Self-Reported Skills of Grade 5 IMYM Teachers

- Using ICT Applications
- Integrating ICT

2001-02

October, 2002

IMYM

Interdisciplinary Middle Years Multimedia

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C O N T E N T S

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1.0 Introduction

IMYM (Interdisciplinary Middle Years Multimedia) is curriculum-based, interdisciplinary, action research designed to develop and demonstrate promising practices for integrating technology as a foundation skill in the classroom. The IMYM model evolved from this action research.

The IMYM model is an effective and flexible instructional model that supports teachers in integrating information and communication technology (ICT) in middle years classrooms to add value to teaching, learning, and assessing.

This report paints a picture of the self-reported entry skills of 125 grade 5 teachers who volunteered to participate in professional learning to prepare them to implement the IMYM model during the 2001-02 school year. These teachers completed two rubrics at the beginning of their training. The IMYM rubric *Self-Assessment of ICT Literacy* (Appendix A) allowed teachers to self-assess their skills in using ICT applications. The IMYM rubric *Self-Assessment of Pedagogical Skills in Integrating ICT with Curriculum and Classroom Practice* (Appendix B) allowed teachers to self-assess their skills in integrating ICT in the classroom. Analysis of the results from each of these rubrics will be discussed separately below.

2.0 Analysis of Teachers' Self-reported Skills in Using ICT Applications

The rubric for *the Self-Assessment of Information and Communication Technology (ICT) Literacy* (Appendix A) allowed teachers to self-assess the competency level of their skills from Beginning to Exemplary levels in fourteen information and communication technology (ICT) areas

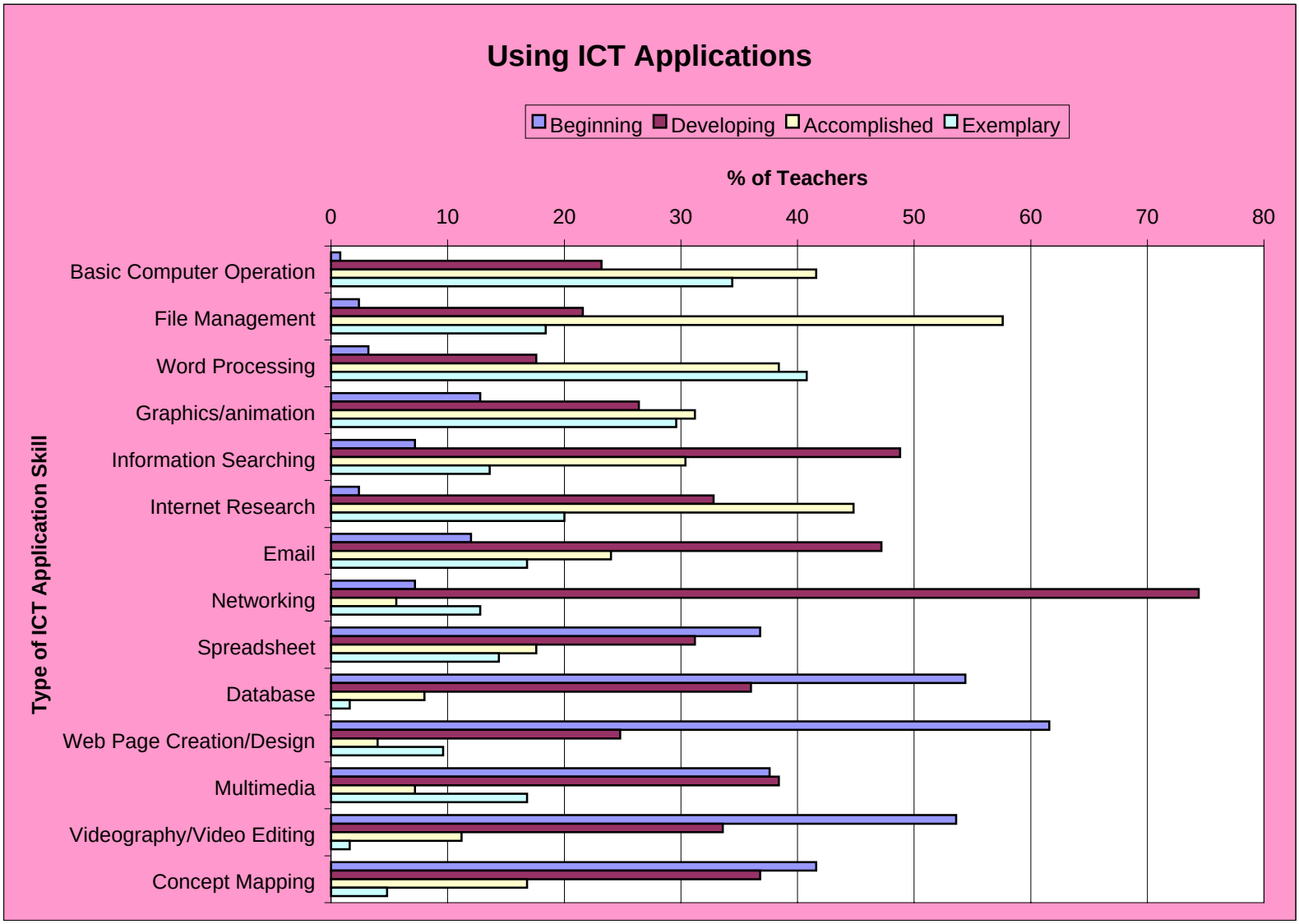
- basic computer operation
- file management
- word processing
- graphics/animations
- information searching
- internet research
- email
- networking
- spreadsheet
- database
- webpage creation/design
- multimedia
- videography/video editing
- concept mapping

In each of these ICT areas, teachers selected from a rubric of four competency levels

- Beginning
- Developing
- Accomplished
- Exemplary

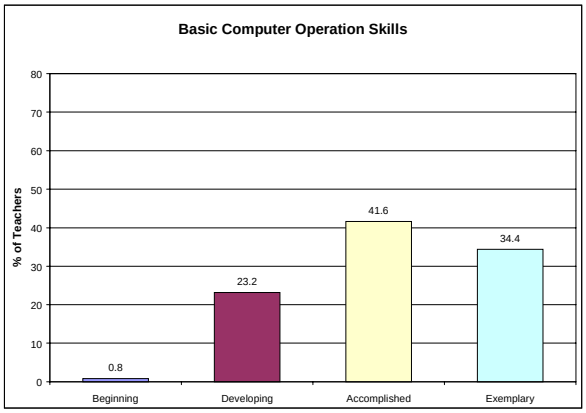
The complete rubric is found in Appendix A of this report. Figure 1 graphs the percentage of teachers at each level of the fourteen ICT application skills.

Figure 1



2.1 Basic Computer Operation

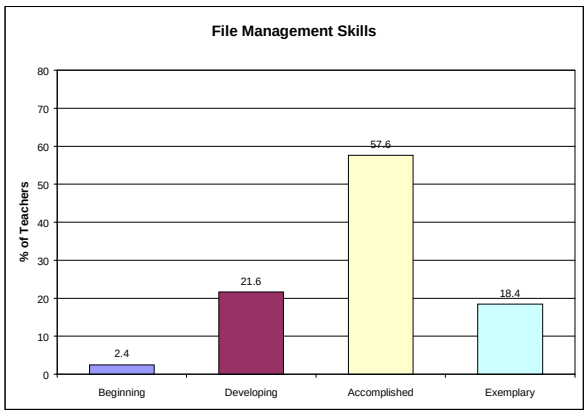
Figure 2



Ninety nine percent of teachers identified themselves as already possessing some skills in basic computer operation (see Appendix A Part I). Over 40% of teachers rated themselves at the Accomplished level. At the Accomplished level, teachers can set-up computer and peripheral devices, as well as load software, print, and use most of the operating system tools such as the scrapbook, clock, find command, and trash can. They can also run two programs simultaneously and have several windows open at the same time.

2.2 File Management

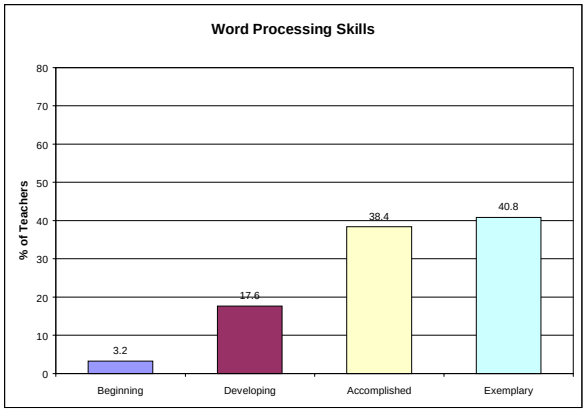
Figure 3



Fifty eight percent of teachers identified themselves at the Accomplished level in file management skills (see Appendix A Part II). At the Accomplished level, teachers have a filing system for organizing their electronic files quickly and reliably. They back up their files on a regular basis. There is still room in this skill for teachers to teach their students how to manage their files on classroom computers and on the school network (Exemplary level).

2.3 Word Processing

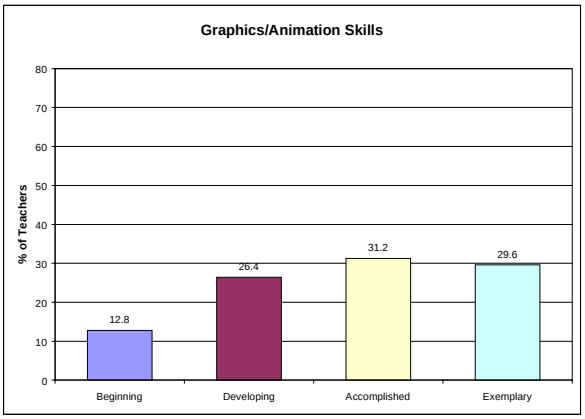
Figure 4



Many teachers identified themselves at the Exemplary or Accomplished levels for word processing skills (see Appendix A Part III). At the Accomplished level, 38.4% of teachers agreed they use a word processor for nearly all their written professional work and home communication, can edit, spell check, and change the format of a document, as well, they feel their work looks professional. At the Exemplary level 40.8% of teachers agreed they can use the word processor not only for their own work, as described in the Accomplished level, but also have taught students to use it for all stages of the writing process.

2.4 Graphics/Animation

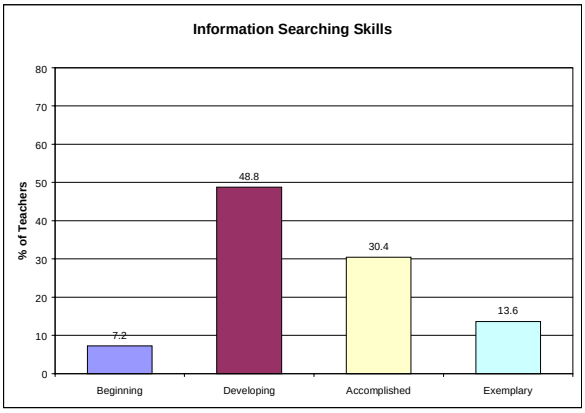
Figure 5



Nearly one-third of teachers (31.2%) placed themselves at the Accomplished level for graphics/animation skills (see Appendix A Part IV). At the Accomplished level, teachers can use clipart and can create simple original graphics in paint, draw, and word processing applications. They can edit clipart, apply drawing tools, and use the clipboard to take graphics from one application for use in another. At the Exemplary level, 29.6% of teachers have taught their students to use graphics/animation to improve their communications.

2.5 Information Searching

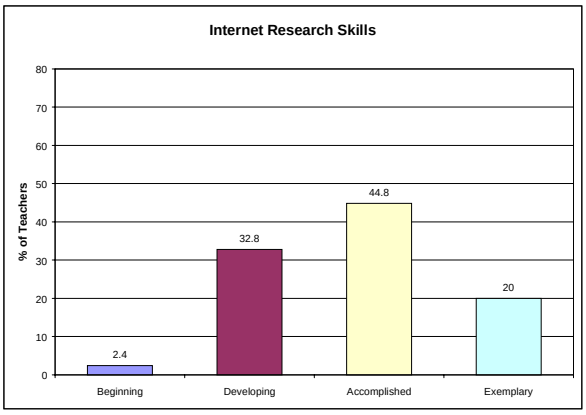
Figure 6



Almost half the teachers identified themselves at the Developing level (48.8%) for information searching skills (see Appendix A Part V). At the Developing level, teachers can conduct simple searches with electronic encyclopedias and library software for major topics, however they have not yet learned how to conduct more complex searches using Boolean (logical) operators such as ‘and’ ‘or’. Only 13.6% of teachers have taught their students the techniques and power of electronic searching.

2.6 Internet Research

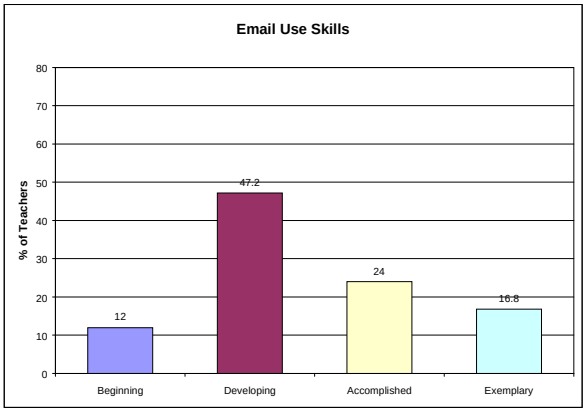
Figure 7



Forty five percent of teachers placed themselves at the Accomplished level for Internet research skills (see Appendix A Part VI). These teachers are able to make efficient use of a variety of search engines as well as to use lists of Internet resources to explore educational applications of the Internet. They can evaluate the source of information and its URL, to assess validity. However, only 20% of teachers have taught their students to conduct efficient and effective Internet research, respect copyright, and reference their sources. On the other hand, less than 3% of teachers stated that they do not use the Internet.

2.7 Email Use

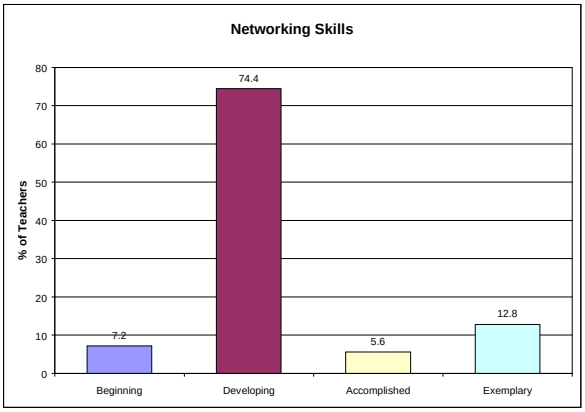
Figure 8



Forty seven percent of teachers placed themselves at the Developing level for email skills (see Appendix A Part VII). These teachers understand there is a large quantity of information available to them that can be accessed with electronic mail. They send occasional messages and requests for information using email. While only 12% of teachers said they do not use electronic mail (Beginning level), only 16.8% involve their students in using email to communicate with other students and various experts (Exemplary level).

2.8 Networking

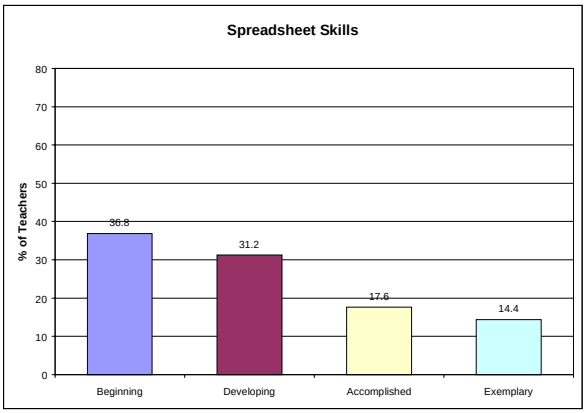
Figure 9



Most teachers placed themselves at the Developing level (74.4%) for networking skills (see Appendix A Part VIII). At the Developing level, they can use a computer network to store files and to access a printer. Very few teachers have set up their own classroom network or are able to troubleshoot network problems. More teachers rated themselves at the Developing level for this skill than for any other ICT literacy skill.

2.9 Spreadsheet

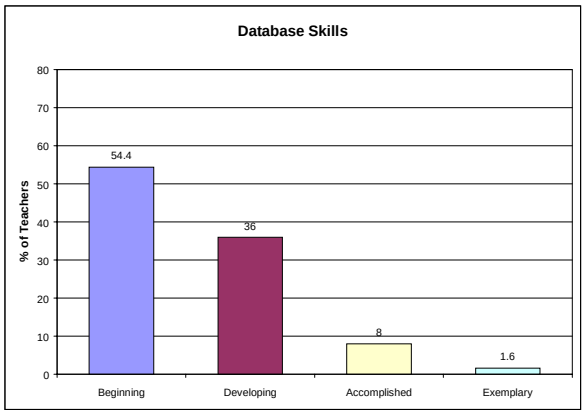
Figure 10



Sixty eight percent of teachers placed themselves either at the Beginning or Developing levels of spreadsheet skills (see Appendix A Part IX). These teachers either have never used a spreadsheet, or can create only a simple spreadsheet that adds a column of numbers used to keep track of student grades. Less than 15% of teachers indicated they were able to teach their students how to use a spreadsheet.

2.10 Database

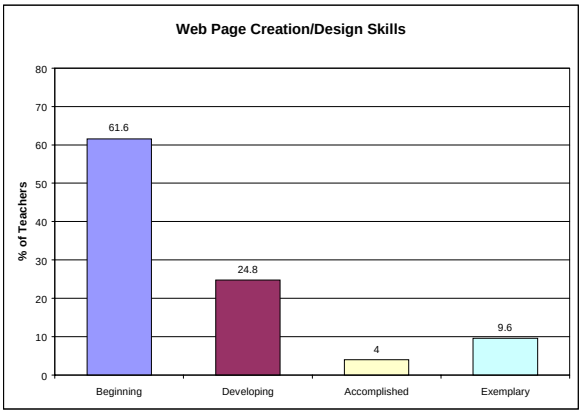
Figure 11



Over half (54.4%) the teachers placed themselves at the Beginning level of database skills (see Appendix A Part X). These have never used a database. Thirty six percent of teachers rated themselves at the Developing level. These teachers understand the use of a database and can locate information within one that has been pre-made. They can add or delete data and can sort and print the information in layouts that are useful to them. Less than 2% of teachers have taught their students how to use a database.

2.11 Web page Creation/Design

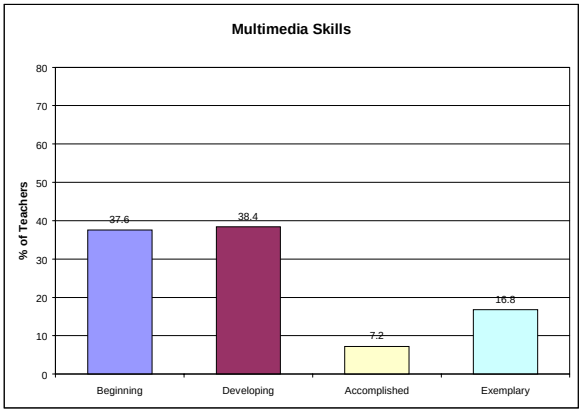
Figure 12



Over 85% of teachers placed themselves either at the Beginning or Developing levels of web page creation skills (see Appendix A Part XI). At the Beginning level teachers have never created a web page. At the Developing level teachers have created only a simple single web page with graphics and Internet and mail-to links. Less than 10% of teachers were able to teach their students how to create a web page as a part of their electronic portfolio.

2.12 Multimedia

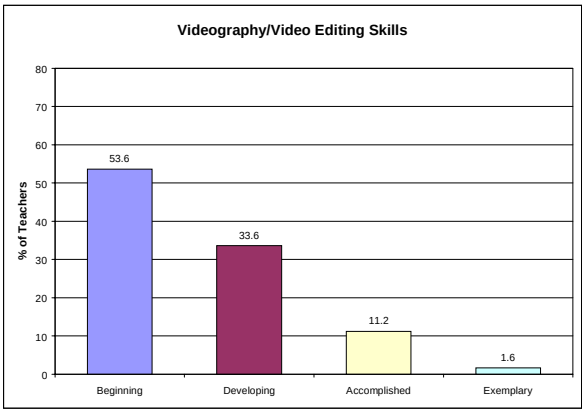
Figure 13



Over three quarters of teachers placed themselves at either the Beginning or Developing level of multimedia skills (see Appendix A Part XII). These teachers have either never created their own multimedia presentation or they were only able to create a simple multimedia presentation integrating text and graphics. Only 16.8% of teachers indicated they were able to teach their students how to create their own multimedia presentations.

2.13 Videography/Video Editing

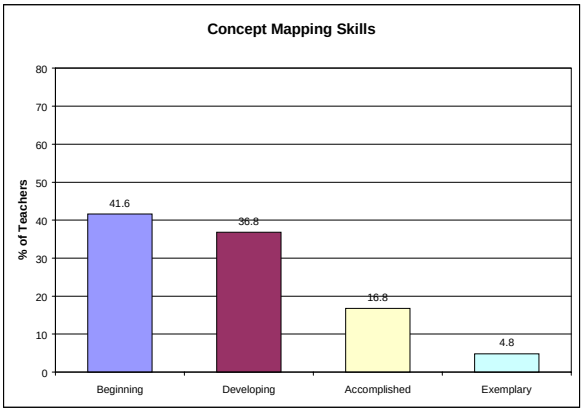
Figure 14



Over half the teachers placed themselves at the Beginning level (53.6%) of videography/video editing skills (see Appendix A Part XIII). At the Beginning level, most teachers have never connected a digital camera to a VCR, television, or computer. Only 11.2% of teachers have used video editing software themselves, and less than 2% of teachers have taught their students how to create and edit a video presentation.

2.14 Concept Mapping

Figure 15



Many teachers placed themselves at either the Beginning or Developing level (78.4%) of electronic concept mapping skills (see Appendix A Part XIV). These teachers either do not use concept mapping software or they understand how to use concept mapping software only for creating simple concept maps and outlines in preparation for writing. Less than 5% of teachers have taught their students how to use concept mapping software.

3.0 Summary of Teachers' Self-reported Skills in Using ICT Applications

- Overall, teachers assessed themselves as competent in basic computer operations, file management and word processing.
- Teachers reported progressively well in their acquisition of skills in graphics/animation, information searching, and Internet research.
- Teachers rated themselves at only beginning to develop skills in networking, spreadsheet, database, web page creation, multimedia, videography and concept mapping.
- Most teachers use email and the Internet, although most of them have not taught their students to do so.
- Very few teachers have taught their students skills in database, web page creation, videography and concept mapping.

4.0 Analysis of Teachers' Self-reported Pedagogical Skills in Integrating ICT

The rubric for the *Self-Assessment of Pedagogical Skill in Integrating Information and Communication Technologies with Curriculum and Classroom Practice* (Appendix B) allowed teachers to self-assess the competency level of their skills from Beginning to Exemplary levels in ten separate pedagogical skill areas

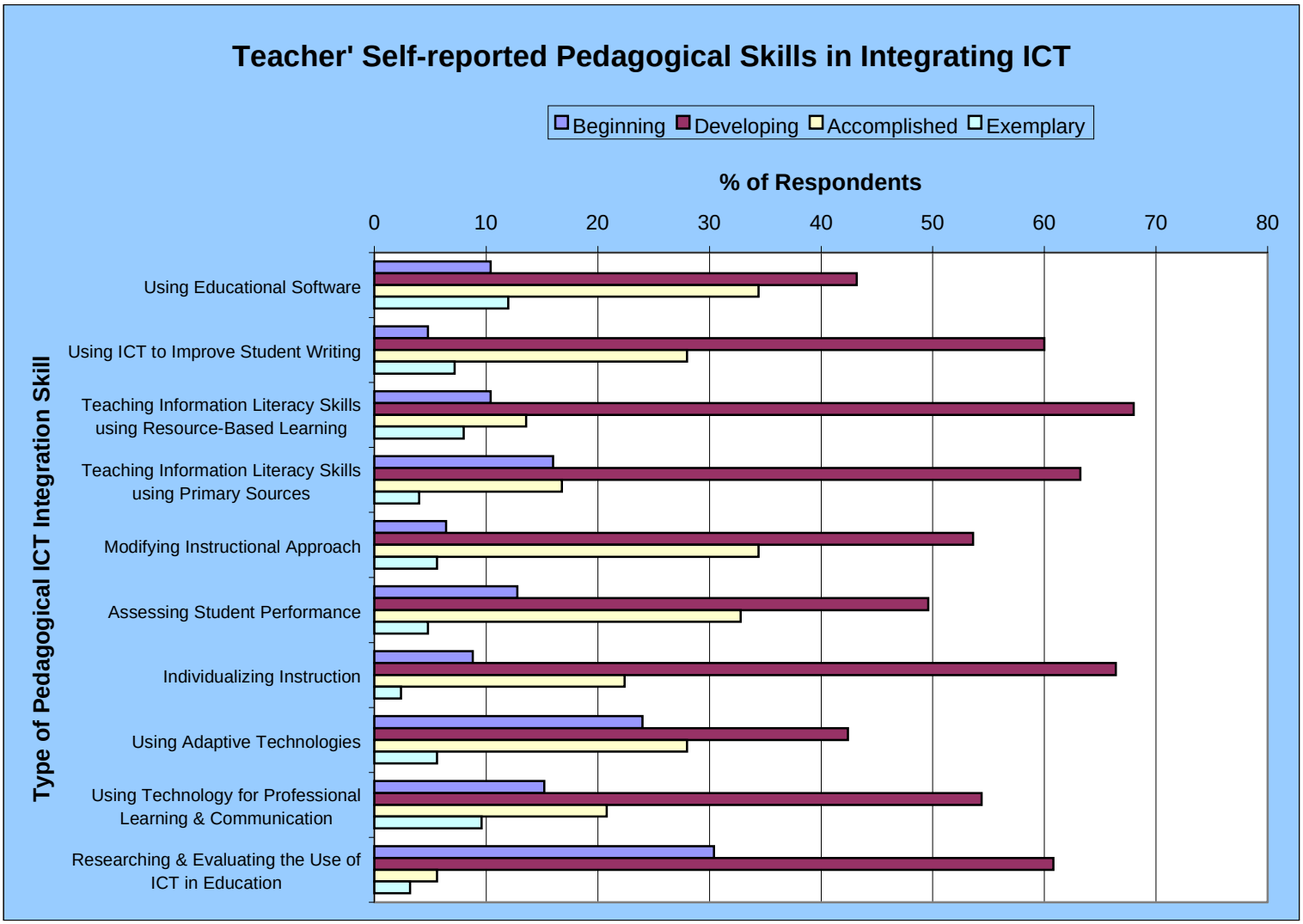
- using educational software
- using ICT to improve student writing
- teaching information literacy skills using resource-based learning
- teaching information literacy skills using primary sources
- modifying instructional delivery
- assessing student performance
- individualizing instruction
- using adaptive technologies
- using technology for professional learning and communication
- researching and evaluating the use of technology in education

In each of these pedagogical areas describing the integration of ICT, teachers selected from a rubric of four competency levels

- Beginning
- Developing
- Accomplished
- Exemplary

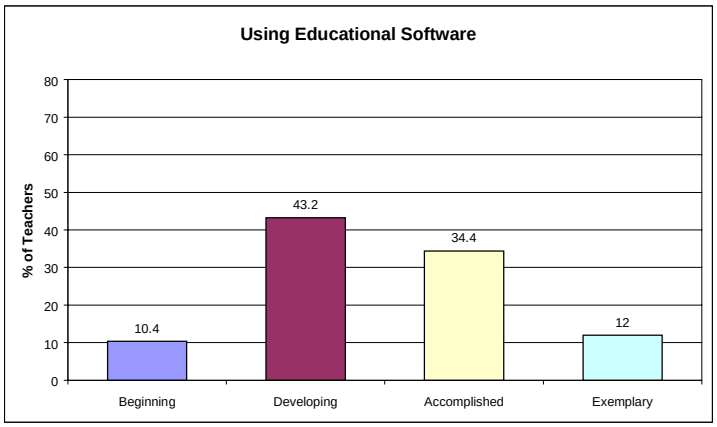
The complete rubric is found in Appendix B of this report. Figure 16 graphs the percentage of teachers at each level of the ten pedagogical ICT integration skills.

Figure 16


Teacher' Self-reported Pedagogical Skills in Integrating ICT
Beginning
Developing
Accomplished
Exemplary
% of Respondents
0
10
20
30
40
50
60
70
80
Type of Pedagogical ICT Integration Skill
Using Educational Software
Using ICT to Improve Student Writing
Teaching Information Literacy Skills using Resource-Based Learning
Teaching Information Literacy Skills using Primary Sources
Modifying Instructional Approach
Assessing Student Performance
Individualizing Instruction
Using Adaptive Technologies
Using Technology for Professional Learning & Communication
Researching & Evaluating the Use of ICT in Education

4.1 Using Educational Software

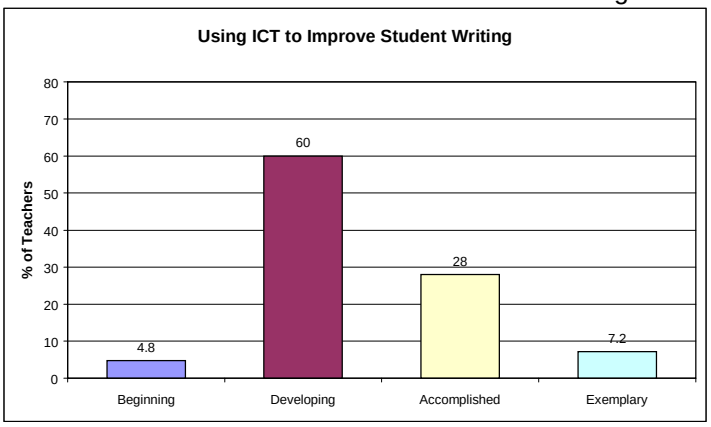
Figure 17



Three quarters of teachers placed themselves at either the Developing or Accomplished level of educational software use. These teachers use educational software as an instruction supplement or to provide experiences otherwise unavailable to students. Of all the 10 pedagogical skills surveyed, the highest percentage of teachers placed themselves at the Exemplary level (12%) for the use of educational software.

4.2 Using ICT to Improve Student Writing

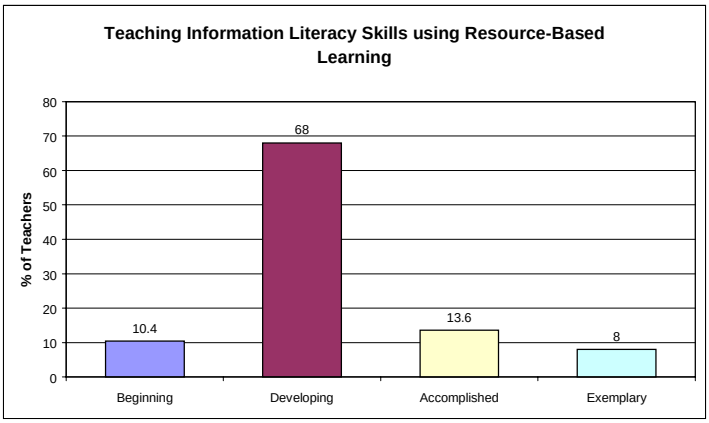
Figure 18



Less than 5% of teachers said they were not familiar with any technologies that would allow them to help students improve their writing skills (Beginning level). Sixty percent of teachers placed their skill at the Developing level, where they have asked that some student-writing assignments be word-processed except for composing or editing their writing directly on the computer. Twenty eight percent of teachers placed their skills at the Accomplished level. At the Accomplished level, teachers help students use the computer in all phases of the writing process. They also use technology to help students share their work with a wide variety of reading audiences.

4.3 Teaching Information Literacy Skills using Resource-based Learning

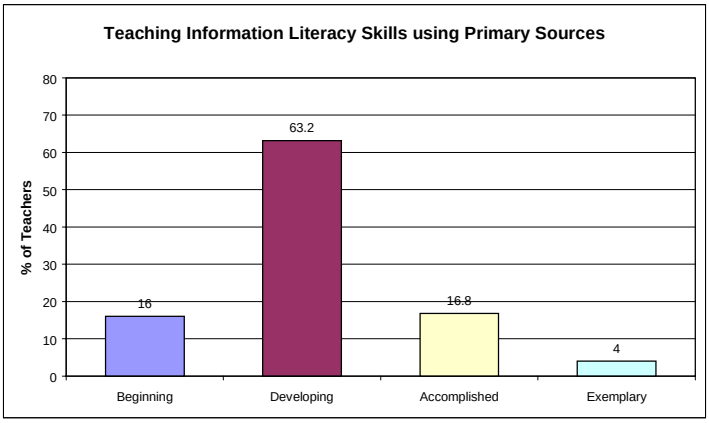
Figure 19



Ten percent of teachers placed themselves at the Beginning level of teaching information literacy skills using resource-based learning. These teachers are not familiar with the term information literacy and do not yet know why such skills are important. Two-thirds (68%) of teachers responded that they are at the Developing level. These teachers support library skills taught by the teacher-librarian, are using resource-based learning (RBL), and are aware of the variety and quality of electronic resources available to students. As well, over twenty percent of teachers placed themselves at either the Accomplished or Exemplary levels.

4.4 Teaching Information Literacy Skills using Primary Sources

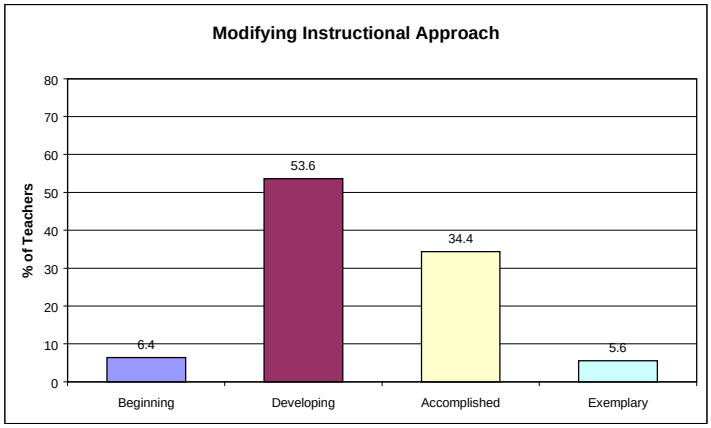
Figure 20



Sixty three percent of teachers placed themselves at the Developing level for teaching information literacy skills using primary sources. As part of their instructional strategies, these teachers include student projects that require collection and analysis of original data. They can generally predict the outcome of their students' experiments or surveys. However, only 16.8% of teachers said they teach their students how to use spreadsheets and databases to record, organize, analyze, and communicate their collection of original data (Accomplished level).

4.5 Modifying Instructional Approach

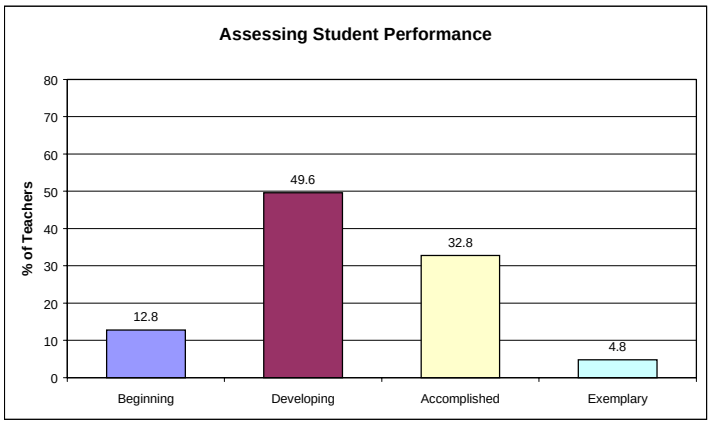
Figure 21



Over half (53.6%) the teachers placed themselves at the Developing level of skill at using technology to modify their instructional approach. These teachers have initiated units or projects that have a technology component, but most use of technology by their students takes place in a computer lab. Over one third (34.4%) of the teachers use a variety of instructional approaches and grouping strategies throughout the year, and have at least four computers in their classroom (Accomplished level).

4.6 Assessing Student Performance

Figure 22

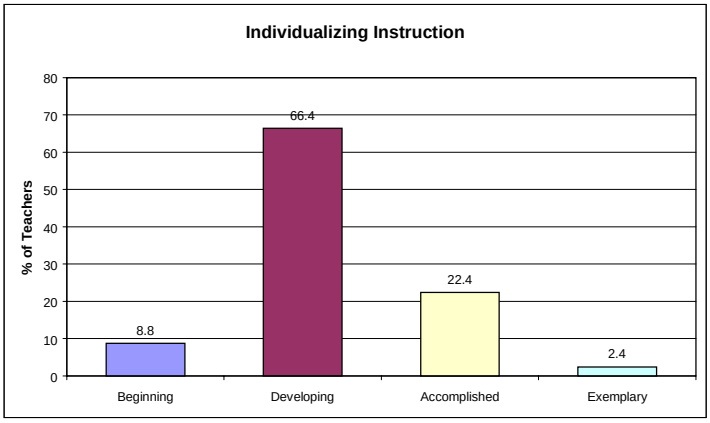


Nearly half (49.6%) the teachers placed themselves at the Developing level for assessing student performance. These teachers evaluate some student performances or projects using subjective as well as objective criteria. They also print copies of electronic work such as word processed documents, graphics and presentations to include in portfolios for student/parent/teacher conferences. At the Accomplished level, one third (32.8%) of the teachers uses a wide range of assessment strategies to evaluate students' products and performances. These teachers use technology to create assessment tools such as checklists, rubrics, and benchmarks that help students assess their own and their peers'

performances as well as to allow teachers to objectively determine the quality of student work.

4.7 Individualizing Instruction

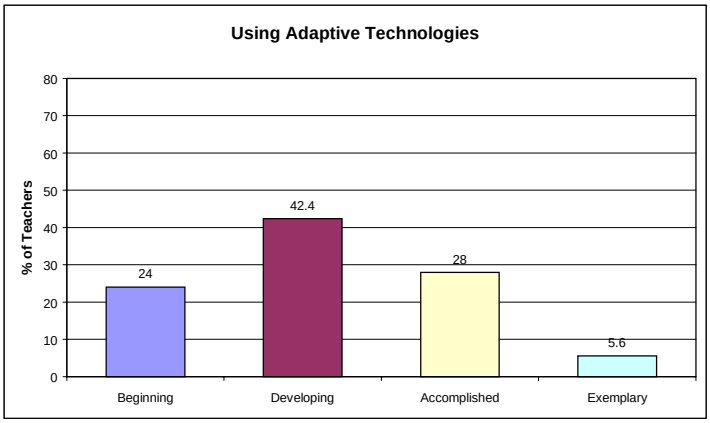
Figure 23



Two thirds of teachers (66.4%) placed themselves at the Developing level for individualizing instruction. At the Developing level teachers agreed that they occasionally give students a choice of assignments, but all students in their class (unless in a modified program) must achieve the same learning outcomes within the same time frame. Skill remediation with students using technology is done during or after school. Only 2.4% of the teachers placed themselves at the Exemplary level for individualizing instruction. This suggests that very few teachers have access to computerized planning and reporting tools for individualizing instruction.

4.8 Using Adaptive Technologies

Figure 24

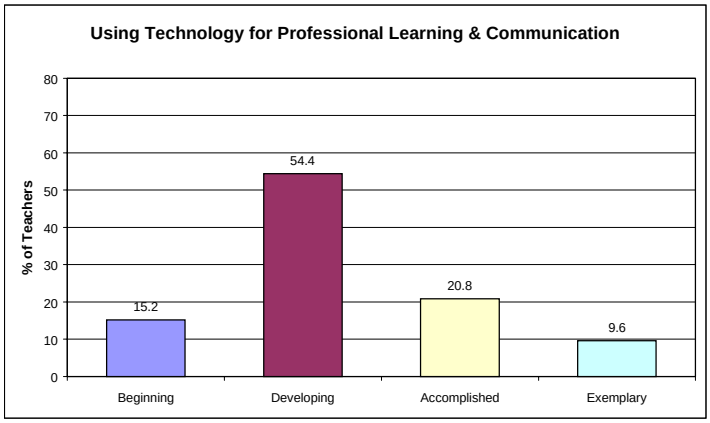


Forty two percent of teachers placed themselves at the Developing level for using adaptive technologies. At the Developing level they can work with students who may bring special devices to work and communicate in the classroom. However,

twenty four percent of teachers indicated they were not aware of how technology can help students with physical or mental challenges.

4.9 Using Technology for Professional Learning and Communication

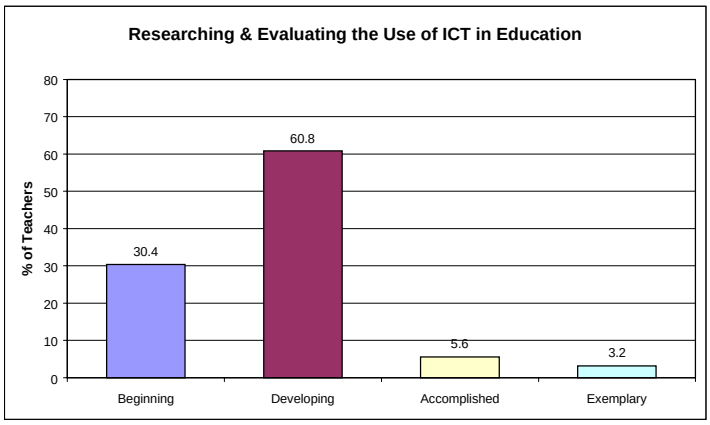
Figure 25



Over half (54.4%) the teachers placed their skills at using technology for professional learning and communication at the Developing level. These teachers can find lesson plans and educational research online. They also correspond with parents and other teachers using email. However, only 10% of teachers said they organize professional learning opportunities for other teachers and feel comfortable teaching colleagues how to use technology to enhance instruction. This points to the need to offer increased opportunities for teacher opinion leaders to mentor their colleagues.

4.10 Researching and Evaluating the Use of ICT in Education

Figure 26



Thirty percent of teachers placed their skills at the Beginning level for researching and evaluating the use of ICT in education. This is the highest rating at the Beginning level for any of the pedagogical skills rated. These teachers indicated that they have not attempted to determine when the use of ICT has made a

difference in their students' learning or in classroom climate nor how to find out if ICT is effective in their classroom. Sixty percent of teachers indicated they are collecting, using and sharing with colleagues, anecdotal information and their observations of their students using ICT in the classroom (Developing level). Very few (5.6%) teachers are using action research to assess how the technology and methodology they are using affects student learning and classroom climate.

5.0 Summary of Teachers' Self-reported Skills in Integrating ICT

Overall, ratings at the Accomplished and Exemplary levels of pedagogical skill were low.

- Only 23.4% of teachers placed their skills at the Accomplished level
- Only 6.7% of teachers placed their skills at the Exemplary level.
- In general, teachers are in the process of developing their pedagogical skills in integrating ICT in their classrooms.
- Most teachers are at least aware of the various methods for integrating ICT in their classrooms, however at the same time, they have not progressed to a feeling of accomplishment.
- Very few teachers rated themselves as exemplary practitioners of ICT integration with curriculum and in their classrooms.

6.0 Conclusion

While teachers vary widely in their levels of literacy in Using ICT Applications, depending upon the type of ICT application, they are almost uniformly at the Developing level with respect to pedagogical skill in integrating ICT.

Much more professional development needs to be targeted at the pedagogy and promising practices needed to integrate ICT in the curriculum and in the classroom.

"APPENDIX A"

Interdisciplinary Middle Years Multimedia (IMYM) Model
Self-Assessment of Information and Communication Technology (ICT) Literacy

This self-assessment will help you and your ICT trainer to develop an individual plan to meet your ICT training needs, and will also help you to determine areas in which you might continue to learn and practice in a self-directed manner. Please judge your competency level in each of the following ICT skill areas by checking the box that best describes your current skill level. (Be honest, but be kind!)

Level / ICT Skill	Beginning	Developing	Accomplished	Exemplary
I. Basic computer operation	❑ I do not currently use a computer.	❑ I use a computer to run specific, pre-loaded software.	❑ I can set-up my computer and peripheral devices, load software, print, and use most of the operating system tools such as the scrapbook, clock, find command, and trash can. I can run two programs simultaneously, and have several windows open at the same time.	❑ I can customize the look and sounds of my computer. I can make preference settings to customize applications. I feel confident enough to teach students basic computer operations.
II. File management	❑ I do not save any documents I create using the computer.	❑ I save documents I've created but I cannot choose where they are saved. I do not know how to copy files to a floppy disk.	❑ I have a filing system for organizing my files, and can locate files quickly and reliably. I back-up my files on a regular basis.	❑ I have a system for archiving files that I do not need on a regular basis. I have taught my students how to manage their files on my classroom computers and on the school network.
III. Networking	❑ I do not have any knowledge of computer network operation.	❑ I have used a computer network to store files and to access a printer.	❑ I am able to troubleshoot and correct problems such as a shared printer dropping off a peer-to-peer network. I can add or remove computers and shared devices on a peer-to-peer network.	❑ I have set up a peer-to-peer network in my classroom, complete with a shared printer. I am able to administer the network including passwords and permissions for students on the network.

Level ICT Skill	Beginning	Developing	Accomplished	Exemplary
IV. Word processing	❑ I do not use a word processor.	❑ I occasionally use a word processor for simple documents that I know I will modify and use again. I generally find it easier to hand write or type most written work I do.	❑ I use a word processor for nearly all my written professional work: memos, tests, worksheets, and home communication. I can edit, spell check, and change the format of a document. I feel my work looks professional.	❑ I use the word processor not only for my work, but have taught students to use it for all stages of the writing process.
V. Spreadsheet use	❑ I do not use a spreadsheet.	❑ I understand the use of a spreadsheet and can navigate within one. I can create a simple spreadsheet that adds a column of numbers. I use a spreadsheet to keep track of student grades.	❑ I use a spreadsheet for several purposes. These spreadsheets use labels, formulas, and cell references. I can change the format of the spreadsheets by changing column widths and text style. I can use the spreadsheet to make a simple graph or chart.	❑ I use a spreadsheet not only for my work, but have taught students to use a spreadsheet to help them improve their own data-keeping and analysis skills, showing them how to explore questions and the power of mathematical relationships.
VI. Database use	❑ I do not use a database.	❑ I understand the use of a database and can locate information within one that has been pre-made. I can add or delete data in a database. I can sort and print the information in layouts that are useful to me.	❑ I use databases for several purposes. I can create a database from scratch - defining fields and creating layouts in order to support inquiry. I can use database information to perform queries.	❑ I can use formulas with my database to create summations of numerical data. I use the database not only for my work, but have taught students to use databases to help them improve their own data-keeping and analysis skills.
VII. Concept Mapping	❑ I do not use concept mapping software.	❑ I understand how to use concept mapping software for creating simple concept maps and outlines in preparation for writing.	❑ I use concept mapping software as a note-taking and organizational tool. I can customize the symbols, links, and layout of my concept maps. I print out concept maps for my students to use.	❑ I can use concept mapping software as a presentation tool, complete with Internet links. I can also export my concept maps into multimedia presentations. I have taught my students how to use concept mapping software to brainstorm, organize, and outline for writing.

Level ICT Skill	Beginning	Developing	Accomplished	Exemplary
VIII. Graphics/Animation	❑ I do not use graphics in my word processing or presentations.	❑ I can open and create simple graphics with paint and draw programs.	❑ I use both pre-made clipart and simple original graphics in my word-processed documents. I can edit clipart, change its size, and place it on a page. I can purposefully use most of the drawing tools, and can group and ungroup objects. I can use the clipboard to take graphics from one application for use in another.	❑ I use graphics not only for my work, but have taught students to use graphics to improve their own communications.
IX. Information searching	❑ I am unlikely to seek information when it is in electronic formats (e.g. electronic encyclopedias).	❑ I can conduct simple searches with electronic encyclopedias and library software for major topics.	❑ I have learned how to use a variety of search strategies on several information programs, including the use of "logical operators" such as "and" and "or" to help target the search and find just the right information in the most efficient manner.	❑ I have incorporated logical search strategies into my work with students, showing them the power of such searches with electronic sources.
X. Internet research	❑ I do not use the Internet.	❑ I can use a web browser to access the World Wide Web to find basic information, but I spend little time doing so.	❑ I am able to make efficient use of Web searching software as well as lists of Internet resources to explore educational applications of the Internet. I use a variety of search engines and can evaluate the source of information and its URL to assess its validity.	❑ I can create my own HTML pages and hot-lists of resources. I have shown my students how to access the information resources available on the Internet and how to evaluate the source of information and its URL to assess its validity. I insist my students respect copyright and reference their sources.
XI. Web page Creation	❑ I have never created a web page.	❑ I have created a simple single web page with graphics, and Internet and mail-to links.	❑ I have created a well-designed multilevel classroom website with a simple navigation scheme. I use my classroom	❑ I have created a classroom website that links to student work. I have taught my students how to make their own simple

Level ICT Skill	Beginning	Developing	Accomplished	Exemplary
			website to communicate with students and parents.	websites and electronic portfolios on our Intranet or the Internet.
XII. Email use	❑ I do not use electronic mail.	❑ I understand that there is a large quantity of information available to me as a teacher that can be accessed with electronic mail. I send occasional messages and requests for information using email.	❑ I use email to access professional information from listservs. I am an active participant in online discussions and check my email account on a regular basis.	❑ I involve my students in using email to communicate with other students and various kinds of experts.
XIII. Multimedia	❑ I have never created my own multimedia presentation.	❑ I have created a simple multimedia presentation integrating text and graphics.	❑ I have authored multimedia presentations that include actions, animations, audio, and video.	❑ I use multimedia not only for classroom presentations, but have taught my students to create their own multimedia presentations.
XIV. Videography/ Video editing	❑ I have never connected a digital camera to a VCR, television, or computer.	❑ I am able to connect a digital camera and VCR to a television in such a way that I can transfer video and monitor the image at the same time. I can connect a digital camera to a computer and download digital images.	❑ I have digitized still images and video using a video-capture card or I have used a digital video camera. I have used video-editing software to clip and sequence video. I am able to paste stills and captured video into presentations and multimedia.	❑ I use multimedia peripherals and video-capture not only for classroom presentations, but I have taught my students to create their own video presentations.

"APPENDIX B"

Interdisciplinary Middle Years Multimedia (IMYM) Model
Self-Assessment of Pedagogical Skills in Integrating ICT with Curriculum and Classroom Practice*

This self-assessment will help you and your technology mentor to develop an individual professional growth plan to increase your pedagogical skill in integrating ICT with your classroom practice. It will also help you to determine areas in which you might continue to learn and practice in a self-directed manner. Please judge your competency level in each of the following areas by checking the box that best describes your current skill level. (Be honest, but be kind!)

Pedagogical Skill	Beginning	Developing	Accomplished	Exemplary
I. Using Educational Software	❑ I do not use educational software as part of my instruction and I am not aware of any titles that may help my students meet their learning goals.	❑ I use some educational software as an instructional supplement, as a reward, or for children with special needs.	❑ I use educational software (such as drill and practice, simulations, tutorials) that have been evaluated as learning resources that match outcomes in Manitoba Foundation for Implementation documents. I use these resources to provide experiences otherwise unavailable to my students.	❑ I seek out new educational software for evaluation and adoption. I access sources of software reviews and keep current on developments in educational technologies through professional reading and conference attendance. I share my findings with my colleagues.
II. Using information and communication technology to improve student writing	❑ I am not familiar with any technologies that would allow me to help my students improve their writing skills. I use word processing for my own professional work.	❑ I ask that the final draft of some student writing assignments be word processed. I do not expect or encourage my students to compose or edit using the computer.	❑ I help students use the computer in all phases of the writing process from brainstorming to concept mapping to writing and editing. This includes the use of portable computers, outlining and concept mapping tools, spelling and grammar checkers, and desktop publishing tools. I use technology to help students share their work with a wide reading audience.	❑ I store portfolios of my students' work electronically. I share successful strategies with colleagues through print and electronic publishing and through conference presentations and workshops. I look for specific technology tools to help my students improve their writing skills.
III. Teaching information literacy skills	❑ I am not familiar with the term information literacy,	❑ As a part of my instructional strategies, I have	❑ I team-teach information literacy projects with the	❑ I am actively involved in curriculum

Pedagogical Skill	Beginning	Developing	Accomplished	Exemplary
using resource-based learning	and I do not yet know why such skills are important.	students do library research projects, and I support the library skills taught by the teacher-librarian. I use resource-based learning and I am aware that electronic resources are also available to my students.	teacher-librarian. I understand the Big6 (www.big6.com) or a similar information literacy and inquiry process. I design student projects so that they require higher-level thinking skills, use and cite electronic information sources, require the use of computer productivity software, and are authentically assessed.	implementation teams and advocate for interdisciplinary units and learning experiences that require information literacy skills and resource-based learning. I share successful units with colleagues through print and electronic publishing and through conference presentations and workshops.
IV. Teaching information literacy skills using primary sources	❑ When asking students to do research, I expect them to only use secondary resources such as books, magazines, or reference materials.	❑ As part of my instructional strategies I include student projects that require the collection and use of original data. I generally can predict the outcome of such experiments or surveys.	❑ I have my students participate in information literacy projects that require the collection of original data to answer a genuine question. They use a variety of tools to collect data, such as computerized probes and sensors, online surveys, interviews, or digitized sources of historical records. I teach my students to use spreadsheets and databases to record, organize, analyze and communicate the results.	❑ I am actively involved in curriculum implementation teams and advocate for interdisciplinary units and learning experiences that require information literacy skills and the use of primary sources of data. I share successful strategies with other teachers through print, electronic publishing, conference presentations, and workshops.
V. Modifying instructional approach	❑ I rely on one or two effective methods of delivering content to my students. I do not use technology that requires that I change my instructional methodology.	❑ I have tried units or projects that have a technology component, but I primarily use teacher-directed, whole group instruction. Most of my use of technology with students takes place in a computer lab.	❑ I use a variety of instructional approaches and student grouping strategies routinely throughout the year. I can design learning experiences and approaches that best fit curricular learning outcomes, student learning styles, and the technology available to me. I can use small groups working	❑ I continuously try new approaches suggested by research or observation to discover the most effective means of using technology to engage my students and meet curricular outcomes. I work with a team of like-minded teachers either face-to-face or online to create, modify, and improve

Pedagogical Skill	Beginning	Developing	Accomplished	Exemplary
			collaboratively or in rotation to take advantage of student-to-equipment ratios of greater than one-to-one. I have at least 4 computers in my classroom.	my practices in instructional delivery.
VI. Assessing student performance	❑ I evaluate my students' knowledge using objective written tests only.	❑ I evaluate some student performances or projects using subjective criteria. I save some student work for cumulative folders and parent conferences. I print copies of electronic work such as word-processed documents, graphics, and presentations for cumulative folders and parent conferences.	❑ I use a wide range of assessment strategies to evaluate student projects and performances. I can use technology to help create assessment tools such as checklists, rubrics, and benchmarks that help students assess their own and their peers' performances and allow me to objectively determine the quality of student work. I ask students to keep both a physical and electronic portfolio of their work. I have a computerized means of aggregating performance data for my class that I use to modify my instructional strategies.	❑ I continuously try new strategies suggested by research or observation to discover the most effective means of using technology to help assess student learning. I work with a team of like-minded teachers, in person or virtually, to create, modify, and improve my assessment practices.
VII. Individualizing instruction	❑ I modify my instructional strategies only for students with identified special needs.	❑ I occasionally give my students a choice of assignments, but all students in my class (unless they are in a modified program) must achieve the same learning outcomes within the same time frame. I do skill remediation with students during or after school.	❑ With the assistance of the student, parents, and specialists, if required, I create a learning plan for each of my students. I track the accomplishment of their learning outcomes in each plan using a computerized tool. I use this tool during parent conferences and for school reporting.	❑ I can customize the content and design of the computerized planning and reporting tools that I use. I share my strategies, for using technology to individualize instruction, with my colleagues.

Pedagogical Skill	Beginning	Developing	Accomplished	Exemplary
VIII. Using adaptive technologies	❑ I am not aware of how technology can help students with physical or mental challenges.	❑ I work with students who may bring with them special devices that allow them to work and communicate in the classroom.	❑ I use technology when appropriate to help students with special learning needs. This includes detailed IEPs and specialized communications devices.	❑ I provide professional learning opportunities for other teachers in the use of adaptive technologies.
IX. Using technology for professional learning and communication	❑ I do not use information and communication technologies for professional learning or communication.	❑ I can find lesson plans and some educational research in online databases. I correspond with parents and other teachers using email.	❑ I use the Internet and its online resources to obtain research, teaching materials, and information related to the content of my classes. I read electronic newsletters and journals to keep current on educational practices. I participate in electronic discussion groups and chat rooms related to my area of expertise. I use electronic presentation software when giving workshops or speaking at conferences. I take part in distance learning opportunities using technology.	❑ I organize professional learning opportunities for other teachers and feel comfortable teaching colleagues how to use technology to enhance instruction.
X. Researching and evaluating the use of technology in education	❑ I have not attempted to determine whether the use of instructional technology has made a difference in my students' learning or in classroom climate.	❑ I gather, use, and share with colleagues, anecdotal information and observations about student use of technology in my classroom.	❑ I use action research to accurately determine how the technology and methodology I am using affects how my students learn and the climate of my classroom. I use the results of other research to inform my own classroom practice.	❑ I participate in formal studies of the effects of technology on student learning conducted by professional groups and academics. I have designed such studies as part of my own professional learning. I report electronically and in print, the findings of my research, to other professionals.

*Adapted from Rubrics to Guide Professional Technology Development by Doug Johnson, Learning and