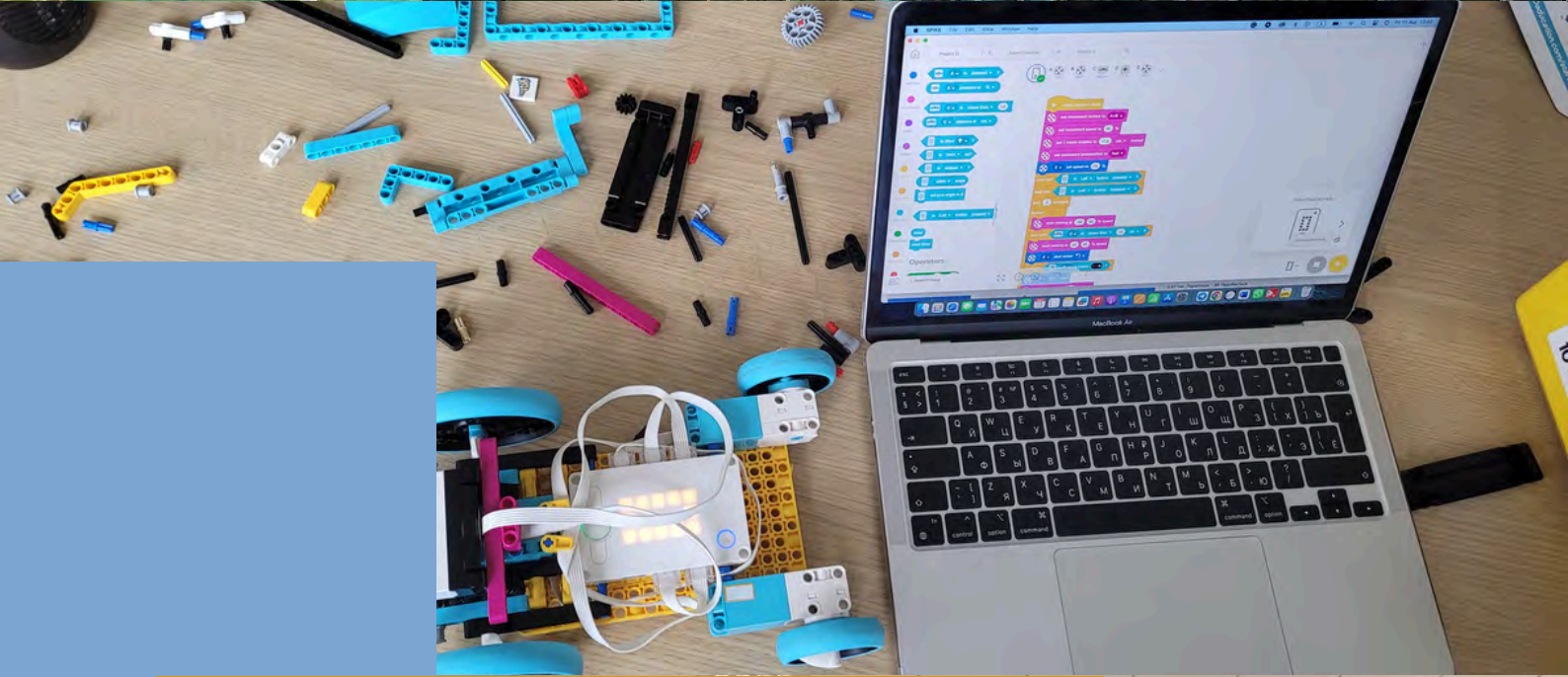




SMARTlab Skelligs - Future Focus21c

CLÁR Final Report

prepared by SMARTlab Skelligs - Future Focus21c CLG



Award Dec 2021
Delivery June 2022 - April 2024



Executive Summary

SMARTLAB Skelligs INCLUDE learning labs, were a localised evolution of an approach to developing 21st Century skills and competencies for the volatile, uncertain, complex and ambiguous (VUCA) world we live in. The INCLUDE learning labs emerged from SMARTlab's ethos of Inclusive Design and ICT for pro social change developed over three decades and a comprehensive three-year research initiative 'CoDesRes: Co-Designing for Rural Resilience through Peer to Peer Learning Networks and place-based STEAM Learning Interventions' (McKeown et al, 2022) conducted by SMARTlab Skelligs (2018 - 2021). CoDesRes pinpointed significant skills gaps within the community, necessitating the development and testing of customised community and educational resources for building community capacity and resilience.

County Kerry relies on traditional industries e.g. Farming, Hotel Accommodation, having the highest proportion of tourism related businesses in Ireland (Kerry County Council, 2022). These industries face significant challenges given the reduction in hotel accommodation, the increased demands from high growth sectors (financial services, creative industries and professional, scientific and technical sectors), and the climate emergency.

The proposed INCLUDE Labs, funded by the Clár Innovatoin measure sat within a broader Rural Regeneration Development Fund (RRDF) endeavour focused on repurposing Cahersiveen's Ballroom into a centre of excellence for research and development, particularly emphasising place-based STEAM education and sustainable placemaking. The primary aim of the project was Community Capacity Building (CCB) for localised resilience (Social, Environmental and Economic) through a threefold approach:

- Youth Empowerment
- Knowledge Dissemination
- Community Up-skilling

The project delivered the following development and testing of customised community and educational resources aimed at addressing these three contributing factors to building community capacity and resilience.

1. Delivered customised community and educational resources to 435 direct beneficiaries
2. Delivered 6 design sprints
3. Delivered 13 Innovation Cafes
4. Trialled and expanded 16 community and learning interventions
5. Developed 7 activities, expanded into blended learning resources for post-primary school
6. Employed 8 local residents and 5 external experts
7. Supported 7 local suppliers
8. Developed 20 delivery relationships / proof of concept partnerships models
9. A long term transatlantic partnership with STEMarts Lab New Mexico, June 2024
10. Proposal to develop a streamed programme series in collaboration with SMARTlab Academy / Creative Futures Academy - pending due to inadequate space / facilities.

As well as direct and indirect beneficiaries the project was also beneficial for us as an organisation, providing the opportunity to increase community awareness of The Ballroom Project and the opportunities and importance of 21c skills. We were able to develop and show a proof of concept for the Ballroom Project, test and redesign existing concepts, materials and activities to make them more accessible, effective and targeted to local needs e.g. the design sprint concept for community and educational delivery.

Further the increased awareness has increased community engagement and in-roads to specific communities e.g. primary school and parents; local organisations and facilities. This has increased volunteer commitment to support youth learning programmes as well as sharing local resources and facilities.

Collectively, these activities contribute to the larger aim CCB for localised resilience through youth empowerment, upskilling, knowledge dissemination, not only through the direct beneficiaries but also the development of new networks and increased economic impact. This is evidenced both through participants feedback and through local employment, increased activities and engagement within 21c skills and competencies, new professional collaborations and increased state agency funding into the area in new ways.

Realising local latent potential not only identifies already existing skills and knowledge within a community that can then be monetised through additional employment opportunities increases economic resilience through a multiplier effect. CCB responds to the need for strategies to address major social and economic decline in towns, cities and regions, particularly relevant for S.Kerry. The ratio between project budget and supplier contracts / direct costs gives the Include Labs project a multiplier effect of approximately €2.87 (every 1€ spent / invested generates €2.87 (LM3, 2023).

We look forward to maximising the learning and building on relationships to leverage increased revenue streams that in turn facilitate Community Capacity Building (CCB) for localised resilience through more upskilling activities and local employment. We will continue to develop creative and practical processes to co-create innovative home-grown solutions to global concerns from the inside out, building community capacity for systemic approaches and localised resilience by reimagining local and rural possibilities.

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INCLUDE Learning Labs - Promoting 21st Century, Sustainable Mindsets

Project Background

The project's background stemmed from a comprehensive three-year research initiative conducted by SMARTlab Skelligs, 2018 to 2021 - 'CoDesRes: Co-Designing for Rural Resilience through Peer to Peer Learning Networks and place-based STEAM Learning Interventions' (McKeown et al, 2022). This research pinpointed significant skills gaps within the community, necessitating the development and testing of customised community and educational resources aimed at building community capacity and resilience. The proposed Include Labs sat within a broader Rural Regeneration Development Fund (RRDF) endeavour focused on repurposing Cahersiveen's Ballroom into a centre of excellence for research and development, particularly emphasising place-based STEAM education, creative placemaking and futures literacies.

The primary aim of the project was threefold:

- **Youth Empowerment:** The project aimed to establish an interim space and assemble a dedicated team to introduce youth to essential 21st-century skills and technologies. Through hands-on training sessions encompassing STEAM (Science, Technology, Engineering, Arts, and Mathematics), Design Thinking, values-based leadership, and youth-led innovation, participants engaged in practical learning experiences such as design sprint intensives and youth innovation cafes.
- **Knowledge Dissemination:** By leveraging streaming and blended learning techniques, the project endeavoured to disseminate contemporary ideas and opportunities in accessible, age-appropriate formats. Utilising both local and international networks, including the NAISC Skellig diaspora and affiliations with organisations like SMARTlab International and UCD Earth Institute, the project introduced youth to a wide array of speakers, projects, and research endeavours.
- **Community Upskilling:** Tailored to the local context, the project focused on upskilling and training initiatives geared towards preparing community members for the future of work. Through targeted programs, participants are equipped with the necessary skills and knowledge to thrive in evolving professional landscapes.

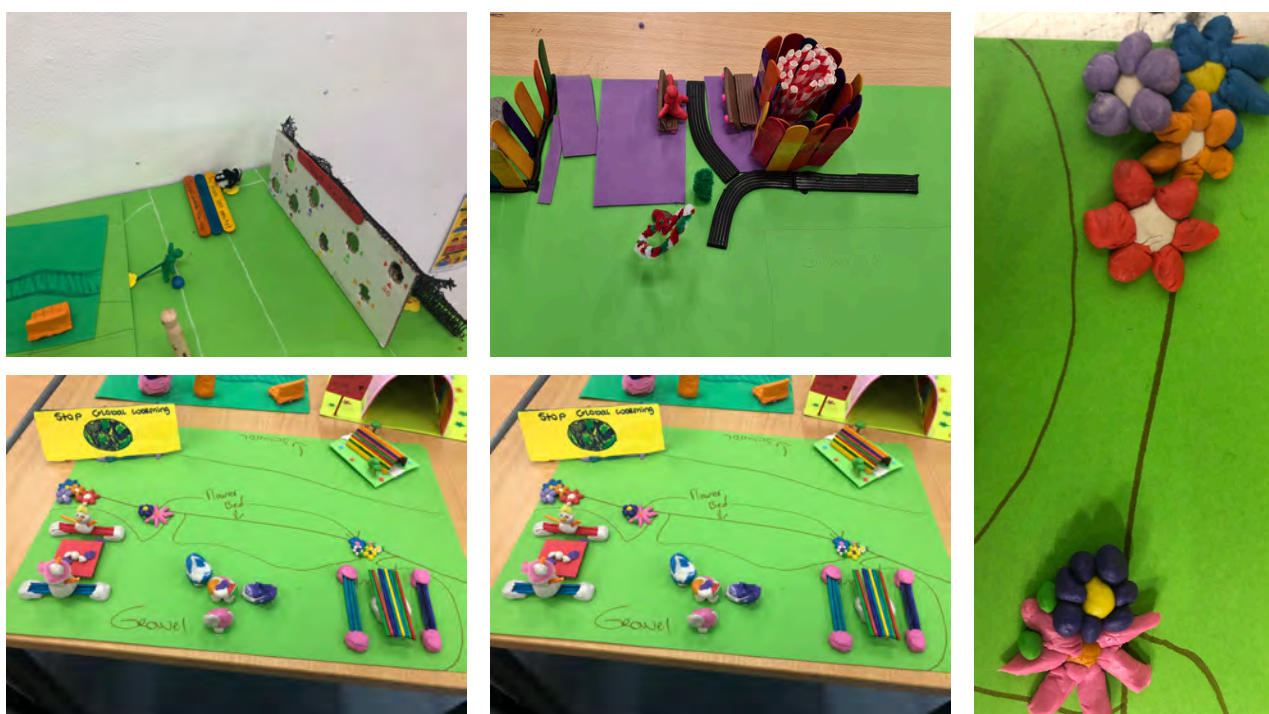


The project aimed to deliver a comprehensive suite of services, including:

- Week-long Intensives: Six intensive week-long programs were conducted for rural youth and community members utilising the "Problem to Pitch" (P2P) methodology. This five-day challenge facilitates the development of real-world solutions to local community problems.
- Regular Innovation Cafes: Provided youth and community members with opportunities to explore proposed hub technologies, work on projects, and learn from the project team. These sessions were planned as both in-person and online.
- Community Engineering and ICT Training: Specialised training in areas such as 3D printing, media skills (audio-visual), virtual/augmented reality technology and artificial intelligence were provided to enhance participants' technological proficiency. Additionally, emphasis will be placed on fostering 21st-century skills, including design thinking, enterprise, innovation, and collaborative technological practices.
- Blended Learning Resources: The project offered blended learning resources and facilities to support users in continuing their own projects beyond structured program sessions. These resources aimed to serve as a valuable tool for ongoing skill development and project implementation within the community.

The challenge of Post-Covid recovery facilitated deeper conversations around practices and approaches that were critically important in facing current issues of rural decline and isolation as well as the future challenge of climate crisis. The INCLUDE Learning Labs aimed to provide tangible experiences of new approaches to key areas such as work and education as well as highlighting issues e.g. Future of Education / Work skills gaps, new opportunities as yet unrealised and access to 21st century technologies.

The project challenged long-standing perceptions of learning opportunities ' these happen somewhere else' – in our nation's institutions or in another country, INCLUDE Learning Labs initiated bringing the latest technologies' research and ideas to a rural community in an accessible hands-on way.



Designing 1km Health and Well-being Trail, Prototyping Phase

Details of the project/works carried out/service provided

Direct beneficiaries- 435

Event	Participants served	Numbers served 435
X6 week-long intensives to rural youth - to rural youth / community members using a proven method and set of learning resources		
Climate Change Engage, 2022	Intensive 15 - 17 years	20
Biomimetic Design Thinking, 2022	Intensive 14 - 19 years	15
VR and the Future of Learning, 2023	Intensive 16 - 19 years	20
Lego Robotics Sprint Summer 2023	Intensive 10 - 14 years	9
First Lego League 2022 /23	Intensive 10 - 14 years	6
First Lego League 2023 /24	Intensive 10 - 16 years	13
Innovation Cafes - total 13		
Community Engineering Cafes	X3 2hr linked cafes 3D printing	12
Tech Tasters - June 2022	X7 2hr taster cafes In partnership with Castlemaine Youth and Family Resource Centre	126
Castlemaine Refresher Cafe	In partnership with Castlemaine Youth and Family Resource Centre	14
Social Media Training	Innovation cafe	12
Artificial Intelligence training	Innovation cafe	5
ICT (Media Skills Audio-Visual and VR / AR technology), 21st Century Skills - Design Thinking, Enterprise and Innovation Skills, Collaborative Technological Practices		
Castlemaine Weekly Tech Club / Cafe additional funding - Tusla	In partnership with Castlemaine Youth and Family Resource Centre	12
Tables / planters and Raised Beds/ Mural Leader / ACI	Design thinking - Health and Well-being trail In partnership with CnS	25
Women's Enterprise Network	Series of proposed events and peer social meet-ups	27

I enjoy[ed] it because I love building and coding. It taught me that its better to be unique than to be the same.

Mia (Maine Valley Tech Tasters 1)

Details of the project/works carried out/service provided

Event	Participants served	Numbers served 435
Building Community Capacity and Resilience		
Delivery Partnerships	Development and consolidation of working partnerships that will enable activity development beyond the lifetime of the project	20 organisations - direct contact 24 people
Local Hires	Dissemination of local faculty's knowledge and expertise, in turn increasing their employment opportunities to beyond the project	8
Supporting local businesses and community	Materials and supplies sourced from local suppliers	7
External Expertise	Introduction of unique skills and knowledge experts	5
Youth Voice Consultation	Foroige programme Development	6
Game design pilot	Pilot programme to assess interest / need Colaiste na Sceilge	4



Designing 1km Health and Well-being Trail, Ideation phases, Vision Boards and Paper Designs

Indirect Beneficiaries

The wider impact of the project's engagement with local businesses (6) and local organisations (20) is difficult to quantify however the financial impact of the project has been calculated using a multiplier effect at €2.87 (every 1€ spent / invested generates €2.87 (LM3, 2023).

Organisations

Living Iveragh
Foróige
ETB - LCYP
Maker Meet
CERN
Kerry County Council
Dromid Community Centre
Cahersiveen Community and Business Alliance
Cahersiveen Library
STEMarts Lab
Castlemaine Family Resource Centre, Castlemaine

Schools & Education Centres

Coláiste na Sceilge, Cahersiveen
Killtallagh National School, Castlemaine
Firies National School, Firies
St Joseph's, Ballybunion
Scoil Crochán Naofa, Caherdaniel
Sn Naomh Mhichi, Ballinskelligs
Scoil Saidhbhín, Cahersiveen
Happy Valley After School, Castlemaine
Asana School of English, Cahersiveen

Businesses

McCarthy's Buses
Bari Café
Asana School of English
Dromid Community Centre
Tralee Print and Stationary
Portmagee Cafe

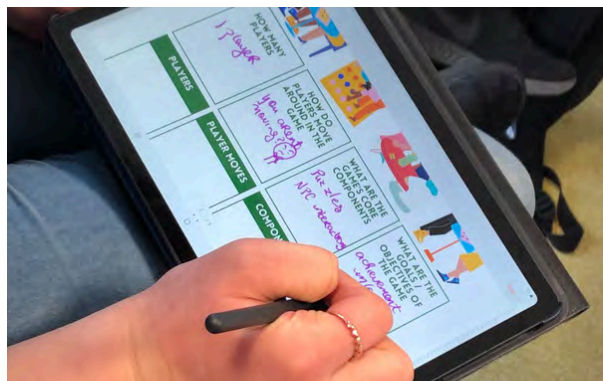
Design Sprint Intensives

Total delivered - 6

The project delivered and iterated X6 challenge-led design intensives to rural youth / community members adapting a proven method and set of learning resources – Problem to Pitch, a 5 day challenge to solve real world local and community problems including initiating the foundation for long-term resilience. As an underserved community, many of the skills and opportunities presented are unavailable, this includes both as representation, and local modelling of skills due to employment sectors as well as local skills to deliver 21c capacity-building. Initially, these were proposed as week-long intensives yet this had to be adapted in some instances to facilitate local engagement and logistical constraints e.g. access to facilities delivery expertise.

We also began working with a new community member Olha Burdo, a STEAM educator, from the Ukraine, who arrived in March 2022. Olha has enabled us to expand our delivery as well as bringing another female, STEAM educator and skills set to the local community. This meant we were able to offer extended programmes in Lego, Robotics and Design.

Please see Appendix for detailed project pages and images.



Images from Design Sprints, Climate Change Engage, Bio-mimetic Thinking and Space Messengers

Innovation Cafés

Total delivered - 13

The project proposed a series of bi-monthly for youth and community to explore the hub's technologies, work on their projects and learn from the project team both live and online. The project delays due to Post-Covid recovery meant we had to revise both the timetable and delivery programme to suit local interest and ability to participate.

Community Engineering (3D printing) Feb. 2022: Dr Anita McKeown and Dr Colin Keogh, Rapid Foundation

Delivered x3 2hr linked Innovation Cafes around community engineering and 3D printing at the beginning of the project. While this was well attended and well-received, it was only an introduction. Longer term we would develop focused programmes for local artisans, designers and under 18s to address their design / prototyping needs while upskilling through integrating design and circular economic principles.

Tech Tasters Innovation Cafes - June 2022 Dr Anita McKeown and Chris Reina Makermeet

In June 2022, Dr Anita McKeown and Chris Reina, from Makermeet delivered 7 x2hr innovation cafes to 112 children and young people. This served two purposes to introduce the young people to technology as well as develop a relationship to build a foundation for engagement and recruitment and participation. Depending on age and possibilities we introduced them to 3D printing; Green Screen; Circuitry and Wearables. Feedback gathered using the 321 from the Taster Innovation Cafes was very positive both from the participants and the organisations we partnered with (5 organisations - Firies National School, Happy Valley After School, St Joseph's National School, Castlemaine Family Resource Centre - Teen space and Kiltallagh National School).

Tech Tasters Refresher Cafe

This was followed up with a proposal to continue the work with 37 expressions of interest received regarding a follow up programme. We used the Lundy Model of Child Participation, (Lundy, 2007) to develop a consistent programme and evaluate the various methods of delivery.



Stages in the Lundy Model of Child Participation, Lundy, 2007

Innovation Cafés

Total delivered - 13

We undertook the Refresher Café in August 2022 reminding them through practical tech activities of what they had experienced and facilitating discussion to develop a more consistent programme based on the interests and commitment of the potential participants. The process reminded the young people not only of what they enjoyed and had experienced but also to help them refine what they were interested in with regard to a consistent programme. The group reached consensus around the following technologies 3D Printing, Circuits and Wearables and Film including VR / AR and Green Screen.

Social Media Training with Noodlehorse Media, March 2023

Lyn Mutch from Noodlehorse Media, who facilitated social media training for local women in business.

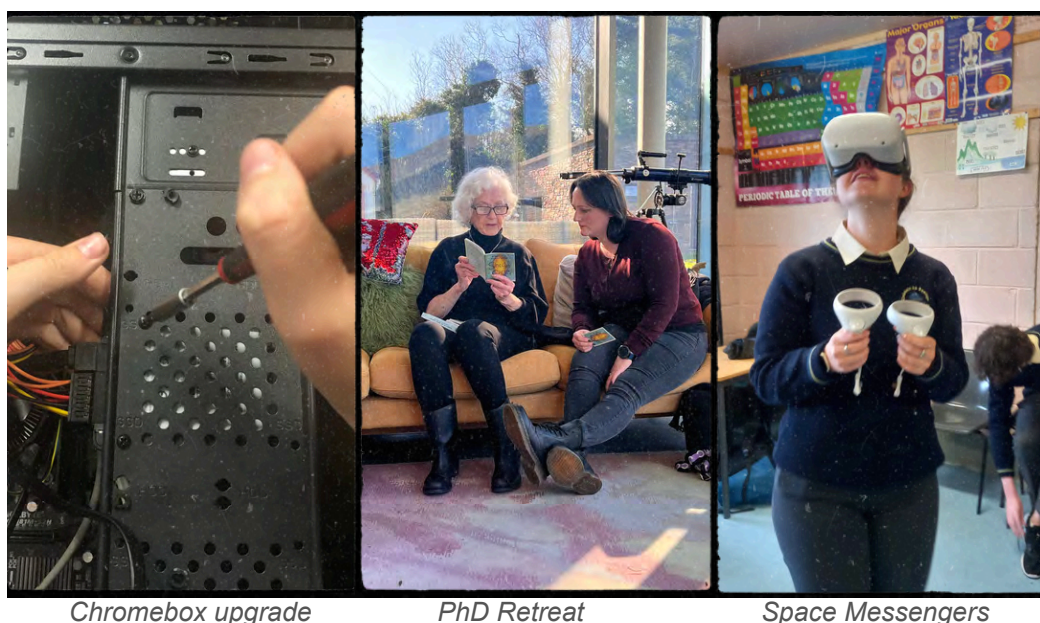
Using Artificial Intelligence for Business, April 2023

Dr Tara O'Neil Chief Innovation Officer at SMARTLab Niagara, has over 25 years of experience in creative direction, strategic foresight, and innovation devised an intensive practical training

Proposed Training

Based on consultation with the Women's Enterprise network we devised and offered a number of training sessions covering the following aspects: goal setting, as well as different formats; however, despite developing to suit local needs these were also cancelled due to lack of attendance - see outcomes section for further details.

Please see Appendix for detailed project pages and images



Chromebox upgrade

PhD Retreat

Space Messengers

Capacity Building 21c Skills

Total delivered - 7 micro-projects

Based on the design sprints, the innovation cafes and participant feedback we devised a series of bespoke programmes and events that sought to develop ICT (Media Skills Audio-Visual and VR / AR technology), 21st Century Skills (Design Thinking, Enterprise and Innovation Skills, Collaborative Technological Practices). These activities were delivered over time and addressed specific and emerging needs as well as maximising opportunities.

Castlemaine Youth Tech project, Additional Funding - Tusla

Building on the Innovation Café tasters and the Refresher Café, we devised a 12 week programme, for a Youth Tech Project for up to 15 young people age 12+, running from Sept - Dec 2022 focused on 3D printing, VR / AR and Circuits and Wearables. We began with a few warm up sessions on circuits and wearables followed by the upgrading of 10 PCs for community use. Participants worked in twos to remove the old hard drive, replace it with a new one and update the operating systems. This not only gave them confidence it, developed their technological skills and awareness of safety and listening to instructions. We then began an 8-week film project including storyboarding, creation of assets using Green Screen and 3D printing a well as recording audio, video and editing.

1 KM Health and Well-being Trail - 25, Arts Council Ireland (ACI), Our Place

As part of phase 1 we had developed a longer relationship with our local secondary school to undertake a larger public health and well-being trail, funded by LEADER. We were able to utilise this project and a small additional funding award for materials from ACI which enabled us to deliver two days, activities in designing and building tables / planters and raised Beds / Game Mural. While our focus is ICT it within a context of inclusive and sustainable practices. This micro-project included practical applied capacity building that included design thinking and circular economic principles.

Game Design Cafes May 2023, Partner ETB-LCYP

x6 2 hr workshops exploring game design including storyboarding, designing and building the game. While 12 young people had initially expressed interest, 4 participants attended all 6 cafes. We were able to undertake this due to additional funding from our local ETB's Local Creative Youth Partnership. In the Autumn, ETB-LCYP wanted to follow this up with a series of creative workshops however, while this was a successful micro-project, it did not represent value for money. However, all of the participants except one joined our Lego programmes and are keen to sign up for next year.

Women's Enterprise Network

We initiated a women's enterprise network, through which we offered expert training in Social Media and Artificial Intelligence for business as well as setting up a monthly

Capacity Building 21c Skills

Total delivered - 7 micro-projects

breakfast club meet-up. The meet up is designed to sustain connections made through the project and develop networks of support beyond the lifetime of the project. The social meetups, for women who run their own businesses to meet, feel supported and troubleshoot ideas and issues within their enterprise. This formed the foundation for an ongoing monthly breakfast meet up in a local café, this ensures consistency and a legacy of the Include Labs project.

Third Level Training: Hosted PhD Research Retreat - February 2023

We hosted SMARTlab researchers and global thinkers – including those from the local community, leading the way with their Ph.D. studies in Cahersiveen, Co. Kerry. This involved research training as well as a intensive with Lyn Mutch, Noodlehorse media in Social Media for Research Dissemination. The intensive research training focus on Inclusive Design and not only enhances students' research capabilities but also begins to cultivates a community relationship. SMARTlab Skelligs focuses on engaged / embedded research, which has a focus on local research concerns that fosters a more accessible and equitable society as well as supporting local PhD candidates. The retreat cultivates a tangible and concrete understanding of an aspect of our work and the work that will happen on The Ballroom. The Skelligs Catalyst @ The Ballroom will address real-world challenges local challenges, promoting inclusivity and empowerment for all residents as well as building local capacity.

Space Messengers International Programme - October 2023 - March 2024 - Additional Funding - Science Foundation Ireland

The project was initially proposed from Sep - end Oct and ran with 16 self-selecting participants. We were able to extend until March 2024, with 10 self-selecting Transition Year students completing the programme, looking at the crossovers between the arts, humanities, philosophy, astrophysics, particle physics, and space technology. In partnership with Agnes Chavez and the STEMarts Lab, this is the first time the programme has been brought to Ireland.

STEAM Space Day April 2024

Transition Year students from the Space Messengers (100% of completed cohort) and STEM Girls Programme participated in a STEAM Space Day of Learning, an opportunity for learners to examine the realms of scientific discovery and space exploration. Learners made a virtual visit to CERN and the Hadron Collider, engaged in enlightening conversations with particle physicist Dr. Steven Goldfarb, explored the International Space Station through Virtual Reality and participated in discussions and debates, speculating on the future of space exploration and the exciting career opportunities within STEAM-Space fields.

The Outcomes

The project has provided significant impact as well as important insights for the evolution of the project and the long-term sustainability and focus of the INCLUDE labs going forward. Overall, the project's ability to attract attention and support from both youth and adult stakeholders, coupled with increased funding opportunities, signifies the growing recognition and effectiveness in addressing critical educational and community development needs.

By bringing the latest technologies, research, and ideas directly to a rural community in an accessible, hands-on manner, the project challenged entrenched perceptions that such learning opportunities are only available in national institutions or overseas. Through INCLUDE, the project provided access to cutting-edge learning experiences, thereby offering community members an opportunity to engage with and benefit from advancements in technology and innovation within their local context.

By fostering partnerships, generating interest, and securing additional resources, the project will continue to expand its reach and create meaningful opportunities for young people while also capturing the attention and support of the broader community.

Youth Empowerment

The project aimed to establish interim projects and build a foundation for the longer-term Ballroom Project and its activities by introducing youth to essential 21st-century skills and technologies. Further we hoped to excite, inspire and encourage them with the possibilities of STEAM (Science, Technology, Engineering, Arts, and Mathematics), Design Thinking, values-based leadership, and youth-led innovation.

Our design sprint intensives saw young people develop new skills and apply existing skills in new ways, as well as develop innovative solutions to challenges that no adult would, giving them confidence and showing them their competences.

Knowledge Dissemination

The project successfully disseminated contemporary ideas and opportunities in accessible, age-appropriate formats. Leveraging both local and international networks, such as the STEMarts Lab, CERN, and new partnerships e.g. Makermeet, UCD Earth Institute or Rapid Foundation, the project effectively introduced participants to a diverse range of speakers, projects, and research endeavours.

A number of adult engagement sessions were also offered through the Cahersiveen Community and Business Alliance around key community concerns e.g. Futures in

relation to the Climate Crisis, loss of tourism revenue and planning and development, yet there was little interest.

In part this was due to their own priorities, however some community members stated they found thinking about the future and the climate crisis too frightening to engage with at the same time as stating they knew this was not the way to deal with it. This is something that could be addressed in the future.

However, we did support them with external expertise and developing submissions for County Council development and regeneration plans. We feel this could be expanded within the Ballroom project, once we have consistent facilities and have already discussed expanding the SMARTlab Academy to under 18s as well as development of activities with The Creative Futures Academy at UCD.

Community Upskilling

While the younger community's heightened interest and involvement are evident, adult community engagement has been difficult to sustain. Despite regular consultation and adaptation to deliver services to meet local needs, participation is limited. The Women's Enterprise Network and training was initially well attended; the interest in the programme dropped off despite consultation on training needs and developing training around these needs. Business and family commitments impacting lack of free / personal time, was reported as a significant factor in this with feedback showing prioritising of limited time resources placing training and development low on the priorities list.

We also introduced community 3D printing and delivered three Innovation Cafés at the beginning of the project. Due to timetabling of external expertise and the need for more substantial focused programmes we did not pursue this further, but will be developing more focused programmes in the future. We have since tried to re-ignite this with community participants (over 18s) on a number of occasions however most interest and engagement has come from the under 18s community. This was utilised within the First Lego League projects as a fundraiser designed by the participants of the older team. This is something they have expressed interest in and we will be developing a youth-focused project around this within our Autumn 2024 projects.

Moving Forward

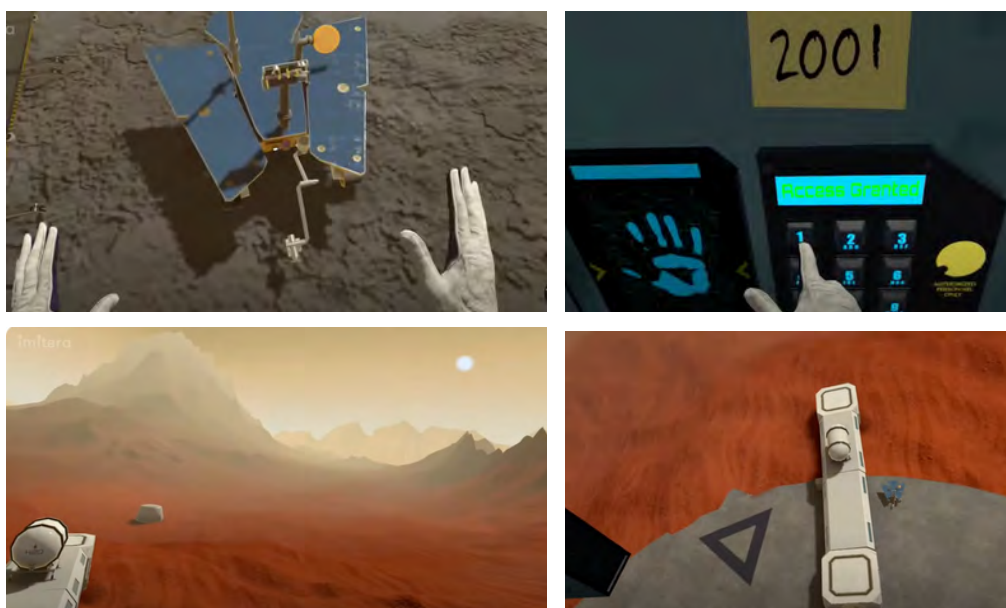
We have developed an exciting new transatlantic partnership with STEMarts Lab, Northern New Mexico (USA) which emerged from our exploration and participation in Space Messengers International (expanded through CLÁR and our SFI funding). Through this collaboration we will be focusing on introducing young people to space exploration integrating ethical and sustainable perspectives. This will continue to connect our local young people with external expertise from CERN, the New Mexico Space Valley Coalition and related partners. We have also developed a Future of Space programme for post-primary which we will be launching in August 2024 and exploring international collaborations with other young people and organisations.

The Impact

I really enjoyed doing this programme, and so did all my friends. We found parts of it challenging, but in a good way. We actually learned a lot when we think back on what we did, but because we had fun doing it.

Dan (Space Messengers)

- Delivered customised community and educational resources to 431 direct beneficiaries
- Delivered 6 design sprints
- Delivered 13 Innovation Cafés
- Trialled and expanded 16 community and learning interventions
- Developed 7 activities now expanded into blended learning resources for post-primary school
- Employed 7 local residents and 5 external experts
- Supported 6 local suppliers
- Developed 20 delivery relationships / proof of concept partnerships models
- A long term transatlantic partnership with STEMarts Lab New Mexico
- Development of of streamed programme series - pending



Mars Rover Challenge and screen casts task, Space Messengers International

13

He only knew one person beginning this journey and left with lots of friendships. It has definitely left a lasting impression on him. He is more confident too. His critical thinking skills in all areas are clearer and problem solving in area of maths has improved greatly.

Parent (First Lego League)

Match Funding - Proposed €36K Actual 43.7K

Partnerships with organisations such as University College Dublin, Science Foundation Ireland, the Kerry Educational and Training Board Local Creative Youth Partnerships programme, Foroige and TUSLA have been instrumental in securing additional funding as well as expertise and in kind funding, thereby amplifying the project's reach and impact on young people and the local community.

Additional funding €20650: IRC €5000, Science Foundation Ireland €5000, ACI, €500, Tusla, €6000 ETB-LCYP €3850 (Tasters / Game Design) First Lego League €300

In-Kind €23k: Facilities / Equipment: €19000, Materials / Resources €4000.

Youth Empowerment

The project succeeded in garnering increased exposure and interest from the younger community, particularly among individuals aged 11 to 16, which has increased our reach with parents and other organisations that now see possibilities for collaboration. Our initial partnership with Foróige, expanded to include a youth consultation session to facilitate participant's voice in developing programmes in gaming and coding. We have also pooled and shared resources to expand both our delivery and serve more young people e.g. tablets / headsets. The development of youth participation has also facilitated enhanced engagement with key funders and stakeholders as well as broadened our reach with supporters and social media channels.

Recognition

A number of the participants in the project have received recognition for their activities e.g.

- First Lego League 2022/23 - Best Innovation Project, Galway Regional Finals and Special commendation National Finals, Dublin
- First Lego League 2023/24 - Best Innovation Project and Best Robot Design, Galway Regional Finals
- Castlemaine Family Resource Centre, Kinia's Creative Technology Week awards, Best Organisation 2023 / 24 included both the Taster Innovation Cafes and Castlemaine Youth Tech projects

Local and External Faculty

A key aspect of the project was to facilitate the sharing of local faculty's knowledge. Local faculty are individuals within the community that would not consider themselves as educators yet have knowledge and skills that are often unrecognised. One of the INCLUDE lab's aims is to facilitate the recognition of this knowledge, not only to realise the benefits of this knowledge locally but also to develop new revenue streams for the individuals.

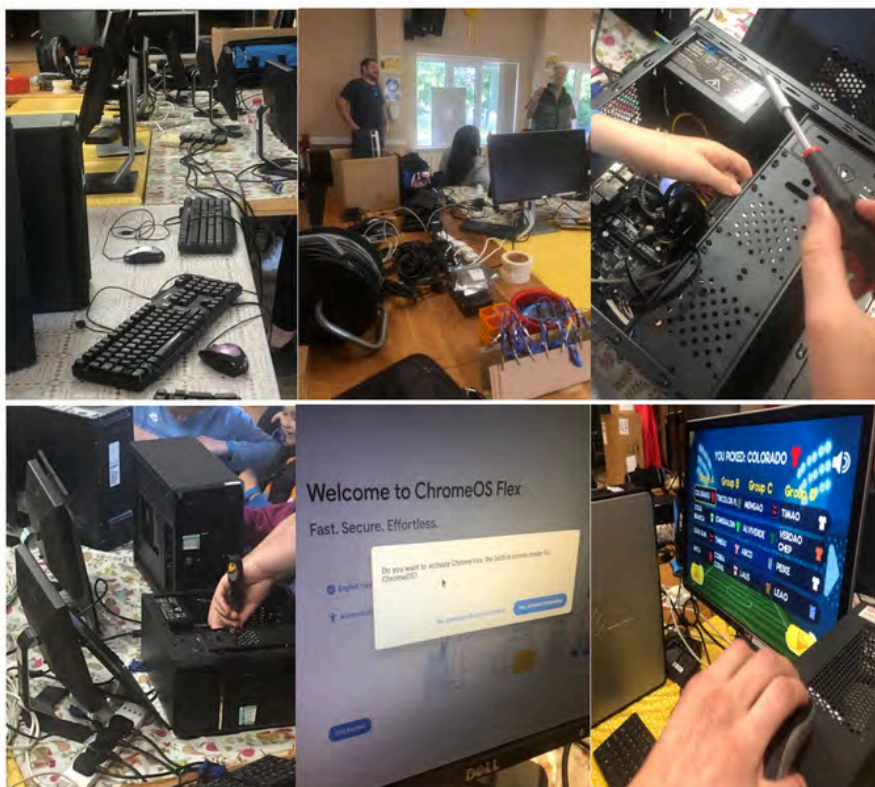
This could be expanded with larger facilities as well as developing micro-credentials to accredit their knowledge. Increasingly, practical skills as well as the application of knowledge in new contexts are required for the demands of the 21c. Realising local latent potential not only identifies already existing skills and knowledge within a community that can then be monetised through additional employment opportunities.

Because the learning is based on practical tasks, communication and free exploration of ideas, it differs a lot from ordinary school tasks that prioritize theoretical knowledge and writing. And that's what I like, since it is actually unique and out of the ordinary way of learning that's what makes the learning more interesting, special, engaging and kind of multi-learning...

Volunteering

Further the increased awareness has increased community engagement and in-roads to specific communities e.g. primary school and parents; local organisations and facilities. This has increased volunteer commitment to support youth learning programmes as well as sharing local resources and facilities.

Furthermore, the project's success has garnered some significant press exposure, (see references) drawing attention from adults, particularly parents but also national and international agencies through the circulation of the press. Parents, intrigued by the project's outcomes and its potential benefits for their children, have shown increasing interest and support. This newfound attention from adults, driven by a desire to ensure their children's educational and developmental needs are met, underscores the project's broader societal impact and its ability to resonate beyond its initial target audience. This will be leveraged to develop sustainable partnerships that can support future programme delivery.



Upgrading old PCs into Chromeboxes , Castlemaine 2023

...as during programme you don't just learn about engineering, coding and similar things, but also values such as learning from each other, and this gave the unusual and valuable experience of learning.

The Challenges

The project has achieved significant impact both for our participants and the project objectives, we have outlined several elements that limited the project's overall effectiveness.

The Impact of Covid-19

The advent of unforeseen circumstances such as the COVID-19 pandemic and post-Covid Recovery stalled the beginning of the project with limited facilities and opportunities to deliver much of the proposed programme. Potential participants due to work and school online had 'Zoom fatigue' after 2 years of restricted engagement, which also impacted their capacity for activities in their leisure time. Such activities during the early stages of Post Covid recovery competed with increased contact time with family and friends as well as seasonal limitations. Our local community relies on tourism which means April - Sept limits interest in events.

Increase in local community

Covid and the War in Ukraine meant an influx of new temporary residents, which posed challenges in engaging with and addressing the needs of our community effectively. While we endeavoured to adapt our programs and services to meet these evolving needs, there were instances where the impact on community engagement and participation was significant.

Delays in the Ballroom Project

The delays encountered during The Ballroom project's redevelopment partnership with the local authority significantly hindered our ability to showcase the full potential and impact of the project. We had to find alternative venues, often at short notice. This posed challenges in accommodating events due to availability, accessible and technical requirements as well as competition during Covid-19 Lockdowns.

External Expertise Programme

Additionally, these delays also impacted our ability to stream external expertise, limiting the breadth of knowledge-sharing opportunities for our community as proposed in the original grant. We were in most cases able to overcome this, but it had an impact.

Local Expertise

The limitations on external expertise meant more reliance on local expertise for delivery. The availability of local expertise presented challenges in maintaining consistency in our programming. At times, the availability of expertise made it difficult to subsidise the issues faced by the limitation on external expertise, which affected programming continuity.

requiring us to invest additional resources in sourcing suitable expertise or adapting our programming to accommodate these changes.

Agile programming

The team worked hard to address these challenges, we recognize the importance of proactive planning, stakeholder engagement, and flexibility in responding to unforeseen circumstances. Moving forward, we are committed to implementing strategies to mitigate similar issues and enhance the resilience and effectiveness of our project.

It should be noted that we had minimal agency or control over the extenuating circumstances that impacted on the project delivery. The team worked hard to deliver the programme in line with the reality of the situation. What the circumstances do highlight is the need for SMARTlab Skelligs and The Ballroom project not only for access to 21c future ready skills and expertise, but for the development of adequate accessible independent facilities that enable both on and off-line delivery. Further, to ensure attendance and booking particularly from adult participants, we would seek to offer micro-credentials through our academic partners something we have discussed with the SMARTlab Academy and The Creative Futures Academy at UCD.

Securing the necessary skills and knowledge for the successful execution of our initiatives is vital for the long-term sustainability of the INCLUDE learning labs and to our commitment to future potential and development in the region. This also aligns with our broader sustainability objectives, encompassing both environmental and organisational sustainability; not only ecological balance but also the capacity and adaptability of our organisation and the project to meet evolving challenges locally. In nurturing these capabilities, we pave the way for sustained growth and impact, ensuring that we can continue to thrive and make meaningful contributions to our communities and beyond.



Still from Castlemaine Film Project, with 3D modelled asset

Our Team



Dr Anita McKeown
Co-Founder, Future Focus21c



Rebecca White
Co-Founder, Future Focus21c



Dr Jessica Garska
Sprint External Expertise



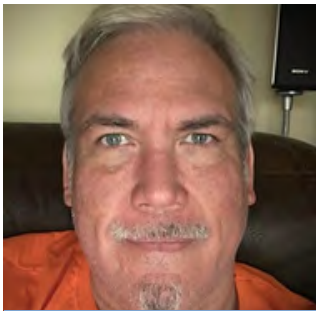
Dr Tara O Neil
Chief Innovation Officer
SMARTLab Niagara



Dr Colin Keogh
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Olha Burdo
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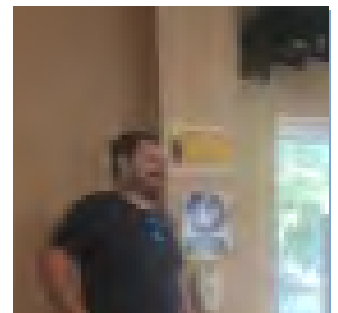
Tamara Hochstrasser

Assistant Professor, School of Biology and Environmental Science, UCD



Bryan Gibson

Sprint External Expertise,



Brendan O'Sullivan

Maker Meet

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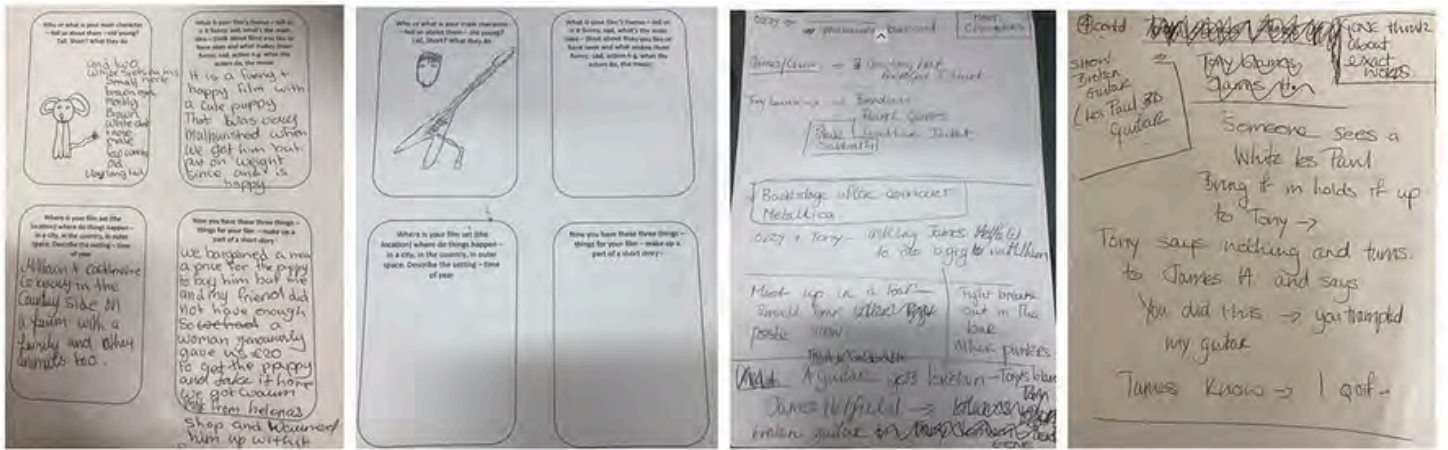
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Maine Valley Teen Tech Tasters Film Project



Thank You



Future Focus21c
Tooling up education for the 21c



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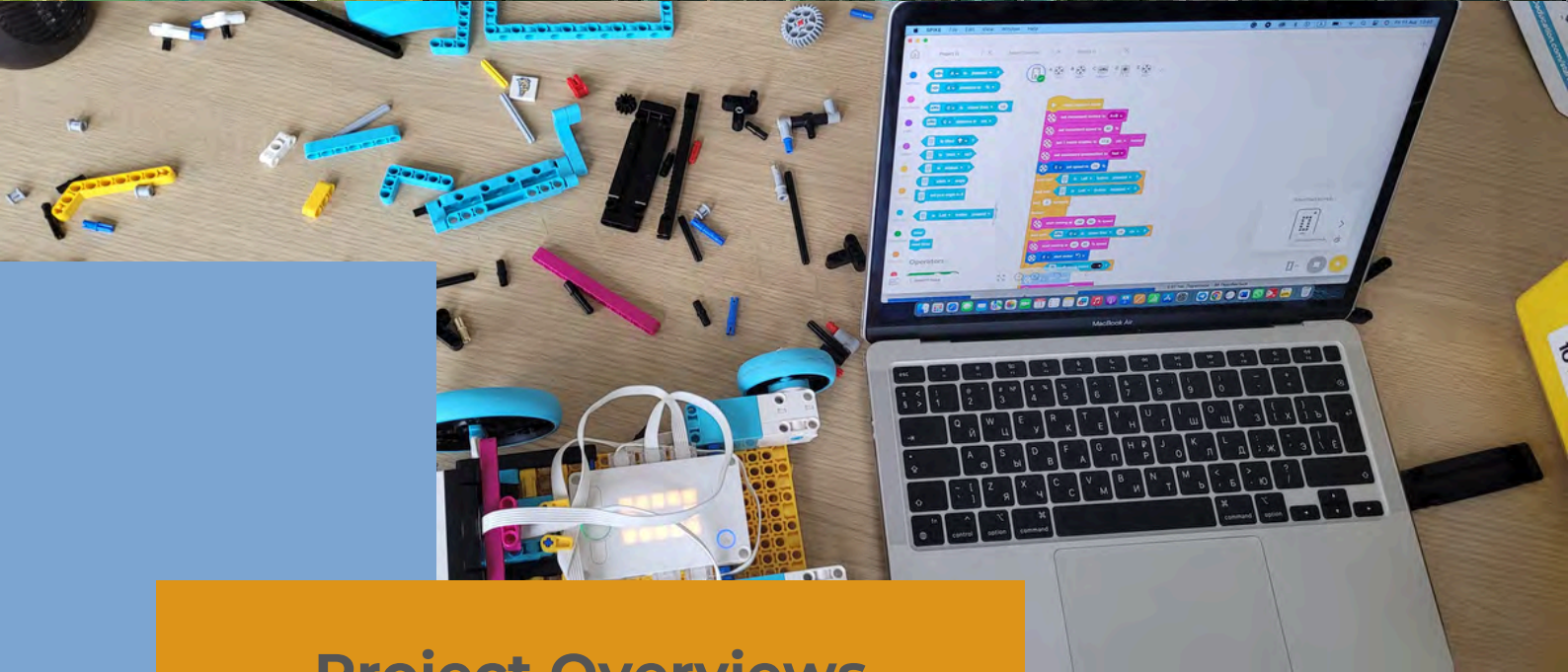
An Ghníomhaireacht um Leanaí agus an Teaghlach
Child and Family Agency



Future Focus21c
Tooling up education for the 21c



Appendix



Project Overviews



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Project Overviews

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Climate Change Engage

Collaboration between UCD School of Environmental planning and SMARTlab Skelligs Include Learning Labs
March 2022



DESIGN SPRINT INTENSIVE

How do we increase awareness of climate change adaptation among 15-17 year olds using gaming?

20 Transition Year students participated in a five-day design sprint structured to support the development of skills and competencies including the acquisition of knowledge to empower students and increase their confidence in tackling key issues related to the current climate crisis we are living through.

To read more click [here](#)

OBJECTIVES

- To support the development of skills and competencies including the acquisition of knowledge to empower students and increase their confidence in tackling key issues related to the current climate crisis we are living through.
- Use Design Thinking as a learning tool.



Additional Outcomes

- Strengthened collaboration opportunities between UCD and SME
- Published chapter contribution to "University Initiatives on Climate Change Education and Research" (Springer Nature)
- Inclusion in the European Urban Research Association annual conference

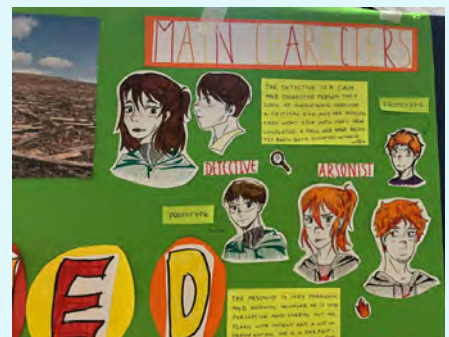
At A Glance

Challenges

- Adequate space for sprint approach to learning
- Recruitment process and ethical clearance / vetting can be slow
- Equipment - we have our own so independence was critical for agility

Benefits

- All learners engaged fully and developed new skills and confidence
- Learners developed responsibility and agency for their learning



Bio-mimetic Design Thinking

Collaboration between Asana School of English and SMARTlab Skelligs Include Learning Labs
August 2022



DESIGN SPRINT INTENSIVE

A two-day workshop with participants in biomimetic design, focusing on a creature that can breathe both underwater and on land as an introduction to Climate Change adaptation. Participants engaged in small-scale model making, facing building challenges, and creating characters in 2D, before transitioning to 3D models using 3D pens.

OBJECTIVES

- Use Design Thinking as a learning tool.
- Introduce participants to the concept of climate change adaptation through design-led challenges
- Introduce participants to biomimetic design principles by focusing on a creature that has adaptive features in the context of climate change.
- Utilise hands-on activities such as small-scale model making, and building challenges and incorporate biomimetic elements into their designs.
- Create characters in 2D, exploring the creature's habitat, behavior, and interactions with its environment.
- Transition participants from 2D to 3D modelling using 3D pens, and explore the physical form and structure of their designs in greater detail.
- Foster collaboration and exchange of ideas among participants through group discussions and feedback sessions
- Empower participants to apply their newfound knowledge and skills in biomimetic design to address real-world challenges related to climate change adaptation, promoting sustainable and innovative solutions.



Additional Outcomes

- Increased competencies in communicative English

At A Glance

Challenges

- Tailored approach to the design sprint process with second-language learners
- Equipment - critical for agility

Benefits

- Participants developed the confidence to design, problem-solve and express ideas through a second language



VR Future of Education

Collaboration between Dr. Tara O Neil, Chief Innovation Officer at SMARTlab Niagara and SMARTlab Skelligs Include Learning Labs
April 2023



DESIGN SPRINT INTENSIVE

How do we create an immersive learning platform using virtual reality to enhance educational experiences and maximise student engagement?

A three-day design sprint with 20 young people (16-19 years old) that begun exploring the challenge of designing virtual reality, immersive learning environments. This sprint was co-designed and facilitated with Dr. Tara O’Neil, Chief Innovation Officer at SMARTlab Niagara.

To read more click [here](#)

OBJECTIVES

- Explore the concept of immersive learning platforms and virtual reality (VR) technology, understanding their potential to enhance educational experiences and maximise student engagement.
- Provide experience to young people of working with an interdisciplinary STEAM research team on a design challenge.
- Foster hands-on learning experiences through prototyping and experimentation
- Enable participants to explore different elements of VR design and interaction to create immersive educational experiences.
- Encourage teamwork and collaboration among participants, promoting communication and idea sharing to co-create innovative solutions that meet the needs and interests of young learners.
- Explore problem-solving, user-centered design principles, and technological considerations related to VR development.

Additional Outcomes

- Enable participants to assess their progress and identify areas for improvement through feedback and reflection



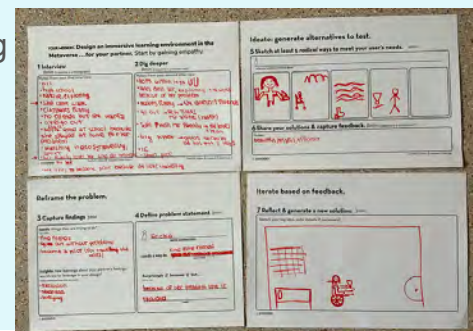
At A Glance

Challenges

- Gaps in their knowledge, e.g. using software / tools for learning or productivity

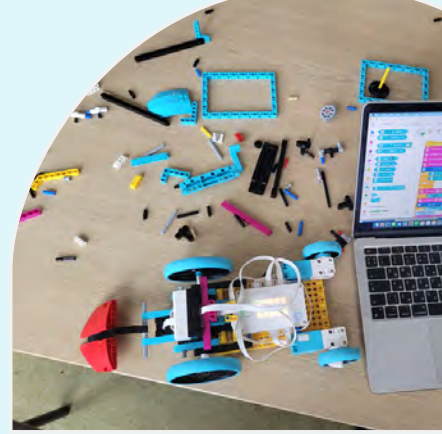
Benefits

- Celebrate achievements as they work towards creating impactful educational experiences in virtual reality.



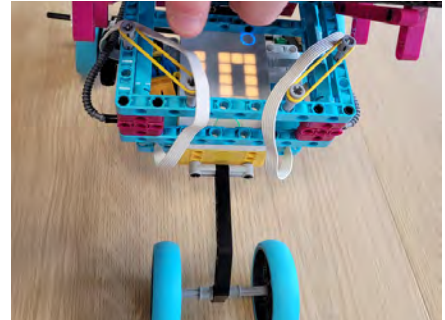
LEGO Robotics Sprint

Collaboration between Olha Burdo and SMARTlab Skelligs
 Include Learning Labs
 August 2023



DESIGN SPRINT INTENSIVE

9 participants (aged 10-14) attended a 3-day summer camp on Lego Robotics. Participants were introduced to the exciting world of engineering and prototyping through a series of engaging problem-solving missions. With a focus on hands-on activities, they explored the intricacies of working with Lego and the mechanics of motors, honing skills and undertaking a number of challenge-based project. The camp fuelled creativity, while problem-solving sessions addressed real-world challenges.



OBJECTIVES

- Offer a hands-on introduction to STEM concepts using Lego in a fun and engaging way.
- Foster creativity and innovation in robotics
- Introduce participants to the fundamentals of engineering and prototyping using Lego Robotics
- Present creativity and innovation as a way to address challenges
- Enhance problem-solving abilities through practical challenges
- Promote confidence in a supportive learning environment where participants can take risks, make mistakes, and learn from failure
- Develop communication skills while developing team work and collaboration skills
- Develop technical skills robotics engineering, programming, and sensor integration through hands-on experience



Additional Outcomes

- Ability to assess interest in Lego and robotics as part of our programme development for the Autumn terms
- Connect participants' interest in Lego and build relationships



At A Glance

Challenges

- Connecting with participants and recruiting during the summer

Benefits

- Developed a new network and reconnected with 50% of our Autumn participants, who also told friends. This has since been shared with other friends keen to join next year.

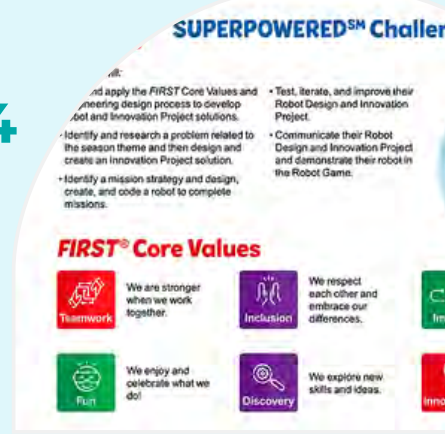


First Lego League - 2022/23 and 23/24

Collaboration between Olha Burdo and SMARTlab Skelligs

Include Learning Labs

Sept 2022-March 2023 & Sept 2023-March 2024



DESIGN SPRINT INTENSIVE

Over two seasons (2022-23 and 2023-24), we supported three teams through the First Lego League Ireland competition. First LEGO League (FLL) is a worldwide, project-based challenge for young people to encourage an interest in real world themes and acquisition of key skills through LEGO-based robotics. In both seasons, our teams have won the regional finals for Best Innovation and Robot Design categories.

To read more click [here](#) and [here](#)

OBJECTIVES

- Provide a deeper engagement with STEM (Science, Technology, Engineering, and Mathematics) fields by applying theoretical knowledge to real-world challenges in a fun and engaging manner
- Develop technical skills and proficiency in working with Lego components and robotics technology, including understanding the mechanics of motors, sensors, and programming interfaces, through guided instruction and practical experimentation.
- Improve communication skills through presenting project ideas, progress updates, and solutions to judges and peers.
- Foster resilience and perseverance by overcoming obstacles and setbacks encountered during the competition preparation process.
- Develop time management and organizational skills by planning and executing tasks within the constraints of competition deadlines.

Additional Outcomes

- Increased reach for the project over the two years and the camp led to requests and evidencing the need for more provision
- Increased volunteer support from parents and stakeholders to continue running the programme

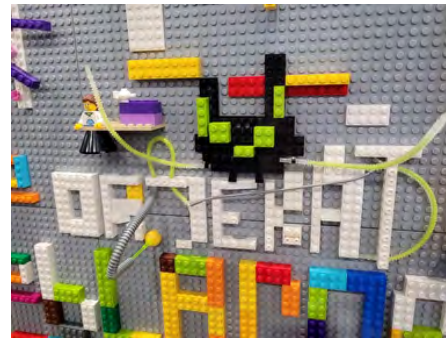
At A Glance

Challenges

- Our key challenge is increasing funding to continue running the programme as delays on the regeneration of The Ballroom have impacted our fundraising activity

Benefits

- Participant and parent testimonials evidencing the programme's success providing evidence to support development of corporate sponsorship



Space Messengers International Programme

Collaboration between Agnes Chavez, Founder of STEMArts Lab New Mexico and SMARTlab Skelligs Include Learning Labs

Sept 2023 - March 2024



DESIGN SPRINT INTENSIVE

The project was initially proposed from Sep - end Oct and ran with 16 self-selecting participants. We were able to extend until March 2024, with 10 Transition Year students completing the programme, looking at the crossovers between the arts, humanities, philosophy, astrophysics, particle physics, and space technology. In partnership with Agnes Chavez and the STEMArts Lab, this is the first time the programme has been brought to Ireland.

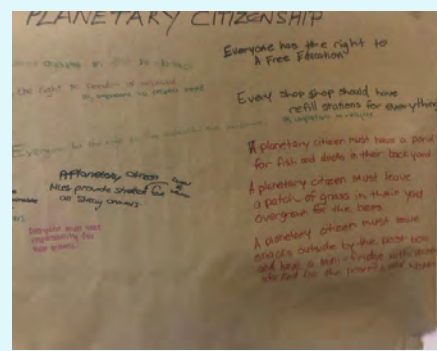
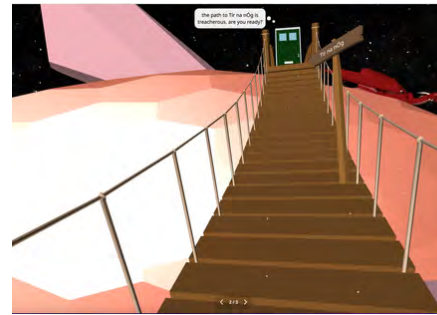
To read more click [here](#) and [here](#)

OBJECTIVES

- Provide a unique educational opportunity for Transition Year students, offering them exposure to trans-disciplinary thinking and hands-on experiences integrating arts, sciences, and technology.
- Foster creativity, critical thinking, and problem-solving skills among participants encouraging them to explore new ways of understanding and engaging with complex concepts and ideas integrating artistic practices with scientific inquiry
- Promote lifelong learning and curiosity-driven inquiry by exposing participants to cutting-edge research, emerging technologies, and interdisciplinary perspectives
- Inspiring them to continue exploring the crossovers between arts, humanities, and STEM disciplines beyond the duration of the programme.

Additional Outcomes

- Pilot programme to develop potential working relationship has resulted in a transatlantic partnership with STEMArts Lab, New Mexico



At A Glance

Challenges

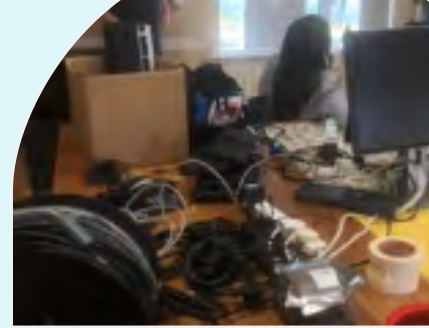
- Inadequate spaces for delivering the programme due to physical space and poor internet

Benefits

- supportive and inclusive learning community to share ideas, ask questions, and collaborate on projects that push the boundaries of traditional disciplinary boundaries, fostering a spirit of curiosity and exploration

Innovation Cafés - Maine Valley

Collaboration between Castlemaine Valley Family Resource Centre and SMARTlab Skelligs June 2022, Sept. 2022 - Dec 2022.



Tech Tasters

INNOVATION CAFÉ

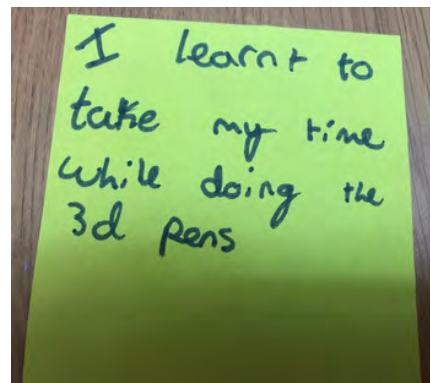
Working with the Castlemaine Valley Family Resource Centre we delivered a series of innovation cafes with 126 young people to introduce them to a number of technologies and STEAM concepts to encourage problem-solving skills through creative activities. The aim was twofold to provide 21c skills fun activities for the young people and to see what, if any of these activities might be of interest to them for a longer Autumn programme



To read more click [here](#)

OBJECTIVES

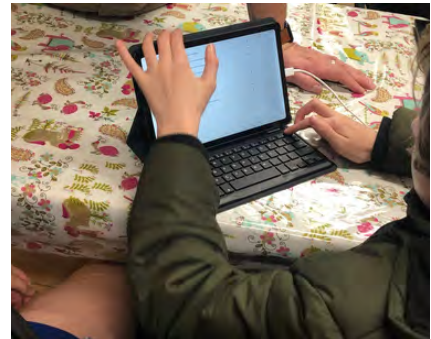
- Introduce young people to various technologies and STEAM (Science, Technology, Engineering, Arts, and Mathematics) concepts through interactive and hands-on activities.
- Cultivate an interest in 21st-century skills among young people by making learning fun and engaging through interactive sessions
- Assess the level of interest and engagement of participants in different activities to identify potential topics or themes for a longer Autumn program
- Provide a platform for young people to explore and experiment with new technologies and STEAM concepts in a supportive and encouraging environment



Teen Tech Project

INNOVATION CAFÉ

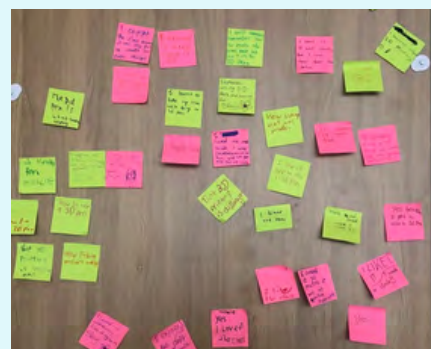
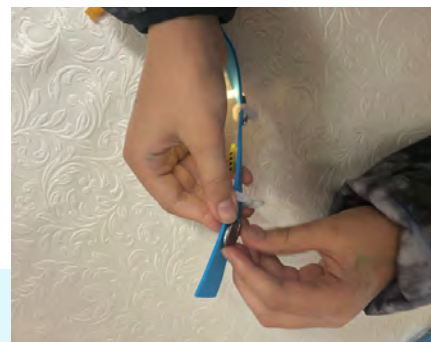
The project evolved from the Tech Tasters project using the Lundy method of participation to assess interests from a core group of young people between 9 - 15 over 10 weeks including a refresher class and upgrading old PCs to Chromeboxes for them and their community to use. This included an 8-week film project integrating other technologies.



To read more click [here](#)

OBJECTIVES

- Foster a sense of community for learning and fun
- Develop digital literacy skills among young people aged 9-15 by introducing them to various technologies, including Chromeboxes, Green Screen, 3D printing, audio recording, video recording, and editing software
- Develop project management skills by planning and executing the film project over an 8-week period, including scheduling, resource allocation, and task delegation



Capacity Building 21c Skills- Women in Business & PhD Research Retreat



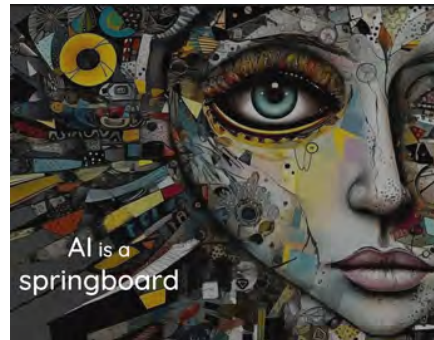
Women in Business

CAPACITY BUILDING

We initiated a women's enterprise network, through which we offered expert training in Social Media and Artificial Intelligence for business as well as setting up a monthly breakfast club meet-up. The meet up is designed to sustain connections made through the project and develop networks of support beyond the lifetime of the project. The social meetups, for women who run their own businesses to meet, feel supported and troubleshoot ideas and issues within their enterprise.

OBJECTIVES

- Facilitate skill development and knowledge acquisition among women entrepreneurs by offering expert training in Social Media and Artificial Intelligence for business.
- Foster a supportive and collaborative network among women entrepreneurs to create a community where women can connect, share experiences, seek advice, and troubleshoot challenges in a supportive and nurturing environment



PHD Research Retreat

CAPACITY BUILDING

We hosted SMARTlab researchers and global thinkers – including those from the local community, leading the way with their Ph.D. studies in Cahersiveen, Co. Kerry. This involved research training as well as a intensive with Lyn Mutch, Noodlehorse media in Social Media for Research Dissemination. The intensive research training focus on Inclusive Design and not only enhances students' research capabilities but also begins to cultivates a community relationship.

To read more click [here](#)

OBJECTIVES

- Develop advanced research capabilities among participants, including Ph.D. candidates and local community members, through intensive research training focused on Inclusive Design.
- Enhance participants' understanding of Social Media for Research Dissemination by providing intensive training led by industry experts such as Lyn Mutch from Noodlehorse Media.
- Foster community relationships and collaboration through engagement with SMARTlab researchers and global thinkers, including those from the local community, during retreats and intensive sessions

