HCA-II DA NANG LEARNING PRODUCT GOING FORWARD YOUTH ON! HACKATHON CASE STUDY

INTRODUCTION

The Healthy Cities for Adolescents (HCA) Project, part of Da Nang's Child Friendly City Initiative (CFCI), aims to transform Da Nang into a healthy, dynamic and child, adolescent and youth-friendly city with a strong focus on youth well-being and meaningful participation. While phase I focused on the overall health and well-being of adolescents, phase II emphasizes meaningful children and adolescents' participation, aligning with the key principle of the global HCA program. This will be achieved through various approaches, including empowering young people to engage in decision-making via innovative and digital platforms. The project will be implemented by a consortium led by UNICEF Vietnam, in collaboration with the Da Nang City Authority and the VN-UK Institute for Research and Executive Education (VNUK). Sponsored by Fondation Botnar and managed by Ecorys UK, HCA-II Da Nang aims to promote practical innovation, support technological advancements, and invest in digital transformation.

Aligned with the Global HCA Strategic Goal 3: *Harnessing digital transformation to support adolescent health and well-being*—Youth On! Hackathon (YOH) was held in Phase I (2021) and Phase II (2023 and 2024) of the project. It also supports Da Nang's CFCI Objective 3: *By 2026, children and adolescents in Da Nang, especially vulnerable children, have equitable access to inclusive, quality learning, digital and transferrable skills development and opportunities for participation in a clean, green and safe environment*. Aimed at fostering self-learning and creative research in Information and Technology (IT), YOH aims to provide a dynamic environment where young people could engage in programming, tackle creative challenges, and connect with like-minded peers. Through specialized training sessions and an intensive three-week programming contest, the event sought to nurture the skills needed to meet the growing demand for human resources in digital transformation.

VNUK, part of Da Nang University, was chosen as a consortium member for its expertise in youth training, events, and partnerships. Founded in 2013, the Institute's focus on innovation, resilience, and compassion aligns with HCA Phase II's goal of promoting youth participation in solving the city's problems. They play a key role in delivering the YOH and U-Invents competitions for adolescents.

Through the organization of three seasons of the YOH in 2021, 2023, and 2024, in collaboration with the Danang Business Incubator (DNES) and VNUK, we have gained valuable insights into both successes and challenges. These lessons are crucial for adapting and improving future competitions. To capture and share these learnings, this case study was conducted from June to September 2024, serving as the first learning product. It involved not only UNICEF Vietnam as the lead partner, but also VNUK as the implementing partner.

BACKGROUND

The first season of YOH, held during the COVID-19 lockdown in 2021, stood out by offering structured virtual training to enhance participants' practical and technological skills. Unlike the spontaneous and disorganized local tech competitions at the time, YOH was a professionally designed event that not only fostered digital transformation but also successfully attracted and engaged young talent in Da Nang to join, learn and express their passion.

The 2021 YOH focused on health and learning, addressing students' challenges during the pandemic. A preliminary survey involving 694 adolescents explored their interests and potential for participation, revealing that 25.6% were interested in the theme of health and learning. This feedback was instrumental in shaping the competition's design, demonstrating the 'co-design' principle of the E2A Framework. As a result, UNICEF Viet Nam in collaboration with DNES tailored the event to meet adolescents' needs and launched YOH for those aged 15-18 years old. The competition quickly has gained popularity among Da Nang's youth, becoming an inspiring and impactful event.

Building on the success of the first season, UNICEF Viet Nam and VNUK co-organized the 2nd and 3rd YOHs in 2023 and 2024. The themes—*Mental Health and Revolutionizing Learning in the Era of AI*—aligned with UNICEF's World Children's Day 2023 and the Global HCA's goal of leveraging digital transformation for equity and inclusion. Selected through a poll of 1,012 U-Reporters, mental health emerged as the top choice. To attract more programming talent, the Hackathons expanded the age range to 14-19 years in 2023 and 12-19 years in 2024

OVERALL APPROACH AND ACHIEVEMENTS

The competition spanned three weeks and consisted of three rounds. In the first round, contestants submitted their applications via a Google Form, including personal details, competition ideas, and relevant experience. Following the review of applications, teams were formed. From the second round onward, teams received support from mentors (professional advisors), facilitators (technical assistance), and buddies (logistical support) during Hackathon Week and Demo Day. Leveraging the knowledge and skills acquired from group work, training, and challenges, teams actively engaged in research, ideation, and programming to develop their products. In the final round—comprising the Semi-finals and Finals—each team presented, demoed, and defended their products within a set time limit before a jury, who evaluated the final results.

In 2021, the first season of YOH was held online due to the COVID-19 lockdown. By the 2nd season, the competition was hosted in person, attracting a larger number of applicants, including marginalized adolescents. This season included disadvantaged youth from low socioeconomic backgrounds, who were sponsored by the Passerelles Numerique organization. Participating in YOH 2023 allowed these students to apply their website design skills from IT vocational courses

to real-world projects, such as creating a website to help users monitor and manage their health using Body Mass Index.

The first and second seasons of YOH inspired the creativity of 127 young talents (i.e. 57 and 70 respectively) by raising awareness about critical youth issues such as peer pressure and depression. Additionally, they fostered a greater sense of social responsibility among young participants.

"I've observed that mental health is increasingly crucial in today's fast-paced world. Through my research and product development, I believe my product can positively impact my friends and society as a whole."

Bao Long, YOH 2023 and 2024

During the first season, notable applications were developed to assist teachers in managing online classes during the COVID lockdown and to encourage exercise and enhance home study quality. With the involvement of the Department of Science and Technology, the Department of Labour - Invalids and Social Affairs, and the Youth Union in the judging panel, these youth-led initiatives effectively highlighted the limitations of online education to local government officials. This awareness contributed to a push for offline classes once the pandemic was under control in Da Nang, leading to more effective learning and interaction. In the second season, contestants created innovative solutions for psychological support and introduced a novel gamification method to help children with ADHD improve their concentration and learning skills.

"I hope that our game will be a useful entertainment tool, helping to increase the concentration of children with ADHD for free, and at the same time providing parents with more choices in their children's recreational activities."

Thien Nhan, YOH 2023

YOH 2024, themed 'Revolutionizing Learning in the Era of AI,' provided a dynamic platform for nearly 100 enthusiastic participants aged 12 to 19, who formed 20 teams. They developed innovative AI-integrated solutions to address their own challenges and those of their peers. Notably, 17 of the 20 projects focused on creating advanced learning tools to reduce student burdens and enhance well-being. These diverse applications, ranging from SMART Learning Management Systems to AI-driven soft skills training, align with HCA's vision of a vibrant Da Nang where youth leverage digital tools to boost mental health and overall well-being.
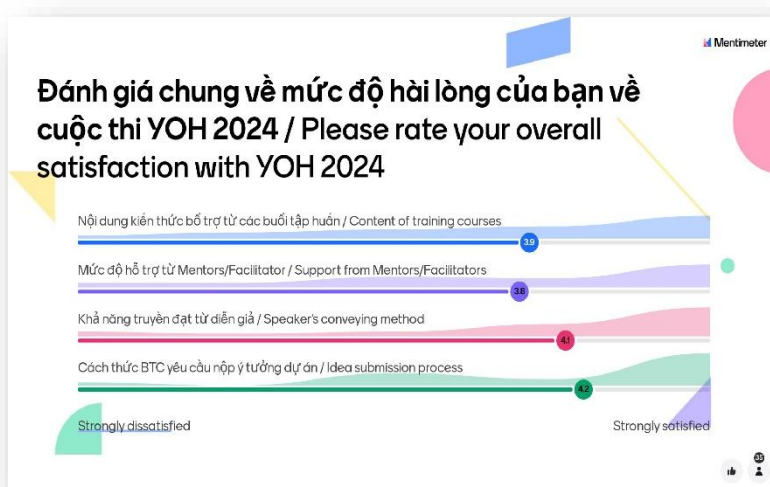

GEN AI EDU

Trang web: Gen AI Edu

Regarding the potential outcomes of the products, the winning teams introduced the most feasible and creative ideas to be realized, since they consulted and took into account the advice from mentors, facilitators and buddies, during the product development process and get evaluated by the Jury. Reflecting on system and policy shifts, the YOH 2023, focused on mental health, saw its outcomes and participatory processes disseminated nationwide through social media and high-level policy dialogues at the central level.

At the city level, this innovative platform and its outcomes continued to be shared with Da Nang's relevant agencies to inform policy. For example, the Da Nang Youth Union designed various interventions to strengthen mental health support for children and adolescents in Da Nang systematically. The city also issued a plan for mental health care for children, especially disadvantaged children, for the period of 2024-2030 (based on its official document#91 in April 2024). Regarding sustainability, engaging VNUK as the city's academic institute will help find effective solutions to sustain this platform in the medium and long term.

CHALLENGES AND LESSONS LEARNT

Thanks to VNUK's extensive network, the competition engaged teenagers and included staff of similar ages to facilitate communication and familiarity. Additionally, each team was supported by a mentor and a facilitator who closely monitored all stages of the process and provided timely updates and adjustments to the Organization Committee as needed.

After the competition, contestants provided feedback that praised the organization of the event, including the quality of content delivery, support from mentors and facilitators, and the process for submitting project ideas. Additionally, they appreciated the learning opportunities and new connections made, which strengthened group unity.
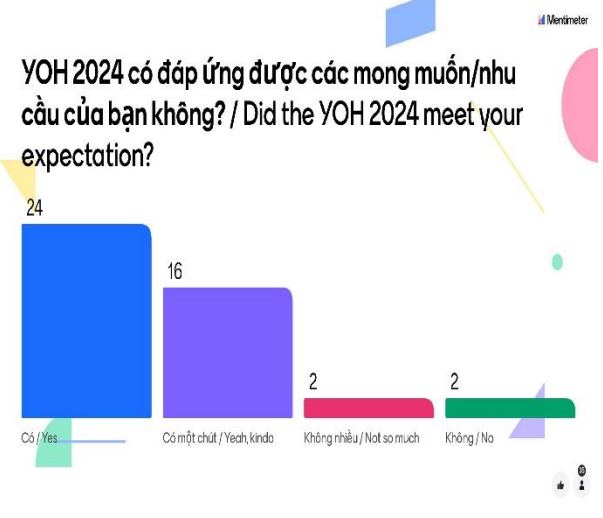

CHALLENGES	IMPROVEMENTS
Despite the positive feedback, contestants encountered several challenges during the Youth On! Hackathon 2021 and/or 2023:	YOH 24 has seen substantial improvements, incorporating valuable lessons from the 2021 and 2023 seasons:
1. **Short Registration Period:** The three-week communication and registration period was too short to reach all target groups. This limited timeframe made it difficult for interested candidates to form teams and register effectively, resulting in some individuals registering alone.	i. **Extended Registration Period**: The registration for YOH 24 was extended to nearly a month, from June 21st to July 19th, 2024, resulting in a surge of 98 contestants—an increase from 57 in 2021 and 70 in 2023.
2. **Poor timing:** Hosting the 2023 competition alongside other programming and technology events, as well as during	ii. **Optimal Timing:** YOH 24 was strategically scheduled during summer vacation, avoiding mid-term exams that clashed

mid-term exams, affected participants' ability to fully commit. They struggled to balance their schoolwork with the demands of the competition.	with previous seasons. This timing allowed participants to fully immerse themselves in the program, from the kick-off to the finals, without academic distractions. The extended duration of 5- instead of 3 weeks, also gave teams more time to develop their projects, reducing stress and encouraging deeper exploration of their ideas.
3. **The short three-week duration** of the competition increased pressure on participants to quickly learn and apply new knowledge and programming languages. This limited the teams' ability to fully develop their products.	iii. **An extended duration of 5** weeks, compared to the previous 3 weeks, allowed teams more time to develop their projects. This reduced stress and encouraged a deeper exploration of their ideas.
4. **Limited opportunities for interaction and networking:** affected the participants' ability to connect and learn from each other. The intense competition focused teams primarily on product development, leaving little room for collaboration and networking. *"We didn't know each other before forming a group for the hackathon. After the competition, each of us had our own plans, and with two out of four members focusing on university entrance exams in 2024, we haven't been able to further develop our product."_**Khanh Ngan, YOH 23**	iv. **Exceptional Learning and Networking Opportunities**: YOH 24 was more than just a competition. It was a transformative journey for all participants. From July 28th to August 17th, 2024, they received continuous support from top professionals, guest speakers, and mentors. Even beyond the event, 20 Zalo groups tailored to 20 teams and mentors remained active, fostering skill development and lasting professional networks. YOH 24 also provided opportunities to interact with leading IT enterprises,

	offering valuable feedback to refine projects and broaden their impact.
5. **Less attractive incentives** highlighted the importance of offering compelling rewards. Additionally, participants tended to provide ad-hoc solutions for the competition rather than pursuing their passion over time, which may discourage teams from continuing to develop their products after the Hackathon. YOH 2024 có đáp ứng được các mong muốn/nhu cầu của bạn không? / Did the YOH 2024 meet your expectation?	v. **Diverse and Attractive Prizes and Awards**: Breaking from tradition, YOH 24 elevated the stakes with a more rewarding prize structure. The competition offered compelling cash prizes—VND 7 million (USD 280), 5 million (USD 200), and 3 million (USD 120) for the 1st, 2nd, and 3rd prizes respectively—alongside medals and certificates for each team member. In addition to these, the introduction of the 'For-the-Community Prize' and the 'Most Favorite Project Prize,' each worth VND 1 million (USD 40), further motivated participants to pursue excellence and continue developing their projects even after the event.
6. **Limited inclusion of disadvantaged groups** has been a concern since the first season as the Hackathon is a technical programming competition that requires participants to have basic knowledge in advance. 	vi. **Increased Equity and Inclusion**: One of the standout achievements of this year's Hackathon was not only attracting students from the rural district of Hoa Vang but also creating three groundbreaking products specifically designed for disadvantaged groups. The first prize went to a "Device to Support Spatial Description for the Visually Impaired," while the second was awarded to "Software to Support Learning Sign Language".

Noticeably, a For-the-Community award went to "Facial Expression Recognition for Children with Autism." These projects reflect growing social responsibility among Da Nang's youth and align with Global HCA's goal of leveraging digital transformation to promote equity and inclusion through collaboration and innovation.

vii. **Increased female representation among teams, mentors and judges:** This year's competition featured greater gender diversity, with 28 girls among the 98 participants, many of whom took on leadership roles and led outstanding projects. While all mentors were male, the inclusion of a female judge on the panel marked a positive step toward balanced representation.

SUGGESTIONS FOR IMPROVING FUTURE HACKATHONS

- **Increase Participation from Women and Marginalized Groups:** Implement targeted outreach to girls and youth from marginalized communities, offer confidence-building coding workshops, and aim for balanced teams that reflect both gender and diversity.
- **Strengthen Orientation and Feedback for Mentors and Judges:** Offer thorough orientation on roles and expectations, and emphasize the delivery of constructive and supportive feedback to foster participants' growth and enthusiasm.
- **Continuous support and guidance** from top-tier professionals, mentors, leading IT startups, and educational institutions will ensure that all projects are thoroughly followed up, developed, and successfully implemented in practice.

CONCLUSION

By leveraging digital technology, Youth On! Hackathon has become an innovative platform that encourages adolescents and youth in Da Nang to voice their concerns and develop tech-based solutions. It empowers them to improve their well-being and drive community change while providing essential career skills. The success of the 2021, 2023 and 2024 Hackathons has advanced both Da Nang and HCA's vision of a dynamic Da Nang, where adolescents and youth actively use digital tools to improve mental health and well-being.

To sustain this impact, recommendations include ongoing mentoring for winners, expanded networking opportunities with tech startups, and refining the award structure to include incubation support. These measures will help nurture emerging talents, enhance the feasibility of their projects, and ensure a broader, more sustainable impact for future Hackathons.

Healthy Cities for Adolescents | **Vietnam Da Nang**
a Fondation Botnar initiative

YOUTH-ON! HACKATHON 2024
HỌC TẬP THÔNG MINH TRONG KỶ NGUYÊN AI

YOUTH ON! HACKATHON 2024

REVOLUTIONIZING LEARNING IN THE ERA OF AI

FEEL THE SCENE

""There's a saying: 'If we can't see it, why can't we feel it?' This inspired us to think—if the blind can't see a photo, why not create a way for them to feel it? By doing this, we can help expand their understanding of the world through touch, allowing them to experience the beauty that surrounds us in their own way." _*Phong Linh*
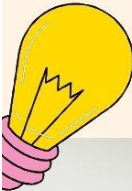
FREE 2 SIGN

"Develop software that empowers both those who have hearing impairments and those eager to learn sign language, fostering meaningful connections between the deaf community and the wider world. This will help ensure that no one feels isolated or unsupported."_ *Khanh Vinh*

GENIUS GRID

"We have relatives with autism, and we've witnessed the challenges families face in hiring specialized teachers and teaching assistants to help them integrate into society. This can be especially burdensome for families with limited financial resources. Our goal is to digitalize this learning process, using AI to guide lessons on expressing emotions and actions. This will make support more affordable and accessible, ultimately helping more autistic individuals" lead better lives."_*Minh Loc*

AFTER YOH 24

Our team would like to receive continuous support from experts, investors, and agencies to refine and bring our product to market, empowering the blind to visualize the world around them."_ *Feel the Scene*