T194 - Telelearning: isolated and remote areas; use in hospitals, prisons, retirement homes by Kent Harvath

Telelearning is a term that refers to any learning related process via communication technologies. You could imagine you being a student and teacher being on the screen of your computer and you talking to the microphone while voice of your teacher comes from the speakers. There even could be a whole class on the virtual class room that only exists on internet and you may be discussing about some subjects with people who are physically scattered everywhere around the world. This learning process through telecommunication is tele learning.

Tele learning is essentially full of efficiency and the society would benefit. It would reduce the cost for transportation and purchase of physical tools such as textbooks or even uniforms. Schools would also be unnecessary and the school itself would physically exist only as a small office in a building. Since schools take a great amount of space, tele learning could save a great amount of lands that could be used for other means. People in isolated areas would benefit since they could get sessions at their home. Those who live away from a particular school they want to go would benefit as well if the school introduced tele learning.

It would also be useful for people who can not or are not allowed to physically move from where they are. This includes people in hospitals, prisons, and retirement homes. This could help people missing certain materials and being behind class for going to hospital for a couple of weeks. It could also give chance for education to people who have more severe medical problem and have to stay in hospital for more than a year or so. People in prison may be able to keep track of the outside world or have the chance to be educated so that they would not be too much behind in their life when they come out of the prison. It gives them chance to use their time in prison wisely and not just waste it. People in retirement home would not want to wake up at 6 in the mourning and go to school that is an hour away every week days. Tele learning would give them the opportunity to learn at their home. Thus, tele learning saves time, energy and money and almost every individuals and the society as the whole would benefit.

Along with the development of the informational network and communication technologies, many things are becoming more and more completely on computers such as note books changing to word documents and school would not be an exception. Most likely, tele learning would start to be known as a purchasable small learning sessions rather than a long curriculum that dominates your whole year since it is usually the business people who starts up such new things. At the same time numerous universities would install tele learning sessions. And in time, demand for tele learning sessions would exceed that of the learning style that is considered normal in our time now.

T195 - Modification of hardware and software for special needs: voice recognition software, text-to-speech, special input and output devices, Internet resources by Chirag

Intelligence is the systems level of performance in reaching its objectives. Artificial Intelligence according to John McCarthy means the science and engineering of making intelligent machines and is man-made.

The research concerning Artificial Intelligence is with producing machines to automate tasks requiring intelligent behavior. Examples include control, planning and scheduling, the ability to answer diagnostic and consumer questions, handwriting, natural language, speech and facial recognition. As such, the study of AI has also become an engineering discipline, focused on providing solutions to real life problems, knowledge mining, software applications, strategy games like computer and video games.

Generally speaking AI systems are built around automated inference engines, based on certain conditions ("if") the system infers certain consequences ("then"). Systems dependent on artificial intelligence would normally require more processing capabilities than normal systems. Talking about hardware, speed and memory of an AI system is where important intelligent systems quite often require a range of sensors to receive input data from the environment. Output devices will include the normal peripheral devices such as printers and monitors but may also include a range of activators or speech synthesis devices. Robotics is one application of intelligent systems. Robotics is used in CAM systems.

Software

AI is dependent not only on sufficient hardware but also on the software to run the hardware and to synthesize the data received. Once the data has been received and processed the AI system needs to make an intelligent response. To create this software non-procedural languages are often used. These include languages such as LISP and PROLOG. Both of these languages will actually allow the system to learn and modify its responses to its environment.

Specific Requirements

Models and Simulations: Models and simulations may require high graphics capabilities and be capable of processing high end mathematical models which can be very CPU intensive.

Machines like this will require:
- A fast CPU
- Large amounts of RAM
- A good graphics card
- Large storage capacity (i.e. large hard drive)
- May require specialized input output devices
- Will require specialized software
- May require an AI language such as PROLOG or LISP

Neural Networks
A wide range of software is available for developing neural networks; some can even be used as plugins for spreadsheets. The requirements will vary according to the use but a neural network would normally store large amounts of data and have the data linked in a configuration which would require a large storage capacity hard drive, fast access to the data would also be an advantage. If the network uses graphics then a fast graphics adapter would also be required.
Expert Systems: Expert systems are specialized information systems which would normally require a large storage capacity and fast processing capability. Many of these will be used via the internet so a fast connection would also be necessary.

Artificial Intelligence is not only used in computer science, engineering and making intelligent machines but also studied and applied in many other sectors such as Philosophy, Psychology, Business, and Fiction etc.

Modification of hardware and software for special needs: voice recognition software, text-to-speech, special input and output devices, Internet resources by Marek
It has always been a challenge for people to change certain objects so that those of less physical capacity and mobility can use them as well. However, one again human nature proves its ingenuity again as it continues to overcome these obstacles, with exceptional objects for the situation.

One particular object which was specifically designed to aid physically challenged people was the Camera-mouse. This was tailored made for handicapped people's needs and assisted them by moving the mouse for them simply by using their head. There was no headgear, or complex equipment involved, merely a CD for installing the software and a Web-cam like devised with transmits the messages from the person's body to the computer. This "Hands Free" approach to the product promotes an image of simplicity as well as elegance. Even people who had near complete paralysis were able to efficiently control a computer in this manner.

Another specially designed item was the Info grip keyboard. This was made for people who had mobility to some extent, but would still find it difficult to use a normal keyboard. The keyboard was modified in the way that the keys were bigger and easier to see, sot that the person would not a make a mistake simply by hitting two keys at once. Said to a be a complete success, this product has sold millions over the world, aiding those recovering from accidents, such as people in physical therapy, and people with neurological disabilities. All in all, it was rated as one of the most popular products on the website, seeing as it helped influence so many recovering patients' lives.

Online communicating sites would also benefit from providing extended services to the disabled as well because it would increase the popularity of the site as well as help appeal to a wider audience. Being able to advertise to a larger number of people will increase the awareness of the general public to the particular product, and will give a better impression of the company to the people as well. Seeing as the majority of companies are only interested in making money, it is their own human nature, their own greed that enables them to contribute to the rest of society.

In this way humanity can be seen as fighting toward a brighter future, where every one of us has an equal chance and equal potential to rise in the world. By doing this, people with special needs are no longer segregated and can fully integrate themselves into human society once more.

Modification of hardware and software for special needs: voice recognition software, text-to-speech, special input and output devices, Internet resources by Kent

Through the development in our technology, there are inevitably certain cases where modification of hardware and software are suitable or required for some special needs.

Voice recognition software is one example. In many cases for a lot of software, it is useful to modify it so that it can be controlled through voice recognition for certain special needs. Obviously, the special needs include voice chats. People were not satisfied by mere chat through typing, but the people had needs (the word needs in the economic sense) to have a communication that feels much more real. This modification required a special input device namely microphone. Recently, by the popularization of software such as Skype or Ventrilo, almost every household that uses computers now have a microphone or two. This is now moving towards modification to

install tv camera so that the people chatting can now look at each other and talk through computers. Special input device such as webcom is now starting to spread through every computer at people's homes.

Another example of modification would be installation of text-to-speech software. There are several software that can be downloaded or purchased on the internet that makes a sound file from texts. The formerly introduced Ventrilo also includes such feature. This modification does not require any special out put devices since it only uses speaker that are now common.

One rather peculiar modification of hardware and software for special needs was brain computer interface, also known as BCI. BCI itself is a special input and output device which is inputted or outputs brain pulses. It is now possible to move the mouse and use the computer through mere thoughts, by simply thinking of doing it. The BCI is connected to the brain through electrodes that are pieced into the brain and catches certain chooses brain pulses and then the computer reacts with the certain movement that corresponds to the chosen brain pulse. This allows people who are paralyzed to use the computer.

BCI can also be used to control brain. It is already successfully experimented on flies, cockroaches, mice and pigeons to implant several electrodes into their brain and remote control them by outputting certain brain pulses that corresponds to certain movements of theirs.

TV cameras can also be modified with BCI for special needs. It can be connected to the brain and send its images to the brain after converting it into brain pulse. This gives blind people a mechanical eye and it is already successfully tested with much precise vision than fresh eyes. Robotic arms are also modified to an artificial arm that can be moved exactly the same way one would move an ordinary arm through electrodes connected to the brain. It can also send back senses of touch and heat.

Thus, as technology innovates, it is wanted in many areas requiring modification of hardware and software for such special needs, and technology develops even further through these modifications.

T196 - Software in the classroom: science experiments, social studies modelling and simulation, instructional tools and media, computer-aided instruction, computer-aided learning by Akira

Installing software in the classroom at schools can be really convenient and it can also have some downside to it. Personally I think it would be nice to have software in class.

First of all what kind of issues are associated with this topic? One example is the cost of installing all the software in the classrooms. Some school might not be able to install all the software because they don't have enough money. Also they need some expert to organize and operate the software in the classrooms. Another issue can be the fact that the students would need to be taught how to use the software because they would take a long time to get used to it. Also another problem is the lack of interaction with the teacher. The software can take away jobs from teachers because the school can substitute them with the teaching software.

A solution that can overcome this problem for example is to support the installing of the software by fundraising. This way the school can install the new software at a fairy low price. Also if they have a fundraiser they can hire an expert much easier and would be able to use the software effectively. One way that the students can learn how to use the software is to have a few classes to learn how to use the various software.

There is no one specific that is responsible. This is mainly because people always go with the most effective and convenient way of working. So it is human nature to install this software that would make it easier to teach a class. But also the principal of the school can be held responsible because the school is the one that chooses to install the software and the principal is in the control of the school.

There are few alternative decisions that can be made in this situation. First we could just not install the software. This is because classes can function without using software or other types of media. Another decision that they can make is to divide the class into two, classes using the software and classes without using the software and the students can choose which class they want or they can alternate.

One consequence of these decisions is the gap of knowledge they might have taking different classes. Also there might be some people who would be able to learn better with the software and those people wouldn't get the chance to try the software. This would be a great loss in many ways because they could have learnt more about a subject.

T197 - School library systems: catalogues, security systems, online research by Joseph Toyoshima

For most modern schools, a school library is required for research and reading. For some of us, the library is an

ordinary usage for achieving information. But many of us our missing out the great services our school libraries provides us.

First of all, as long as you don't lose your books and return them on time, it is absolutely free. Also, many libraries get subscriptions to magazines and some databases. Instead of having to go through Amazon to buy every book needed for research, just go to the library. Finding books recently have become much easier too. Go to a nearby computer and use the catalogue on it. Simply type the genre, author, title, or even key words and all books related to what you typed pops up, with the location and a short summary.

Next is the security system of libraries. Why have it? Without it people would be just walking in and out with free books, on purpose or by mistake. Libraries have a security system at each exit. All books have a sensor, and if a person were to walk through it without checking it out a loud beeping sound would echo. But this causes some people to joke around and put books in someone's bag without that person knowing it, and when leaving the library the sensor would start to beep.

Lastly is online research; for those who thought libraries are only about books, you're wrong. The library is a great place to do online research, there are many computers and the quiet atmosphere is a good place to study. Also as mentioned above, some libraries subscribe to databases and by using those computers you can have free accesses to great information.

The library is greatly underestimated as a place to study. Not only is it quiet and easy to focus, but there are many services as written above. The best part is everything is absolutely free. Next time you have a report to write, use the library.

T198 - Hardware in the classroom: laptops, notebooks, teleconferencing by HeeJun

As the technology involving laptops improves, many people claim students should use laptops in the classroom to maximize the efficiency of studying. But many people, especially the elders, doubt that how the fact that every student has a laptop will change the way teachers teach and how students learn.

First of all, if every student has a laptop, it will be much easier to get resources from internet or intranet and to take a note. Each classroom in a school may provide fast internet service, a multimedia projector, printers and other equipment. Hence, it will be much easier for students to present their works.

The ones who support this plan claim laptops will replace traditional textbooks and exercise books. With the laptop, the students are able to access and process that make the difference. At the moment a student relies on those things physically in the classroom with them at that time: a teacher, textbook, and other students.

With a laptop, students have access to other teachers, other students, and a choice of different resources all available at times not constrained by classroom bells. Students may produce well-organized notes by using a word processor. Laptops can also be used as multimedia portfolios for the students' as producers. This is where the advantage of the laptop over the exercise book becomes clear. In addition, a laptop classroom prevents students from forgetting about most information they have learnt by the end of the year; a laptop allows the student to record in a transferable format.

Unlike the exercise book classroom, a laptop classroom resembles the multimedia 'real world' students inhabit and will be employed by when they leave school. Therefore, I think it is better for students to have laptops in the classroom.

Hardware in the classroom: laptops, notebooks, teleconferencing by Harsh

Laptops, notebooks, PDAs are revolutionizing the world. With today's hi-tech generation, these things can be seen anywhere, even in classrooms. A survey conducted at four major colleges, like Harvard and Stanford, revealed that 85 percent of the undergraduates have laptops when they are not even required to have them. Laptops are convenient and useful. Although there is a social issue related with the use of Laptops in classrooms and that is, if the student is learning or gaming using his laptop.

The topic of my main article is that if a student has a laptop in the classroom, most probably he is not using it for learning purposes. But then the professors and the students argue that if the student didn't want to learn in the first place, he wouldn't come to the classroom. Study showed that if a student uses his laptop for a relatively longer time, then his grades are lower. Professors, therefore, ask the students using laptops to sit in the front row so the students behind them can check what they are doing.

If you use laptops in the classrooms as a student, then you are affected more by it than anyone else. Economically this is really good because a lot of laptops are being purchased by students which also mean that the prices for laptops are going down and we can already see this happening, an Apple iBook only costs about $999. If a student's grades go down, then who's responsible – the student, the professor, or perhaps the laptop that you use in the classroom? It of course is the student.

The only advantages of laptops are “educational”, but that’s only valid when the students are using them for taking notes (since their typing is faster than handwriting) or researching more on the topic being discussed. But if the laptops are not being used for any of the purposes mentioned above, then the disadvantages range from ‘grades going down’ to addiction to computer technology. Therefore the main problem rising from the use of laptops is that students, instead of using laptops for educational purposes, might use laptops for surfing and chatting with friends back home.

The problem we are addressing here is that the laptops are being used for rather “entertainment” purposes than “educational” purposes in college classrooms. One of the solutions was that the students with laptops should sit in the front rows so that students behind them can monitor what they are doing. In one case, a student visited pornography websites in the middle of the class n the girls behind him were really offended and they ended up telling the professor. These kind of cases discourage other people from using the laptops for “other purposes”.

Teleconferencing simply refers to a video conferencing through digital screens. This can be very useful because a Harvard professor can telecast his lecture to many other colleges and everyone can take notes! Or some other educated professor can talk about anthropology in America and students with their laptops can take notes in a Japanese classroom in Tokyo University! Teleconferencing has many advantages and the only disadvantage is its misuse. Students might start watching porn instead of watching a guy talk about supply and demand in some other nation!

T199 - Software in school administration: record keeping, scheduling, Intranets, public information by Sung-Hwan

There is a huge amount of information in school, and it keeps growing at every moment. At every moment information is created: Test grades, Student attitudes, School schedules, an event, and etc. It would be difficult to keep track of all this information with out the use of computers. It is such a help that computers can store a large amount of information in relatively small area, and it also manages to organize the information neatly.

By keeping the records inside the computer, records could be stored in a small area with well organization. Thus, it would help the teachers when they are trying to look back at the records in the future. Unlike the papers, the computer would allow teachers to find the records very fast, also in organized order. For example, if an English teacher was trying to look for the 10th grade English test taken back at first quarter, all he have to do is turn on his computer, then open the folder with a name, “10th grade English test scores (First Quarter)”. Then he would find excel with a column for names of the 10th grade students in alphabetical order, and their test grades. However, if a teacher used papers to record the test grades, he would have a lot of discomfort and troubles finding the test grades.

First of all, the teacher has to look for the folder that contains the test scores. If it was a computer, it would take at most 2 minutes. Where else, for the papers, he would have to look for the folder that contains the test grades. This work would be quite time consuming, because the papers take a lot of spaces. Also, it might not be in a order, so it is not really convenient to look at.

But the problem with saving information in computer is that there might be a loss in the information. For example, if somehow the computer is destroyed, then all the information is lost. At this case the advantage of being able to save a lot of information into a small area became a disadvantage also. But, the solution to this problem is to save the information in other places, such as flash disk, or CD-Rom, to use it as a ‘back up’.

Also, the computer could benefit for scheduling. A teacher could easily use the Microsoft word to draw the scheduling tables. Then, he could try out other kinds of scheduling to see which one works the most. But in the case with out the use of computer, it is hard to tryout other kinds of scheduling, since every time you have to erase the mark rewrite the scheduling. Therefore, the computer could do the work faster and conveniently.

Intranet is a website that is a private computer network. Therefore, only person with the authorization can go to into this intranet. This could be of great use in the school, if there was information that would like to be kept secure from others, such as student’s profile. Therefore, only teachers would be able to go inside in the intranet and find the information needed, where else the students or others outside the school can’t. Though, the problem with this is that if others know the authorization number or password, then they could easily go into intranet and look at the information also.

Using computers would also benefit in the case of public information. The computer will allow the teachers to produce faster information sheet, like the morning bulletin. It is faster to type up a paper than to write out. Also, the computer allows us to print out many pages by just typing once.

Consequently, computers let teachers able to do works faster and more efficiently than working without the aid of computers. I believe that the technology will develop further more, letting us able to do be more convenient and fast in not only in school administration, but all other subjects as well.

3.2 Education

T200 - Training, tutorials, simulators by Tommy

Certain professions require more than rote learning out of textbooks. Enlisting in the air force or police force requires that one have some sort of hands-on experience before testing his or her skills in the field. This is where field training and simulators can come in very handy. In the area of computer graphics or any other sort of crafting work, hands on training and tutorials are a must.

In the military or police, sending someone out into the field with nothing but information and tactics memorized from textbooks is a surefire way to failure. In order to be efficient in what they do, police and military personnel must have some sort of hands-on experience, which can be obtained through training simulations, in which fake scenarios are created based on real life situations, and the trainee must try and overcome obstacles. This is an essential part of every new recruit's training. If they are only exposed to classroom learning, then they will not be able to experience the adrenaline rush and required quick decision making that is part of field training.

This is not to say that classroom learning is not necessary; people still need it to pick up basic skills and tactics. Field training is where these skills and tactics are put to practical use. Indeed, the main reason why field training should be required is simply because imagining situations in your head and actually experiencing them are two completely different things. A person may feel confident and know all procedures and maneuvers, but he or she may break under pressure when faced with the intensity of a real and potentially dangerous situation. The benefits for having simulations in pilot training are numerous. It is not enough to have read and memorized how to fly a plane from a textbook; as in military and police work, hands-on experience is essential. However, having a trainee fly a plane without ever having operated one before can be potentially fatal.

A simulation allows for the person to experience what it is like to fly, without all the dangers of actually flying. This makes it a very good way to teach budding pilots to fly. An alternative to this could be to have a plane that holds two passengers, each with their own set of controls. One seat is occupied by an experienced pilot, while the other is occupied by the trainee. This way, if the trainee suddenly finds himself in a situation where he would otherwise be killed, the experienced pilot can take over and make sure that they have a safe landing.

With computer graphics and other crafting work, tutorials can help immensely due to the fact that people can also learn new techniques while following the steps in the tutorial. Tutorials also make things more interesting for new learners, as they are less likely to become bored if they are actually using their hands to create things. This way, they can pick up information faster.

Classroom and textbook learning are clearly not the only ways in which people can learn things for their jobs. In fact, restricting someone to only these methods of learning would severely impair their ability to perform well. This is why simulations and tutorials are necessary to provide individuals with the experience that they need to do well.