to adapt to their own particular use.

We were then introduced to an integrated software solution and a curriculum consultant who offered the possibility of making things much more simple for us…..

We decided to call our new primary school integrated management/learning platform ‘The Orchard’.

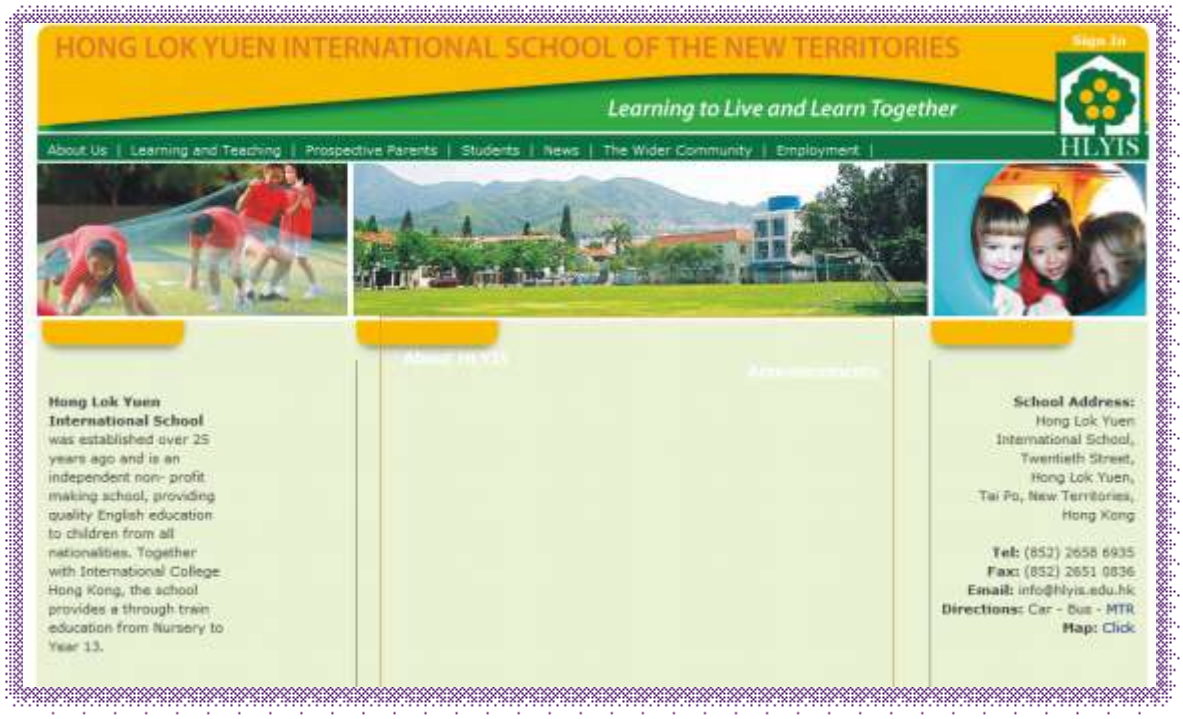

Figure 1: HLYIS public website integrated with its VPN "The Orchard"

2. An Overview of the Learning Platform – Perspective of the Curriculum Consultant Developing Learning Management in the 21st century – Mike Izzard

An integrated solution is needed to effectively manage school date and there are guiding principles with regards to this integration.

"*It is no longer possible to achieve anything creative with information; the only result of a continued and unchecked torrent is an increase of mental pollution in society. The most characteristic quality of information in such great quantities is the great quantities themselves, and it is under all these layers of muffling and insulating padding that everything important that is going on is actually going on*". *P.88 Bard & Soderqvist (2002)*

Often, the practice in examining the role of technology in education is restricted to the technology itself. The services it is supposed to perform and its role in facilitating sound, 'lean', efficient, communication, administration, of learning and services are passed over. Isolated instances of technologies use are not always seen as an integral part of a school's function.

The question should be how to integrate those technologies with the aim of creating a simple, lean and efficient organisation to deliver school goals. Integration means recognising and incorporating all the 'Communities of Practice' that exist in schools into its management system in a way that all understand and contribute to. Technology today not only provides connectivity to the physical parts of an institution, but also to it's organizational parts. This is achieved by the centralizing of information in databases.

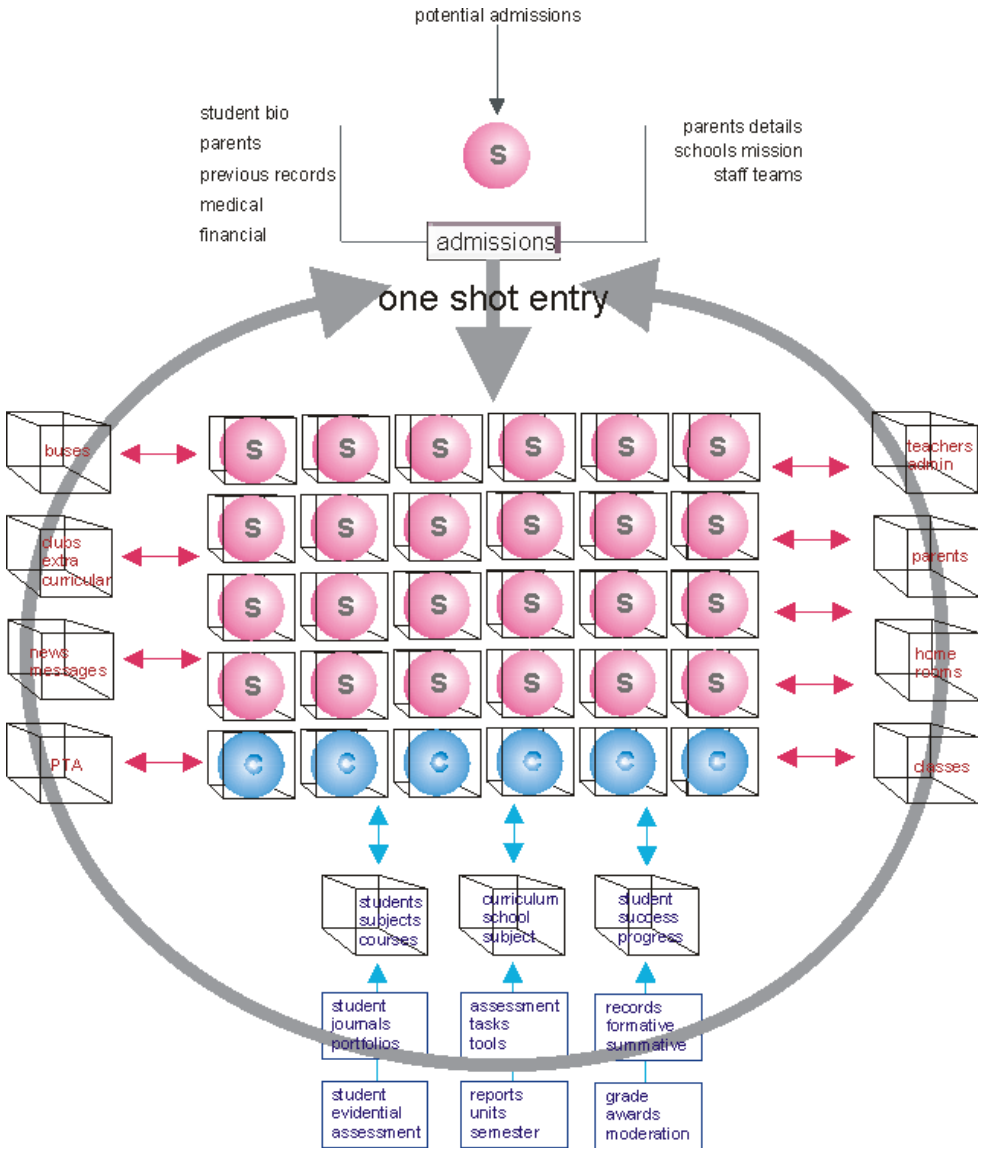

Figure 2: A method for simplifying and integrating Schools communities of Practice

This coordination of technology should incorporate appropriate guidance to how it is used. These following principles are useful indicators of how these should be.

Firstly, *convenience and flexibility*: technologies for managing identified parts of an institution should provide the convenience of access and the flexibility of the use by consolidating required data into common use areas.

Contextualization: of management structures enables all members of the administration and both staff and students using their own personal environments can have access to suit the context of their own, and the schools, requirements.

C*ollaboration and communication*: ready means of providing opportunities for collaboration in the form of integrated forums, message boards, projects etc can be provided with-in the context of a user's requirements and,

Constructive feedback: Such feedback can come from the development of new pedagogies that accompany the introduction of new technologies.

These are all incorporated through school management systems that contain all parts of a school's functions, including learning management.

The development of learning management systems is an essential part of how curriculum should be approached in the 21st century. Curriculum can, and should be organised too as an essential part of any schools activities. The technology should serve the school by providing ready access to the knowledge and content that a school wishes its students to have; to clear and real-time reporting of student's work as it occurs; and to clear lines of communication of this learning to all interested parts of the school's community, including parents and the administration. Not only this, but the learning process itself provided by the school should empower students by getting them more involved in the process and assuming more responsibility for their own learning. One of the main functions of this symposium is to illustrate this clearly as it can happen at all levels of schooling. 21st century schools and the way they are run, require a paradigmatic 'shift' on behalf of its teachers.

3. Developing The School Curriculum

The Perspective of the Primary Years Curriculum (IB) Co-ordinator and Lower Secondary School Curriculum Co-ordinator: Chris Curtain and Ben Statham

A description and rationale of the main elements of the Curriculum frameworks used - the Primary Years Programme (IB PYP)) and Key Stage 3 with elements of PYP. The approach taken to planning, reporting and assessment

The Curriculum Frameworks

Primary

Our Primary curriculum follows the International Baccalaureate (IB) Primary Years Programme (PYP). It is an international curriculum model designed for students aged 3-12 years and is a program that promotes the development of the whole child - social, physical, emotional and cultural needs as well as academic development. As part of this curriculum we write trans-disciplinary (across disciplines) units of inquiry that last for 5-6 weeks each. Inquiry is used as a vehicle for learning in these units and teachers facilitate the inquiry adopting a constructivist approach to teaching - one that promotes thinking, reflection and knowing how to learn.

The (IB) has developed a profile of a learner with 10 attributes for life-long learning which forms part of the philosophy of our teaching and learning. We strive to develop in our students these attributes: Inquirers, communicators, knowledgeable, risk-takers, open-minded, reflective, principled, balanced, thinkers, caring. There are also 12 attitudes that we expect students to show in their learning in order to reflect the learner profile:
Appreciation; Commitment; Confidence; Cooperation; Creativity; Curiosity; Empathy; Enthusiasm; Independence; Integrity; Respect; and Tolerance.

The PYP is a conceptually based curriculum. The PYP key concepts, also expressed as key questions, help teachers and students to consider ways of thinking and learning about the world, and act as a provocation to extend and deepen student inquiries. An explicit expectation of the PYP is that successful inquiry will lead to responsible action, initiated by the student as a result of the learning process. This action will extend the student's learning, or it may have a wider social impact, and will clearly look different within each age range.

The PYP units of inquiry include the core content from the Science and Social studies curriculum, as well as other relevant curriculum links. We teach the remainder of the primary curriculum content outside the context of the unit of inquiry but retain the focus on the PYP essential elements: Concepts; Skills; Attitudes; Action, as well as reflect the learner profile and philosophy of our teaching and learning. When developing our learning model for the database, the focus was to ensure we had included the essential elements of the PYP.

Secondary

In choosing a curriculum for ICHK, two main viable options presented themselves; those being the IB Middle Years Programme (for 11-16 year olds) and a combination of the UK National Curriculum for Key Stage 3 (for 11-14 years olds) followed by IGCSE (for 14-16 years olds).

Both options had obvious benefits. Firstly, the IB MYP offered a smoother transition from our primary partner schools (all three of whom follow the IB PYP) *in terms of philosophy and the coherence of their approaches* (IB 2008:02).

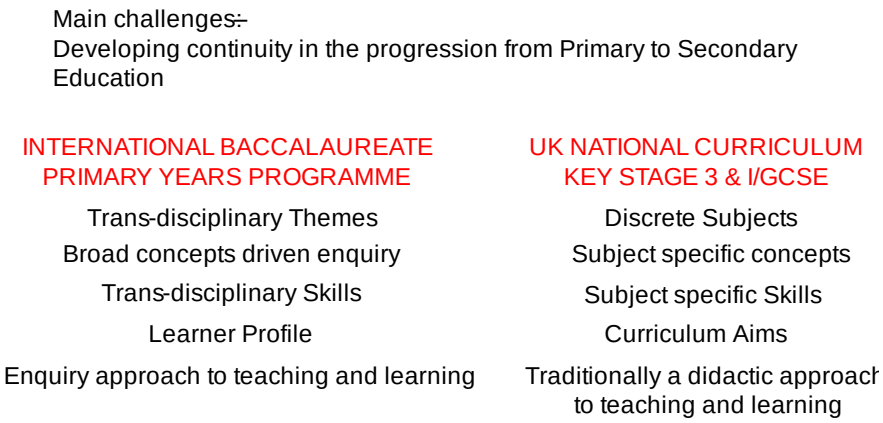

Figure 3: Identifying elements for a smooth transition between programs

Alternatively, the Key Stage 3 programme offered a more established curriculum, a solid structure of progression of concepts and skills within the major subject areas such as English, Mathematics, History, Geography, Science etc. The aim is to enable all young people to become-

> **Successful learners** who enjoy learning, make progress and achieve. **Confident individuals** who are able to live safe, healthy and fulfilling lives. **Responsible citizens** who make a positive contribution to society.

However although the new Key Stage 3 curriculum enables teachers more freedom and flexibility to reflect the context within which they teach, as well as the ability to teach through a more inquiry-based approach, there were some fundamental elements that did not fully satisfy our aims.

We decided to take the best of PYP and to blend it with Key Stage 3 curriculum and thus develop a curriculum framework that would be unique to our new secondary school International College Hong Kong.

The PYP is a concept-driven framework. Although the Key Stage 3 curriculum also

acknowledges the role of 'concepts' within teaching, it still remains an objectives-based curriculum with subjects mainly viewed as discrete areas. The decision was therefore taken to develop a new layer to the curriculum, one of 'Learning Perspectives' that would help students (and teachers) to make the vital links between subjects to enable understanding to be developed at a deeper level.

Through the five perspectives of '*communication*', '*creativity and innovation*', '*critical thinking and reflection*', '*cultural understanding*' and '*competence*', it is possible to organise the (100+) subject specific concepts and processes into 5 broader areas of learning, similar on a conceptual level to MYP's endorsement of *'multidisciplinary themes'* (2008:67).

Although still often taught through discrete subjects, these perspectives enable students to continue to see the relevant and co-dependent nature of knowledge and skills made explicit within the PYP trans-disciplinary themes *(IBO, 2000)*, thereby continuing to enhance the connections students have previously made, as opposed to severing them.

The second decision that was taken to enhance the curriculum offered at ICHK was to continue promoting and developing the IB Learner Profile. Although the aims of the Key Stage 3 curriculum closely meshed with the ethos promoted at ICHK, the IB Learner Profile (effectively the IB Mission rewritten as learning objectives for students) bore closer relation to our own school mission and vision. With the vast majority of our students progressing from IB PYP schools, and in line with our plans to offer the IB Diploma in Years 12 and 13, there were clear benefits in taking this course.

We were advised that the integrated software solution we were to use was flexible enough allow us to map the curriculum using this variety of curriculum frameworks – something not usually possible with commercial 'curriculum mapping software packages.

A common problem in the continuation of a student's education from Primary to Secondary is often a perceived lack of 'knowledge' acquired within the formative years, often leading teachers within lower secondary classes to feel that 'proper teaching starts here!".

However, in my experience it is less a lack of knowledge per-se, but more a change of approaches and pedagogy which can often leave students feeling lost during this important transition period, and therefore less able to reflect their true ability.

As stated in the IB MYP publication 'Principles to Practice', *"As students move from a primary or elementary school setting into a secondary or middle school, schools have a responsibility to ease this transition at a variety of levels: one of these is at the curricular level."* (2008:03). A challenge that is evident in many educational systems, as discussed by Dr Ross Todd *(21/11/09)* on a recent visit to Hong Kong in which he alluded to the problems associated with students moving from an open flexible inquiry-centred learning approach to a more formal, rigid *'silos of knowledge'* stance.

In developing our secondary curriculum, it was therefore important to acknowledge the teaching and learning that had taken place in our primary partner schools, and adapt our methods and curriculum to ensure smooth progression.

Planning the Learning Model

Developing a data base for planning, at this point in our curriculum review, will enable us to ensure rigour in planning. As the PYP is a trans-disciplinary and crosses over several subjects, there needs to be a system of efficient curriculum mapping and tracking. The data base has been devised to accommodate this, as well as ensuring that we meet all the requirements of the PYP – both in planning a unit of inquiry, as well as planning the stand-alone content taught alongside the unit of inquiry.

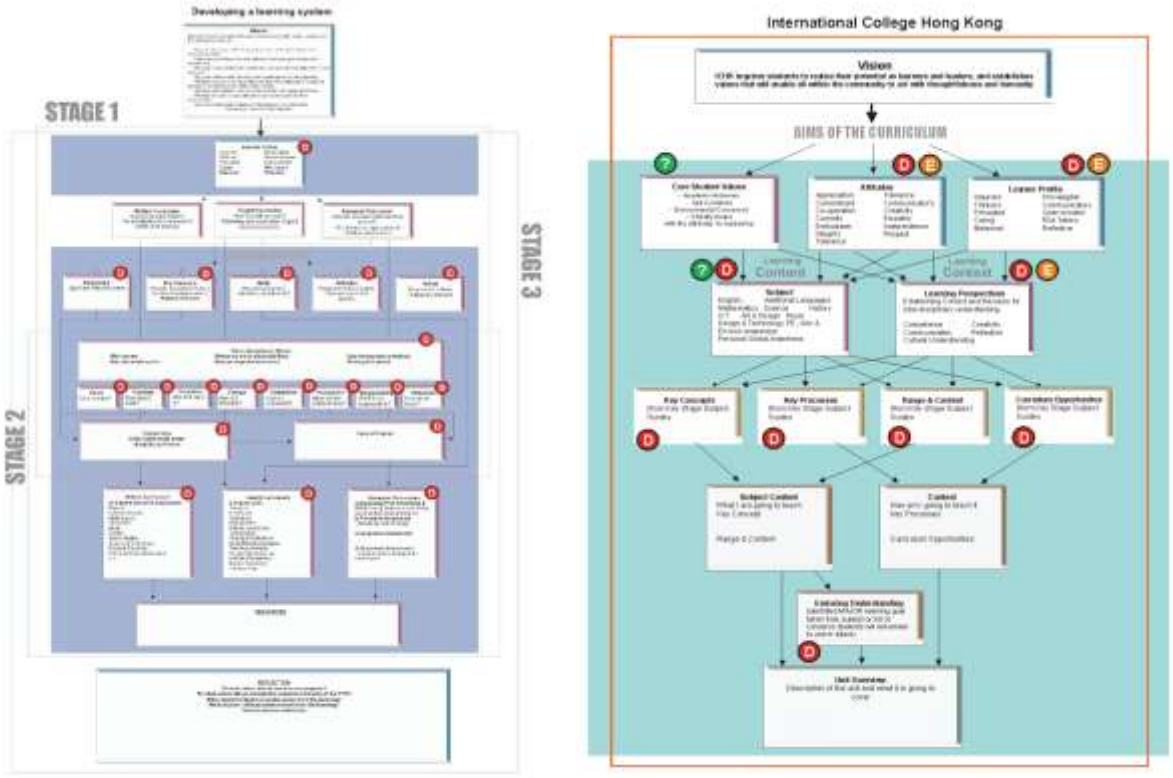

Figure 4: Identifying the Learning Models for each program in context.

Developing the database, as curriculum coordinator, it has been possible to map all social studies and science objectives or content into units of inquiry – ensuring accountability for teaching that content. At the time of planning, teachers select from other subject data bases, the content that genuinely fits into the unit of inquiry. Teachers then choose the objectives in the other disciplines, particularly Maths and English that will need to be taught independently of the inquiry context. Having this information in a database, replaces the books, documents, paper driven process, and gathering content to use in planning from a number of teaching and learning websites. Accountable is ensured and it becomes an efficient way of planning. The data base will enable our management team to track and map many aspects of our curriculum over time.

Breaking down the curriculum and identifying key elements, and through links was a critical part of the process we have been through. We wanted to ensure that the primary curriculum fed into the secondary, as well as the secondary curriculum building on the teaching and learning approaches used in the primary school. Taking time to develop, discuss, reflect and refine the learning model ensured that the database would be a useful, relevant and connecting tool in our planning, assessing and reporting.

Assessing and Reporting

It is critical to link planning to assessment– and then ultimately to reporting. At time of planning, it is important to start with the end in mind. The PYP trains us to put into practice a 'Backwards by Design' approach to planning. Backwards curriculum design is one process to design effective curriculum and quality assessment of student learning. Wiggins and

McTighe (2005) describe it as a three-stage process: identifying priorities and setting goals; designing assessments; an finally planning the learning experience.

For each unit of inquiry a summative task and assessment tool is devised at the time of planning. By using the database for our unit of inquiry plans, it is now possible to generate a unit of inquiry report, with assessable content selected at the time of planning, which once graded or assessed by the teacher, it will form part of a unit of inquiry report.

Figure 5: Identifying a structure for assessing learning

To capture the essence of the inquiry and to give relevant feedback to students and parents, we have designed a summative rubric that identifies assessable components at different stages of the inquiry – what we term as the inquiry cycle (based on the Kath Murdoch inquiry cycle). Firstly we identify knowledge and skills that we want the students to know or demonstrate at the initial stage of the inquiry – when they are 'collecting information' and 'finding out'. Then we identify knowledge and skills at the middle stage of the inquiry when students are 'sorting out' and 'going further' with their inquiry. The final stage involves students demonstrating the knowledge and understanding they have gained and reflecting on action they may have taken or want to take. They draw conclusions and form opinions at this concluding stage of the inquiry – 'reflecting' and 'taking action'

For each component of the rubric, teachers plan a separate assessment strategy and tool. The rubric is a summative overview of the unit of inquiry that serves as a reporting devise to use with parents. It is written by teachers, for parents, and forms part of a unit report. Students will be made aware of the rubric once they are ready to understand its purpose and content. The data base enables us as teachers to plan for our learning, teaching and assessment, as well as produce a report that reflects the intention of the teaching, and the student achievements in the unit of inquiry.

Figure 6: Digital Portfolio student record cards and teacher reports automatically generated

4. Managing the Change

Implementation of any change and innovation needs management. There are always risks that for a number of different reasons, change won't happen, things could be made worse and a lot of time and money could be spent for nothing but frustration. People are often wary of change, especially if in the implementation stage it involves more effort and especially if the benefits cannot be seen or easily understood.

Our new MIS system was going to cost us a significant amount for the software and consultancy– a lot more than we had ever spent on a development like this. It was to a large extent untried and untested as only one school in Hong Kong had carried out a pilot on the early stages of development. The new system would involve a lot of work from both administrative and teaching staff, yet school life was already busy. It was a project that could go horribly wrong or could indeed make things much more simple for us and launch us truly into the 21st century!

Implementing and managing change involves a whole host of strategies which need to be executed deftly at the right time! To begin with, the risk needs sizing up, together with a check that most of the pieces of the jigsaw are available to make it all work. The right people are needed in place to push and to pull in a climate that has been established for change. Persuading all stakeholders that the change will surely happen and certainly bring new horizons - are just part of the marketing that needs to be done before taking the leap into change!

We are only at the start of the journey. Careful consultation, organization and action planning are on-going elements. Starting with the buy-in with senior management was essential as without their support and willingness to take the leap, the project would not succeed. We considered what we would do if we didn't take the initiative and decided that the only alternative would have been no change and we would just muddle on as before.

Figure 7: The process of establishing the structure for change

The next important step was a full discussion at Board level, to clearly articulate how it could benefit to their children's learning and communication with parents. Ultimately we need to be sure that any monies spent is to the support our core purpose – to improve the quality of learning and teaching in the school for each child!

An important stage was persuading the administrative staff of the new benefits the system would bring to them, as it was them who would need to do much of the data entry in different ways they had ever done it before and abandon systems they had used for years!

Finally, managing the change for teachers was probably the most important element in determining (and will determine) how successful our project will be.

Important elements included:

- Time for collaboration
- Feedback on progress
- Clearly stated targets

We still have a long way to go on the journey, the experience has sharpened the thinking of the educational managers who have been shaping the curriculum, as well as the administrators in charge of the data! It is a project that as a school everybody is involved.

Tom Collins in his book 'Good To Great' says that
"In every good to great case, we found technological sophistication. However it was never technology per se, but the pioneering application of carefully selected technologies. When used right, technology becomes an accelerator of momentum, not a creator of it. The good to great companies never began their transitions with pioneering technology, for the simplest reason that you cannot make good use of technology until you know which technologies are relevant. And which are those? Those and only those- that link directly to the three intersecting circles of the Hedgehog Concept".

We like to think our school is a Good going to Great School. In Tom Collins speak, our Hedgehog is a small school doing great things – personalised quality international education for every child in a multi-cultural community atmosphere. (It is what we could be the best in the world at, it drives our economic engine and we are passionate about it!)

In our journey in implementing change, by using technology to help integrate our

databases and communication systems, we hope to make things simpler, more efficient and focus on what is at the heart of what we do – improving the quality of learning and teaching.

Presenters

Elaine GODDARD-TAME: B.A (Hons),P.G.C.E. M.Ed.
Principal of Hong Lok Yuen International School and Founding Head of International College Hong Kong, E-Mail: principal@hlyis.edu.hk

Mike IZZARD: LittleOne Creative Enterprises M.A. B.Ed., Dip. Tch., T.T.C
Curriculum Consultant and former teacher at Chinese International School E-Mail: littleonece@yahoo.com

Chris CURTAIN: Diploma of Teaching, Early Childhood Specialisation, Post Graduate in Teaching Children with Exceptional Needs, Masters in Learning Management (MLM),
Acting Deputy Principal, PYP Co-ordinator, Hong Lok Yuen International School
E-Mail ccurtain@hlyis.hk

Ben STATHAM: B. Edu. (Hons), M. Ed in Educational Management
Key Stage 3 Manager, Assistant Head (Lower School) International College Hong Kong
E-Mail bstatham@ichk.edu.hk

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Authors

E. GODDARD-TAME
Principal Hong Lok Yuen International School

M. IZZARD
Curriculum Consultant

C. CURTAIN
Acting Deputy Principal HLYIS, PYP Co-ordinator

B. STATHAM
Assistant Head (Lower School) International College Hong Kong