Microsoft

Wales amplifies effectiveness of Minecraft: Education Edition

Scalable educator support, training and a professional development program help Wales maximize learning with Minecraft: Education Edition.

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Hwb®

Summary

What began as a pilot project with 18 teachers in 2018 has grown to a £1.2 million investment by Welsh government to provide all educators and nearly half a million learners access to Microsoft 365 and Minecraft: Education Edition via the country's digital learning platform, Hwb. This successful implementation now serves as a model for sustainable educator professional development at scale. Minecraft: Education Edition is an engaging way to help learners build important 21st century skills, and an integral tool for teaching and enriching the Curriculum for Wales.

Wales: An Introduction

In 2019, the Welsh Government offered Microsoft 365 to all educators and 467,000 young learners via the country's digital learning platform, Hwb.[1] "Microsoft 365 was a way for us to ensure parity and equity for all learners; to ensure they all have access to the same tools, the same software, and the same opportunities," said Peter Kennedy, Head of Science Technology Engineering and Maths curriculum for the Welsh Government. Included in each Microsoft license was Minecraft: Education Edition, which turned their £1.2 million software investment into an exciting, new way to engage learners to ignite a passion for creativity, innovation, critical thinking, problem-solving and personal effectiveness through game-based learning.

The pilot

The first time Minecraft: Education Edition was introduced to educators in Wales was in 2017 as part of a pilot initiative "Cracking the Code". The Welsh government hand-picked 10 schools from across the country to support their development in coding and digital skills with Minecraft: Education Edition and Code Builder. Microsoft funded the pilot, which was designed and delivered via a Microsoft Global Training Partner. The pilot was one of many initiatives designed to support the delivery of the Digital Competence Framework (DCF)—a set of skills, knowledge and attitudes encapsulating digital citizenship, interacting and collaborating, producing, data, and computational thinking. The pilot was the beginning of the partnership between Hwb, Microsoft, Minecraft: Education Edition, and the Microsoft Global Training Partner. Together, they designed, developed, iterated, and delivered an effective model for educator training, professional development and support of using Minecraft: Education Edition as a learning tool in classrooms. But training teachers to use Minecraft wasn't a simple task.

Overcoming educator misconceptions

The first hurdle to overcome in designing a scalable educator training program and professional development model was to dispel the misconceptions many educators had about gaming and Minecraft. Many educators viewed it as only entertainment; a passive gaming activity to be awarded to learners for completed assignments or at the end of the day. "The most challenging part is getting teachers to take that first step," said Manon Watkins, Primary School Educator at Ysgol LLanrhaeadr Ym Mochnant. Few educators understood the potential to utilize Minecraft as both a flexible tool for delivering authentic learning *and* as a creative engagement vehicle that works in tandem with researching planning, designing, collaborative building, presentation, and more.

Another educator misconception was the assumption that educators need to be expert Minecraft players and builders. With so many learners already familiar with Minecraft, educators realized they need only to focus on the pedagogy and lesson planning that wraps around Minecraft and leave the advanced building skills to the learners. Once misconceptions were clarified and set aside, educators were ready to learn.

[1] Hwb is the digital platform for learning and teaching in Wales. It is the Welsh Government's strategic digital channel to support the delivery of the curriculum in Wales.

Minecraft Learning Centers (MLCs) and educator professional development

With the success of the "Cracking the Code" pilot, Hwb knew they wanted to expand the use of Minecraft to all learners across Wales. However, they realized it would require the support and guidance of the Minecraft: Education Edition team and a Microsoft Global Training Partner to successfully execute this vision. "Microsoft global training partners are able to provide that synergy, are able to provide that glue that brings it all together and then transforms it into classroom or virtual learning," said Peter Kennedy. After thoughtful planning, five schools from across Wales were identified and invited to become the first Minecraft Learning Centers (MLC). An immersive 2-day Minecraft Training Summit was designed, focusing first on how trainers can teach the basics of Minecraft mechanics to more educators. Then the summit focused on the various ways the Curriculum for Wales could be enriched by incorporating Minecraft: Education Edition into classroom practice. Each school had the requirement to send at least two educators to attend the intensive course to become Minecraft Certified Trainers and ensure the school, in its role as an MLC, could offer peer-to-peer support after the initial training.

Creating a successful, sustainable training model

Two elements of training at scale proved critical for success: A peer-to-peer learning model and an active support community. Each MLC committed to host workshops for three cohorts of educators across the school year. For the first cohort, the Microsoft Global Training Partner led the Minecraft workshops, with support from the newly trained Minecraft Certified Trainers. Then for the second cohort, the Microsoft Global Training Partner took a step back and the Minecraft Certified Trainers played a greater role in delivering the workshops. By cohort three, the trainers were feeling more experienced, relaxed, and ready to take on the lead role in delivering the workshops themselves.

Remote workshops

Since the first few cohorts completed training and professional development, the MLCs—supported by their Microsoft Global Training Partner—have evolved the training model and materials to deliver workshops remotely, vastly increasing the ability to scale. The remote workshops are made up of eight, 1-hour 'Learn Live' sessions via Microsoft Teams, with intersession tasks to complete between meetings, including classroom activities. The remote workshops also allow for two entry points for educators, allowing those who already have some experience with the mechanics of Minecraft to skip the first three hours of instruction and begin with pedagogical understanding.

Growth

In the second year of the project, the number of MLCs doubled from 5 to ten, providing the capacity to support and develop more educators. In the third year of the project, previously trained educators who had demonstrated exceptional understanding of Minecraft to support the curriculum were invited to attend a Minecraft Training Summit. These educators are now Certified Minecraft Trainers, and they lead the delivery of our virtual workshop courses.

Delivering true learning with Minecraft: Education Edition

The power of Minecraft to engage learners is just the beginning. Minecraft Learning Centers have co-constructed a range of Schemes of Work[2] (SoW) with accompanying lesson plan support and shorter "Challenges[3]" to enrich the delivery of the Curriculum for Wales. Although specific Areas of Learning and Experience (AoLE) (an AoLE is analogous to curriculum subject areas), have been identified in each SoW or Challenge, these are not prescriptive. Educators should interpret the SoW, lesson support and Challenge documentation and apply accordingly to the relevant age groups in terms of breadth and depth of application. For each SoW or Challenge, every academic standard is carefully detailed, with appropriate referencing of the cross-curricular skills: literacy, numeracy, and digital competence. Where applicable, references have also been given to the Digital Competence Framework (DCF) and National Literacy and Numeracy Framework (LNF).

Pedagogical Design of Schemes of Work (SoW) & Supporting Lesson Plans

Educators who aren't ready to develop their own SoW and lesson plan from scratch can utilize a wide range of existing Curriculum for Wales-focused Schemes of Work and supporting lesson plans. These lessons have been co-constructed by the MLCs and tested in classrooms.

Each SoW is designed to support a range of AoLEs across an approximate 6-week time frame (half a school term in Wales). The SoW is the overarching map of what an educator plans to do. This is divided into approx. 6 stages, and each stage has its own supporting lesson plan which further details steps within each stage. Minecraft: Education Edition is integrated into the instruction and allows for autonomy and creativity to sustain learning. Though specific curriculum may not require all stages, the stages within each SoW normally include:

- ***Stage 1: Introduction***

  The introduction of the topic/theme is the first stage. This is a time to ignite the learners' imagination and get them ready to investigate further.

- ***Stage 2: Research***

  Researching the topic/theme can be accomplished in several ways using a range of techniques and Hwb tools, depending on the age, aptitude, and ability of an educator's own learners.

- ***Stage 3: Planning***

  There is an old adage, "Fail to plan and you plan to fail." Before learners jump into using Minecraft, they first need to think about what they are going to build and make a plan. In this stage, learners think about size, scale, which blocks to use, and more. The use of grid paper and colored pencils to represent the different blocks is invaluable at this stage.

[2] SoWs are analogous to the structure and content of academic courses.

[3] Challenges are activities in Minecraft: Education Edition that are short and focused on a specific skill or curriculum topic.

- ***Stage 4: Building***

  This is an exciting stage for learners! Because of the research stage, learners know what they are going to build. Because of the planning stage, they know how they are going to build their virtual representation, at what size, scale and more. This all leads to learners being more discerning in what they build. Their research, preparation and clarity open more room for creativity as well. It is part of self-regulation: planning their own work based on their own reflection and feedback.

- ***Stage 5: Sharing Information***

  The various tools available within Minecraft: Education Edition, including signs, NPCs, cameras and more, allow a learner to share the information they gathered during the research stage. Sharing information helps learners apply their knowledge in a new context, which deepens their understanding and improves retention of the information. It's an interdisciplinary stage that can include literacy and oracy too.

- ***Stage 6: Presentation***

  This stage can develop a learner's oracy further and develop confidence, too. Learners develop their critical thinking skills and become better learners!

A blended learning model: Traditional skills plus 21st century skills

Taking learners through these various stages and their specific steps helps learners build awareness, understanding and control of their thought processes—metacognition.

Blended learning model with traditional and 21st century skills

Introduction	Research	Planning	Building	Sharing	Presentation
Class Presentation/ the hook	Knowledge construction	Collaboration	Collaboration	Skilled communication	Skilled communication
Give them the reason to learn	Collaboration	Real-world problem solving	Real-world problem solving	Collaboration	Collaboration
Light their imagination	ICT for learning	Skilled communication	Skilled communication	Organization	Self-regulation
Get them ready to investigate further	Cataloging what you already know	Choose leaders	Self-regulation	Create presentations	Video creation
	Identify the gaps in knowledge	Assign roles	Knowledge construction	Information writing	Storytelling
	Research Plan	Divide work	ICT for learning	Audio creation	Oration
	Evaluate quality of sources	2D plan	Creative		Discussion
	Take notes	Models	Building		
	Keep track of sources	Maths	Coding		
			Iteration		

Immersive learning experiences that embrace traditional learning methods as well as Minecraft creative building activities help learners stay engaged through complex topics while they hone many 21st century skills.

In developing the SoW and supporting lesson plans, the MLCs have followed Mitchel Resnick's four P's of creative learning:

- **Projects**. People learn best when they are actively working on meaningful projects – generating new ideas, designing prototypes, refining iteratively
- **Peers**. Learning flourishes as a social activity, with people sharing ideas, collaborating on projects, and building on one another's work
- **Passion**. When people work on projects they care about, they work longer and harder, persist in the face of challenges, and learn more in the process
- **Play**. Learning involves playful experimentation – trying new things, tinkering with materials, testing boundaries, taking risks, iterating again and again

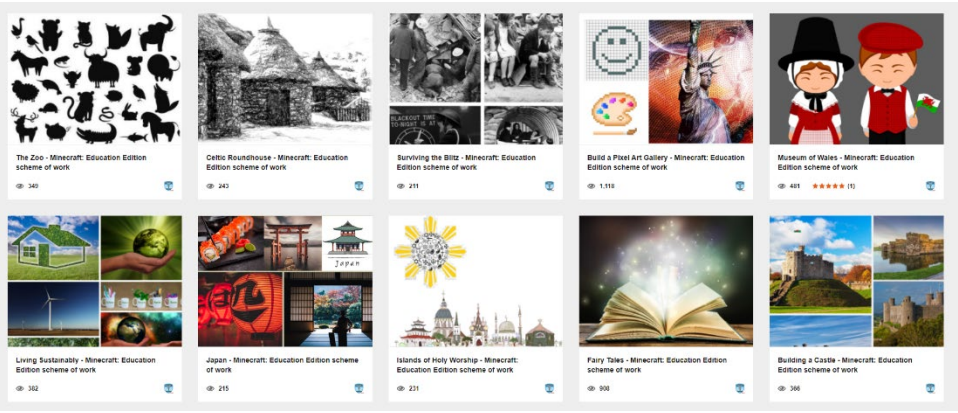
These four P's are strongly aligned with (and inspired by) the Constructionist approach to education, which emphasizes the value of learners playfully creating personally meaningful projects in collaboration with peers.

Minecraft Challenges

The Challenges that have been developed by the MLCs are much shorter projects, usually designed to take just a few hours of classroom time. They are, however, still built upon all the principles that have been detailed for the SoW and supporting lesson plans. These are particularly useful for educators who are still new to Minecraft: Education Edition and want to 'dip their toe in' before undertaking a full, 6-week project.

Classroom management

Managing learner enthusiasm with self-directed and collaborative work can be daunting for educators new to using Minecraft: Education Edition in the classroom. To address this, the MLCs have developed a specific Challenge that encourages learners to develop their own set of rules and norms for working in an online, collaborative environment with other learners. This Challenge to become a "good digital citizen" involves learners in developing the rules and norms they will follow, which makes them much more likely to adhere to them!



Minecraft classroom resources are available on Hwb Resource area and Minecraft Education website. Many are also now built into the in-game library.

The Hwb active support community continues to grow as more cohorts complete their professional development workshops, and the content they create helps educators new to Minecraft: Education Edition deepen their expertise quickly. "The Hwb contacts have taken me from just dabbling to feeling confident enough to actually take a chunk of the curriculum and say, 'Right, we can make this work,'" Coran Jones, Educator at Risca Community Comprehensive School.

From a small pilot in 2017-2018 through today, Wales has grown to be one of the largest customers in the world to utilize Minecraft: Education Edition within their classroom practice. But what do learners think about it?

Impact in the classroom

Many teachers are now incorporating the use of Minecraft: Education Edition into their classroom practice to enrich the Curriculum for Wales. Catherine Davies, Deputy Head teacher, Sofrydd C.P. School said "This has given me so many opportunities to take the children's learning to another dimension, because it has built all those other skills like resilience, teamwork, communication and collaboration. They are key to any classroom. So I can't imagine not ever using it!"

The learner experience

From the initial pilot project, Hwb had a good indication that learners would enjoy and benefit from using Minecraft in the classroom. They had high expectations for learner engagement. Many reasons for learner excitement were obvious: Minecraft is a game most young people have already played, and they welcomed the opportunity to play it more in school. Educator Laura Young, a teaching assistant and digital leader at Sofrydd Primary School, says her learners, "are leading their learning now. They are teaching us, and they love that." Minecraft gives learners more control over their learning journey, with more creativity and imagination.

Excitement and an increase in engagement was expected from many learners. However, the ability of Minecraft: Education edition to reach disengaged and special needs learners has amazed educators. "Our quieter pupils have naturally grown into leaders because of Minecraft: Education Edition," said Coran Jones, Teacher of ICT and Computer Science at Risca Comprehensive School. "With the power of immersive reader and the ability to change the language, change the way that they see text, that's helped a lot of our learners." Sarah Snowdon, Hwb Minecraft Learning Center Program Manager said, "Minecraft levels the playing field because all learners can actually get involved. Traditionally disengaged learners suddenly become really engaged."

WRU Club of the Future stadium and logos.

Custom learning content for Welsh learners

Custom content has been created to support and enrich the curriculum and learners' needs. For example, Careers Wales built a world called CareersCraft to support young people exploring career options. Schools across Wales have developed scholastic esports programs with Minecraft. The MLCs and Hwb have supported a proliferation of curricular activities ranging from worlds on Celtic architecture and World War II history lessons to fairy tales and sustainability.

The ability of Minecraft to empower neurodivergent or otherwise special needs learners is evident in the Wales Rugby Union "Club of the Future" Challenge, where two of twelve finalist groups are from special needs schools. The challenge is in its second year, learners are introduced to the world of rugby via a recreation of Principality Stadium in Minecraft: Education Edition. Learners explore key areas and spaces within the build and interact with NPCs who link out to further information. They are then challenged to create and build a Club of the Future based on the needs of their own locality. They are encouraged to consider their local community, research, and explore the needs in their local areas to then develop a plan for a 'rugby club of the future'. Rugby clubs are often the heart of local communities, and learners explore the values of rugby and how these can be leveraged to deliver a positive experience and contribute to the long-term health and wellbeing of society in Wales.

What's next? Wales Hwb and the new curriculum for Wales

In Wales there's a principle called cynefin, which is a Welsh word meaning "habitat." "It's broader than the geographical area. It's the sights, sounds, the smells, the community; everything around an area that makes it feel like home. Cynefin is one of the principles we've embedded within the statutory guidance for our new curriculum," said Peter Kennedy, Head of Science Technology Engineering and Maths curriculum for the Welsh Government.

Curriculum for Wales is based on four purposes. From the Hwb website, "The four purposes should be the starting point and aspiration for schools' curriculum design. Ultimately, the aim of a school's curriculum is to support its learners to become:

- ambitious, capable learners, ready to learn throughout their lives
- enterprising, creative contributors, ready to play a full part in life and work
- ethical, informed citizens of Wales and the world
- healthy, confident individuals, ready to lead fulfilling lives as valued members of society"

Minecraft: Education Edition aligns well to several tenants of the four purposes and has been shown to foster 21st century learning skills like creative thinking, collaboration and problem-solving. "One of the priorities is to ensure learners have the skills when they come out of education, to apply to later life and to apply into the workforce and to careers. Minecraft is a fantastic example of taking digital skills and applying them into other areas of your school day and to build on those skills to apply them then into a real world or into a later life scenario," said Peter Kennedy.

New Partnerships: Minecraft Esport Academy Wales

Hwb has expanded its partnership with the Welsh Rugby Union to create an academy that supports educators as they develop the knowledge and skills to create their own school's Minecraft Esports team. The first Minecraft Esports Wales League is taking place in 2022 with the finals held in July at Principality Stadium.

Framing Minecraft Esports with concepts drawn from digital game-based learning and sports education provides the potential for a range of learning and skills development across the curriculum. The academy aims to help educators draw on the pedagogical theory and practices from both domains to provide incredible opportunities for holistic cross-curricular projects.

Esport also draws upon concepts from the field of enterprise and links to business—specifically STEM tech industries. Working in partnership with Careers Wales, Esports will help learners develop relevant skills to secure employment in the growth sectors of the 21st Century Welsh economy.

Summary: Future Opportunities

"It's a fantastically exciting time in the education space in Wales, and we have a massive opportunity now to tailor education that is meaningful for learners, to ensure that equity across the country that all learners have equal opportunities and equal outcomes through their learning, but also to make fundamental change and to think about not only *what* we want children to learn but *how* we want them to learn," said Peter Kennedy. Looking to the future, Hwb and the MLCs, supported by their Global Training Partner, are conducting several new pilots that further integrate Minecraft with curriculum. From comprehensive computer science lessons, learner-to-learner coding buddies, and virtual Minecraft instructors that team teach with educators, "We don't know what the employment landscape will look like in the future; jobs and work are evolving every day, every week, every year. We need to ensure that learners have fundamental transferable skills that they can apply to their careers and into their work in later life." said Peter Kennedy.