απόπλους

Open Education

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Tux Unleashed!

(How the University of Cyprus with government funding and collaboration with respected companies and groups is researching the use of Thin Clients & Open Source Software to dramatically reduce IT costs in Education)

The Penguin is officially here! Neglected and treated as nothing more than "a passing fud", a "mascot for geeks", a "cute idea but nothing more", is officially supported with government funding and the hefty sum of more than £80,000 pounds for a 3-year research that intends to examine the benefits of going thin client and completely (well, almost) Open Source.

But how does Tux handles the heat? And what frightens the little Penguin? And more importantly... what makes the little brat tick?

(*Continued page 2*)

Image taken from http://www.mmacierzynski.u.tc.pl/images/tux.jpg

In this issue:

Contact Information:
Alexandros Kofteros
13 Pindou Str., Flat 203,
2035 Strovolos,
Nicosia, Cyprus

alexandros@apoplous.org

www.apoplous.org

'apoplous' newsletter created on a PowerMac G5 using inDesign CS suite.

Going LMS: The Road Ahead

So... we have the machines... we have the expertise to deploy the labs... now... what do we do with them?

This is probably one of the most serious questions ever asked: what do you do with them (the machines)? Just turning them on is meaningless unless you have a clear path, the expertise, the methodology and of course, the content! Not long ago I participated in a presentation that took place in the Ministry of Education. The main scope of that presentation was to introduce the concept of Learning Management Systems to the people responsible for the implementation of IT in Elementary Education. Mind you, these are highly skilled professionals with a real dedication to their work and already an impressive array technical and pedagogical knowledge.

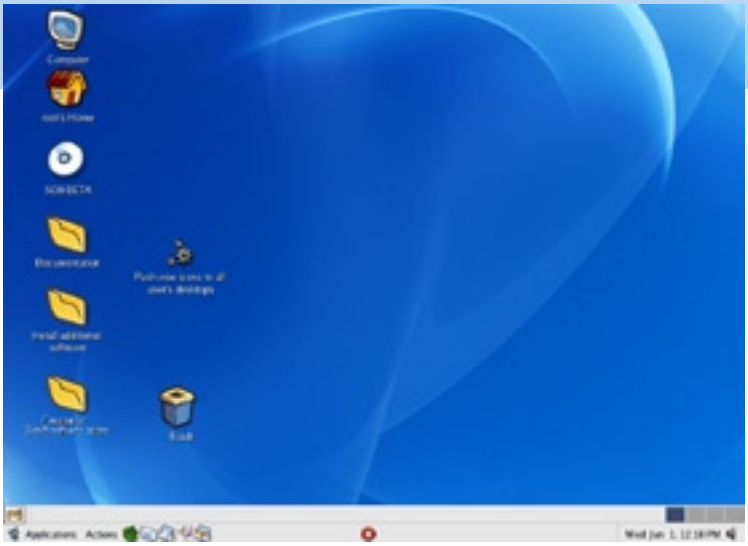
(*Continued page 10*)

Fighting Piracy with OpenSource Software

Software piracy is a major issue in Cyprus. According to official BSA reports, Cyprus is probably number 2 in piracy (in Europe) with Greece being number 1. That means that most people using MS-Windows and MS Office dont have a legitimate user licence for their products. The ideal situation would be for people to actually purchas licences for the software they use or not use them at all. However, in an era where software costs rise and people without computers are considered to be illiterate, a solution must be found to keep all sides happy- both users and companies. OpenSource/Free Software offers a solution for people

(*Continued pages 14)*

Tux Unleashed!



The Gnome environment with Gartoon Icon Theme

The Penguin is officially in Elementary Education! After struggling for more than a year, Tux is about to be embraced by an official research. The University of Cyprus is responsible for the research in collaboration with the Ministry of Education, IBM Italia (Cyprus Branch)/ Inteliscape, Hellenic Technical Enterprises (Sun Microsystems Cyprus), Cyprus Computer Society and Mediterranean Computer Users Educators Group.

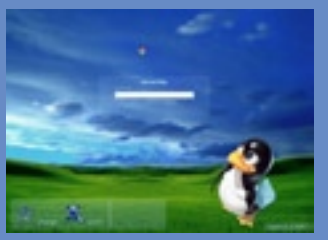
We are confident that through this research we will provide the Ministry of Education with an alternative vision of how to implement IT in Primary Education effectively while at the same time reducing all the costs involved.

To the uninitiated, Tux, the cute little penguin, has become almost synonymous to OpenSource Software and especially Linux. We use Tux here mostly as a metaphor for OpenSource software, and we intend to introduce to you some of the concepts that drive our initiative.

The Operating System

From an end users point of view, the most important aspect of an Operating System is the Graphics User Interface. Fortunately, almost every Linux distribution offers several flavors of GUIs (Graphic User Interfaces). The one we mostly use in our research is the Gnome interface, even though the KDE (and some others) are equally impressive and as good to use. See sidebar *Flexibility in the making* for more information.

Flexibility in the making



The beauty of Linux is that you dont have to adjust to the System but the system can be adjusted to you. From this login screen, we can choose the language of the system (and yes, all the GUI menus and icons will be translated!) as well as the GUI of choice (KDE, Gnome etc). This is a unique level of flexibility, offered by no other OS in the market today- and all this flexibility is offered for free in downloadable packages!

Our first steps with Star/OpenOffice

In June 2002 we started our 'apoplous' research (see previous report). However, we needed an office suite to go with our machines. We contacted Hellenic Technical Enterprises (H.T.E., Sun Microsystems Cyprus), and they provided us with licences of StarOffice 5. StarOffice is the basis for OpenOffice. Even though Suns' suite is far from free for enterprises, it is free for educational purposes. During the two years of the research we replaced StarOffice 5 with version 6 and we also investigated OpenOffice 1.x (Greek and English versions). Children had no trouble adjusting to the new suites and the only function they missed the most from MS-Office was WordArt!

The Software

In this issue we focus on some of the software we use in this research. This is the software that is installed on our LTSP/ SunRay servers. For LMS activities please read further in this report.

Version 2.0 of OpenOffice as well as the equivalent version 8.0 of StarOffice offer an intuitive and easy to use interface as well as interoperability between various Office suites.

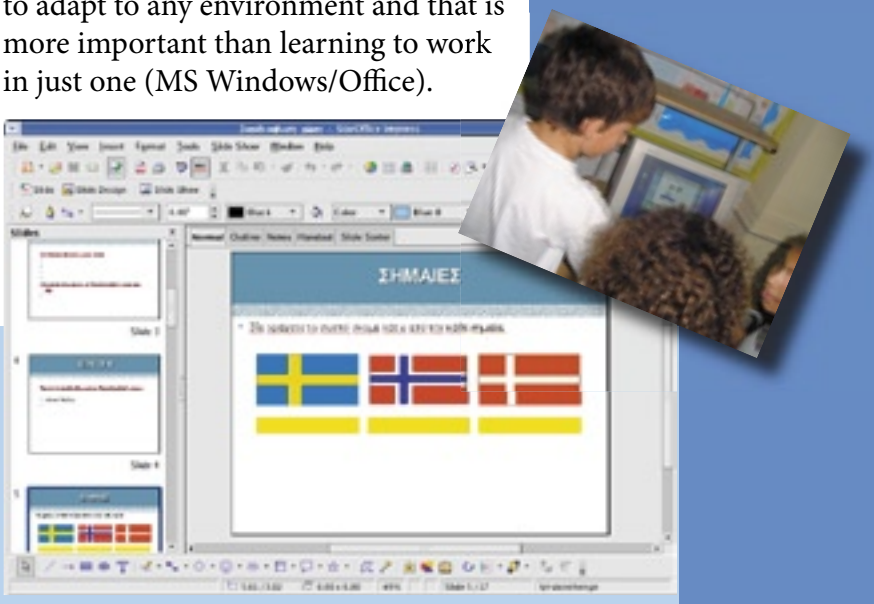
The Edutainment software in K12OS (www.k12os.org).

The Office Suites

The Office Suites are probably the most important part of our software. Children at home, teachers, as well as the Ministry of Education, tend to use MS Software most of the time, so it is very important that we offer an alternative solution that can read and write in .doc (Word), .xls (Excel) and .ppt (PowerPoint) files. Fortunately, both OpenOffice and StarOffice offer a high level of compatibility with these file formats and the transfer of files from one platform to the other is (almost) transparent.

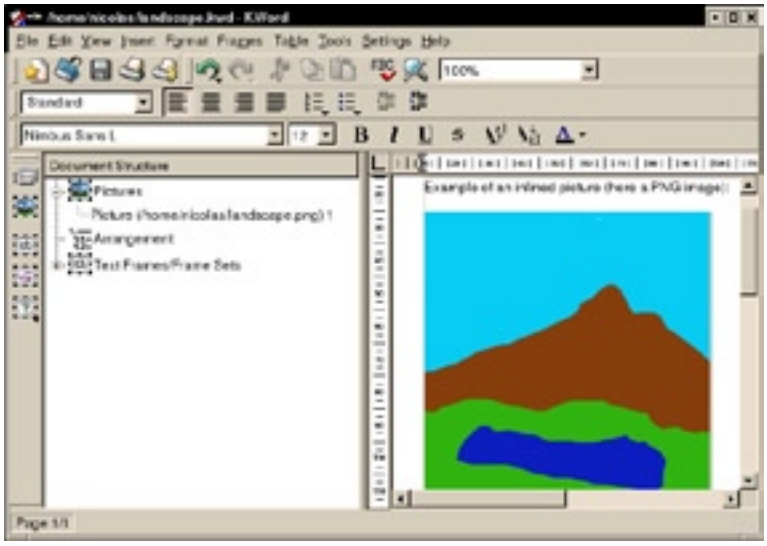
For this research we focus mostly on Open/StarOffice, even though there are other OpenSource suites that are equally impressive (and in some respects even better).

However, a lot of the critisism deals with the fact that '*all children have MS Office and everyone uses MS Office so why should we confuse them with alternative suites*'. I address some of the issues mentioned here in the article 'ECDL: friend or foe'. In a nutshell however, what is more important is to deliver skills in using word processors, Spreadsheets and Presentation packages, and not to learn just one program. If we effectively deliver these skills then, children will be able to adapt to any environment and that is more important than learning to work in just one (MS Windows/Office).



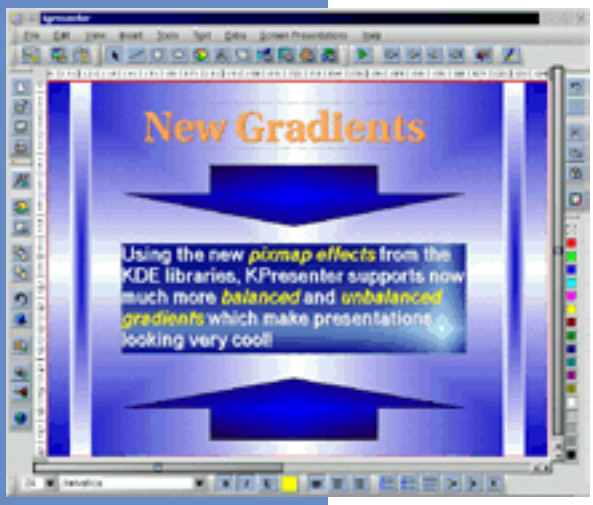
StarOffice 8.0 at work. Children here are using StarOffice Impress (the presentation package) to complete a test in Geography.

Alternative Office Suites



KWord, part of the KOffice suite (www.koffice.org). And yes, you can download it for free!

So, you need a good, solid office suite but you cant afford (or you just dont want to buy) MS Office. Dont get us wrong, we do like MS products, we have been purchasing MS Office suites for both Macintosh and Windows for quite some time. However, an alternative is always welcome as it gives people choice and better deals.



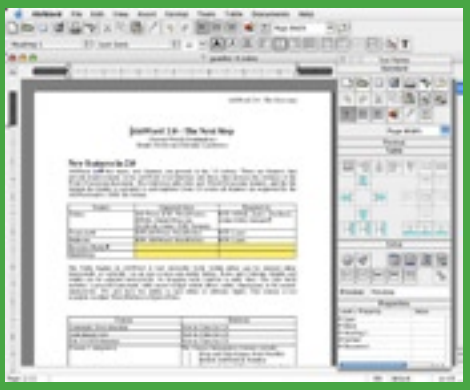
KPresenter, an alternative Presentation package. The User Interface is very easy to use and has some unique features not present in other packages.

OpenOffice is free and you can download it from the web (www.openoffice.org). StarOffice is free for educational purposes and for students/teachers so if you are interested in a copy you can contact H.T.E. (www.hte.com.cy).

If you are still not satisfied with these application suites you can always check some outstanding alternatives like KOffice or Gnome office. Of course you can get your hand on even more applications which are more or less equally good in what they (claim to) do.

One of the reasons we choose Open/StarOffice for this research is the better interoperability with MS Office (see previous page). At the same time, they retain a similar working environment to the MS Office suite. KOffice and Gnome Office have a more 'unique' and intuitive User Interface. We could even go as far as to say that (in our opinion) KOffice is easier to use than Open/StarOffice. Needless to say, our children in this two-year research will have a hands-on experience with KOffice/Gnome Office as well.

Apple taste in Free Office Suites



AbiWord under MacOS X. Its an equally impressive Word Processor and it can also be downloaded for free (www.abisource.com). Most alternative office suites are available for Linux and Windows. Abiword runs natively under MacOS X as well.

Edutainment & Linux

Gcompris, fun & learning in one package

In the previous report we dealt with digital entertainment and children.

By using edutainment (see sidebar 'Education is fun') applications, children can be creatively engaged in learning while at the same time having fun. After all, we encourage a positive environment where children are active learners and feel happy when learning takes place, within a flexible, easy to use and encouraging environment.

GCompris is one of the leading applications we have been using. Its activities are quite engaging and fun while at the same time offering a level of sophistication suitable for younger children. However, the translated modules were not fully realised and some of its activities are more suitable for grades 1 to 3. It can become the basis, however, for a more advanced environment that can be made suitable for grades 1 to 6 as well.

Education is fun!

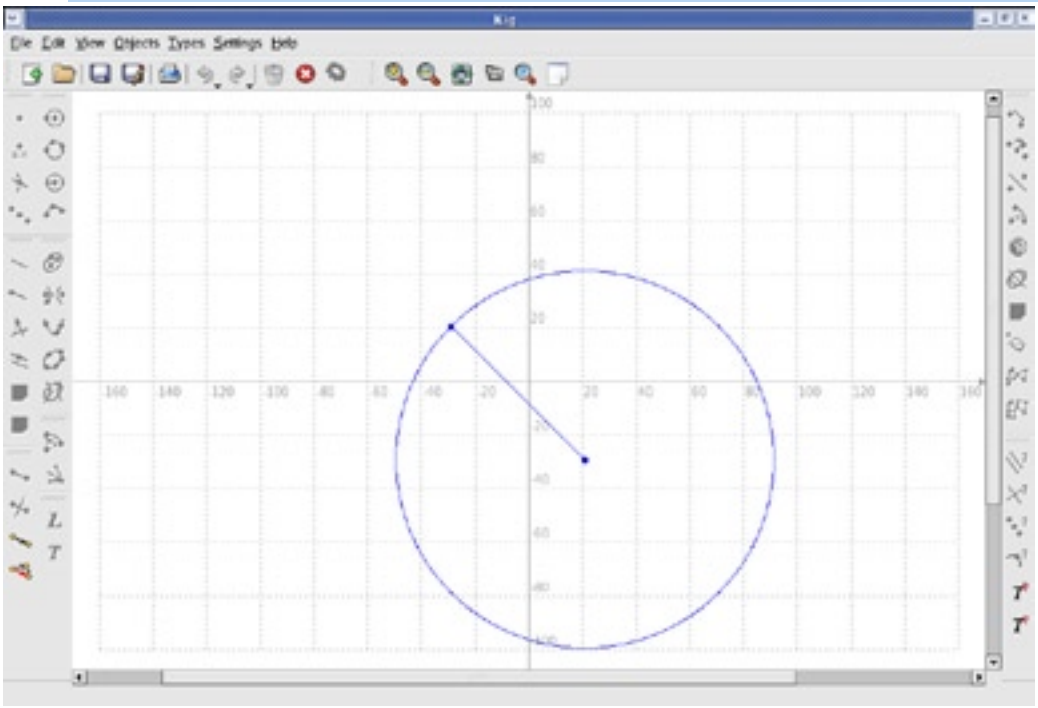
Edutainment is a term birthed from the combination of the words 'Education + Entertainment'.

It is very important that we allow children to engage themselves in activities that not only foster learning but also are interesting to them. GCompris, even though far from perfect, gave us a hands-on example of what can be achieven when we put together educational activities and an eye-catching environment. Students of fifth grade of Dasoupolis Elementary school found the activities in GCompris to be especially interesting to them. Time to play was given as an insentive to complete other more traditional exercises.

Download GCompris

You can download the software from the web using the URL: http://gcompris.free.fr/

Doing Maths the OpenSource Way!



Download Kig

You can download the software from the web using the URL: http://edu.kde.org/kig/

Kig this, Sketchpad/Euclidraw!

We know that we can use spreadsheets effectively in Maths. We can also use spreadsheets in several other lessons. However, when it comes to geometry, we need applications created to do just that: geometry. In the market today there are some excellent products. One of our favorite is Sketchpad, an incredibly easy yet powerful geometry application. And the good thing with these applications is that they are not that expensive. However, the open-source world has its own geometry applications. Kig and Kgeo are just two of these applications and we have used Kig (included with K12OS) for the best half of a school year. Children used Kig to examine parallel lines. They came to the conclusion that from a given point you can draw infinite lines and that between two points (in Euclidean geometry) you can only draw one line.

Not content on just studying lines, we moved to the Circle and we had various types of problems regarding the creation of circles using a fixed radious and a common center. Children had to make guesses of what happens to the circumference of the circle when you double or triple the radius. Things that could take a long time on paper just took minutes or even seconds on the computer screen.

Hoever, we did not neglect drawing skills so we devoted enough type for the children to learn how to draw proper circles on paper as well using normal (non digital) means.

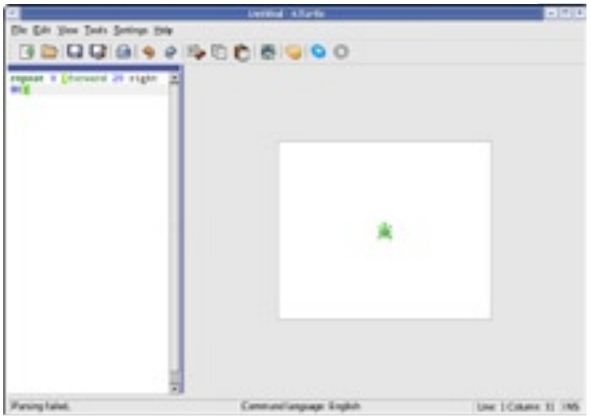
Follow the Turtle! Maths Using KLogo

Seymour Paperts' 'Mindstorms: Children, Computers and Powerful Ideas' really set the stage for IT in education. His Logo language managed to create an impact that is still felt and appreciated today.

As such, no respectful operating system with an eye on education could be without some sort of a Logo variant. In our case we used both WinLogo (under WINE, and it worked perfectly) and of course KTurtle, included with K12OS.

KTurtle was used for creating shapes by following instructions. Several activities for using Logo-like commands are included in our Maths books so we followed them along with some exercises of our own. At first children had some trouble grasping the concept of giving structured orders to the turtle, however they managed to catch up quite well from the first two periods (80 minutes) we showed Logo for the first time.

The first 2 lessons were dedicated to creating shapes by following instructions. Every team managed to do that (13 teams, 26 children) on their own pace



with little to no help from the teacher. On the third lesson we tried to offer them a ready made shape and asked them to write the instructions for creating such a shape. This is were things got a little harder, however children persisted and through help from the teacher and from other teams they managed at the end of the fourth lesson to be able to recreate shapes on screen by giving the proper commands!

One aspect that caused frustration was the spelling- children had to use english and not greek (translation under way) commands, thus making errors that could not be properly translated to commands by the computer. We expect a fully localised version soon!

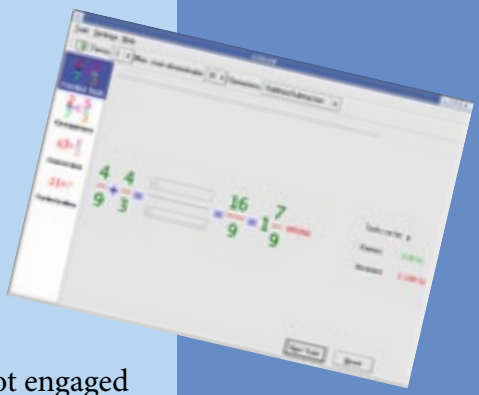
Download KTurtle
You can download the software from the web using the URL:
http://edu.kde.org/kturtle/

Download KBruch
You can download KBruch from the URL:
http://edu.kde.org/kbruch/

Doing Fractions the Tux way!

My students dont like fractions. And from what I get from my past 7 year experience, students in general dont like fractions. Especially when they have additions and subtractions between fractions with different denominators, their boredom becomes frustration.

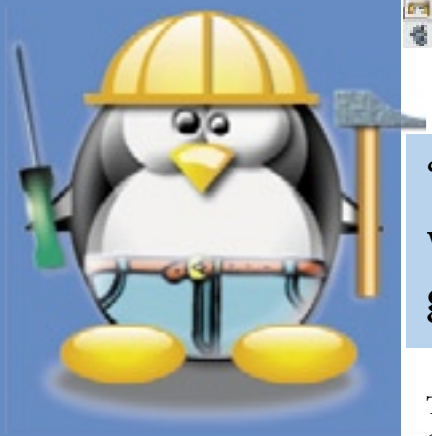
We all know the saying 'practice makes perfect'. However, how do you make practice and evaluate the students and at the same time keep their interest in what they are doing?



We used KBruch, a simple application for doing fractions. We organised a competition on how many additions/subtractions they can do correctly in 30 minutes. Children really got engaged and they started doing their practice. This is something we used repeatedly for the rest of the school year.

Keeping the System Happy

Monitoring the activity of the network. K12OS supports up to two CPUs (here we have only one).



'When you have 14 clients running on a P4 server with no noticeable slowdown, you really begin to grasp the potential of thin clients in education'.

Tux is here, and he is here to stay. In his company he has all the necessary software for teachers and students to reach their educational goals. However, the lower cost of OpenSource software does not, on its own, provide us with a solution that can be extended to all the class-rooms. The hardware and its maintenance is still in the way- thats why we are examining the use of Thin Clients in this research.

Our K12OS server (Fedora/LTSP) was happily running with 14 clients connected to it. We remind you that the server used here was a custom-built P4 PC in a server case with its CPU running at 3.06 GHz (hardly cutting edge), equipped with 1GB RAM and 120GB SATA hard drive. We replaced it with a P4 Intel Server (3.2GHz, 2GB ECC RAM) with no noticeable performance gains. However, 14 clients take almost 1GB RAM so we reached the ceiling with that server.

We tried pushing the server (during the first week of June) by connecting up to 18 clients (that number includes an iMac and an iBook). On the server with 2GB RAM the clients run happily while on the Server with 1GB RAM we watched the activity of the CPU (probably due to disc accessing) rise significantly. In both cases the CPU was never running at more than 20%.

Probably with a 3.6 GHz Pentium4 server with SATA RAID drives and 4 GB RAM we could drive up to 30 clients or even more.

See 'Going September' next page for our next steps in this research.

Going September, Going Thin!

The pre-pilot part of our research is officially over. During Summer we will be evaluating our Lotus LMS (see next page 'Going LMS'). But as of September, we are deploying our labs of Thin Clients in 3 different schools. One lab will consist of recycled computers (see previous report) all equipped with 17" CRT monitors. The second lab will consist of new equipment (Celeron 2.4 - 2.8) with 17" TFT screens. The third lab will be based on 14 SunRay 170s. Our strategy is based on 3 parts: using thin clients to lower the Total Cost of Ownership, using OpenSource Software to lower the software costs and using computer recycling to extend the life of computers up to the point of their physical 'death' while at the same time helping the environment by reusing obsolete machines thrown away by companies. The energy efficiency of Thin Clients (especially dedicated) is such that they probably are the best solution for our classrooms (see box 'Environmental Education').

The small footprint of thin clients makes them ideal for classrooms, since we never designed them to be computer labs. The power consumption, the heat of the machines, the noise... all these quite annoying factors are kept to a minimum.

The fact that we are using cutting edge technology helps boost our research since these are going to be (for the next 3-4 years or even more) the only schools with such a ratio of children to clients (1 to 2) and of course an infrastructure that will allow us to bring as many computers as we like through donations and use them as thin clients on the network. Our servers are already supporting Gigabit Ethernets and upgrading the bandwidth of the network will just be a simple task of upgrading the switches.

One of the SunRay 170 we used for demo purposes. In September a 14 client lab will be deployed.

We expect within the next two years to turn more than a few heads towards our direction, since we are conducting this research to bring some needed change to our educational system and create awareness on the only (in our opinion) solution for an educational system with limited resources- that of moving away from the 'Fat' client and embrace 'Thin' for schools.

Environmental Education

School year 2005 - 2006 is officially the Year of Environmental Education. As such, one of the primary goals of the Ministry of Education and all (primary) schools will be to create an awareness towards the protection of the environment. Our schools are the first (and only for the time being) that use recycled computers that are energy efficient. We intend to conduct additional research and file reports to the Ministry of Agriculture (responsible for recycling of technology products) regarding the recycling of computers through their reuse as thin clients in education or as primary machines to financially disadvantaged families. We will also file reports to the Ministry of Finance regarding the savings (in energy and resources) achieved through the use of thin clients (dedicated and custom-built).

Not content with just the hardware aspect of our research, we intend with the close collaboration of the Science commitee of the Ministry of Education (Primary Education) to create educational content for our LMS that will children understand the problems the planet faces due to our reckless use of resources and the pollution of the planet.

Going LMS: The Road Ahead

For the past three years we have been experimenting with pilot classrooms with (probably) the ideal ratio of 2 students per client. We have been using both content created by the Ministry of Education and custom content tailored to the needs of our specific students. However, delivering content on the server that the children can access easily is far from the perfect solution: we need a way to deliver the content in such a way that assessment can me made, records of the students progress can be kept and modules can pass values to one another thus creating a 'live' classroom with data turning to information through the use of a Learning Management System. Before we examine the way we intend to use the LMS in this research, we will try to look at what has been done previously in Cyprus.

IBM LEARNING SPACE, WebCT
The University of Cyprus has made some strides using LearningSpace in the past. However, it never reached a momentum outside the University and no results that we are aware of have ever reached Primary Education. This is an information verified to us through Inteliscape, IBM Business partners and responsible for Lotus LMS, the successor to LearningSpace.

At present, the Department of Education is using WebCT in various undergraduate classes but with would-be teachers and not with actual students. It has come to our notice (by reading articles published by academics responsible for using WebCT and by discussions I had with verious postgraduate students taking part in these classes) that no LMS was used so far in actual schools or under real classroom conditions.

Ministry of Education, Secondary Education
The Ministry of Education, Department of Secondary Education, officially requested proposals for the development and full deployment of an LMS. The cost of the project should not have exceeded £85,000 Cyprus Pounds and the company that won the competition should have (according to a long document we have in our hads) developed multimedia content covering the entire curriculum of Modern Greek and Maths for the first 3 grades of Secondary Education. Deadline for this research was set for October the 8th, 2004 and the applicants had to deliver the entire content and system ready within 3 months!

Lotus Learning Management System
Quite ironically, October the 8th was the deadline for proposals to the Research Foundation and we managed to win the proposal with the third highest grade (9.55/ 10). Our research takes 3 years (not 3 monts), will deploy 3 labs equipped with 12 to 14 clients each, with a fourth lab for development of content plus it will deliver two LMS, one OpenSource and one from IBM and all will cost the tax payer £45,000 while at the same time creating a solid plan for saving money on IT spendings and allowing our classrooms to grow and be filled with clients for a fraction of the costs of 'fat' clients.

IBM and its business partner, Inteliscape, is providing us with licences and support for Lotus Learning Management System. Lotus LMS will be the basis for what we intend to do in the next two school years and all the content we develop will be used in real classrooms under real conditions. Using Lotus LMS we will be able to deliver the content to our students in such a way that assessment will be more realistic, continuous and we will be able to offer feedback more easily with less time lost during class time. Also, the greatest aspect of the LMS will be the ability to adjust the content to student needs and deliver the right feedback to the right students at all times.

Lotus Learning Management System

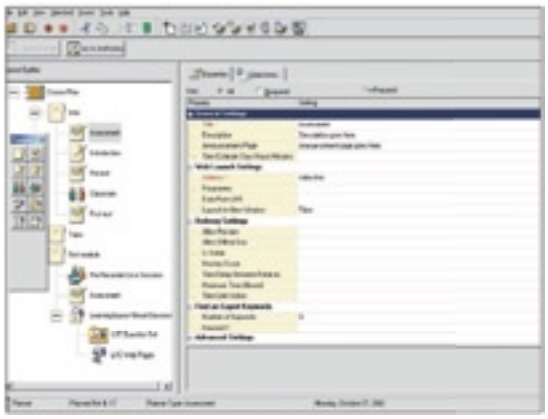
Early June we delivered an Intel Server to Inteliscape, IBM Business partners and responsible for Lotus solutions here in Cyprus.

Inteliscape will deploy Lotus LMS and will support it throughout the research (up to February 2008).

The server is based on an entry level Intel Server Motherboard with 2GB ECC RAM, 120GB SATA drive and a CD-RW for backup purposes. The main OS initially will be MS Windows 2003 SBS Edition, but we intend to replace it with either RedHat or Mandriva Linux.

IBM Italia (Cyprus Branch) will provide us with as many licences as we need for this research.

Between the 22nd of June and for 4 consecutive weeks we will use Lotus LMS in a closed environment in our office. Fifth grade students (Primary school) will work on small modules running on the LMS for testing purposes. Between July and August we will work closer with Inteliscape to streamline the process of updating the information on the LMS. September 2005 and throughout the school year we intend to use the platform for delivering content to the elementary school of Dasoupolis. At the same time we will be updating and increasing the content while at the same time assessing its use and benefits within a real classroom. Summer of 2006 we will perform an evaluation of the first pilot year and September 2006 to June 2007 we will officially deploy Lotus LMS to more schools, this time with more content (enough to cover at least the subject of Geography).



For the first semester of the third school year (September 2007 to January 2008) we will file reports on the use of LMS and the possible benefits that arise from its use. We expect these

reports to help show the benefits as well as the costs associated with deploying such systems.

It is crucial that an LMS is part of this research because the use of technology on its own, without the content, means nothing. Lotus LMS offers an extremely flexible way of managing data and turning it into useful information. One of the most important aspects of Lotus LMS is the fact that we can very easily integrate educational modules we created on several authoring environments, such as Macromedia Authorware or Macromedia Flash. Because of our dependance on the Linux platform, we will use Flash as the main authoring package and we intend to publish guidelines on developing content that is LMS-friendly.

Content reusability is a major issue that we intend to handle under this research. It is understandable that the resources we have are extremely limited therefore we need to make sure that whatever we create in one environment can run under any other (almost). Plus, whatever we develop must be created in such a way that can be optimised, changed, enhanced and modified easily for future uses. Lotus LMS fortunately complies with various standards and allows us to do just so in an easy way.

Inteliscape maintains its own web site: http://www.inteliscape.com/

For more information on Lotus LMS: http://www.lotus.com/lotus/offering6.nsf/wdocs/homepage

Moodle: An OpenSource LMS

They say that nothing (good) is free in this life. Obviously they never heard of OpenSource/Free Software. Most people also dont realise that a huge part of the web's infrastructure depends on OpenSource technology.Moodle is a Learning

Management System, even though its developer likes to call it otherwise. Make no mistake: Moodle is a serious candidate for the LMS section and can really hold its own when it comes to delivering content. However, to increase the validity of this research we intend to use both a well-established proprietary LMS (Lotus) and an OpenSource/Free LMS (Moodle). At the end of the day, and judging by our initial evidence, we could say that both can coexist happily together serving two different roles.

Moodle in the Classroom

Very secretly we have used Moodle offline and for a period of two weeks without making a lot of noise. We had to create an offline server to handle Moodle content, due to the fact that we faced problems with our Internet connection. However, what became evident was the ease with which children could log into the server and work with content.

We used information and simple exercises to teach History of Church of Cyprus using content we provided in HTML format on the server. Our Moodle server here was nothing more than a Mac mini, a sub-300 Cyprus pounds machine that can be carried even in a small briefcase. As of September we will 'open' Moodle content for everyone through our web site (www.apoplous.org).

Moodle for all

Lotus LMS requires licences. IBM is providing us with licences to cover the needs of our research. However, it is not possible for either IBM or Inteliscape to provide (at this point) free licences for all parents and students in Cyprus or Greece. For this purpose we will use content and exercises on Moodle that can be accessed by anyone with an Internet connection. Discussion forums can easily be created and we hope to create an active online community bringing together both educators and students, as well as parents, the most important part of a childs education.

Pedagogical Validity of Research

Any curriculum and any LMS is as good as the content that is included. And the content cannot be the creation of just one person without some guidelines or without a pedagogical basis. As such, we need to ensure that whatever goes in the LMS is not only valid information-wise (ie Nicosia is the capitol of Cyprus) but also the way we deliver it or expect the children to interact with it conforms to educational standards.

This research is under the umbrella of the University of Cyprus. Responsible for this research is Dr Mary Ioannidou-Koutselini, Associate Proefessor of the Department of Education with research interests in Curriculum development and Curriculum content. Nothing goes inside the LMS (September 2005 onwards) without making sure first that it complies with all the standards and is suitable for the target groups and ages we work with.

Content development is not (officially) the scope of this research. The scope of this research is to examine alternative ways of implementing IT in education and lowering the costs involved. However, we cannot use computers in the classroom effectively without first ensuring the proper content, at least in such a way that allows us to make proper use of the technology.

All the information and feedback we receive using Learning Managament Systems throughout this research will be the basis for future research proposals, dealing mainly with actual content development.

Equally important are also the methodologies, since a classroom-computer lab defies all known and used (at least in Cyprus) methodologies. From our past three years of experience with such classrooms, we have witnessed the environment of the classroom to change and children to be more excited about their engagement with technology and the alternative ways of learning.

Our main concern, however, is what happens to children that get used to working in a computer lab-classroom when they move to another class with more 'traditional' ways of learning. This is a problem we have to face in the immediate future by conducting more research to investigate the change of behavior and learning of students that move from one type of class to another.

Fighting Piracy with OpenSource Softwre

For downloading Linux distributions:

www.linuxiso.org

For OpenOffice:
www.openoffice.org

For StarOffice (free for students/teachers):
www.hte.com.cy

According to BSA, 1 in every 2 programs used in Cyprus today are illegal. That means that 50% of our computer-owning population has illegal copies of its software.

Extending this disturbing analysis on piracy, it is safe to come to the conclusion that 50% (or maybe more) of teachers, parents and children dont own Microsoft software (since almost all PCs run on MS Windows and have MS Office).

The problem of piracy should be dealt with and reduced to 0 if that is possible. However, we should look at alternative ways of looking at the problem and how to cope with it.

Many computers, more licences

Computers are very inexpensive today. You can purchase a system (without Operating System and software) for £300, and that includes a monitor as well. Most families tend to purchase (or even keep) a second and even a third computer. The more computers we have the more licences for our software are required. A typical OEM version of Windows XP Home Edition costs around £30- £40. Add to that another £90 for the educational version of MS Office and the cost of software alone comes to almost half the price of the actual computer. Multiply that figure with the number of computers you have. Also, add the costs for software updates if you want to keep pace with technology and the costs are soon escalating (and that is just home use).

Now lets go back to companies. Companies in Cyprus with more than two PCs have to use multiple licences. This time they cant purchase the Student/Teacher edition of Office so they have to pay around £150 - £200+ for EVERY licence. It goes without saying that having 2 PCs you must have at least 2 licences or two copies of the software and then you multiply the software costs with the number of clients you have. The costs are soon escalating.

If you intend on using Microsoft products then the only thing you can (and should) do is to actually purchase the licences. We are using MS Office 2003 on the PC and MS Office 2004 on the Mac and yes, we have payed for our licences.

But what happens when you cant afford the price of the software and you still have to use an Office suite? The solution is simple: use OpenSource software. OpenOffice is completely free for everyone. Version 2.0 is coming out soon and, judging by the beta version, it is outstanding. It can also read and write MS Office files with no problem. So if you cannot afford the price of MS products, then instead of MS Windows you could use Linux and instead of MS Office you coudl use an alternative OpenSource suite. This way everyone is happy and you wont get a knock on your door by the BSA.

Cyprus Education: 100% Microsoft

'Its better to be a pirate than join the navy!'

Steve Jobs, Apple & Pixar CEO

It is a fact that 100% of all Operating systems we have on our computers in Primary schools are based on MS Windows (Windows 98/Windows XP). Also, 100% of Office suites we use in Primary schools are MS products (MS Office XP). It is quite ironic that a few years ago, after evaluating StarOffice, the Ministry of Education has approved it as suitable for our education. At the same time however they turned down an offer from Sun Microsystems for free licences of StarOffice.

I am sure the previous Minister of Education had his reasons for doing that, but at the same time, as a tax payer and as a person that uses StarOffice/OpenOffice along with various other applications, I have to question that decision. I could argue the use of Windows but only so far. Technical Education is more flexible. They have deployed labs consisting of eMacs running the popular MacOS X, a FreeBSD based operating system with an impressive GUI (Aqua).

This complete embracement of Microsoft office and Windows has created several serious issues. First and foremost, it is forcing everyone to use the same software at home. According to BSA, 50% of people dont have a licence, therefore there are thousands of people out there who are trained from the 1st grade to use MS products and as such they have to have them at home as well.

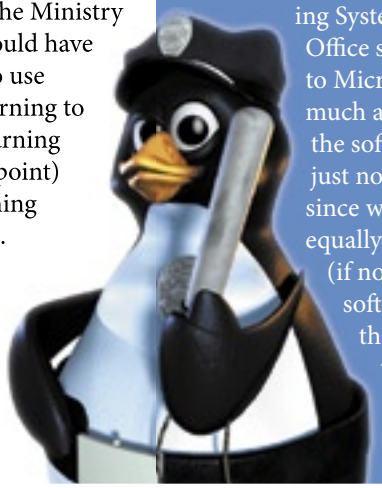
I am also sure that Microsoft has given a very good price per licence for its products. However, once we get used to these products for the next few years, we are practically left with them and a change will be very hard to happen once the actual MS products become part of the curriculum. Teacher training is also a strong issue here, since teachers are trained both by the University (undergraduate) and from the Ministry itself to use MS Software. What should have been a generic training (learning to use Wordprocessors, not MS Word, learning to use Spreadsheets, not MS Excel, learning to do presentations, not use Powerpoint) becomes an instrument of establishing Microsoft dominance in Education.

Our research, fortunately, leads a pirate (see sidebar) life: we use Linux (and Solaris) as opposed to MS Windows, and we use Open/StarOffice instead of MS Office, with equal if not better results!

Better a pirate...

When we say 'pirate' we dont mean 'software pirate'. We strongly believe that, if you want to use a specific software, then you absolutely MUST pay for it.

We do not like the fact that 100% of all the software costs for Operating System and Office suites go to Microsoft. As much as we like the software, its just not right, since we have equally good (if not better) software in the market today.



The European Union Angle

Cyprus is a full member of the European Union. At the same time, however, 100% of the money spent for Operating Systems and Office Suites for our Primary and Secondary Education go to the United States, since we use Microsoft software. By using Open Source Software that is free, or by evaluating European Linux Distributions, we could keep money spent on operating systems and office suites within the European Union. European distributions of Linux such as Mandriva offer an excellent alternative to Microsoft Windows. The use of OpenOffice reduces the costs greatly since the software is free and it completely eliminates the costs of purchasing office suites. Furthermore, in Greece we have development of Greek distributions based on various other Linux versions, including Debian-based installable systems as well as live distributions. KNOPPEL is an excellent example of such a live distribution and it includes most software needed for everyday tasks.

StarOffice may be far from free, it is free for educational purposes however and at the same time it is an excellent alternative to MS Office. Sun Microsystems, owners of StarOffice might be far from a European company, but the very fact that its policy is to offer StarOffice free for education uses, along with the support that a huge company can offer, makes this suite a viable alternative to Microsoft offerings.

We strongly believe that an awareness towards localized versions of Operating Systems based on Linux and alternative Office suites should be developed as opposed to todays monopolistic attitudes that gave Microsoft total domination (software wise) of our educational system.

Tux image from http://www.linuxjournal.com/xsfiles/i/tux/tux_police.png

ECDL : Friend or Foe?

The Concept of ECDL is excellent and should be embraced even more. Having a standardised test for proving computer literacy skills is nothing more than good news. However, we would like to see a more generic approach and not a Microsoft-centric diploma.

The concept of ECDL is something that we applaud: having a standardised test to prove your skills and literacy in using computers.

What worries us is the fact that ECDL are Microsoft-centric and the literacy skills deal (mostly) with how well you use Microsoft products. Even though Microsoft holds the largest percentage in Operating Systems for personal use and for Office suites, there are many alternative packages available today that do exactly the same (and even better) job than MS products.

IT skills should be generic. In previous pages we made some dealt with this subject but in these two pages we shall ellaborate more on the subject.

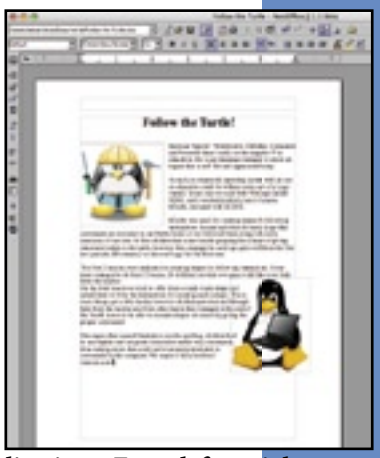
Word Processing Skills
Word Processing is probably the most important part of non-entertainment computer use next to the Internet. Word processors have existed for many years and Microsoft was sure one of the pioneers but did not have the best products for quite some time. Nowadays, old legends kie WordPerfect have taken the back seat allowing Microsoft total domination of the Word Processor market. However, Word Processing is far more than just MS Word. The way we handle text and the interface metafors we use today derive from years of experience. Almost all applications that deal with text, from the simplest word processor to the most advanced WYSIWYG web design package (ie Dreamweaver), right to the finest DTP suite (inDesign, QuarkXpress) all use the same or similar conventions and buttons. If a person can use StarOffice or OpenOffice, or KWord, or AbiWord or even Apple Pages effectively, he cannot be excluded from a european diploma of IT literacy because he does not have 'Word' skills.

Presentations the Steve Jobs way
An excellent presentations package on the Macintosh is Keynote. And even though the interface is completely intuitive and simple to use and learn, some of the main ingredients of EVERY presentation package are there: Slide Transitions, Animations, Slides, Text Processing, Image Inserting. So... how about we start examining how well you can use a specific program and not how well you use MS products?

Take the car drivers licence: examined are your abilities to drive a car, not your abilities to drive a Toyota or a Mercedes. And if the exams for an actual drivers licence are generic, why shouldnt we do the same with computers?

Generic IT Skills: One approach, many platforms

Students in our research are using Open/StarOffice. However, they are learning generic skills with emphasis on transfering user knowledge to other applications as well.



In the images above we see the same document in three different applications. From left to right: Microsoft Word 2004 (MacOSX), Apple Pages and OpenOffice 1.1. Three completely different applications, all doing exactly the same thing!

Educational systems should be flexible and should not limit themselves according to (unofficial) industry standards. As such, we cannot teach our children how to drive a *Toyota* but rather, how to drive a *car*! (refer to previous page).

It is obvious that, as long as we can perform certain tasks using a computer, it is irrelevant what brand of appliation we use. Many graphic designers, for example, use Adobe Illustrator or Macromedia Freehand or even QuarkXpress to print everyday documents. Overkill as it may seem, it still gets their work done and as long as they know how to do it, why should it matter what type of application they used?

In our research we focus on teaching children how to use applications effectively for the good of their education. We insist on skills that can be transfered to other applications. Once they know, for example, how to create graphs in Excel or Calc, its just a matter of a few minutes of fiddling to discover how to do the same in another package (ie AppleWorks Spread).

At the end of the day its the skills that are important, not the application you are using! After all, our students (from our research) have skills that can help them use any type of wordprocessing/spreadsheet/ presentation package in the market today.

Editor's Notes

Probably by now it has become obvious that this research is quite controversial, at least in terms of what the Ministry of Education is officially doing with computers.

However, the Ministry is working with us in this research. First of all they gave us their permission to conduct this research in the first place. And we have people from the Ministry working on content for our LMS.

We definitely agree on the prospects of Thin Clients and on using LMS. We totally disagree when it comes to OpenSource Software since they consider Microsoft to be the undisputed leader in its markets, therefore we should stick with MS Windows/Office.

I would like to take this opportunity to dedicate this page to the people responsible for IT in Primary Education.

The Department of Primary Education assembled, almost 15 years ago, a small group of dedicated teachers to lead pilot projects regarding technology and computers in schools. A few schools were selected at first and were given a small number of computers (a few Macintoshes and PCs with Windows 3.1 at the time).

With time this pilot project turned to an actual implementation of PCs in every classroom and in every school. This begun just a few years ago. Every classroom from grade 4 to grade 6 was equipped with 1 PC running Windows 98 with Office XP and all schools had internet access (ISDN lines). Schools lucky enough to have general-use classrooms received more computers to form PC labs.

At the same time, and working closely with the Pedagogical Institute, training courses were organised for teachers (see previous pages).

Last year all classrooms (from grade 1 to grade 6) were equipped with at least 1 PC and even the kindergardens received their computers.

At this stage, schools are going to be equipped with 3 PCs for every single classroom in the greatest expansion of IT in education that ever happened in our country.

Because the Internet is a crucial factor in the success of IT in Education, the Ministry has begun upgrading the connections from ISDN to ADSL (1 Mb/s). At the same time the people responsible for IT in Primary Education have ensured that every school has its own domain name and web space for building its website.

Not content with all the above, my fellow educators in the Ministry have devoted long hours developing content to be used by the schools. And to keep in pace with technology and advances in education, almost everyone of them has managed to get a Masters or a Doctoral or even a second Bachelors degree in Educational or Computer Science.

I admire these people and even though we disagree on a lot of things and might clash or compete in others, both parties have a common goal: to improve education for the good of our children.

Therefore id like to dedicate this issue to my friends Lefkios, Pampos, Mixals & Mixalis and all the rest who ensured that I have the infrastructure in place to do my work.

- Alexandros Kofteros
  B.A. Education
  Post-Graduate student, Univercity of Cyprus,
  Curriculum Content Development

For all your comments
please feel free to email me
alexandros@apoplous.org

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