



EcoWira: Developing Eco-Heroes in Malaysian schools

Author | Bow Martin (MA In ELM)

EcoWira: Developing Eco-Heroes in Malaysian schools

Author: Bow Martin (MA in ELM)

Abstract

In conjunction with the Jane Goodall Institute, and Roots and Shoots Malaysia, LeapEd Services created *EcoWira* (EcoHero) - a bi-lingual project-based learning student program, initially for use in Malaysian government schools. EcoWira, aligned with the United Nations Sustainable Development Goals (SDGs), informs and supports Primary and Secondary students, and teachers, as they embark on their eco-education and eco-action journey.

Key Words

Project-based learning, Resource management, Eco-activism, Design-Thinking Cycle, 21st Century Skills, Collaboration.

Introduction

“More frequent and intense drought, storms, heat waves, rising sea levels, melting glaciers and warming oceans can directly harm animals, destroy the places they live, and wreak havoc on people’s livelihoods and communities.”

(worldwildlife.org website, 2020, Effects of climate change)

This statement, by the Worldwide Fund for Nature (WWF), implies that the world faces a challenging future, especially in the wake of Covid-19 and the coronavirus. In an attempt to implement eco-awareness and activism in local Malaysian schools, in August 2019, LeapEd Services was approached by Roots & Shoots Malaysia, to generate a strategic partnership, which would be positioned as part of corporate social responsibility (CSR) initiatives, and focused on implementing and monitoring eco-education within the existing Trust Schools network. From this partnership grew the *“EcoWira Program”*.

The EcoWira Program

Aim

EcoWira aims to empower students to develop grass-roots, youth-led, sustainable environmental initiatives which benefit their schools and local communities, all while using 21st century skills and planning strategies.

Audience

EcoWira is a bi-lingual project-based learning eco-education initiative for the Trust School STEER 1.5 Year 4 and 5 Schools, and Trust School 2.0 schools, throughout Malaysia. The Trust School Program (TSP) is an initiative of LeapEd Services Sdn Bhd, operated in conjunction with Yayasan Amir, the Ministry of Education, Malaysia, and strategic financial partners and stakeholders.

Schools involved

Following the conclusion of Phase 1, participating schools shared the following data:

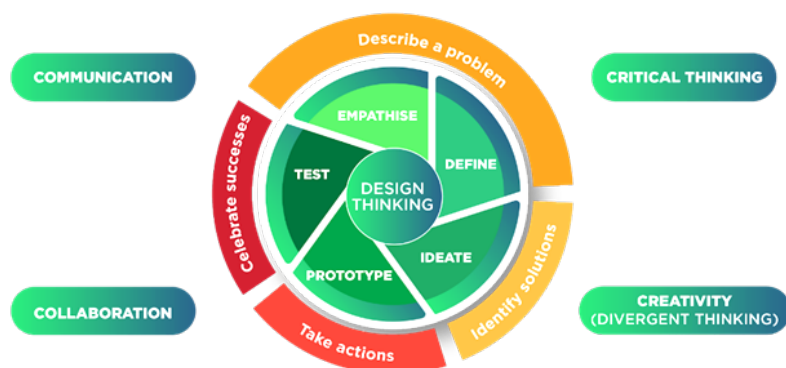
- 41 Trust Schools in 9 States & Territories across Peninsula and East Malaysia
- 26 Sekolah Kebangsaan (Primary schools)
- 15 Sekolah Menengah Kebangsaan (Secondary schools)
- 14 LeapEd District Education Advisors
- 220+ School Teachers/Mentors involved
- 1400+ hours of activities (February to October 2020)
- 1400+ Boys
- 1330+ Girls
- 74+ projects impacting 11900+ lives across all communities

The Curriculum

The curriculum was produced in line with the design-thinking cycle (Dam & Teo, 2018), which requires participants to empathize, define, ideate, prototype, and test ideas. This infrastructure is the foundation for the Roots & Shoots 4-step formula, which requires students to describe a problem, identify solutions, take action, and celebrate success. (figure 1). The design-thinking cycle is bolstered by the 4Cs of 21st Century Learning – Communication, Critical Thinking, Collaboration, and Creativity, which encompasses divergent thinking.

Figure 1

Combined Thinking Cycles of EcoWira



(figure 1 – Combined Thinking Cycles of EcoWira, from Sambai-Usek, V. & Martin, R. (2020). *EcoWira Information Handbook*. LeapEd Services (p. 5))

Examples of how schools used the design-thinking cycle

Stage 1: Empathize: To determine the direction of a project, students identify their local issues and what needs to, and can, be improved, with intervention. Within EcoWira, the focus can be centred around either the environment, or animals, or people. As an example, in a rural coastal fishing community, due to covid-related job-loss and increased environmental damage, students wanted to generate revenue, and clean up local water-ways. As a result, with Styrofoam collected from nearby mangroves and beaches, the students were able to fabricate their own shellac varnish,

which was then used in the assembly of water-proof and sea-worthy kayaks, which were ear-marked for fishing and tourism purposes.

Stage 2: Define: With detailed and clear information at hand, students can direct the course of their work. Analyzing findings from stage 1 is needed to define the core problem. Students in several schools were able to define their issue as a problem statement in terms of being a 'need', e.g. "Because there is still a lot of rubbish and waste in our school, we need to have a better rubbish and recycling approach, that everyone can participate in." Due to the need for an ongoing fund-raising enterprise, one school in northern Malaysia identified the sale of honey from stingless bees would be a sustainable local solution. The students then requested help from local indigenous tribal elders to place bee-hives on school grounds. The resulting organic honey has become a student-led cottage industry.

Stage 3: Ideate: With solid background data and understandings, team members look for alternative ways of viewing their challenge. Competitions to determine successful upcycling of single-use items became a clarion call for entire communities, with efforts being made to improve the cleanliness of schools, and surrounding environs, while making something new and useful, e.g. garden containment walls, a lectern, toy cars, decorative containers, etc., in the process.

Stage 4: Prototype: Produce inexpensive, scaled-down versions of the product, or specific features of the product, to investigate the ideas generated in the Ideate stage. Prototypes may be shared and tested within the team itself, in other departments, or on a small group of people or location. With birds and animals beginning to thrive in previously unpopulated areas as a result of the reduced traffic and human activity during coronavirus lockdowns, students in three schools decided to use found items such as coconut husks, and single-use items, such as plastic water bottles, to make different styles and types of bird nests, to ensure local bird species have additional safe spaces in which to nest and flourish. Pin-pointing different methods to make durable and species-appropriate nests exemplified the necessity for this stage.

Stage 5: Test: While usually the final stage in the creative process, the results of testing are often used to redefine one or more problems, with alterations and refinements made to remove any further obstacles. In many schools, several different plastic containers were trialed, in both traditional land-based, as well as hydroponic gardens, for the cultivation of herbs and vegetables. Taking time to experiment and choose the best fit-for-purpose items helped the students to devise lists of their requirements, which were shared, so as to receive targeted and specific donations of materials from community members.

Opportunities in adversity

Leading on from the official launch of EcoWira, by Dr. Jane Goodall, in November 2019, schools, teachers, and students were on schedule, as of February 2020 (Figure 2). Sadly, with the emergence of the coronavirus, in March 2020, Malaysia, along with the rest of the world, was forced to be in lockdown. This disrupted plans that were in place.

Figure 2



(figure 2 – Projected Implementation Timeline, EcoWira Phase 1.)

*(*Note: Malaysian Ministry of Education official Delima email accounts provide access to the approved Online Learning Platform in government schools, which opens a gateway for seamless sharing of student work, across all institutions involved. Having a ministry-approved online presence for all participants also meets one of the targets of EcoWira – to reduce the collective carbon footprint via innovative means to “Get Down to Zero Emissions”).*

Once movement lockdown ordinances were lifted, 6 schools were unable to continue, while the remaining 35 were able to pivot, encouraging their students to start anew, with considerations for social distancing, self-reliance, and independence being introduced to project objectives.

During this transitional phase, students displayed perseverance, flexibility, and agility, and were able to find authentic responses to lived experiences. Thus, the various projects that were completed by the end of Phase 1 displayed a wide variety of ideas, based on the local need at the time. While the topics may not appear to be ‘new’, they were a response to real-time events, and helped to meet requirements of standard operating procedures, to combat the spread of the coronavirus.

A further example of exceptional use of the curriculum was a school that made multiple foot-activated hand-sanitizer dispenser stations, out of recycled plastic tubing, and other found and freely sourced items (figure 3). The dispenser stations were then placed in front of each room, for all to use. As reported by the school, the objective was to devise an item or object that would help others. As further shared in the report, students worked together to discuss, generate, and trial different versions of the device, with feedback coming from other students in the school, to help improve the product. Once completed and in place, the stations proved to be a morale-booster, highlighting the ingenuity of the students, and a simple yet effective response to the ongoing global crisis.

Figure 3



(figure 3: [Photograph of student using foot-operated hand-sanitizer station. Photo provided by Kamaruddin bin Ya, Muhamad Hairul bin Dahlan, Amirul bin Hafez, Mohamad Shahril, 2020.])

Impact

The impact of EcoWira manifested in other areas of school and student life. Projects were the domain of the students – their decisions and actions ensured ownership and responsibility for success.

As noted by Kapur (2019), ‘it is vital to formulate measures and programs that are focused upon making provision of equal rights and opportunities to girls.’ While the school self-reporting showed 1400+ boys were involved in Phase 1, they also showed 1330+ girls were engaged, in all operations, including as project managers. This is a solid example of how EcoWira embraces inclusivity, diversity, and equity.

Several schools with Special Education Needs (SEN) units were among the first to become involved, as the project-based learning aspect was noted by teachers and senior leaders as an appropriate vehicle for building confidence, and visibility of student abilities and newly-acquired skills.

Engaging various parent groups, as well as local industry and business partners, helped to raise the profile of the students’ efforts, and brought communities together, both through the process and when realizing the final products. This stakeholder engagement resulted in a concerted effort to improve large-scale and ambitious endeavors.

A sample of the collected impact statements from the schools reveal the importance of such a syllabus in the students’ lives, and the commitment to continue their eco-activism journey:

“Promote And Spread The Advantages, Good Information, Valuable Activities, And The Wonderful Results Of The EcoWira Project.”

“I Hope The EcoWira Project Will Be A Benchmark In (our local) District.”

“Our SEN pupils gained expertise from the EcoWira project. They can apply their expertise in the real world.”

“No matter how small our project or contribution is towards saving the earth, it makes a difference.”

“Once an EcoWira, always an EcoWira.”

Conclusion

Due to the success of the Phase 1, existing schools are continuing their work, with more coming onboard. In 2021 and 2022, there will be a greater focus on plastic waste management. Participating locations which already have recycling or repurposing systems in place will partner with additional local schools, as experienced mentors and coaches, to assist others as they implement their own EcoWira projects.

A Malaysian humane society foundation will be providing a series of online learning modules. These will take place for several targeted schools to help raise the quality, reach, and impact of EcoWira. Roots & Shoots Malaysia will also provide professional mentors and educators, as well as renowned local and international ‘Eco-Heroes’, to contribute to these sessions.

The integration of learning tools, a focus on primates and biodiversity, and bringing awareness and age-appropriate programs into primary school classes, are also in the pipeline. This venture is aimed at inspiring younger students to establish practical and sustainable methods for advocating for the protection of the biodiversity of the flora and fauna present within Malaysia's natural environments and eco-systems.

EcoWira would be suitable for all levels of learners – from Primary to Tertiary – and beyond. Suggested courses include:

- a) Pre-Service teacher training and university courses: as a practical example of running and monitoring similar programs for student efficacy groups, clubs, and societies
- b) Teacher in-service training about implementing eco-activism clubs and societies in schools, as well as practical application of project-based learning.
- c) Due to its very nature, EcoWira can also be included within any curriculum or syllabus, in areas such as STEM, or can be managed by groups and clubs advocating environmental activism or as an ongoing strategy for student-voice or student councils.

Despite the hurdles faced throughout 2020 and 2021, EcoWira Phase 1 proved its worth, and, for participating schools, was a light in dark times. The students involved have become exactly what the development team envisioned – skilled and resilient Eco-Heroes, working for the future of our planet by making small yet necessary changes in their communities, to help in the development and implementation of innovative solutions for local eco-challenges.

References

Dam, R.F. (2018). *5 Stages in the Design Thinking Process*. <https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process#:~:text=The%20five%20stages%20of%20Design,Ideate%2C%20Prototype%2C%20and%20Test.> Interaction Design Foundation.

EcoWira website and resources: <https://sites.google.com/view/ecowira/home?authuser=1>

Jane Goodall Institute YouTube Channel: https://www.youtube.com/user/JaneGoodall_Institute

Kapur, R. (2019). *Gender Inequality In Education*. University of New Delhi.
https://www.researchgate.net/publication/334162862_Gender_Inequality_in_Education

LeapEd Services website and resources: <https://www.leapedservices.com/our-programmes/ecowira/>

Roots & Shoots Malaysia website and resources: <http://rootsandshoots.my/>

Roots and Shoots worldwide resources, videos, links, etc:
<https://www.youtube.com/user/jgrootsandshoots>

Sambai-Usek, V. & Martin, R. (2020). *EcoWira Information Handbook*. LeapEd Services.

Sambai-Usek, V. & Martin, R. (2020). *EcoWira Student Workbook – Bahasa Malaysia Version*. LeapEd Services.

Sambai-Usek, V. & Martin, R. (2020). *EcoWira Student Workbook – English Version*. LeapEd Services.

Simon, H. (1996). *The Sciences of the Artificial (3rd Edition)*,
https://monoskop.org/images/9/9c/Simon_Herbert_A_The_Sciences_of_the_Artificial_3rd_ed.pdf

United Nations (2017). *Sustainable Development Goals: Transforming our world: the 2030 Agenda for Sustainable Development*, United Nations.

Waloszek, G. (2012). *Introduction to Design Thinking*.
<https://blogs.sap.com/2012/09/12/introduction-to-design-thinking/>

World Wildlife Fund (2020). *Threats: Effects Of Climate Change*.
<https://www.worldwildlife.org/threats/effects-of-climate-change#:~:text=More%20frequent%20and%20intense%20drought,on%20people's%20livelihoods%20and%20communities.&text=As%20climate%20change%20worsens%2C%20dangerous,becoming%20more%20frequent%20or%20severe>