

# ENGAGING IT PRACTICES



*School IT Culture  
Management of IT Resources  
Staff Development*

*Pupil & Teacher Use  
Community Connections*

This booklet was published by Educational Technology Division in 2002.

It features the IT Progress Gauge on which the BY(i)TES self-evaluation tool in Masterplan for IT in Education II (mp2) is based. It offers principles and guidelines for evaluating your school IT programme as well as pertinent tips and guiding questions for effective IT implementation.

All information in the booklet was correct at the time of publication in 2002.

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# IMAGINE.....

At a nearby park, an English lesson is being carried out. Fatimah uses a mind mapping tool to record her observations on her personal digital assistant (PDA). As instructed by her teacher, she categorises her observations according to the different senses of sight, sound, touch and smell. She discusses with her group the digital photographs they should take to illustrate their observations.



Fatimah and Tien Zhao go round the park with a digital camera while Leonard and Ravi use their PDAs to record selected sounds.



They take notes studiously as the people whom they interview at the park share what they like about the park.

All these data will be put together into a digital brochure that will be uploaded onto their school's web site. The objective of this brochure is to promote the park, which is relatively new and unknown, to the community.

It is after school hours at 2.30 pm in the afternoon. Zhi Shan and Rachel are using a wireless enabled notebook to actively surf the net for information on their project work. As there are some pupils eating and chatting at the canteen, Zhi Shan and Rachel have to raise their voices slightly as they discuss their findings. They have some questions regarding the information sourced, but they are aware that Mr. Tan is currently at a meeting. They decide to email him their questions. They know that Mr. Tan will reply to their email as soon as he is able to.



A beeping sound from her notebook alerts Mrs Sulaiman to a new entry by her pupils to the project work discussion forum. She scans through the latest entry by Chin Han, which gives his comments on



group B's project work outline plus some URLs for relevant readings on their topic. She makes a mental note to praise Chin Han for taking the trouble to contribute useful readings.

Since she is already logged on to the Internet, Mrs Sulaiman signs into *Nest*, an online community started by the Educational Technology Division for local Science teachers who are interested in using IT for teaching Science. She checks if any teacher has agreed to carry out an online collaborative activity with her form class. She is happy that 2 teachers have replied with suggestions for modifications of her proposed activity. One of the teachers suggested inviting a Science lecturer from NUS to act as a resource person for the pupils.

Laughter rings out from the mathematics department's meeting. Mr. Retnam is sharing his lesson, which explores the use of the Geometer's Sketchpad for problem solving. He shares the misconceptions of his pupils that surfaced during the lesson, and the

classroom management problems he had. The other teachers give suggestions on how to resolve some of the management problems. Mrs Lim, the Head of the Math Department, compliments Mr. Retnam for taking on the challenge of using GSP with a new instructional approach. Ms Farid, a new teacher, volunteers to try another problem solving lesson using GSP. Mr. Ong agrees to help her think through the design of the lesson and to co-conduct the lesson with her if his timetable schedule permits him to do so.

# Dear Principals, Vice-Principals and Heads of Departments

## Why this booklet

In our interactions with you, many of you asked what constitutes effective implementation of IT in schools and how you can work towards effective implementation.

The scenarios in the previous pages illustrate how IT is effectively used in various school processes and the kind of support that makes the scenarios possible. Besides the scenarios, which may give you some ideas of how to use IT, we hope this booklet will assist you in your quest to effectively use IT in your schools.

## What this booklet is about

We would like to share with you the IT Progress Gauge which considers the effective use of IT at the classroom, school and community level. The IT Progress Gauge was developed by the Educational Technology Division in response to school leaders' request for an evaluation tool to determine effective technology use in a school that takes into account local needs and context.

In this booklet, we will illustrate effective use of IT in the various domains in the gauge, by providing actual examples and strategies culled from two research studies that were conducted in 2000 and 2001. These studies are the Case Studies of Organisational Change co-ordinated by the Organisation for Economic and Cooperation Development (referred to as the OECD study) and the Teacher Development Study (TDS) developed and carried out by IT Training Branch, Educational Technology Division.

# How to use the booklet

You can use the IT Progress Gauge to help you plan and self-evaluate your implementation of IT in your school. From the research studies, you may find useful ideas and strategies that you can improve or modify for use in your school. The tips are developed based on the research findings.

We hope that you will find the good practices inspiring and useful as you work with your school to harness technology.



## Footnote

*The focus of the OECD case studies (2000) is to find out the roles of IT in school reform. The term school reform refers to substantive, positive change in a school system. 5 Singapore schools participated in this study, including 1 primary school, 2 secondary schools, and 2 institutes of higher learning.*

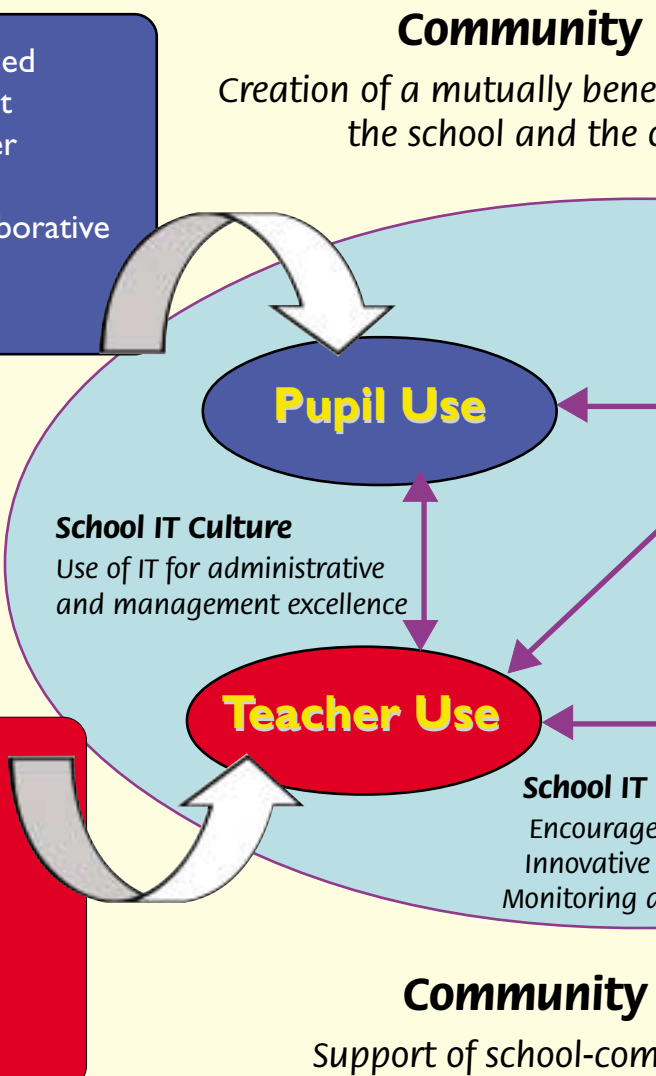
*The focus of TDS (2001) is to study the kinds of professional development programmes and strategies that are most likely to produce innovative pedagogical practices using technology. This study involved three teachers who are recognised to be innovative. These teachers teach different subject areas and they teach a range of pupils from Primary to Junior College level.*

# THE IT PROGRESS GAUGE

## A SYSTEMIC APPROACH TO

- Involvement in IT-based learning activities that promote higher order thinking skills
- Involvement in Collaborative work
- Fluency in use of IT

- Integration of IT in the curriculum
- Creation of collaborative learning activities
- Involvement in collaborative work with colleagues



### Community

Creation of a mutually beneficial relationship between the school and the community

**Pupil Use**

### School IT Culture

Use of IT for administrative and management excellence

**Teacher Use**

**School IT**  
Encourage innovative use of IT  
Monitoring and evaluation of IT use

### Community

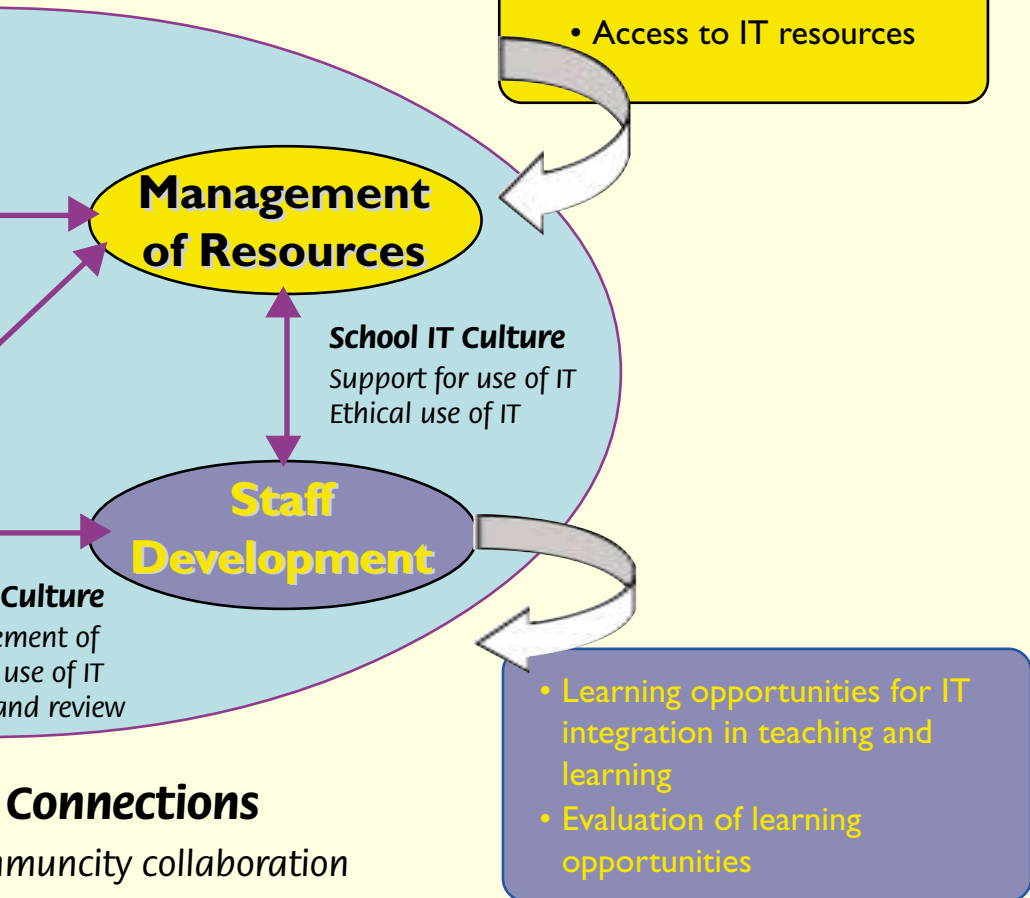
Support of school-community

# GE -

## IT INTEGRATION IN SCHOOL

### Connections

Official environment involving community at large



### Connections

Community collaboration

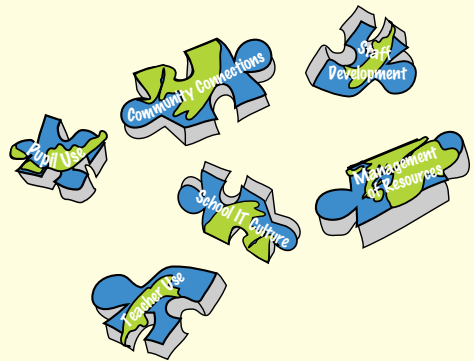
# INTRODUCTION

The IT Progress Gauge is based on the fundamental view that technology is an enabler that can be used to enhance teaching and learning as well as administration and management excellence in schools.



The Gauge consists of 6 domains:

- School IT Culture
- Pupil Use
- Teacher Use
- Staff Development
- Management of Resources
- Community Connections.



These 6 domains are identified because we believe they are the key components that have the most impact on pupil learning in school.

As depicted by the diagram, these 6 domains are closely related and are interdependent. They must work in tandem as a whole in order for effective implementation to take place. For example, the ability of teachers to integrate IT effectively into the curriculum is dependent on opportunities created by staff training programmes that will equip teachers with the skills required to facilitate that integration. So the success factor of one domain is dependent on what is carried out in another domain.

The IT Progress Gauge therefore recommends a systemic approach when attempting to improve the quality of teaching and learning through technology in schools.

Every school aims to provide quality and relevant education for its pupils. We believe IT can increase pupil productivity and enhance pupil learning in meaningful ways. The domain, Pupil Use, is the most important domain in the IT Progress Gauge; it is the pivot around which the other domains revolve. How the other domains contribute to the success of pupil learning therefore becomes the central success measure of these other domains. This is in line with the core values of SEM that place pupils at the center of the education process and teachers as the key to the success of that process.

# THE ICT PROGRESS GAUGE IN A NUTSHELL

## Pupil Use & Teacher Use



We envision that with the effective use of IT, pupils will become fluent and intelligent users of technology. Technology will enhance the learning environment by facilitating pupils' critical and creative thinking, and developing pupils' ability to collaborate.

However, in order for pupils to use IT effectively, teachers need to be able to integrate IT effectively into their teaching and to model the use of IT in their own professional practice. For example, if teachers use IT to work collaboratively amongst themselves, there is a higher chance of them using IT to promote collaborative learning amongst their pupils.



## Staff Development

To help teachers use IT effectively, a staff development programme needs to be planned and implemented. This programme must take into consideration the larger needs and aspirations of the school as an organisation. This will be the context in which the teachers' individual professional needs will be considered. This programme should also ensure that the skills and knowledge teachers acquire are translated into practice that will impact pupil learning outcomes.

## Management of IT Resources

To support pupils' and teachers' use of IT as well as staff development programmes that promote effective and appropriate use of IT in the curriculum, resources need to be well managed. Resources need to cater to a wide range of learning needs and should be accessible.



This presupposes a good review system that facilitates the gathering of feedback from stakeholders and regularly improves the management processes based on this feedback.

## School IT Culture

All these domains happen in the context of the school environment. A conducive school environment is one that supports and nurtures teachers' exploration and use of IT for educational excellence. It encourages sharing of knowledge and experiences and the regular review of IT related programmes.



## Community Connections

Finally, today's schools are part of the larger national community, which in turn is part of the global community. Schools through the help of technology can tap the resources of these communities to improve the quality of learning and learning programmes offered in schools. The relationship between school and the community, forged through the help of technology, needs to be mutually beneficial for long-term and sustained success.



We hope the specific examples we will be sharing under the different domains, in the following pages, will help you to better understand how the domains can work out in a real school context. Have a fruitful learning journey.

## Domain 1 -

# SCHOOL IT CULTURE

- ✍ Support for use of IT
- ✍ Encouragement of innovative use of IT
- ✍ Use of IT for administrative and management excellence
- ✍ Monitoring and review for improvement
- ✍ Ethical use of IT



## Desired outcome:

School leaders take the lead in creating a conducive and vibrant environment for innovative integration of IT into the school curriculum and school processes. There is widespread support for the use of IT and leaders serve as role models supporting and spearheading the effective use of IT.

## Guiding questions:

- ✍ Does the school have a clear policy on the use of IT that is widely accepted and practised by the staff?
- ✍ Does the school have a clear vision on how it intends to harness IT to enhance teaching and learning?
- ✍ Do leaders encourage and reward staff effort in using IT to achieve educational excellence?
- ✍ Do leaders model effective use of IT?
- ✍ Does the school leverage on IT to enhance administrative and organizational effectiveness?
- ✍ Do school leaders encourage and facilitate professional sharing among staff to share good IT practices and strategies?
- ✍ Does the school leadership establish systems of monitoring and evaluation that improve school IT programmes?
- ✍ Do all staff have opportunities to give regular feedback on how IT programmes are implemented?
- ✍ Does the school model and practise ethical use of technology?

## SCHOOL IT CULTURE

This refers to a school culture which actively supports the use of IT in various aspects of life in school. Such a culture has to be deliberately developed by the management. It is generally found that the successful development and sustenance of a school IT culture is dependent on 3 factors, namely the development of a comprehensive IT Plan, integration of IT into various areas of school life and the continual monitoring and review of the IT plan.

### BUILDING AND SUSTAINING A SUCCESSFUL SCHOOL IT CULTURE

Monitoring and Review



School-wide Intergration

Support of IT Culture



Comprehensive IT Plan



## Developing a Comprehensive IT Plan

In the 5 case studies, IT is viewed as an important component of the school's processes, seen in the development of long term (4 to 5-year) **IT plans with a clear vision that is supported by the majority of the teachers.**



For example, school 1's vision is to create a “community of online learning schools.” Most of the teachers in the school support this vision and have internalised it. They are able to articulate and elaborate on it when asked about the school IT vision.

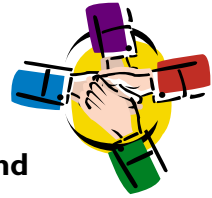
Where there is no specific IT plan, as in school 3, the implementation of IT is designed to support the school's overall vision of creating a caring community:

“...the school recognises that the pursuit of IT should be balanced by the development of the human spirit and character ... we are looking at a holistic view ... create opportunities for pupils to use IT skills to be involved in the community, to help in the community in whatever way they can ...”

The **IT plans are comprehensive and systemic** in nature, covering the various domains highlighted in the IT Integration Progress Gauge. There are clear goals and indicators to monitor progress towards the vision. School 4 for example, has an IT Plan that focuses on the use of web-based technologies for both teaching and learning, and administration. By introducing web-based technologies for administration, the school hopes to promote administrative efficiency and also greater confidence and competence in the use of IT. This would facilitate the use of IT in teaching and learning processes.

## Support for the Use of IT

The **school management and leaders play an important role** in the successful development of a school IT culture. In all the 5 schools, the leaders be it the Principal, Vice-Principal or Head of Department, are singled out for their part in **setting the vision and direction**, leading by example and showing care and concern for staff who have difficulties adapting to changes.



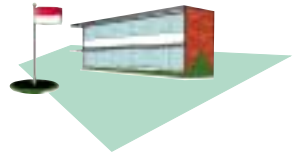
In School 4, “the Principal was all the way behind the reform and has the kind of vision, that brings about the total change in the school. He helped to create a warm, accepting and inviting environment where people dare to try new ideas.”

In School 1, the leader’s philosophy is that the **management needs to walk the talk** by “taking the lead, for example, when a Principal comes in and does a presentation, you don’t expect everybody to fix everything up for you...” So, the leader makes sure that he tries his hand at it and shows his staff that he can do it too.

In addition to the support given by the management, other **staff members can play an important supporting role in ensuring that the school IT culture is nurtured and sustained**. All the 5 schools in the study have formed a core group of teachers to support the other teachers in terms of training, handholding and technology use. In school 4 for instance, the management identified 2 IT-savvy teachers from each department and appointed them as “IT heroes”. These teachers explore how IT could enhance teaching and learning and share and train other teachers in the school. In school 1, a similar model is adopted with technology champions selected from teachers who are more IT-savvy to develop digital content and pilot the online learning programme.

## Integrating IT into Various Areas

Underlying the successful implementation of technology in the 5 schools is the effort to **build a school culture that views IT as a way of life.** This is achieved mainly by integrating IT into different school processes, which raises the comfort level and confidence of the teachers.



In School 2, **the same online IT platform is used for administration, communication, and teaching.** Staff members use the online platform to apply for leave, post messages through emails, and to prepare lecture notes or post projects. As a staff member remarked “in fact, basically, all my work is done through IT...at most I jot down some points, the rest is all computer...” Pupils use technology to assist them with the entire learning process, from learning a concept to clarifying that concept by communicating with their teachers, to being assessed on the concept.

School 5 created **a web-based portal that allows for easy access to resources from school as well as from home** because the school’s main objective was to enable teachers, pupils and the community to log on to the portal, anytime anywhere. The portal has both administrative and academic components. Teachers use the administrative functions to make and check important announcements and book facilities online. In the academic component, teachers put up electronic lessons and display selected pupils’ work.

In School 3, technology is used to share resources among teachers and pupils, to support collaborative projects with the community, and to carry out e-counselling, which supports the affective domain of education. In this same school, “all forms, circulars and information have been digitized and placed in shared folders...”.

## Monitoring and Review

To ensure that the school IT culture is sustained and developed further, **schools engage in systematic evaluation and review of their IT plans**. For example, school 2 does continual benchmarking and evaluation of their plan and has set up a committee to update IT initiatives and chart future directions. In school 1, the evaluation of the plan led them to identify an area of need and make a recommendation to scale up of the present hardware and infrastructure support to ensure that the IT reform is sustained.



While other schools in the study did not clearly indicate the presence of a system of monitoring and review, there are evidences to show that the schools are **aware of the progress of their plans**, have **made refinements along the way** and **come up with concrete plans for the future**. School 4, for example, has “concrete plans to upgrade the server in the school so that its online platform will run even better” and “for administrative purposes, targets have been set to fully integrate the many different programs.” All these expansion plans are based on the feedback from staff members who acknowledge that they are highly dependent on the system and would be “crippled without it.”

When school 5 realised that their plan for the use of the online portal was not progressing as planned, it set up a committee comprising IT competent teachers to provide further technical support, training of new teachers and administration of the online portal.

## Developing a Comprehensive IT Plan

- ✍ Clearly state the vision
- ✍ Ensure the plan is comprehensive/systemic in nature
- ✍ Develop clear and achievable indicators

## Support for the Use of IT

- ✍ Leadership
  - ✍ Walks the Talk
  - ✍ Shows care for staff with difficulties
- ✍ Core Group
  - ✍ Support other teachers in training, handholding and using technology

## Continual Monitoring and Review

- ✍ Establish a system for monitoring and reviewing the IT Programme
- ✍ Ensure awareness of the progress of the IT plan

## Communicating the Vision

- ✍ Frequently communicate the vision to all staff
- ✍ Enlist the support of a majority of the staff
- ✍ Ensure all staff are familiar with the vision and can explain the vision to an outsider

## Integrating IT into Various Areas

Use IT to support/enhance

- ✍ Teaching and learning
- ✍ Administration
- ✍ Communication
- ✍ Collaboration
- ✍ Pastoral Care



## Domain 2 –

# PUPIL USE

- ✦ Engagement in IT-based learning activities that promote higher order thinking skills
- ✦ Involvement in collaborative work
- ✦ Fluency in the use of IT

## Domain 3 –

# TEACHER USE

- ✦ Integration of IT in the curriculum
- ✦ Creation of collaborative learning activities
- ✦ Involvement in collaborative work with colleagues



## Desired outcome:

Teachers use IT effectively to engage pupils in challenging and meaningful learning activities. Pupils and teachers become fluent in selecting and using the appropriate technology for different tasks and purposes. For pupils, opportunities to collaborate with peers and experts are enhanced with the use of IT while teachers collaborate for professional growth

## Guiding questions:

- ✍ Are teachers able to create opportunities for IT-based learning that
  - ✍ develop creative and critical thinking?
  - ✍ promote independent learning?
  - ✍ hone collaborative skills and encourage team work?
- ✍ Are IT-based lessons carried out regularly enough for pupils to benefit fully from them?
- ✍ Do teachers actively model to their pupils the use of IT to facilitate collaboration and the sharing of ideas and resources?
- ✍ Are teachers and pupils comfortable and confident users of technology as teaching and learning tools?

## PUPILS AND TEACHER USE

### Promoting effective pupil & teacher use of IT

Independent & peer learning

Challenging learning

Anytime

IT for Assessment

Multimedia resources



#### Scenario I:

On their own, pupils from School 1 and School 2 **access online learning platforms during and outside class time**. They refer to web-based and **multimedia learning resources** developed by their teachers. Just before examinations, there is also a repository of past years' examination papers they can refer to.

Pupils from School 1 who were interviewed said they found the **colourful graphics and animation** in the online resources interesting and useful for their learning. They liked the fact that they **could learn at their own pace** and even **from their peers** when they held online discussions.

“... when you are free, you can just go in there...when you have doubts you can go in there, sometimes if your teacher is not around,...there is someone ready to answer our questions.”

Teachers in these two schools use the online platform to administer assignments and to interact with pupils. Pupils can also **communicate** with their teachers via email after school hours.

## Scenario 2:

In School 5, teachers even involve their pupils in the creation of lessons, web projects and web quizzes online. To showcase the pupils' work, an online gallery was set up. This is **accessible** to everyone, including parents who are roped in to give comments. Pupils **become actively engaged in creating their own knowledge** in meaningful tasks and they have access to a real audience:

“IT has opened up a whole different world to the kids...my kids had people responding to their writing.... The only people who read children’s writings are their teachers who mark or evaluate but (on) the web... other people could respond to IT, real people who responded not just in terms of marks, but in very real ways”

### Scenario 3:

**Continuous assessment** is supported by the online platform in School 2. Here, pupils get immediate feedback when they attempt the online tests. If they are not satisfied with their performance, they can attempt the test again.

Teachers can monitor their pupils' progress and performance with information pertaining to their personal data, time spent on each question and their responses. Through this performance feedback, the system calibrates test items according to difficulty level to enhance the quality of computerized assessment. Teachers at the school feel that this computerized assessment has lightened their workload.

“..marking is taken out of the workload, so right now, the teachers are very happy with IT.”



- ✍ If you provide online learning content, make your online content user-friendly, interactive, supported with multimedia and accessible both within and outside the school
- ✍ Encourage independent learning on the school's online platform
- ✍ Facilitate peer learning using communication tools like discussion forums and email
- ✍ Use assessment tools that provide prompt and effective feedback, and motivate pupils to improve themselves
- ✍ Use technology to help teachers track pupils' academic performance, administer tests for formative purposes and help build a test-item bank



Domain 4 -

# MANAGEMENT OF IT RESOURCES

- ✍ Range of IT resources
- ✍ Access to IT resources
- ✍ Use of IT resources



## Desired outcome:

Staff and pupils have easy access to a wide range of IT resources that supports various school processes. These resources are fully and effectively utilised.

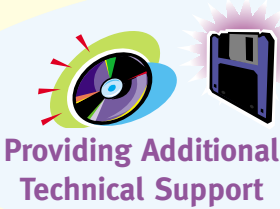
## Guiding questions:

- ✍ Does the school provide a range of learning and teaching IT resources that cater to the varied needs of its learners?
- ✍ Are teachers and pupils aware of the IT resource available to them?
- ✍ Are the IT resources easily available when they are needed?
- ✍ Is there a system to regularly monitor and improve IT resource purchase & management?
- ✍ Are the IT resources fully utilised to benefit the majority of learners?

## MANAGEMENT OF IT RESOURCES

Management of IT resources pertains to effort by the school to provide the required IT resources to help build and support a pervasive IT culture. In the studies conducted, it was found that the schools studied generally have good practices in managing IT resources such as providing relevant IT resources to teachers and pupils and making them easily accessible to all. They also provide additional technical support to manage the IT systems and resources, and to help the teachers.

## Good Practices in Managing IT Resources



Providing Relevant and Easily Accessible IT Resources



### Providing Relevant and Easily Accessible IT

The OECD case studies show that the schools not only **provide sufficient resources to both teachers and pupils** but also try to make them easily accessible. In 4 of the 5 schools, each teacher is provided with a notebook or PC. In all 5 schools, there is a LAN point provided for every teacher, which allows for easy access to the schools' online systems.



To ensure that the **IT resources are easily accessible** to pupils, each pupil in school 1 is given the use of a computer during formal lessons at the computer laboratories. In addition, they are able to access online content at the library and the computer laboratories during their free periods and outside curriculum time, respectively. School 2 has introduced **schemes to help pupils purchase their own notebook computers**. To encourage widespread use of IT amongst pupils, **various access points are provided in the school** including the canteen. The school also has plans to go wireless.

## Providing Additional Technical Support

Two of the schools in the OECD study provide **additional technical support**. In school 4, an IT trainer is engaged to train teachers in IT skills as well as maintain and upgrade the school's online platform. School 1 has a full-time system administrator **to manage the network and hardware as well as render other forms of technical support**.



## TIPS

- ✍ Conduct regular surveys to understand the resource needs of teachers and of pupils.
- ✍ Regularly monitor the usage of IT resources to help plan for optimization of resources.
- ✍ Ensure there is adequate provision of necessary IT resources
- ✍ Ensure both teachers and pupils have easy access to IT resources
- ✍ Consider providing IT resources for teachers to explore their usage for teaching and learning



Domain 5 -

# STAFF DEVELOPMENT

- ✍ Shared vision of plan to develop staff to use IT in teaching and learning
- ✍ Adequate & varied learning opportunities for IT integration in teaching and learning
- ✍ Good match between learning needs and developmental strategies



## Desired outcome:

There is a school strategy in place to provide for and support the professional development of teachers to use ICT effectively for teaching and learning

## Guiding questions:

- ✍ Does the school leadership provide guidance and collective vision to help develop their staff?
- ✍ Are teachers encouraged to set targets and plan for their own professional growth?
- ✍ Are there a variety of training opportunities and strategies customised to meet the different needs of staff?
- ✍ Are teachers encouraged to share best practices and expertise with each other?
- ✍ Are the skills and knowledge acquired by teachers translated into their teaching?
- ✍ Does the school have a system of evaluation and monitoring that ensures staff ICT development programmes achieve the desired objectives?

# STAFF DEVELOPMENT

## Providing opportunities for staff development

Customised training



Support for experimentation

Collegial sharing



Vision & pedagogy driven



Variety of activities

## Customised training

Promoting vibrant professional development requires planning **according to the needs and abilities** of the teachers. For example, in School 1, all teachers attend basic training, two-thirds attend intermediate training while the remaining one-third, including the selected core group, go on to advanced training. In School 3, teachers were divided into two groups for the purpose of staff development: “the fast track group who can take on more things and the slower group who are given more individualised attention”.



“Technology is a plus point but it needs a bit of coping ... I’ve heard of teachers who have sleepless nights over one lesson they have to prepare on PowerPoint ... let the younger lot being more in touch with technology, move faster and let the other teachers gain confidence before they teach ...”

In the Teacher Development Study (TDS), a preference for training that was bite-sized, customized and just in time was also indicated.

### Vision & pedagogy driven

At the same time, staff development is planned to **support the school's IT vision and programmes.** In School 1, the technology champions were trained on key pedagogical principles and technical skills in various authoring and multimedia tools so that they can develop online learning materials to support their vision of a “community of connected online learning schools”.



Some of the schools have staff development programmes with specific targets. For example, school 3 has a planned 3-year development programme and aims to train 75% of its teachers on web editing by 2002.

The importance of pedagogy-based training was emphasized by several teachers who felt that technical training alone did not help them to translate the use of IT into their teaching:

“so often we are interested in training to use the software, to use the programme, to use the features, but we don't look at training you how to **use this with your teaching.**”

### Variety of activities

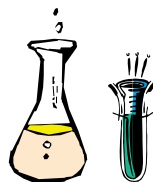
In general, staff development involves a **mixture of formal and informal activities, pedagogical and technical training, inhouse and outsourced activities.** These include the sharing of good practices, of difficulties and strategies to overcome them, and handholding:



“...we invite people who have gone on this initiative to come on board to share problems, share how they actually get themselves prepared for such initiatives, what they have done, and staff attending could learn from them...”

## Support for experimentation

It is important that school leaders convey the message that teachers can **explore and experiment with technology** without fear of failure or the expectation to produce results. In all three TDS schools, Principals and Heads of Department encouraged the teachers concerned in their explorations, including providing support by the purchase of relevant hardware and software.



“...these [hard and software resources] were the ones that really helped me because in order to experiment, I needed to have the tools to experiment...”

## Collegial sharing

The teachers felt that **inhouse sharing sessions** of new technologies and ideas were useful. One teacher mentioned she was **inspired by her colleagues** to try new IT tools.



“because he [new teacher] uses IT so much that sometimes we get inspired, and that [we say to ourselves], okay, (we) also want to do this.”

“A fellow Mathematics teacher “started things like ICQ, actually with his class, and so he mentioned something like, you can actually use the Internet to teach”

This highlights the importance of peer support and mentoring as no external consultant can be as accessible as one's peers.

## TIPS

- ✍ Set training & development targets based on the IT-readiness of staff
- ✍ Vary the format and nature of training & development activities
- ✍ Provide both technical and pedagogy-based training
- ✍ Identify a core group of IT heroes to inspire the others
- ✍ Set up peer support structures e.g handholding, mentoring and buddy systems
- ✍ Nurture innovation in teaching and learning by providing encouragement, resources and support.



Domain 6 –

# COMMUNITY CONNECTIONS

- ✍ Support of school-community collaboration
- ✍ Creation of a mutually beneficial environment involving the school and the community at large



## Desired outcome:

There is a mutually beneficial and sustainable partnership with the community at large through the use of technology

## Guiding questions:

- ✍ Does the school have a vision and long-term plan to harness the community through the use of technology to create opportunities for learning?
- ✍ Does the school see the community as potential partners in learning and cultivate this perception among their staff?
- ✍ Are school-community collaborations designed to be mutually beneficial?

## COMMUNITY CONNECTIONS

Community Connections refers to efforts by the school to reach out to various stakeholders in the community to create a mutually beneficial relationship. The major stakeholders include parents, other schools and the larger community.

## Reaching out to the Community



### Connecting with parents

Many of the schools involved in the study use their school web sites to **keep parents informed** by making up to date information accessible to parents.



Knowing what is going on in the school helps parents feel that they are part of the school community. Understanding the importance of connecting with parents, one school plans to create a group email list to send messages to parents regarding their children's CCA.<sup>1</sup>

School 5 involved parents right from the beginning, in the conceptualisation of their online portal. The school even trained a small group of parent volunteers how to use the portal; these parent volunteers in turn trained other **parents to help their children use the portal for learning purpose**. As one student commented,

“My mother goes into the Portal and found games, stories, quizzes [which we looked at together]...”

The games, stories and quizzes make learning more interesting for the student.

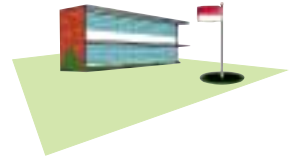
Parents were also roped in **to gather learning resources and to give comments to work** put up by the students:

“... they publish it and I put comments, because they allow comments... the children after reading my comments, they put in more work.”

In addition, **parents can send emails** to teachers and the school management to discuss issues or programmes which impact their children.

### Connecting with Other Schools

School 1 belongs to a cluster of 10 schools. In line with their shared vision of a **“community of connected learning schools”**, the 10 schools plan to use networking technology to promote multi-disciplinary projects across the schools, pool teaching and learning resources, brainstorm for new ideas and share innovative teaching strategies.



### Connecting with the larger Community

School 3 aims to develop a “caring and service-oriented culture” using IT to support the development of the students’ affective domain, their “human spirit and character”. The school attempts to realise this vision by **involving students in serving the community** via collaborative projects using IT.



Opportunities are created for students to

“use IT skills to be involved in the community, to help in the community in whatever way they can”.

Examples include using a web site to promote awareness and recognition for the members of the Singapore Special Olympics Team, and using an e-commerce engine to help raise funds by advertising art and craft pieces made by charitable organisations.

While serving the community, students also **learn a lot from the community**, not so much in terms of academic knowledge or skills, but more in terms of how to be better human beings. They learn to be more appreciative of what they have and pick up qualities such as perseverance, determination and patience.

“ they don’t have a normal life like us; yet they can live so happily. Why can’t we?”

“I have learnt to be more patient and not to take things for granted.”

It is not about attaining glory, but more about helping society, giving back what we have.”

**Collaborations can also be designed for specific learning purpose.** For example, School 3 involved its students in collaborative projects with local hospitals. Students used video conferencing to observe medical personnel during operations and to ask questions concerning the operations.

Students involved in this video conferencing project said  
“There is an interest generated... and is something outside the syllabus and is something we can relate to in real life.”

Learning becomes more meaningful.

The value of **feedback from a real audience** should not be underestimated. As one teacher observed

“It has opened a whole different world to the kids...my kids had people responding to their writing...[usually] the only people who read children’s writings are their teachers who mark or evaluate but the web...other people could respond to it, real people who responded not just in terms of marks, but in very real ways.”

Students feel that their work is more important because someone other than their teacher appreciates it and gives them feedback.

## TIPS

- ✍ Consider in your school IT programme how IT can facilitate and support mutually beneficial school-community collaborations.
- ✍ Use IT to create opportunities for students to learn from their peers, experts and authentic situations.
- ✍ Use IT to involve parents in students’ learning.
- ✍ Provide various avenues for students to share their work with a larger audience.
- ✍ Create opportunities for staff to collaborate with their peers in other schools to share ideas and to build resources.



# USEFUL RESOURCES

## Technology Planning

### Planning for Change and Technology

<http://www.nsba.org/sbot/toolkit/pfcnt.html>

This is a project of the National School Boards Foundation, implemented by NSBA's Institute for the Transfer of Technology to Education with a grant from the National Science Foundation. The toolkit is a collection of tips and pointers, articles, case studies, and other resources for education leaders addressing issues around technology and education.

### Learning Through Technology: A Planning and Implementation Guide

<http://www.ncrel.org/tandl/homepg.htm>

This web-based tool was developed by the North Central Regional Education Laboratory (NCREL). It walks you through the conceptualization, assessment, implementation, and evaluation steps of technology planning.

### EnGauge

<http://www.ncrel.org/engage/>

Another web site by NCREL designed to help schools plan and evaluate the system wide use of educational technology.

### National Center for Technology Planning

[http://www.nctp.com/tech\\_plan\\_links.cfm](http://www.nctp.com/tech_plan_links.cfm)

A range of articles on technology planning, including how to promote the use of technology and different staff development models to get teachers excited to use technology

## Staff Development

### **Choose Effective Approaches to Staff Development**

<http://www.nationalacademies.org/rise/backg4b.htm>

This web site considers the characteristics of effective staff development approaches.

### **Critical Issues: Providing Professional Development for Effective Technology Use**

<http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te1000.htm>

This web site stresses that professional development should be an integral part of the school technology plan. It highlights components of effective professional development.

### **Resources for Staff Development**

<http://www.isdc.org/BestPractices.html>

General resources for staff development, including the Concerns-based Adoption Model (CBAM) for Innovation implementation.



## Effective Use of Technology

### **Adding Value to Teaching and Learning Through Educational Technology Use**

[http://www.education.umn.edu/edutech/supports/supports\\_article.html](http://www.education.umn.edu/edutech/supports/supports_article.html)

### **New Designs for Connected Teaching and Learning**

<http://www.gse.uci.edu/mriel/whitepaper/learn3.html>

This paper looks at four dimensions of a learning environment and how technology can enhance learning in each dimension.

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### Officers who developed the IT Progress Gauge:

Fauziah bte Adiman  
Helen Koh Geok Hua  
Jeanne Marie Ho  
Kang Hway Choon  
Lim Poh Heng  
Tham Yoke Chun

### Officers involved in the two research studies:

Adeline Chong Ngor Yim  
Amran Noordin  
Calvin Ong Yu Meng  
Cassie Fan Yuen Fun  
Foo Seau Yoon  
Gary Tsu Chin Shun  
Hazel Tan  
Jeanne Marie Ho  
Jumaliah bte Ahmad  
Joy Lee  
Lim Li Kiang  
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R Bawani  
Willy Tan Nguan Peng

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Advisor : Tham Yoke Chun  
Writers : Fauziah bte Adiman, Jeanne Marie Ho, Joy Lee, Rahima bte Abdul Rahman  
Officers who provided input: Diana Chin, Hazel Tan



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