

## Impact of ICT on the way Students do things at home and at school.

In this report I am going to describe and elucidate the effectiveness of some of the ICT technologies in my personal, social and work-related life. Some of the technologies which I use include **Storage media**, such as DVDs, CDs, Zip disks, Portable hard drives, and floppy diskettes. **Communication** – mobile phones, video conferencing – is another form of technology I utilize everyday. Another technology I will examine is **Data Capture**, examples of which are digital cameras/webcams, scanners, voice recorders/microphones. Finally, I will discuss the most common use of ICT technology, **Entertainment** – for instance, games consoles, mp3 players and digital TV.

### How do the ICT technologies I mentioned above meet my needs as a student?

Firstly – **Storage Media**; devices such as portable hard drives and optical disks, are all used to carry physical data around with ease. For example, until very recently, the SmartMedia card was used on early digital cameras with capacities of 16MB and 32MB (then replaced by the Security Digital Card and MultiMedia Card which are physically smaller and can hold more data). CDs can take data, or music to play on stereos etc. They hold a maximum capacity of 700 megabytes. DVDs (Digital Versatile Disks), however, can hold huge capacities ranging from 4.7 – 17 Gigabytes/GB (1024MB) of data and most obviously, DVD images can be written onto it. Portable hard drives come in various forms and in various capacities – ranging from as low as 64MB to 2GB. USB (Universal Serial Bus) drives, flash drives, keychain drives, pen drives, etc. These act as an external drive on PCs, and are very handy to carry data around, a quick “plug and play” device. It has far superseded the usage of floppy diskettes; for its portability, high speed transfers, and advantageous storage capacity. Now that technology is further developing, most devices like mp3 players, printers, mice and keyboards are built with a USB 2.0 Interface and modern motherboards come with at least 5 USB ports nowadays.

Floppy Diskettes have rapidly declined in use, after have being dominated by the development of Portable hard drives. Being flimsy and easily corruptible, it has the capacity of 1.44 MB (only enough for a few pictures and documents) and so are inadequate for large or complex files.

On the next page I will display a table comparing different attributes of each storage media. The table will depict the advantages and disadvantages of each one compared to another.

Media Type	Cost	Storage Capacity*	Durability	Ease of Use	Portability
3.5" Floppy Disk	< £1.50	1.44 MB	Low	Easy	High
Zip Disk	£10.00 - £15.00	100 - 250 MB	Moderate	Easy	High
Thumb Drive	Varies; 512 MB* = < £25.00	25 MB - 4 GB	High	Moderate	High
Compact Disc	< £1.00	650 - 850 MB	Moderate	Moderate/Hard	High
Network Drive	Varies; 160GB = £96.00 - £110.00	90 MB	Great	Easy	Low

**Storage media** play a considerable part in my personal, social and school life.

**How the technology meets my Personal Needs:** Since I frequently have to transfer multimedia files to my laptop, burn programs and data onto CDs and watch DVDs at home, I **need** various forms of storage media in each case. Data-keys enable me to have a much quicker transfer, and are ideal for transferring reasonably large files rapidly and efficiently to and from devices. Also, when I have to back-up the system for a hard drive wipe, I **need** an external portable hard drive which would transfer the files in no time at all. If I did not have a portable hard drive, I would have to compile an immense amount of CD's to back up all my documents; I would use CD-Rs because CD-RWs have significantly lower burn speed; so I will have to waste a lot of CDs just backing up my system.

**Evaluating Personal Needs:** Although USB sticks are much faster and easier to use for transporting files from PC to PC, my old computer runs

on a Windows 98 OS and therefore I have to go through the hassle of finding and installing drivers from the web. Using CDs do not require drivers, and therefore are of a greater service in this case.

**How the technology meets my Social Needs:** For instance, if I would have to show a person a video (too large to fit in a diskette, yet too small to be spent on burning to CD) I would **need** a USB pen drive, for example, and be able to appreciate its Plug and Play system. I frequently burn music tracks onto CD; allowing me to use a stereo to play my music at leisure. If I had to compile a DVD to send to a friend elsewhere in the world, I would obviously use a DVD+/-R/RW. Without the USB drive, I would have to waste a CD-R, or use a CD/RW, both of which are time consuming and very unnecessary for a video of small file size for a CD.

**Evaluating Social Needs:** With the capacity of USB pen drives becoming closer to DVD-R storage size as technology develops, I am not only able to store music, pictures and small videos, but even full length movies and large programs; since transferring to USB is faster than burning on to CD, this proves to be extremely convenient and effective. ▲ Another benefit is that a USB stick would not snap in half like CDs tend to do when sat on. ▲ A drawback is that although I would like to watch movies on TV, the USB stick obviously doesn't allow me to do that. My friends usually have relatively small monitors so we cannot enjoy the movie experience as full as we'd want to; so the only option at the moment is to revert to DVDs to maximise our viewing enjoyment.

**How the technology meets my Work-Related Needs:** ▲ At school, I **need** to be able to do coursework in lessons and gather material that the teacher gives to me and take it home. Rather than using a floppy disk, which has very very limited space and is extremely prone to corruption, I would use a USB data-key. This would be better than using a floppy or emailing because I can write it onto the drive and edit it at my leisure. It is faster and quicker than emailing, and also has a very large capacity. I can update coursework and carry it to and from school with ease. Without the USB key, I would have to resort to email which can be a hassle since I might make small updates on my coursework throughout the lesson and keep having to re-send even once I think I've finished.

**Evaluating Work-Related Needs:** I can easily access my school work by transferring it from my user area at school through to my data-key

which I can then transfer to my home pc. Since I don't have to worry much about corruption, or portability, the USB stick is ideal for this type of work. However, a serious problem is that on the school computers, it usually refuses to "safely disable the device". Removing the USB stick without safely disabling it could very much easily lead to corruption of the data and in turn rendering the stick inaccessible and unreadable.

Secondly – **Communication** is a crucial part of my daily life, and there are several forms of communication which have developed and become an everyday trend. Mobile phones have progressively become smaller due to the advancement of technology to increase in standard and yet become small enough in size to cram into a 9cm x 4cm phone. During the past 10 years mobile phones have progressively become a familiar sight in the streets, and nowadays almost everyone has one. We receive and make calls using a phone to communicate, and gradually things such as the quality of sound has become better, people are able to communicate not just through SMS (Short Messaging Service) but through MMS (Multimedia Messaging Service) < invoked because of the uprising of colour screen phones and the ability to view multimedia. Furthermore, I can now send and receive email using my mobile phone, connecting to the Internet via GPRS (General Packets Radio Service).

▲ Advantages of Mobile Phones are;

- They are small
- ▲ble to pick up signal easily nowadays to receive calls and text messages
- Wide range of phones with different features
- Convenient and practical for emergencies and for business-related communication

Disadvantages:

- Radiation – Earaches, headaches even cancer
- Costs

▲ Another mode of communication which has evolved recently and grown to be a common sight in households is **video conferencing**. High resolution webcams have developed and become affordable for the general public. High speed internet connectivity is now widely available at reasonable costs, and as the cost of good video capturing devices has decreased, as a consequence, video conferencing has turned out to be quite a successful generation in **Communication**. Some good points about video conferencing;

- Becoming inexpensive, even as technology develops
- High speed internet connection at decreasing prices
- More leisurely than using a conventional phone – I can see the person and talk at the same time with better sound quality
- Saves us the time and money to collaborate at a conference centre – business meetings can be conducted over a video conference

Disadvantages:

- Lagging
- Echoes

**Communication** contributes to at least 90% of my daily life; personal, social, and work-related.

**How the technology meets my Personal Needs:** I regularly **need** to keep contact with the rest of my family in Sri Lanka. We all enjoy conversing via webcam, since typing English is much of a task for them and it is good to see each other once in a while. Video conferencing brings us closer together, and seeing my whole family brings great joy to me and my parents here. Without webcam, we would have to make expensive calls overseas, and we would only see them via pictures or when we actually go and visit in Sri Lanka.

**Evaluating Personal Needs:** I am able to see how my relatives are and see what they are doing in real time - as well as talk to them. ▲ problem with this is if I'm trying to have a video conference with my relatives in Sri-Lanka; they have no access to a broadband connection, which therefore affects both computers since it will take them longer to receive frames, and longer to send frames to me. Basically, this hinders the maximum potential experience I could have.

**How the technology meets my Social Needs:** I usually go out with my friends on a Saturday. Naturally, I **need** to be able to inform them and confirm whether I am able to come, where to meet, what time, etc. This is where my mobile phone comes in to play. I use SMS to text message my friends while I am on the move to let them know I am on the way, and if I'll be late, etc. Text messaging is more reliable than calling because it is irritatingly frequent that my friends do not have reception, since most of them are on the T-Mobile network. However, when arranging the actual outing beforehand, I elect MSN Messenger instant messaging service to discuss and inform all my friends – this is because I can invite everyone to a chat conference and simultaneously communicate to them. This is more practical than calling/texting them one at a time and squandering money.

**Evaluating Personal Social Needs:** Although calling and text messaging my friends is a very useful and practical way of communication, the costs are frustrating. It is hard to find a good provider with good reception, and the cheapest rates for texts and calls. Since I don't have a tariff contract (I would gain "free texts" and "free minutes") I must top-up my phone, which aggravates my parents because of the rate at which I use up my credit.

**Work-Related:** At school, I **need** only to use my mobile phone in an emergency; usually if I'm in detention I call my home subsequently to inform my parents of my lateness. Other situations could be if I forgot my P.E. kit/coursework, my mum would come and drop it off for me if I SMS her. If I did not have my mobile phone, I would have to use the school's payphone, which is usually broken, and if not; I would have to look for spare change which I need for buying lunch.

**Evaluating Work Related Needs:** My mobile proves to be a critical communication device for me in case of an emergency – if I am on the bus or train, there is no other way of letting my mum know where I am without my mobile. Nevertheless, if the phone battery dies, or I am out of credit, I wouldn't be able to call or text home in an emergency.

▲ further ICT technology I will explore is **Data Capture**. Things such as digital-cameras/camcorders, voice recorders, all fall under this category. Data capture is used to "capture" data, in different forms such as still images, or just sound. The data is usually recorded on internal memory, but in cases of voice recorder devices and camcorders, tapes are used and the data is magnetically transferred. Digital cameras nowadays use a Secure Digital card (SD Card) which is now universally used, with a quick read and write speed, and capacities ranging from 32MB to 2GB. These cards are used in mobile phones too (not SD, MMC – they are similar although the SD is thicker) to store media, which can then be viewed on PCs with a media card reader (basically a USB device with slots for different media cards – nowadays computer come in-built with them) at leisure. It has replaced the physically larger, more delicate and smaller capacity SmartMedia Card). I use this technology practically everyday – taking digital photos, recording clips on camera and voice clips on the microphone.

▲ Advantages of Data Capture technology;

- Video capture – CCTV (Closed Circuit Television) which is an indispensable security tool
- ▲ Able to record/capture important moments/events...

- ...Helping with many things such as fighting crime, determining machine faults, family moments to remember, etc
- Easier to contact and keep in touch with friends

Disadvantages:

- Costly to buy digital cameras and camcorders
- Lots of different specifications to look out for when buying leisurely data capture tools like voice recorders and digital cameras

**Data capture** assists me during school, at home and in my social life constantly.

**How the technology meets my Personal Needs:** I **need** to catch important events and memorable moments on video or as still images; for example, birthdays or anniversaries. I have recently video recorded my little cousin's 1<sup>st</sup> birthday and transferred the video to PC. After editing the video, I could send the video to my relatives in Sri-Lanka via email; they would be able to view it since the video is recorded straight to the SD card in AVI format.

**Evaluating Personal Needs:** Although the conventional camera with film roll is ideal for pictures to develop straight away and put away in a photo album; a digital camera gives us a wider range of choices as well as the choice to have our pictures developed anyway. I can transfer pictures on to the PC and edit them as I please with a program such as Adobe Photoshop, and then have the pictures developed to my liking.

**How the technology meets my Social Needs:** I **need** a video camera to create and edit videos of my mates and I skateboarding/bmxing. This is to send them to my friend in Hawaii and also for other people to see on our website. The camera I use uses tapes to record, and so the quality is very high when viewed on TV. If I did not have the camera, my friend in Hawaii wouldn't know a thing about what we're up to.

**Evaluating Social Needs:** Although a conventional camera which records on tape would produce a much higher quality video and also allow me to pause and continue recording; they cost much more, especially the ones with PC connection capabilities. The camera I use now cannot be connected to the pc to be encoded to AVI files. The AVI format is universal and playable on almost any computer. So what I would have to do is record the tape onto a video cassette and send it via post to Hawaii which is expensive and time-consuming.

**How the technology meets my Work-Related Needs:** I occasionally have sciences lectures for chemistry at school. For these lectures, I **need** to use the voice recorder on my mobile phone to record vital information I may need for the future at school. The microphone on my phone is very powerful under the circumstances, and encodes each recorded file into an **AMR** format. I can then transfer these files onto my home pc and listen to them at leisure. Without my phone I would have to scribble down notes in my exercise book, which is time-consuming and inefficient – I would also be very likely to miss out on key parts of the lecture.

**Evaluating Work-Related needs:** Using a voice recorder helps me significantly; it removes the need for me to write everything down, and allows me to refer back to it later. **A** drawback to it is that the quality of the recordings on the phone isn't very high-standard, and sometimes can become terribly unclear depending on where I'm recording from, even though it can pick up the sound.

My final ICT technology to discuss is ones used for **Entertainment**. Examples for entertainment include; games consoles, mp3 players, and digital TV. Now it is clearly evident that entertainment technology is everywhere, all the time, around us. Now as technology is rapidly developing, we have reached a 3<sup>rd</sup> Generation for console gaming, with the Microsoft Xbox 360 being released, Sony's PS3 and Nintendo's Revolution. **As** High-Definition TV has been introduced, the new Xbox have used HD-Disks, which support HD TVs and enable the user to enhance their experience visually if preferred. New storage technology such as the Blu-Ray DVD for PS2; while being more expensive to produce than the HD-DVDs, they still support High Definition and hold a exceptional amount of space – up to 54GB (this is possible because the Blu-Ray disc has two layers, not one layer like a normal DVD. Currently, 100GB and 200GB capacity discs are being researched – these discs have 8 respective layers).

There has also been an evolution in handheld console gaming; with the Sony PlayStation Portable (PSP), and the Nintendo DS, which possess a phenomenal GFX (graphics) engine, competing with the Sony PS2; not to mention the touch-screen access and Wi-Fi capability. The Sony PS3 is said to have Bluetooth wireless controllers, for convenience and luxury. One can agree, though, that hand-held gaming has proved to be far more of a revolution than that of the games console, and has exceeded imagination by a great amount. Both hand-held and domestic consoles have far surpassed expectations in terms of graphics and access.

I will now name some advantages for games consoles;

- Hobby for children and adults



- Gives the public a general idea of how technology is developing
- Backwards compatibility with games from its predecessors

Some disadvantages:

- Costs
- Some wanted games not available for all console platforms
- Theft of handhelds

MP3 Players have been on a major up-rise since the release of Apple's iPod. Subsidiaries of giants like Samsung started releasing minor 512MB capacity MP3s in forms of a flash drive, and gradually as technology progressed, capacities rose from 512MB to 1GB, and then other companies such as Creative and iRiver started battling with the iPod (as it was the only 20GB+ MP3 player around and had quite an impact). Sound quality was dominated by Creative, while ease of use was perfected by iRiver which acted as a portable hard drive (Plug and Play) and files could be read and written quickly as another drive in explorer. This was much easier than installing a program such as iTunes and separate drivers to transfer files – this would make collaboration extremely hard unless it is at home. Access ideas such as a touch scrolling pad, joysticks, etc began blooming, and as time went by, there was a much wider selection of media players with colour screens, image viewing and video playing capable. Other features are an in-built radio and a high-quality voice recording system. Different capacities such as 5GB and 10GB – all the way to 100GB were released to suit the needs of every customer. Even at present, the MP3 player market is booming; now with the recent development of MP4 players (a colour screen interface with video playing capabilities).

Advantages of MP3 players;

- No bulky CDs to put in, just transfer MP3/MP4 files and listen
- Rapidly becoming cheaper
- Huge capacities
- Data Storage

Disadvantages:

- Flash drive can become corrupted if not used correctly when transferring files
- Too much choice, hard to find the right one
- Theft
- Provokes illegally downloading music (bad for artists and record companies)

**Entertainment** is most probably the biggest ICT technology in my life.

**How the technology meets my Personal Needs:** At home I **need** to unwind from time to time between my studies and usually I watch TV at pre-designated times to watch the programs that I like. Watching TV lets me relax on the sofa and laugh at comedies and even learn more. Without TV, I wouldn't be able to catch up on news very effectively.

**Evaluating Personal Needs:** When channels aren't broadcasting my favoured TV shows, or the particular series is finished, I would have to search for other shows – since I am restricted to only 5 channels, I don't have a broad choice. Also, when I miss one of my programmes, there is usually no repeat the next day, so once I've missed it, it's gone.

**How the technology meets my Social Needs:** Usually when I go to my friend's houses, I bring my own music so that we can listen. This means I **need** my MP3 player. An MP3 player drastically reduces the carrying load (instead of a CD case with all your albums, quite plainly it is easier to carry a small device roughly the size of a bubble gum packet) and also provides a higher capacity than a CD in most cases. It takes much less time to put mp3 audio files onto a Plug and Play system MP3 Player than to compile an audio CD (which also needs a computer or stereo to play on) which has a limit of 80 minutes per CD regardless of how small each file is.

**Evaluating Social Needs:** Although most people have computers; CD players/stereos are pretty much universal. MP3 players are useful to a certain extent - they enable the quick and easy transport of music, but for example at a disco or at a friend's party, you're most likely going to use a disc jockey system or stereo than choose music on a PC and play it through the speakers. Therefore, CDs are the prime choice here.

**How the technology meets my Work-Related Needs:** In my ICT class, there is usually a lot of noise and distraction; it is here where I **need** my MP3 player to help me concentrate on the work at hand. The music soothes my brain and blocks out the sound outside, and in turn makes me work to the best of my ability.

**Evaluating Work-Related Needs:** I would be able to use the school's system to listen to music but not everybody would appreciate my styles of music; also, some lessons such as English or French would render me incapable of listening to the music without the use of my MP3 player. One problem is battery life; the battery life of my MP3 player depends on the volume of which I listen to my songs on. I tend to listen at the highest volume possible, so the battery life will generally be low; it will cost me a considerable amount of money to get a rechargeable ion lithium battery to suit my MP3 player.

**Evaluate the extent to which the ICT technologies I use for my activities meet my needs:**

**Personal:**

At home, I need to use storage media to transfer data to my laptop since I have yet to purchase a wireless network router. I use USB pen drives to do this and also my MP3 player as it is also a Plug and Play storage device. This helps me to a great extent, for example when I want to move audio/video files, or possibly relatively small programs. However, when I want to move things like DVD movies which are at least 1GB in size, or PC video games, I would need a CD/DVD/external hard drive which would both be money and time wasting. The best decision to make here is to transfer via a network connection. When using data capture devices such as a digital camera/video camera which store the data on SD card, I need to dock either digital camera or other device and connect to the PC via USB if I want to transfer and/or view files. This can be hassling and having to switch USB cables all the time is annoying. When I am not at home this would be frustrating, because I wouldn't have a media card reader with me which would logically be the best option to take since it supports all SD cards.

I use entertainment at home such as a Sony PlayStation 2 games console, and watch digital TV to pass the time and enjoy myself, but I get annoyed and fed up when my games get boring and my favourite TV shows are not on.

**Social:**

When I'm out with my mates, I use an SD card for my PDA or an MMC card for my phone to capture data and enjoy other activities such as browsing the web on my mobile/PDA when a wireless access point is within reach. Usually I use my mobile phone to record videos to then transfer, edit and send to friends – though the quality is not as good as it would be with a real camcorder – the only problem with the camcorder is that lacks the portability of a mobile phone.

When I want to give friends files such as audio/video programs, sometimes they exceed the file size limit of attaching via email – not to mention the file type extension restrictions. Uploading the file(s) onto a free server would be far too time-consuming – so a portable hard drive or CD would come in handy. This would only help to a certain extent, because; if I wanted to write it on CD, I would rather use a rewritable one as to be able to re-use it. The problem with this is, I wouldn't know whether my friend's optical drive supported CD-RWs (not all drives do),

and I would not be able to find this out without asking them directly. Additionally, if I use a portable hard drive, namely a USB flash drive with a capacity of at least 256MB I wouldn't know without asking if he was using Windows XP (USB drivers are pre-installed) or any other OS with pre-installed drivers.

MP3 players have a limit on what can be done to them. For example, a player which doesn't use a flash drive (Plug and Play) must have a CD to install drivers and necessary programs to access files on the hard drive. This is very limiting, because while you are able to freely change things at home on your MP3 player, if you're at a different location with another PC – which doesn't have the necessary drivers and programs – you wouldn't be able to read/write files on the hard drive.

### **Work-Related:**

At school, I use storage media frequently to save files for reference at home. This helps me greatly when I do homework, and enables me to put into use the skills I have with many programs on my home PC. However, the drawback to this is, sometimes the school computer might not support certain parts of files e.g. If you encode a movie in .avi (Audio Video Interleaved) with a DivX codec, and the school PCs don't have the DivX codec in their system, you won't be able to play the file (in some cases sound can still be heard) and the only way to obtain this information beforehand is to check personally.