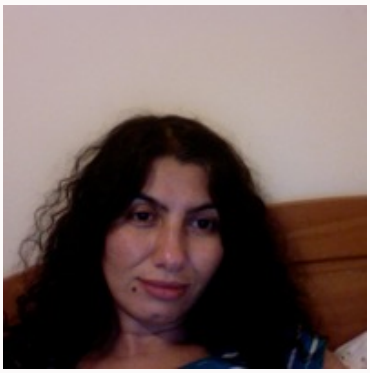
ISSN 2053-5104

ICT in Practice

Issue 17 / Spring Edition April 2017

Editorial



After a short break, it is great to share issue 17 of our magazine with you. We would like to thank everyone who has contributed. In this issue we welcome Maggie Morrissey, who will be sharing her experience and wisdom with us in her own special corner. Maggie is a very experienced educator, specializing in science education and the use of technology across the curriculum. We are very fortunate to meet with fabulous educators with interesting ideas from around the world. We share with you a great article about film in education by 'A Tale Unfolds'. I have attended many CPD and teaching sessions run by Dominic Traynor and his team from A Tale unfolds and I can simply say that they were fantastic. Not only have I gained an understanding of developing children's literacy skills through making films, but also learned about their great resources that can be used across the curriculum. If you haven't explored their resources please visit https://ataleunfolds.co.uk/resources/ so that you can and start your filming adventure.

In this issue we are reaching to a community space in Payas, Hatay, in Turkey. They set a great example of how a small local council can make a difference in young people's lives by providing exciting learning opportunities for all. We are also sharing the news of the EdTech Summit from Istanbul. I was lucky enough to be part of this exciting event in both 2016 and 2017, which gave me the opportunity to meet some very enthusiastic educators from around the world. It was magical!

I hope that you will find the articles we have published interesting and be able to try some of the ideas in your own practice.

Remember, the more we share, the more we learn!

Yasemin Allsop

Editor

Contents

The power of filmmaking in the primary classroom

Digital technology has transformed the face of filmmaking; award-winning movies can now be shot entirely on an iPhone and published online in no time at all. So in an age where filmmaking opportunities are so accessible, why aren't we using them more in the classroom?

To consider this question, we look to A Tale Unfolds - a social enterprise (and team of teachers) striving to raise literacy attainment through a range of school filmmaking projects. Their resources are now used in over 3,000 schools, both in the UK and internationally. Dominic Traynor, the company's founder and a former primary teacher, discusses the far-reaching impact that a digital goal can have on pupils' attainment.

Bringing literacy to life

In an age where the Internet has overtaken television as the top media pastime for the UK's children, it will come as no surprise that the introduction of digital technology in the classroom generates an immediate buzz. But make no mistake - this is not about technology for technology's sake. Combining digital filmmaking tasks with traditional literacy objectives provides children with a clear, purposeful end-goal to aim towards. More so, it enables them to appreciate that the creative process of writing – the planning, drafting, editing and revising – is integral to the quality of that end-goal.

Teacher Adam Mitchell recently completed a movie trailer project with his class based on their topic of WW2. He was struck by the sense of ownership his pupils demonstrated when given the responsibility to create a poignant war story with an audience in mind:

"I've used film and video in class many times before, but the reason this project worked so well is that they were the storytellers, the experts. They knew that in order to do justice to the stories, they must feel real, not like the recount of a child. This became the driving force behind their truly incredible writing. From a literature purist's perspective, the students still needed to understand how to manipulate a viewer's emotions and responses, portray feelings, build suspense and logically structure a narrative. The link between traditional and digital literacy was made obvious from the start."

It's clear that personal investment in a project will promote academic progress, but the scale of that progress is remarkable. Schools have reported that literacy attainment has tripled through the use of filmmaking projects. Tom Keene, a Year 4 teacher from Fairfield Community Primary School, revealed that on completion of an 8-week action movie project, some pupils were more than halfway towards their end-of-year writing targets.

https://vimeo.com/208101055

Developing skills beyond academic

Aside from being an academic motivator, filmmaking develops a wide range of social skills that are integral to success in the wider world. Children collaborate by assuming different roles – narrator, director, cameraperson, actor – all of which have a significant part to play in the overall success of the film. By discussing, debating and rehearsing ideas within mixed groups, they establish purposeful opportunities to hone their speaking and listening skills – an aspect of the curriculum that can sometimes be overlooked.

"I've been extremely impressed," says Kenny Bartonshaw, a Year 5 teacher at Kingsland Academy, "not only by the standard of work created by the children, but the positive atmosphere and relationships that have been formed and developed as a result. It's had a really positive impact on their character".

The very nature of digital filmmaking (where challenges and setbacks are inevitable) promotes a culture of problem solving, with perseverance and effort recognised as key factors to success – less so 'talent'. Pupils who may have previously struggled with writing tasks are able to express their creativity in an entirely new way. The confidence and resilience developed through these tasks also encourage the formation of a growth mindset (Dweck, 2006), a concept that has gained huge momentum within schools in recent years.

Filmmaking to inspire positive change

Filmmaking certainly enables pupils to weave a narrative, but on a more powerful level, it also helps them to recognise that their own voice has the ability to inform, to educate and to change opinions.

The often thought-provoking themes that children explore during the filmmaking process can strike a chord within the school community long after filming has been completed. Projects such as Pupil Prime Minister, written and filmed with the former Labour government's defence minister Peter Kilfoyle, have empowered children to become more politically active; writing manifestos and performing political party speeches by thinking about issues in their society - issues that really matter to them.

Children at Tubbenden Primary School in Kent recently produced this film to highlight the significant environmental threat of plastic pollution and suggest innovative solutions to tackle the problem. Teacher Laura Venn remarked on the impact that their Plastic Times project had on both pupils and the wider community:

"*What began as a filmmaking project developed far beyond our expectations, igniting a united passion amongst the children to make a positive change for our future. The destructive effect of plastic pollution is a topic that the children in our school will not forget. As teachers, we're hoping that we've helped shape the future attitudes of a small number that might lead to positive change in wider society.*"

It doesn't end within the classroom

The foundations of a school-parent partnership no longer hinge on the success of parents' evenings and school reports. Many classes have already created Twitter accounts to post regular updates direct from the classroom, and with platforms like Vimeo offering secure and password-protected accounts, sharing a video link with parents couldn't be easier. This channel of regular communication is beneficial to all parents, but particularly those who – for any number of reasons – aren't always visible figures at the school gate.

Digital achievements merit school-wide celebrations too. Tom Keene's Leicester-based class held a screening of their action & adventure movie for over one hundred parents. Tom says, *"The huge smiles across the children's faces as they watched themselves was a joy to behold. This is what teaching is all about".*

With a unique movie inspired by their hometon's historic Premier League title win, Tom's class even wrote to club ambassador and football legend, Alan Birchenall, and were delighted when he wrote back commending their production.

Motivated by the efforts of classrooms up and down the country, A Tale Unfolds recently founded LitFilmFest, a one-day celebration championing the writing and filmmaking achievements of Key Stage 2 primary pupils at the BFI IMAX in London. The cinematic showcase, which takes place on Monday, June 19th, invites winning schools to shoot their films professionally and then watch their efforts brought to life on the biggest screen in the country.

Teaching literacy through filmmaking – how to get started

It's apparent that, with only 25% of teachers strongly agreeing that they feel able to prepare pupils for a digital world (Ipsos MORI/BT), technical confidence remains a sticking point within the profession. However, as educators, using technology really does enable us to model learning, by simply being at ease with not knowing everything in front of children. Instead, we can provide opportunities for them to find answers for themselves. The simple use of a tablet is all it takes to get going, according to Tom:

"The beauty of this project is its simplicity. You could easily assume you need to be a media expert to make it work but the truth is completely the opposite. The filming is achievable with just an iPad and the editing is simple enough too. Yes, it's true that our final film could have been more 'polished' but I honestly think part of the charm of it is in its rough edges."

To consider filmmaking with your own class, the first step is to explore the range of projects available at A Tale Unfolds, all of which come with comprehensive planning, video resources and technical guidance (written by teachers themselves).

Person Profile Trailer is one of the shortest and simplest resources to start with, and an ideal springboard to some of the lengthier options. Over the course of 5 hour-long lessons, pupils create and describe a character of their choice, focusing on appearance, personality and behaviour using the "show, don't tell" technique. After drafting descriptions and rehearsing stances, they bring their characters to life on camera, with use of the iMovie 'Retro' trailer template.

Throughout the entire process, teachers are welcome to share updates and photos of their pupils' efforts on Twitter to *@ataleunfolds*, who are always more than happy to offer encouragement, guidance and support along the way. Once completed, films can be entered into LitFilmFest any time up until the closing date of Wednesday, 17th May.

Louise Lacaze, a teacher at St Joseph's Primary in Aberdeen, is currently working on a film trailer project with her own class: *"We are loving the whole project. The children meet me in the corridor to ask if we are filming. They're writing in small bursts, with such focus, trying so hard to capture their characters in a way they have never done. They are desperate to make a good trailer, so they put the time and effort into making their group work well together. This is a powerful motivator."*

***For more information on filmmaking opportunities in the classroom, visit www.ataleunfolds.co.uk/resources. To discover the one-day showcase at the BFI IMAX in June, open to all KS2 classes, visit www.litfilmfest.com* or check out this short film for further details.**

Camp x Code Week EU

by Charlie Beeson and Angela Branaes

We had the pleasure of running a Code Camp here at Man AHL during CodeWeek EU. Working with NextTechGirls, 11 teenagers from Morpeth School, Haberdashers' Aske's School for Girls and St Albans Boys School got the opportunity to spend a week learning about technology, finance and office life.

The students got to learn about Agile Development methodology by taking part in our daily standups. By participating in an interactive trading game, they gained a basic understanding of the stock market, and they got an insight into the Man AHL Coder Prize, an annual coding competition we run here at Man AHL for students aged 16-25 from across the EU. We are looking forward to receiving their algorithmic solutions to this year's HiveMinder competition!

During the week the students had the opportunity to submit questions to an anonymous Q&A ballot box. We were very impressed with what they asked; "why can't computers program themselves?" and "what are the biggest threats to the Internet?" We also provided explanations of buzzwords from the media such as "The Cloud", "Artificial Intelligence", "Machine Learning" and "Big Data".

The majority of the week was spent teaching the teenagers how to program in Python, how to test their code, and how to make a great website they could show their friends, using javascript, html and css. The teaching workflow was streamlined using PythonAnywhere's student/teacher mode, allowing us to easily push lesson code to all of the students' laptops. Most of the students had no prior programming experience, so we started gently; progressing from a session of "thinking like a robot" to creating some pseudo-code, to a fully coded anagram solving function in Python. This eventually evolved into scrabble word solving.

We introduced them to algorithms; using a dictionary to demonstrate binary search and playing cards for sorting, culminating with giant letters to come up with an anagram solving function. We were very impressed at how well they all solved the challenge! Once the students had a good understanding of the scrabble anagram, we went on to code it up using a Test Driven Development approach. This made sense to them as they could then write code to make each of their examples pass, which mirrored the way they had come up with the algorithm in the first place, and enabled them to more confidently make changes to improve their code.

These lessons served to give them an understanding of how Python programming worked, and what a function and an algorithm were. The approach of demonstrating a code snippet on a big screen and then giving them time to play around with it on their own seemed to work really well. It was very interesting teaching them about functions and variables, as the explanations that made them grasp them varied wildly. It was also long enough since any of us learned programming that we had forgotten that functions might be a difficult concept to grasp initially! Some understood it through parallels with maths functions, whilst others found the concept of it being a re-usable box the easiest to grasp. By the time we reached the web programming sessions in the latter half of the week, students had mastered a fundamental understanding of how Python, functions and variables worked, and had fully functioning code.

The first web session started with a brief 20-minute lecture on how clients and servers talk to each other, and how HTML, JavaScript and Python fit together for this purpose, before diving in with the practical work. Despite these lectures being laid out to have a large amount of learn-by-example and walkthroughs of the tasks, the students needed more help than anticipated here. This was largely because we had not allocated sufficient time earlier in the week to cover all of the basics. We should have spent more than 20 minutes explaining how a website works, how HTML, JavaScript and Python fit together, and should have dedicated some time to explaining the differences between Python and JavaScript. One of the most confusing concepts, which we hadn't even registered in the planning phase, was brackets vs indentation. These are all recognised as difficult concepts for beginners to learn, something we had forgotten in our eagerness to teach them a lot of cool tech knowledge. We were therefore incredibly impressed at how quickly they picked up Python programming and web development, and how well they got on with making their websites. They particularly enjoyed the CSS part towards the end, and decorated their websites with funky colours, pictures and additional end-to-end functionality, practically without any help from us. It was thrilling to see them all getting stuck in by themselves.

At the end of the week we ran a retrospective with the teenagers. We were slightly worried that not much would come of this, as they had all been a bit shy during the week, but it worked fantastically. We uncovered a lot of things that they had really enjoyed, and some things they wished we had done differently. A good balance between what went well and what needed work was struck by requiring 3 good and 3 improvement points from each student.

Thanks to the retrospective we know that the next time we run the Code Camp we will ensure that we put more ice-breaker tasks early on in the week, and spend more time explaining the fundamental concepts of how and why things work the way they do. It was great to see all of the students speaking up and asking questions by the end of the week, we really saw their confidence grow. We will definitely run the anagrams and the web sessions again, as everyone felt as though they had learned a lot from these, and had had a lot of fun making something that they could take home to show their friends. They also found it interesting to take part in our stand ups, and really enjoyed our office atmosphere.

My favourite session was the introduction to python programming as well as the overall anagram project as it provided me with a lot of information on coding, moreover it was extremely fun and interesting. – Foosim Van (14), Morpeth School

Last but not least, did we succeed in inspiring some of the teenagers to continue exploring technology? After we held a talk about studying computer science at university, several of the students wanted to know more about the subject, and are now thinking of applying. When asked if they would continue working on their websites after the Code Camp was over, the majority overwhelmingly said yes. Most of them also said they would like to continue learning more about the languages they were taught during the Code Camp week at Man AHL. A fun and educational week was had by everyone involved. We are already looking forward to next year!

Physical computing for fun and interactive learning by Yasemin Allsop

Since coding has been included in the curriculums of many countries in recent years, there are many programs and apps that have became available for teachers to use for teaching computational concepts. It is clear from my conversations with class teachers and interactions in online communities that many of the educators are now aware that facilitating learning when children are coding is more than just providing them with an instruction sheet. Teachers around the world are exploring ways of introducing Computer Science (CS) concepts and approaches to children in a fun and interactive way.

Physical computing where CS meets electronics became very popular amongst educators who wanted to provide a space for their learners to explore computational ideas in a creative way supported by constructionist approaches. Physical computing simply refers to interacting with physical systems or objects from the physical world using programming. One of the most important benefits of physical computing is that it allows children to see how physical devices can be monitored and controlled by a microprocessor. Furthermore, it provides educators with a unique opportunity to integrate activities that will support learners to develop their skills and knowledge in many disciplines. This approach of connections between different curriculum, disciplines, knowledge and practice would surely provide learners with a more authentic and in-depth understanding.

So the questions that we should especially discuss with our learners are:

How do we interact with computers?

The examples of this can be found in our daily lives. How we use a remote control to select the programs we watch on TV, selecting the correct settings for the clothes by programming a washing machine, how we operate a lift and so forth. This also helps children to see that computers are not just desktop PC's.

How computers interact with the physical world around them?

When discussing this question it is important to start with input and output devices as computers wouldn't be able to interact with the world without these. One of the more interesting examples for me is motion sensing-lights. Many times when we did not move around, the lights where I teach suddenly switched off. Then we start running and jumping around to switch them on. It is quite funny especially when your students are adults. There are many devices that are available, such as Raspberry Pi, that would allow you to design your own motion sensor.

Some tips for planning and teaching Computing Lessons including Physical computing

When planning and teaching computing lessons there are some important elements that should be considered. It is important to remember that how good our teaching will be, depends on how well the lesson was planned. We need to make sure that we look at each learning situation individually and structure our activities to meet the needs of our learners. This includes supporting not just those who need extra support to complete their tasks and meet their objectives, but also for those who exceed their targets and will benefit from undertaking extended learning opportunities. Below is some brief information about some principles that we should follow when planning and teaching effective computing lessons.

Having a secure subject knowledge, not just of what has been taught, but also the tools that are used is vital. Experimenting with the tools that will be used during the sessions, just like children, will help teachers to understand the thinking and learning

process that children go through and identify any issues or misconceptions in advance.

Being aware of pedagogical approaches that work well in different situations especially when learning with, through and about technology will support teachers to adopt appropriate teaching strategies. This will also be useful for teachers to analyse the role of the learners and how this relates to the role of the teachers as learning will be shaped through the students' interaction with their peers, tools and teachers.

Designing learning experiences that provide opportunities for the learners to develop and apply transferrable skills such as problem solving, creativity, communication, critical thinking, collaborative work and technology skills. These skills can aid the process of developing deeper learning that can prepare students for more complex learning situations and their future life.

Adopting a flexible learning space approach for children to be able to move around and discuss their works with their peers. After many years observing children during technology lessons, we found that they enjoy talking about their work and finding out what others are doing. It is important to allow the children to move around and discuss their friend's work, make suggestions or ask for help. This would help the students to feel comfortable within the learning space, rather than being restricted which can be very motivational. It would also help them to evaluate both theirs and their friends' work, which would help them to monitor their own learning.

Focusing on cross-curricular learning where possible. Planning and teaching computing in a context that is relevant to the children's learning in other subjects will make learning more engaging and memorable. It is useful to create a cross-curricular idea map to help you with planning.

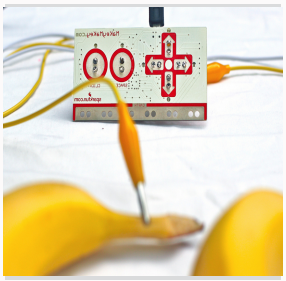
Ensuring that **health and safety regulations are** followed. When using tablets in class and other physical systems that may require a different arrangement and management of the classroom. For example we need to consider issues with when plugging Raspberry Pi's or Makey Makey's or any other tools and how we would handle them.

E-safety issues and how these would be integrated into a lesson need to be clearly identified. We believe that E-safety should be included in every lesson to emphasise the specific concerns related to the topic studied. If children are learning about blogs then online safety can be discussed as part of the session so that the children will remember it when they work on their blog. Teaching about the dangers of the Internet and how to manage its risks in a context will help students to learn to use technology in a responsible way.

List of devices that can be used for physical computing

There are so many devices that are already available on the market and every day I see a new device on indiegogo.com. It is very difficult to decide which one is actually suitable for your class. I think that there are couple of points that might help you to decide before investing in one of these.

- Cost
- Does it have a scheme of activities to start with
- Any examples videos of how it can be used in lessons?
- Is it appropriate for your purpose?
- Can it be used in groups, as purchasing one for each student can be very expensive?
- Does it allow you to combine concepts from different subjects?
- Does it provide possibilities for creative thinking and design? Creating pre-set designs from an instruction sheet is not going to provide a rich learning experience.



Makey Makey

Makey Makey is a device that means we can make our own input devices for the computer, for example you can replace the arrow keys on the keyboard with bananas. It is important to discuss what property does the banana and the people have that makes this possible?

Cost: Around £40 - £50 each

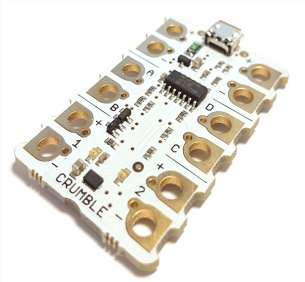
Website: http://www.makeymakey.com

Arduino

Arduino is an open source platform consisting of a programmable circuit board and software that allows you to write and upload your code to the circuit board. It is great for science and electronics projects. Arduino Integrated Development Environment (IDE) based on C++.

Cost: Around £20 each

Website: https://www.arduino.cc

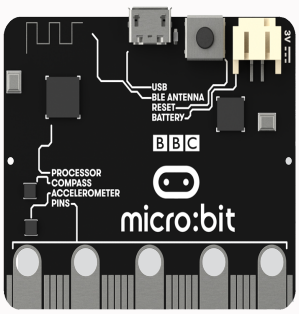


Crumble

Crumble is basically a programmable controller. It drives 2 motors forward and backwards at variable speeds, which makes it perfect for creating cars and robots. It also has 4 input and output pads that allows you to work on projects using switches and LEDs. The Crumble software is inspired by Scratch and it works on PC, Mac or Linux environment.

Cost: Around £22 each

Website: http://redfernelectronics.co.uk/crumble/



Micro:bit

Micro:bit is a compact programmable computer. It has motion detector, LED display, built-in compass and Bluetooth technology. It has its own software that can be accessed via PC or tablets.

Cost: Around £20 each

Website: http://microbit.org

Raspberry Pi

Raspberry Pi is a credit card sized computer that allows you to learn programming through fun projects. It promotes Scratch and Python programming languages and also includes a special edition of Minecraft. Their website has amazing activity plans that can be used for teaching students at all ages.

Cost: £35 each

Website: https://www.raspberrypi.org

Sphero sprk+

Sphero sprk+ is a small robot that promotes creativity and curiosity through projects such as mimicking the solar system, programming a painting etc. It has a space called Lightning Lab where you can collaborate with users around the world.

Cost: Around £100 each

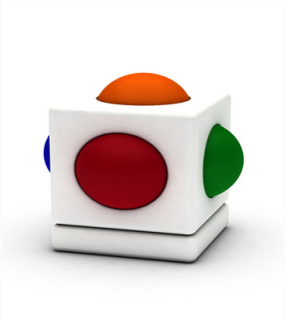
Website: http://www.sphero.com/sprk-plus

Dash and Dot

Dash is a robot that responds to voice, dancing, singing and navigating objects. You can use Wonder, Blockly and other apps to program Dash to do different things. With the xylo app you can program Dash to play a song.

Cost: Around £150 each

Website: https://www.makewonder.com



Skoog

Skoog is basically a musical instrument. It is designed for inclusive music making, enabling children with SEN to experiment with sound expressively. It connects to iPad via Bluetooth and comes with its own app.

Cost: Around £200 each

Website: http://skoogmusic.com

EdTech Summit 2017

Introduction

The Educational Technology Summit Executive Committee and the Organization Committee held an invaluable and highly successful summit for the educational world. The educational improvements implemented during the past year in Turkey have been reviewed with the "2017 Educational Technology Summit Report". The results of these improvements have been analyzed by experts. This article aims to highlight their "Feedback", which is needed for further developing our national education system.

It has become apparent that there is a need for carrying out in-depth reviews of recent developments and using the findings over the coming years to enhance our educational system. The educational developments both nationally and internationally were explained by the speakers from different perspectives, and then discussed in detail. Participants endeavoured to solve issues with development-oriented recommendations.

We believe that the problems of the Turkish education system will be resolved with a concerted effort from both the concerned institutions and individuals. The Educational Technologies Summit, which is one of the oldest in the field of educational technology, takes this into account. It is our duty to make it easier for everyone both in our Turkey and in the world to have fair and qualified education. When we do this, we hope to help the decision makers and all stakeholders who are trying to fulfill this important task. We are grateful to all the experts and academics that have been involved in this study.

"Qualification" is a term which is used gradually at the top of the concepts that different segments of a society use to assess their lives. Despite its statements on investment and priority, the fact that the education system has not caught up with the growth curve that it desires, necessitates a quality assuring analysis to be carried out in a multifaceted way.

The happiness of children is the happiness of society. We wish for 2017 to be a year of educational experiences surrounding society on the basis of happiness.

Educational Technologies Summit Program

The 4th Educational Technologies Summit, supported by the experts in their fields from around the world, was held at the Şişli Radisson Blu Hotel on 4th March 2017 with an active participation. ETZ 17, had "A Journey to Magic" as its motto this year. It provided the participants with inspiring speeches and workshops, which attracted a lot of intense attention.

The Bosphorus Ball where both opening and closing speeches were held provided the audience with opportunities to gather with more speakers as it could be split into half. Although the summit had an agenda that was approximately 9 hours long, the participants stayed and used the hashtag #ETZ17 actively on social media.

The Purpose of Educational Technologies Summit

The purpose of this summit is to inform the participants about the latest new educational approaches and educational developments and to have various experts available from these fields. The summit being the only one in terms of gathering educators, business and the media world together, aims to be an inspiration to participants, by providing them with the opportunity of developing both their productivity and creativity.

ETZ, has used hologram technology to show great scientists. It used Albert Einstein in the first year and Alexander Graham Bell in the second. Additionally in the second year, ETZ had the activity "Maker Fair" and tried to guide its participants in Maker Movement, which is popular all over the world. The Educational Technologies Summit, has been organized since 2014, was held at the Yıldız Technical University for its first year with 900 participants, 40 speakers and 10 salons. In 2015, it was held at Bahçeşehir University with 73 speakers, 15 salons, 41 presentations and 1023 participants.

In 2016, ETZ provided 76 speakers and almost 1400 participants with the opportunity to be informed about the technological developments in education via interesting samples. In 2017, the summit was held with 72 speakers, having almost 1500 participants.

Who took part? How many people participated?

The Educational Technology Summit achieved an important milestone by reaching 1500 participants in 2017. It brought education, media and the business worlds together. The Summit was held with the participation of academics, researchers, teachers, educational advisors, librarians, educational technologists, parents, universities, school administrators, foreign language schools, students, prospective teachers, educational institutions representatives, study centres from the world of education; journalists, writers, social media experts, new media specialists, producers, educational correspondents and celebrities from the world of media; and private sector representatives, IT staff, architects, engineers, designers, publishing houses and technology suppliers from the world of business.

What kinds of companies participated?

At the summit, different companies with 43 stands took the opportunity to share their products and work in the field of educational technology with the participants. These companies included publishing houses, software companies, technology suppliers, educational institutions, non-governmental organizations, consulates, academies, entrepreneurs, and technology producers. During and after the event, the 1500 participants were very active discussing the event on social media. They have intensively and interactively participated by using their own accounts. The participants who shared their thoughts, suggestions, satisfaction and feedback kept the # ETZ17 hashtag on the top trend list for Turkey for 9 hours.

Contributions to Education Development

Bringing together all kinds of partners in the field of educational technology, ETZ17 has contributed to the development of a vast network in this respect. Participants at the event had the opportunity to meet experts and competent people in their fields and institutions to share their ideas and develop their projects. They had the opportunity to experience the best examples of current information, the most advanced technologies, to develop their competencies and visions in the fields of education, technology and educational technology using panel discussions, presentations and workshops in the event program. The participants had the opportunity to add value to their lifelong learning processes by forming an interaction with the experts by asking questions during the session. The summit, which took place with the participation of approximately 1,500 people, has also brought together important people from both the national and local media and has been instrumental in raising awareness around the Turkey, supporting nationally recognized recognition of both print and visual press. This event, which took place with a high participation rate, has delivered its own success as a multiplier effect to a wide range of people by providing a place to share knowledge, experiencing good and the latest examples of technology. The summit that brings the experts of education from all over the world together supported the awareness of scientific thinking and preparation of studies with scientific background by outstanding academic sharing. Problems about educational technologies have been examined by both experts and the participants in the project, and suggestions of constructive solutions from different perspectives have been provided to enrich the thought background of a concept that touches every individual in society such as educators. In addition, technology has fulfilled an important mission in promoting entrepreneurship and productivity skills through the involvement of suppliers, angel investors and manufacturers.

In summary, the 4th Educational Technology Summit brought together stakeholders from all areas of the world of educational technology with very participation participation again this year, as was the case in previous years. It took participants into a magical journey with the sharing and experience of information and case studies.

Maggie's Corner

Welcome to my first article and I will start with a brief introduction. I am an experienced primary science and technology coordinator and have been managing these subjects in a variety of schools over the past 18 years in primary schools in London and Moscow. With each issue I aim to bring you a variety of teaching and resource ideas on incorporating technology into the curriculum.

I have just returned from running a workshop on using data-logging in KS1 and KS2 at the ASE 2017 annual conference http://www.ase.org.uk/conferences/annual-conference/ Therefore, I thought this resource would be a good starting point for this column.

Early on in my career I became interested in using data-loggers in primary science, as I believe if used well they enhance learning and bring science to life for children. Earlier data loggers were a bit clunky but today's models are much easier to use. Approximately two years ago I purchased the VU Easy Sense from Data Harvest and I have been delighted with how easy it is to use.

The unit comes in its own easy to see green case that includes the Data Logger with three sensors incorporated into the unit, these measure temperature, light and sound. There is also one plug-in temperature sensor, a USB lead and a lanyard with a safety release catch.

My unit came with a CD containing the software and teaching ideas, but you can also download these from the website. More information and price list here. http://www.data-harvest.co.uk/catalogue/science/primary/datalogging/primary-vu-data-logger/2300PK

Once you have purchased the main unit you can then go on to buy additional sensors at quite reasonable costs. I have the pulse meter, extra temperature probes and two light gates. I have as yet only used the pulse meter and temperature probes in class. The sensors fit in easily to input A and B and the unit will automatically recognise which sensor has been added.

VU Easy Sense – basic features and collecting data

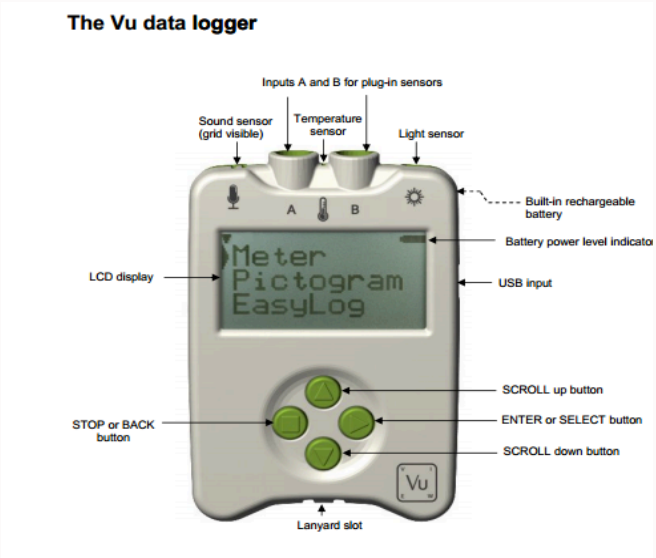
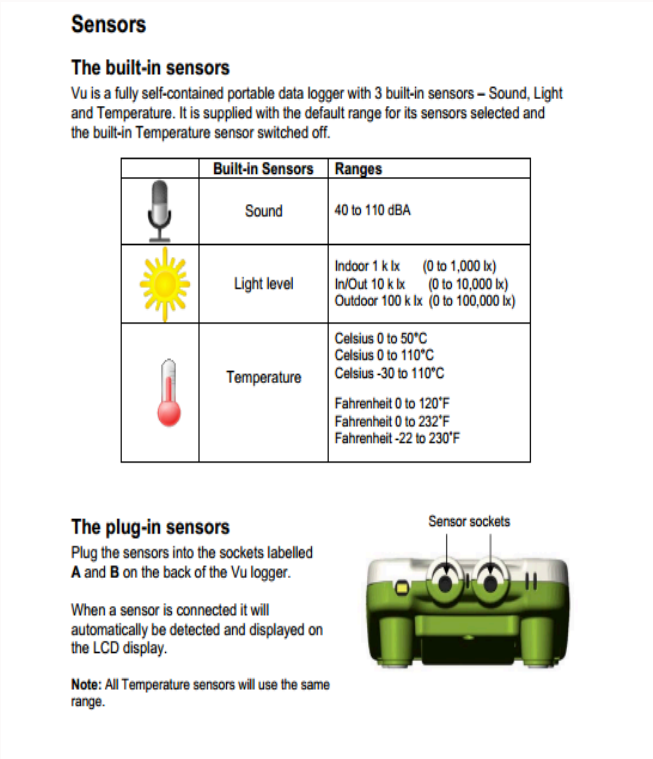


Diagram from the VU User Guide



Sensors

The built-in sensors

Vu is a fully self-contained portable data logger with 3 built-in sensors – Sound, Light and Temperature. It is supplied with the default range for its sensors selected and the built-in Temperature sensor switched off.

	Built-in Sensors	Ranges
	Sound	40 to 110 dBA
	Light level	Indoor 1 k lx (0 to 1,000 lx) In/Out 10 k lx (0 to 10,000 lx) Outdoor 100 k lx (0 to 100,000 lx)
	Temperature	Celsius 0 to 50°C Celsius 0 to 110°C Celsius -30 to 110°C Fahrenheit 0 to 120°F Fahrenheit 0 to 232°F Fahrenheit -22 to 230°F

The plug-in sensors

Plug the sensors into the sockets labelled **A** and **B** on the back of the Vu logger.

When a sensor is connected it will automatically be detected and displayed on the LCD display.

Note: All Temperature sensors will use the same range.

Sensor sockets

From the VU User Guide

The unit can record whilst connected to your computer or take the unit outside and take data remotely. When you return to the class the data is easily transferable via the USB cable.

Whilst away from the computer the data can be collected in a variety of ways:

- Using meter mode the unit will display readings on its LCD screen and they are not stored. I often use this to test out the readings to see if they appear correct before we go ahead and start collecting any data.

- When storing data, the menu has these options, pictogram, easylog, snapshot, timing and counting. I have mainly used the snapshot mode when working with the children but I like the idea that data is collected in pictogram format that can then be used with children in KS1.

Full instructions are freely available on the company's website and their customer care service is excellent should you run in to any problems. One word of caution is to make sure when you start logging that the range is correct. The above diagram shows what they should be.

Educational Benefits

Over the years I have observed children using this equipment and have noticed that they take their science work far more seriously. They become aware of the need to take accurate measurements when conducting investigations and appear to really consider what type of question they really want to answer. Furthermore, they also appear to be able to interpret certain graphs earlier than would be expected. I was pleasantly surprised when I noticed how quickly year four children understood line graphs once they had seen one being produced in real time (We were investigating the temperature of boiling water).

Further Benefits

- Develop children's higher order thinking skills
- Encourage their science argumentation skills
- Children work like real scientists

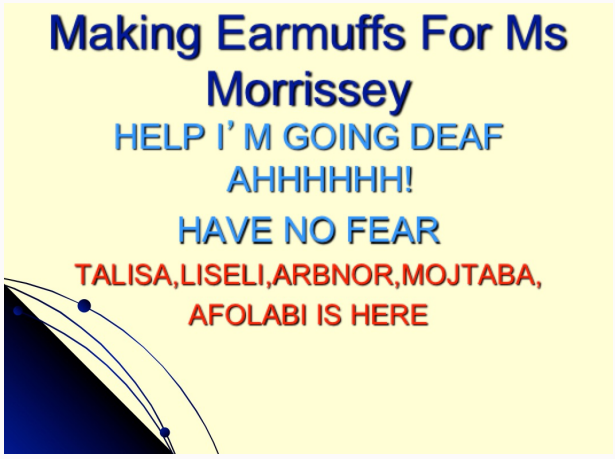
- Inquiry based learning
- Develop other skills such as numeracy and literacy
- Works well with EAL students
- Links the computing and science curriculum

Classroom Ideas

The company provides a PDF file with many lesson ideas that are incredibly useful when you first start using this product. Once you build your confidence with using the equipment I highly recommend that you get your class to design their own investigations and questions that they want answered, it is when the children and yourself get to this confidence level you really start to see some quite lovely work.

Using this data logging alongside Concept Cartoons and other good investigation starters such as photographs and videos, you will surely start to see quite sophisticated thinking.

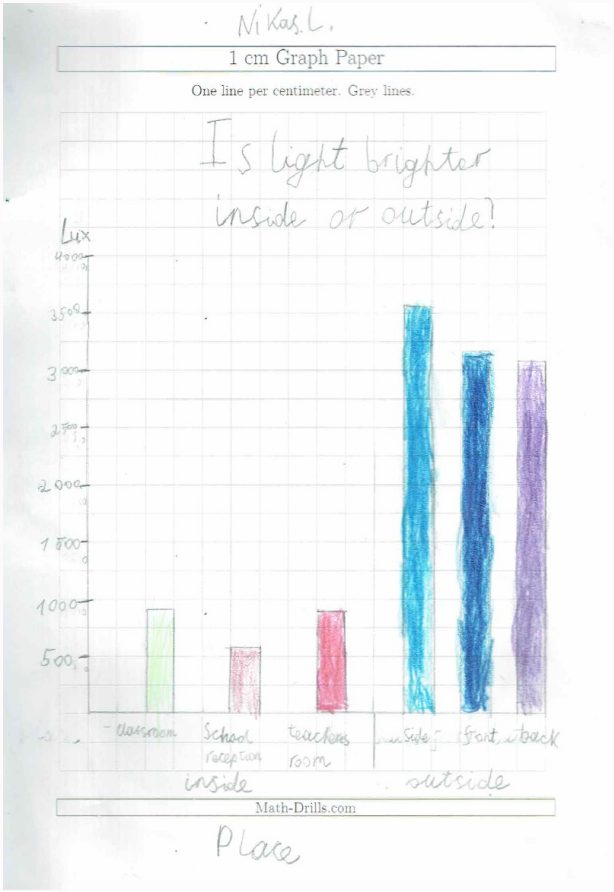
Whole class investigations are very useful at the start as you teach the children and other adults in the classroom how the equipment works. Later on you can move into small groups investigating their own questions. Do let children work with other teaching staff; I have had some excellent work completed by a small group who were accompanied by my teaching assistant.



Interpreting the graphs is an obvious strength of using this equipment. Children soon learn how to read a variety of data. However, also look for opportunities for children to make their own tables and graphs.

Class Examples

Light inside and outside



My class in Moscow were investigating light and they became curious about the light levels inside and outside of the classroom. It was late autumn in Moscow and quite cloudy. A few children thought the clouds would block light and it would be brighter in the classroom. After an interesting discussion about the strength of light from the sun, versus light in the classroom, we came up with our question and together we designed a table where they could record the location of the snapshot readings.

During the data collection they quickly noticed when outside that the readings were different at different locations and lively discussions started about why this would be. When they returned to class and later on made their own graphs with the results they started to

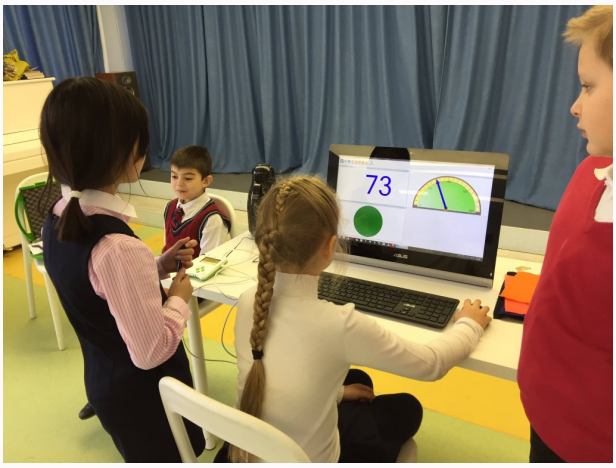
come up with theories and new possible investigations. Many thought that the difference was due to the position of the sun during the day, their enthusiasm was infectious, and they kept suggesting new types of ways to show if this theory would be correct.

Which materials block out light

Within this topic we were also trying to make a class cave to show that you would need a light source to see in a cave. Some of the class members had been in a cave during a school trip as part of their English in the previous academic year and knew that you would need a light source. Others still had their doubts about this, so we tried to make an area in the class free from light. They had brought in a variety of materials for this activity and all thought that the black cover would be better. Using the data logger showed that another material was better (Blue patterned). When they looked closely at the material they realised that the weave of the fabric was letting light in.

This class's confidence flourished throughout the year both with designing data collection sheets, producing their own graphs and using the equipment. When we had our technology week in the later half of Spring 2016 we had a science and technology area, they ran the whole section fairly independently with very little teacher intervention.

If your school is serious about improving children's science investigation skills then data logging will certainly help with this process. It's fairly inexpensive, easy to use and robust when using outside of class so can cope if little hands do drop the unit.



PAYAS STEM Centre: A small place with a big impact…

by Teslime Kagar and Cem Kagar

We love hearing from the community members, sharing their inspiring stories. This time we would like to take you to a beautiful small town called Payas, in Hatay (Antioch), Turkey. What makes Payas special is the work of the local council, who have focused on providing educational opportunities to reduce inequality amongst the young people and children within their community. Payas council opened their STEM centre to help children especially those coming from disadvantaged backgrounds to develop 21st century skills. They have highly qualified teachers, helping children develop transferrable skills that are vital for both learning and employability.

The story of PAYAS Stem Centre

The key person who made it possible fort the STEM centre to open is the mayor of the city, Bekir Altan. He attended training sessions at Harvard University in politics and whilst he was completing his training he decided to complete a research on STEM education in the US. He concluded that STEM learning would help children develop skills that are vital for learning in both school and life. He also noted that these skills were a must for the jobs of both today and the future. He shared his thoughts with teachers from local schools and suggested that they should look into ways that they could provide children and young people with STEM learning opportunities. The team of teachers from local schools undertook research to find out about the impacts of STEM education on children's learning, challenges and issues around designing STEM learning experiences. They shared their report with the mayor of Payas, and he directly asked them to design the STEM centre. In November 2016 they opened the first STEM centre that was funded directly by the local council to provide free STEM workshops for children and young people. Their aim is to provide inclusive education for all and for this they work collaboratively with experts to support children with SEND. They organise workshops in many different areas, using a wide range of tools. For example they run Lego robotics workshops for children and the mayor was very impressed with Berat Mustafa Izgi's work in this area. In February 2017 children from the Payas STEM centre took part in a Turkey wide Lego competition and in April they went to Silicon Valley for an International Robotic competition and received the Judges special prize for their excellent work.

When we look around the World, we see that the importance of STEM learning is mainly understood and valued in developed countries. We need to act quickly and provide our young people with the opportunities to develop STEM skills that will help them with their learning both at school and in life and also with their employability. This would also contribute to the country's economy. At Payas council, in our STEM centre we aim to help children to develop the knowledge and skills that would inspire them to become future scientists by providing activities in the area of science, engineering, programming, brain games and astronomy.

Students at Payas STEM Lab

One of the aims of Turkey's 2023 development plan is to support high quality education programmes. This is also one of the EU's 2020 strategy. Keeping this in mind, we aim to provide free STEM education, especially to girls and children from disadvantaged backgrounds, as we think that they are the future of Turkey and in order to reach the level of developed countries we need to prepare them for future opportunities and challenges. We believe that there is a relationship between, economy, development, and advancement in innovation and capacity to design & create technology.

Economy is based on information; therefore we need to educate the generation that will produce this information. For this we need to help them to develop transferrable skills that they can use for solving a wide range of problems. STEM education offers such an opportunity. We were inspired by Turkish scientist Prof.Dr.Aziz Sancar, who is the member of a team that won the Nobel prize. In Turkey he has been leading a Project called GIS (Girls in Stem). His aim is to help girls in Year 6 to develop an understanding of global education, knowledge exchange and cultural interactions.

At our STEM centre we focus on; robotics, mathematical modelling, scientific inquiry, brain and vocabulary games. We use sensors, electronic circuits, 3d printers, Lego Mindstorms EV3 and

many other engaging tools for teaching and learning. In every century people have faced different problems. Scientific inquiry skill helps people to solve these problems not only in the field of science and mathematics but also in social sciences. Through our Project based learning approach we help our students to manage their learning process and design creative solutions collaboratively with their friends. In robotics lessons students learn about:

· Digital literacy
· Coding
· Algorithms
· Electronics
· System design
· Team working
· Digital design and animation
· Creating projects that will enable them to apply skills & knowledge from other subjects
· Product design and turning this into reality using programming skills

We cannot say whether we are educating the new Ibn-i Sina or Biruni, but we do know that we are cultivating curiosity and creativity in young learners. They are enthusiastic about learning through cross-curricular approach and learning through making. We are delighted that we were able to establish this centre and set an example to other local authorities to take the initiative in education. There are incredible developments in Artificial intelligence and machines are becoming very clever for us. We need to be ready for this new era and this is only possible by educating the new digital makers generation.

Example activities from PAYAS STEM Centre

Developing Scientific Inquiry

In year 7, children focused on the mirror and light absorption and created a periscope. We first provided them with this information:

A periscope is an optical tool for making movement easier. In the past both the sea and land wars, if people couldn't see their target from safe distance, they would use a periscope. Also technicians and nuclear engineers use periscopes when they observe a dangerous area. Periscopes are mostly used in submarines.

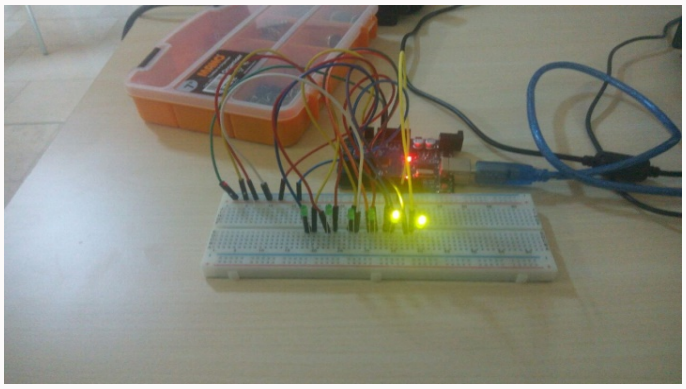
We then asked the children to design and create their own periscopes. They used mirrors and cardboard to create their own periscopes. In this activity they learned about scientific concepts but at the same time experimented with different materials in the process of designing and making a periscope. This interdisciplinary approach to learning allowed students to link their understanding of concepts from different subject studies to construct their new knowledge.

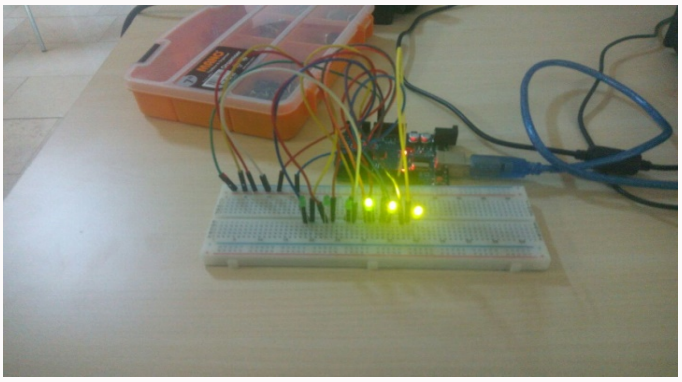
Learning to code through robotics

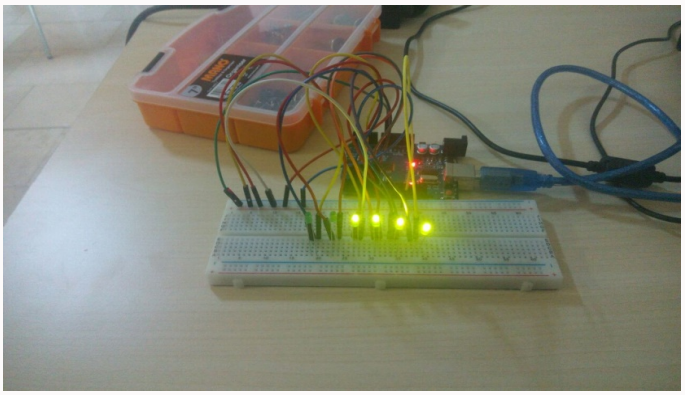
In this session with Year 7 children we created an application to model time, period and frequency. For this project we asked children to form a group of 3. We asked them to explain time, period and frequency. They used their lesson notes and the Internet to complete a research and form their answers. In groups they brainstormed their ideas. We asked them to create an Arduino application. We provided each group with 6 led, arduino, breadboard and cables. We asked them to ensure that their application meets the following conditions:

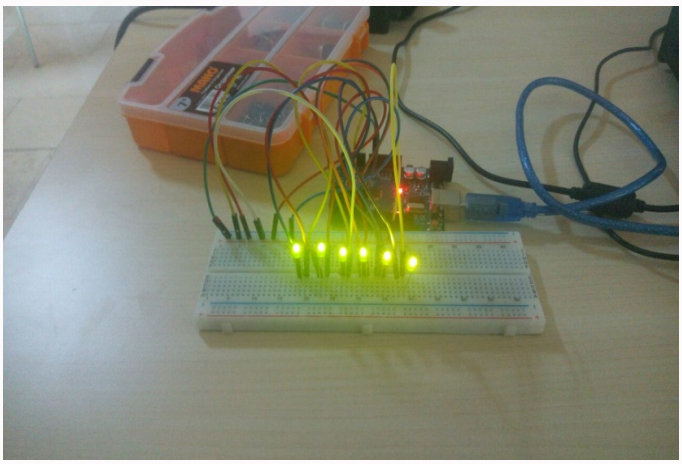
1. Place the 6 LED next to each other
2. Each LED light should turn on 1seconds after another.
3. After all the LED's are turned on, the program should return to the beginning and repeat the process forever.
4. They should share the jobs. One should do research, one should calculate, one should create the design and one should write the script.
5. When they have completed the application, they should find the time period of the application first LED to last LED.

We gave students 40 minutes to complete the task. Apart from one group they all completed it successfully. We asked the group that had difficulties to find their error and debug it. They found that when they were writing the code, they forget to use (;) and they also connected one of the cables to wrong place.



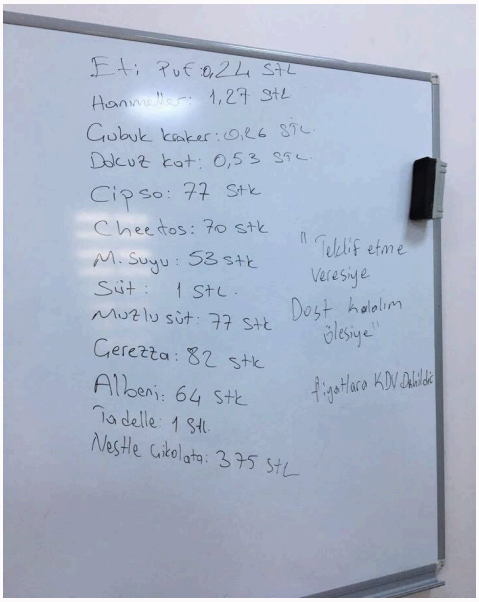






Mathematical Modelling

In this project Year 6 children were learning about decimals numbers. We asked them to complete an online research on the size of coins. We then gave them paper, scissors, and ruler and asked them to create coins (They called these STEM coins) at equal sizes. They then used these coins to shop from the STEM supermarket.



They completed their shopping and calculated the total of how much they spent in Turkish lira. They converted their STEM Money into Turkish lira. This allowed them to develop their udnerstanding of decimal numbers in a daily life context.

Unfinished Stories of Syrian Children: An inspiring project by PAYAS STEM Centre

We all have stories, some with happy events and some with sad ones. Some we remember and tell again and again, some we are desperate to forget. But sometimes even we try to tell our story; our voice becomes silence because it feels as though no-one is listening…

A few educators from Turkey and the UK, wanted to be the voice of the children of Syria and to help them to share their stories. Their story begun with a War, a war that they did not want, a war that destroyed their homes, their lives and their future. But although everything seems very uncertain their stories haven't finished yet. We are going to take you to a small school in a refugee camp in Payas, Hatay (Antioch), Turkey on the Syrian border. We will let children record each other's stories and share with the world; not only what they have been through, not only what is happening in their lives now but also their hopes and dreams for tomorrow.

They will do this by teaching them basic filming skills using tablets. They will leave the tablets with them so that they can keep us updated as their story continues to unfold by posting their films to a dedicated Youtube channel.

They will also organise STEM activities, where they will teach them about how to code, electronics, science, animations and basic computing skills. 100s of children will benefit from this project and their teachers from Syria.

If you would like to contribute by providing resources or make donations please use the details below.

If you are based outside of Turkey you can donate via Just giving Campaign.
https://www.justgiving.com/crowdfunding/unfinished-stories-of-syrian-children

If you are based in Turkey, you can use the specific project account to send your donations.
Ziraat Bankasi
Account no: 33970980-5027
758-Payas / Hatay

Teaching Creativity Through MinecraftEdu

by Yasemin Allsop, MinecraftEdu mentor

I remembered a conversation that I had with my Year 5 and 6 kids (9-11 years old) about Minecraft Edu whilst I was working as a primary school teacher. They did not just follow me around all day, begging me to bring Minecraft Edu to our school, but at the same time kept telling me how it would help them to learn better. One of them said, "We will be more creative". "Really, how?" I replied with a smile on my face, not convinced with their explanations. This made me think a lot about the word 'creativity', not only just what the literature says, or dictionary definition, but through the eyes of children.

So what is creativity?

Robinson defines creativity as 'the process of having original ideas that have value' (2009:114). He argues that education kills creativity in children. He sees creativity as "taking the imagination to another level" by putting ideas into physical results (2009). This means that if we are to teach children creativity, we need to provide them with learning experiences that will allow them to express their ideas through doing something.

Quinlan makes an interesting point by suggesting that 'between the technical and the creative is an intersection where young people make useful projects while learning about technology' (2015:7). I agree with this definition but for me Burn and Buckingham (2007), noted a very important point that is missing from many definitions of creativity. They quoted that

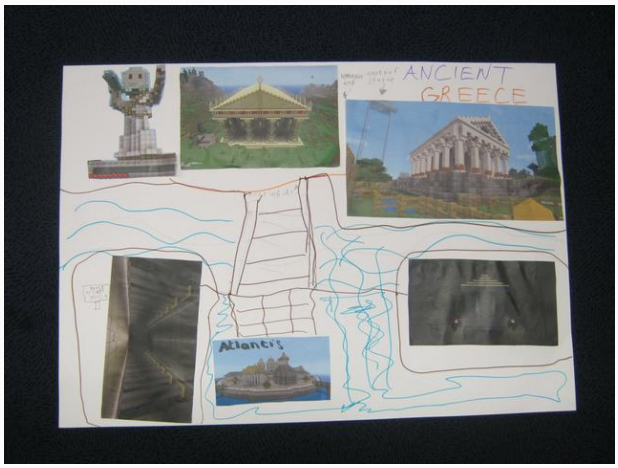
"Creativity is a combination of children's imaginative acts and conceptual thinking". I was able to observe this during one of my research projects where I asked some children to design a game. When the children were asked what they thought creativity was, their description included; fun, making things, creating things, but the most interesting point was the use of words brain power, mind, logic and decision. So many children explained the process of creativity as creating or making things using your mind, using your brainpower, using your imagination. Some students suggested it involved decisions. For children creativity was more than drawing or painting, it involved thinking, decision making, creating, making, using your brain, your mind, in other words your knowledge and understanding to design, to make something, in this case a game (Allsop, 2012).

How Minecraft Edu provides a platform for unleashing creativity?

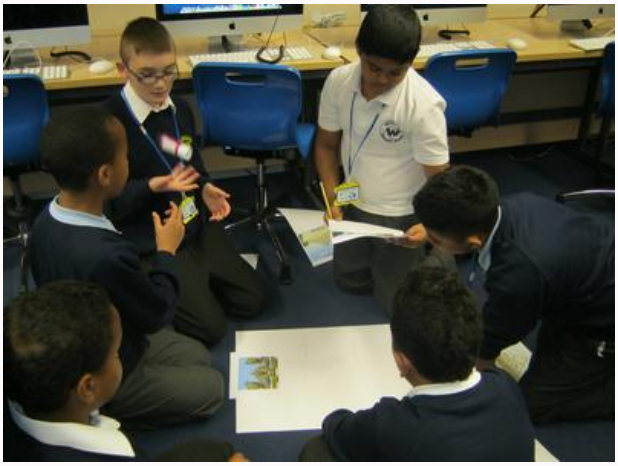
I think that it might be better to explain this through an example. One of the first Minecraft Edu projects that I did was with my Year 6 children where they created some of the Ancient Worlds; Rome, Egypt and Greece. You can look at the project at: https://wilbury-minecraft-ancient-egypt.wikispaces.com

They first carried out some online research to find out about how people lived in different Ancient worlds, what kind of houses they had, what their

temples looked like, which materials they used and so forth. They then had discussions in groups deciding how to design their own world. They printed out some images, stuck them on some paper and drew objects around them. It was clear from not only the observations but also their photos, that they were having discussions on how to shape their world and making decisions collaboratively.



This element of collaborative working continued whilst they were using Minecraft Edu to turn their design into reality. They shared the tasks so that they did not just build anything anywhere. They experimented with different materials and had some issues with scaling the buildings in line with the real ones, whilst at the same time building in their ancient world sections. Then came different learning behaviours; mathematical calculations, problem solving, designing solutions, coming up with ideas, strong discussions and making decisions. Their activity was creative not because it involved imagination and originality but that it represented a complex design and making process, whereby they were able to invent and practice skills such as problem solving, critical thinking and decision making, which can be seen as aspects of creativity. It is true that their ideas and imagination did not represent something completely new, but it was still original as it was presented as a product of their own experiences. In other words it was creative because children did express how they perceived the ancient worlds through their imagination and conceptual thinking.



At this point we need to highlight the elements of Minecraft Edu that were making it possible for providing such platform for the children to develop their creative skills:

- **Tinkering:** The ease of building, breaking, building again makes it perfect for children to tinker with ideas without worrying about destroying something. This is because when you break the bricks, there is nothing to lose. You use them again and make something else.
- **Experimenting with materials:** Minecraft Edu allows children to experiment with materials that enable them to create a very real life-like representation of the world.
- **Collaboration:** I think this is my favourite. Game making if it is not planned for children either in pairs or groups can be a very solo

activity. Minecraft Edu facilitates collaboration by allowing learners to build together.

- **Problem solving & Critical thinking:** Although it looks very easy to build a small basic house in Minecraft Edu, it is not that easy to build complex objects and buildings, requiring higher-level thinking for designing solutions through different challenges. For example exploring sustainable living in Minecraft Edu.
- **Communication:** The chat in Minecraft Edu edu allows children sitting in different parts of the classroom to communicate, share ideas and support each other. I always saved their chat files to explore what kind of things they talked about. It was interesting to see that those who were very shy sometimes-invisible children were able to either ask for help or offer assistance to someone else.
- **Cross-curricular approach**: It is possible to use Minecraft Edu across the curriculum. Either telling a story in literacy or creating a map of the world in geography, building religious buildings in RE or experimenting with a dam in Science and even using coding skills to manipulate the design. So it is possible to develop learning in many subjects through Minecraft Edu projects.
- **Self-regulation:** When using Minecraft Edu to create something children are in control of their decisions and activities. They plan, manage and evaluate their learning by regulating their mental activities.

Final words…

I am not sure if schools kill creativity. I think it is all about what type of learning experience we design for our students and how we facilitate this experience. We are not obliged to teach with worksheets or just transfer knowledge by talking at them for hours. We need to tune in and listen to our learners. Find out about how they would like to learn and wherever possible provide these experiences for them. We need to let them experiment with ideas and face many challenges. Most importantly we need to give them space to enable them to learn how to learn and love to learn. Happy tinkering in Minecraft Edu!

References

Allsop, Y. (2012). Exploring the Educational Value of Children's Game Authoring Practices: A Primary School Case Study 6th ECGBL Conference Proceedings. Cork. October 2012.

Buckingham, D., & Burn, A. (2007). Game literacy in theory and practice. Journal of Educational Multimedia and Hypermedia, 16, 323–349.

Quinlan, O. (2015) Young digital makers. London: Nesta.

Robinson, K. (2009). The Element: How finding your passion changes everything. New York: Penguin Books.

This article was first published on April 11 2017 at: https://education.minecraft.net/teaching-creativity-with-minecraft/

Call For Papers

International Journal of Computer Science Education in Schools (IJCSES) is a double-blind peer reviewed, open access online journal.

The main objective of **IJCSES** is to develop a research network in teaching and learning in Computer Science Education in schools and related topics through high-quality research that focuses both theory and practice. This would enable academics and educators who are interested in research about theoretical developments in Computer Science Education to access most recent studies. The network would also provide a communication point for teachers who are interested in engaging in research projects, but not feeling confident.

Articles should relate to school education. Topics of interest include but are not limited to:

- Computer Science / Computing Education
- Computational Thinking
- Teacher Education in Computer Science
- Professional Development in Computer Science
- Programming in Schools
- Creativity and Computing
- Artificial intelligence in Education
- Computer graphics and Virtual reality
- Computer Game Design
- Teacher research in Computing
- Gender and diversity in Computing Education
- Inclusion in Computing Education
-

Publication Charge Policy

Publishing in IJCSES Journal is free of charge.

Registration

Registration and login are required to submit items online and to check the status of current submissions. For more information, visit the official website of the journal www.ijcses.org

With thanks,
Editors:
Dr. Sue Sentance
Yasemin Allsop

EDITORIAL TEAM

Yasemin Allsop
@yallsop

Christopher Carter
@christocarter

Elliott Plumb
@followthatPlumb

Jesús Moreno León
@J_MorenoL

Published by
ictinpractice.com
London, UK