SLLO NEWSLETTER

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01

Ten Questions

Interviewee

Dr Peter NG, Department of Computing

One of the appointees of Service-Learning and Leadership Office Associates Programme on **WHAT** it is, **WHY** it matters, and **WHAT** has been accomplished.

Can you tell us something about your role at PolyU?

I'm a Teaching Fellow from the Department of Computing. I teach the Service-Learning (SL) subject, COMP2S01 Technology Beyond Borders: Service Learning across Cultural, Ethnic and Community Lines.

I am currently also the person in charge of PolyU's Game Lab – a place where students can develop their programming and design skills through experimenting with the latest gaming technology.

Can you tell us something about the SLLO Associates Programme? What can an academic or a teaching staff do with it?

It is a programme launched since AY2020/21 to provide PolyU academic or teaching staff with a stipend of up to HK$20,000/ academic year to support their service-learning and leadership initiatives. To me, the funding is a spark of incentive for teachers to try new service-learning ideas step by step, a little by little. It is a nice channel to get your project ideas discussed and refined through networking with the greater SL community from within and beyond PolyU.

What motivated you to apply for the Programme?

It started with an eagerness to improve student experience in my SL subject through transforming the way it is delivered. COMP2S01 has been running for more than 5 years. As a general education (GUR) course, it engages students of diverse disciplines in the design and delivery of ethical technological solutions for the underprivileged groups in our society.

However, I'm aware that the group SL project that normally steers towards software development might not be that effective in encouraging students to work as an interdisciplinary team. Most of the time, Computing majors found themselves handling everything on the technical front like I.T. labours whereas the contribution of those without computing or engineering backgrounds were limited to "front-end" interaction with the service recipients.

Therefore, I would like to explore alternative approaches to the SL project that could better mobilise students from all backgrounds to serve together, learn together, and perhaps foremost, learn from each other.

Can you walk us through what you did for the Programme? What are the intended outcomes and deliverables of your project?

I tried to add a machine-learning dimension into the group SL project of COMP2S01 at the expense of the traditional software development approach. In the offering of Semester 1 & 2 of AY2021/22, students were put into mixed teams to deliver the concept of Artificial Intelligence (A.I.) to primary school students in Hong Kong. Specifically, PolyU students were asked to hold an innovative workshop about machine-learning to their younger peers featuring the theme of colorectal health. In the workshop, PolyU students first guide the children to understand the relationship between food choices and the development of colorectal cancer. The children are then coached to code a computer programme in small teams that is able to perform object recognition.

Using software like Scratch and Google's Teachable Machine, the children will turn their laptops into powerful "food scanners" that can distinguish a piece of healthy food from an unhealthy one based on the food's appearance. And in the form of a competition, the primary students would compete against their schoolmates from within and across their home schools to have their programme identified the largest number of "unhealthy food" from a mock-up human colon that is stuffed with cancer-prone toy food!
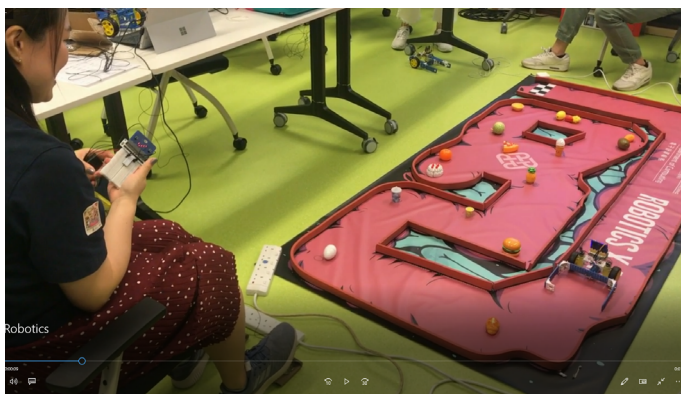
Part 1 of the competition requires the primary school students to "remove" cancer-prone toy food items from a colon-like race track with a self-made robotic car.
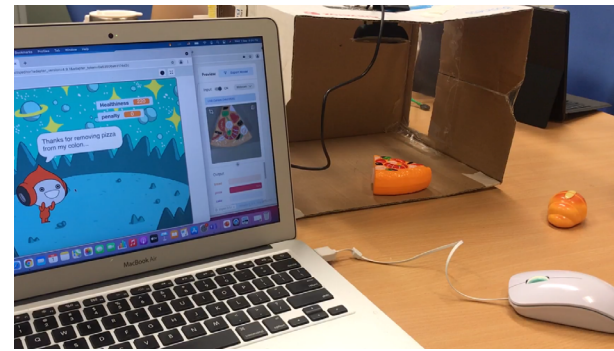

In Part 2 of the competition, the primary school students scan the food items being delivered from Part 1 using their customised object recognition programme built with Scratch and Google's Teachable Machine.

By adopting this novel approach in the SL subject, not only that I wish we could demystify the concept of machine-learning and its application among our younger generation. I believe the use of popular open source software also help reduce the technological divide between Computing majors and non-Computing majors so that eventually, they could work together on transferring the knowledge and skills of programming to the kids.

To what extent are you happy with its outcomes and deliverables so far?

I'm happy with the outcomes as the transformation from the software development approach to machine-learning approach has actually inspired more SL initiatives beyond that of COMP2S01. Having our machine-learning model developed, two Computing students had adopted the model in their SL Capstone Projects to develop virtual reality (VR) vocational training systems for rehabilitation purposes. Both systems centre on building a virtual convenience store that trains people with mental or cognitive challenges to interact with customers through motion capture and AI ChatBot technology.
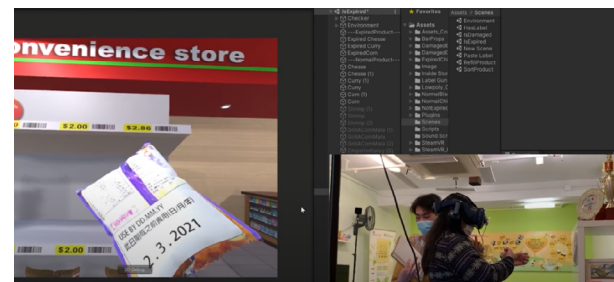
One of the students is conducting a usability test on the prototype.

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What a user can see in the VR convenient store while using the training tool.

What was your biggest challenge in implementing the project?

One of the challenges is making our good will and achievement of the machine-learning-themed SL projects known to the public. It would be great if we could foster closer collaboration with the business sector to expand their applications, hence scale their impact.

Looking back, what would you have done differently to enhance the impact or effectiveness of your project deliverables?

Taking the training models developed in the two Capstone Projects as examples, I would like to improve them by using real convenience store items for object recognition instead of the VR simulations. This would help increase the authenticity of the training while simplify the preparation and supporting work required from our NGO partners.

Do you have any plans, in short-term or long-term, on sustaining the impact of your project?

I'm eager to see how the machine-learning approach would lead us to more collaborations with new community partners, especially after this enactment of COMP2S01 which has connected about 200 PolyU students to 9 local primary schools in Hong Kong plus some learners in South Africa and Vietnam.

As a teacher, what is your biggest gain from the Programme?

I can reach out to more like-minded teachers through SLLO to enrich my own project. COMP2S01 this time actually makes a crossover with another SL subject, BME2S04 Reducing the Scientific Divide in Primary and Secondary Students through STEM Projects, to add another dimension to the aforementioned A.I. workshop for primary school students.

In each of our collaborating primary school, a small group of children are trained by BME2S04 students to build a remote-controlled robotic car responsible for "cleaning" an unhealthy colon by removing the food items from the colon-like race track. In parallel, these children would team up with their schoolmates who are trained by COMP2S01 students to develop the aforementioned object recognition programme. Such a "BME x COMP (i.e. Robotic Car x A.I. Programme)" team would excel in the competition by (a) having the robotic car delivering the toy foods from the simulated colon effectively, AND (b) having the programme identified the health value of the corresponding food items correctly. I am excited to see how the competition would turn out to be from late November 2021 to January 2022.

If you were asked to share some tips with fellow PolyU academics or teachers who are thinking of becoming SLLO Associates, what would you say to them?

1. **Do not worry about starting your project small.**

2. **Reach out to the wider SL community who shared the same vision through SLLO.**

3. **Try to integrate your SL initiatives into your research.**

02

Service-Learning Scholarship Scheme: Shortlisted Candidates and Their Upcoming Projects

PolyU is committed to inspiring its students to not only pursue academic excellence, but also serve the community with their professional knowledge. In AY2021/22, we have piloted the Service-Learning Scholarship Scheme to encourage final year students to channel their passion for service into their SL Capstone / Final Year Project. The Scheme is open to all students who opt for taking a Capstone/ Final year project (individual or group) and meet the following criteria:

1. Demonstrate passion to complete the Project with a SL component;
2. Be a full-time UGC-funded PolyU undergraduates;
3. Have completed an SL subject with a grade of B+ or above;
4. Attain a cumulative GPA of 2.5 or above; and
5. Have no disciplinary record at PolyU

Shortlisted candidates will be offered a project grant to cover partially the costs of their Capstone/ Final Year Projects. And upon completing the projects with Grade B+ or above, attending all the Scheme's mentoring sessions, submitting a reflective report to SLLO, and showcasing their deliverables, they could be each awarded a SL Scholarship valued at HK$8000 by the end of the academic year.

In this first enactment of the Scheme, we are delighted to have received 20 applications from students of various departments. After a rigorous selection process that examines the uniqueness and quality of the project plan, the potential impact to the community, as well as the student's commitment to serve the community, a total of six distinctive projects were shortlisted. Check out the project plans below to see what to look out for from our candidates!

02 | SL Scholarship Scheme

Individual Project 01

An Analytical Study of the Relationship between Innovative Public Open Space (POS) Design and the Well-being of Senior Citizens (and with Physical Disabilities)

Wing Lam TANG, BSc (Hons) Surveying, Department of Building and Real Estate

Wing Lam plans to conduct research that focuses on the relationship between innovative Public Open Space (POS) and the well-being of disabled senior citizens.

Open spaces have the potential to enhance social interaction and promote active aging for the elderly, and it is important to understand whether and which POS designs are beneficial to senior citizens, especially those with physical disabilities who lack the resources or means to stay active.

Wing Lam will hold focus group sessions for disabled elderly to study how their physical disabilities hinder their daily life, and as a result what their needs and expectations are of POS. She will also explore in-depth these individuals' perceptions of various innovative POS features and suggestions for future POS designs. After analysing responses from disabled senior citizens, she will compare the findings with the needs of ordinary senior citizens from her previous research and derive suggestions for future POS designs that cater to disabled senior citizens' well-being. Finally, she plans to interview experts on disabled elderly and POS to assess her findings. Wing Lam also plans to work with SLLO to reach out to NGOs who serve elderly with physical disabilities. Through the NGO, Wing Lam hopes to disseminate information on POS, as well as organise a field trip to for elderly with physical disabilities who could benefit from existing facilities in POS.

Individual Project 02

Muscle Activities to Maintain Postural Balance in Young and Old Adults: Uncovering the Mechanism of Falls and Fall-Prevention Strategy

Cheuk Ying TONG, BSc (Hon) Scheme in Biomedical Engineering, Department of Biomedical Engineering

Cheuk Ying plans to use her research that investigates reasons for re-current fallers among elderly to inform existing training plans.

Falls are one of the major public health problems in the world and cause physical and mental impact on the elderly, especially those who live alone with no additional help from others. Specifically, Cheuk Ying will study major lower limb muscular activity when maintaining static balance in older adults. With the findings, a target training plan can be developed, and then tested and used as fall-preventative training in charitable or government organisations that serve elderlies who are especially prone to falling and with limited access to training resources.

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Group Project 01

Exo-input System for Disabled and Older People in E-Sports

Sum Yuet CHING, BSc (Hons) in Biomedical Engineering, Department of Biomedical Engineering

Sum Yuet, together with four other teammates, intends to provide a cost-effective and engaging way for post-stroke patients in their rehabilitation to restore their lost motor functions, especially for those who reside in nursing homes or live alone with no additional support from family members.

Due to the limited manpower and resources, it is difficult to make sure these stroke survivors have rehabilitation exercises frequently or even regularly. Furthermore, existing rehabilitation programs may be boring and involve little social interaction.

By working with her supervisor and teammates, Sum Yuet aims to develop a system that the user can enjoy interactive games while they can complete boring and repetitive rehabilitation exercises at the same time at a much lower price.

Specifically, will design a novel wearable exo-input system which captures the limb motions of a subject during physical training and translate the motions as inputs in computer games. With the system, users can enjoy free online computer games and hence improve their motivation to complete the training program.
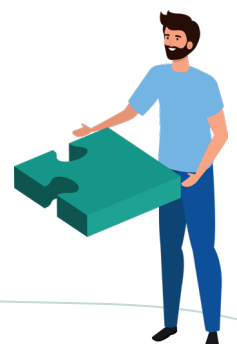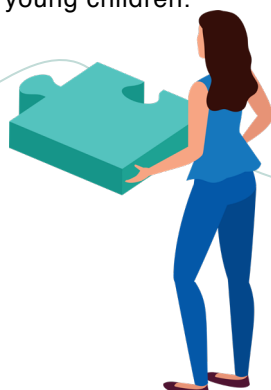
Group Project 02

Standardization of Treatment Progress Monitoring of Amblyopia in Children – An Enhanced Eye Gymnastics Application

German SHARABOK, BSc (Hons) Computing, Department of Computing

German, together with his teammate, will collaborate with School of Optometry to design the solution for the diagnosis and treatment of Amblyopia, or "lazy eye" problem, that is suitable to implement in regions with relatively low healthcare quality and accessibility.

One of the key periods to solve Amblyopia is in the early years of a patient, because that is when the deficiency can be cured in a non-intrusive way. In German's project, his team will tackle Amblyopia by designing a special set of eye gymnastics implementable via a smartphone app for young children.

After the application is developed, the health professionals will be able to quantify the improvement of the patients, since currently the process is highly subjective and lacks standardization and accuracy. Additionally, it will assist children in their at-home exercises and make the treatment process clear and engaging. The application can then be tested on the patients in need. Furthermore, German's team plans to collaborate with SLLO to build relationships with the partnering NGOs in the specific region and assess the infrastructure and the possibility to implement their solution.

02 | SL Scholarship Scheme

Group Project 03

Simplasticity Act in University Proposal

Hoi Lun SZE, BSc (Hons) Social Policy and Administration, Department of Applied Social Sciences

Hoi Lun, together with her four teammates, would like to tackle the pollution problem caused by plastic waste disposal in Hong Kong. Specifically, she aims to help minimise plastic waste by altering public attitude and behaviours in adopting reusable tableware.

She will first approach the target users in her proposal, i.e. the university students, and the service providers, i.e. the restaurant owners, to understand the reasons behind the behaviour of "simplasticity" from their perspectives. After analysing the data, she will report the current plastic wastage problems and suggest local practices of simplasticity for participants to try-out. Lastly, she plans to work with Green Peace to provide empirical ground for their campaigns and consult with them further innovative solutions to alleviate the issue. To put theory into action, Hoi Lun ultimately hopes to develop a protocol of self-serving vending machines for reusable tableware and set up collection points accordingly in various districts.

Group Project 04

Aphasia Rehabilitation in VR

Chun Hung WU, BSc (Hons) Computing, Department of Computing
Chak Kwan WONG, BSc (Hons) Information Technology, Department of Computing
Pui Yu KWOK, BSc (Hons) Computing, Department of Computing

Chun Hung, Chak Kwan, Pui Yu, together with another teammate plan to create VR training for stroke survivors with aphasia.

These patients suffer damage to the part of their brain that decodes and organises language, which in turn affects their mental health and daily life. Since there are not many rehabilitation applications in the market for people with aphasia, and the common ones do not effectively meet the requirements of clinical treatment, Chun Hung and his teammates believe the project can be applied to bring benefits to these patients.

Specifically, this team will work with aphasia patients in Hunan, China, on the development and testing of the VR training and compare the results with traditional training. They hope the product will be cost-effective and engaging so that those who have limited access to rehabilitation resources can enjoy. Since part of the training program can be automated by computer applications, it can also alleviate speech-language pathologists of some tasks so they can focus on evaluation of patients' progress instead of providing the treatment.

More Details about the Service-Learning Scholarship Scheme

https://www.polyu.edu.hk/sllo/resources/funding-and-scholarships/20210930-scholarship/

03

Arrangements for Offshore Service-Learning Projects in Semester Two and Summer Term, AY 2021/22

The University has announced the Learning, Teaching and Assessment (LTA) arrangements for Semester 2, AY 2021/22 that outbound student activities could be resumed provided that the students have received the full doses of COVID-19 vaccination at least 14 days prior to their departure.

While we look forward to reactivating our offshore SL projects, we are equally conscious of the health and safety implications of dispatching our colleagues and students for international services due to the unique characteristics of service-learning, such as the indispensable responsibility of the teacher during the trip and close proximity between students and their service recipients. To this end, a special briefing was organised by SLLO on 17 November 2021 to walk SL teachers through the relevant implementation details and address their concerns over the resumptions in advance.

From the briefing session, we have summarised the following things-to-note to help you plan ahead for your international SL projects:

Dos

1. Implement your SL projects at existing sites

2. Collaborate with NGO partners who have continued to stay active over the last 2 years of the pandemic

3. Collaborate with NGO partners who have enough manpower and resources to support you in case there is (are) COVID-19 confirmed case(s) among your service team

4. Make sure your students understand the specific vaccination requirement early enough so that they could make the right decisions during the add/drop period

5. Have all the outbound students, teachers and supporting staff tested and passed a certain antibody level before the departure

6. Encourage the outbound students to purchase travel insurance that includes a COVID-19 extension on their own on top of the insurance provided by the University

7. During the offshore service, have all the transportation, accommodation and meals centrally arranged

8. During the service, have all members of the outbound group completed COVID self-test and reporting everyday

9. Arrange service activities that facilitate social distancing and adequate ventilation as far as possible

Don'ts

1. Deliver SL projects in the locations categorised by the Hong Kong Government as high-risk areas (Group A)

2. Deliver SL projects in countries that require a long inbound quarantine period

3. Send students out on free time during the offshore service

4. Have the quarantine period upon returning to Hong Kong overlapped with the next semester

I would like to go ahead for an international project in Semester 2 or 3, AY2021/22. What can I do?

You should **submit a proposal to SLLO by 31 January 2022** that provides details of the schedule, arrangements, and the contingency plan in case a student or teacher got infected by COVID-19 during the service.

I would prefer NOT to go for an international project in this academic year. What can I do?

You may apply for a **small-scale teaching development grant** (about HK$100k/ project) to support your current international SL project **by submitting a one-page proposal to SLLO on or before 31 December.**

04

Promoting PolyU's Service-Learning at International Conference

Committed to continuously improving our service-learning and leadership programmes, SLLO has been active in conducting scholarly activities that evaluate the impact of our programmes on students, disseminate the results, and share the good practices with the wider SL community.

In November 2021, our colleagues have contributed six presentations in an online international conference organised by the International Association for Research on Service-Learning and Community Engagement (IARSLCE) – the flagship academic organisation that spearheads rigorous research in service-learning and civic engagement.

Each of the six presentations, 4 videos and 2 posters, approached the learning and teaching, outcomes, and assessment of service-learning from a unique angle. The topics were:

1. **Students' Learning Style in Academic Service-Learning, Does it Matter?**

2. **Learning Outcomes of University Students in a Virtual Service-Learning Exchange Programme – A Case Study in Hong Kong**

3. **Impact of Mandatory Service-Learning on Students' Post-Graduation Civic Engagement**

4. **Assessing Students in Academic Service-Learning: Faculty Experiences and Challenges**

5. **From "high-touch" to "high-tech": Students Learning Outcomes in Online Service-Learning during COVID-19**

6. **How Students' Learning Experience and Motivation Affect their Cognitive Learning Outcome in Service-Learning: A Structural Equation Modelling Analysis**

Noteworthily, Dr Stephen Chan, Consultant of SLLO, also hosted a special session as a member of IARSLCE Board of Directors. His session entitled "Asia/ Oceania Regional Gathering" had attracted SL practitioners from the captioned area to brainstorm ideas on tightening the communication and collaboration between one another.

05

Impact of Mandatory Service-Learning on Students' Post-Graduation Civic Engagement

Service-Learning (SL), as a high impact experiential learning pedagogy, is being practiced in many universities. It is, however, not a must for it to be a graduation requirement for undergraduate students like we do at PolyU, especially in the Asian context.

Having been practicing mandatory SL since 2012, with over 28,000 students contributed over 1 million man-hours of credit-bearing community service, we ask the following questions: how much impact does this have on our students in the longer term? And despite students' positive feedback – sometimes even emotional reflection – on their SL experience, do these learning outcomes "stick" after they graduate?

A research seminar was organised by the Service-Learning and Leadership Office (SLLO) on 24 September to share with the institution-wide SL community one of their recent studies in this regard. Specifically, the study compares students from the last cohort of the three-year undergraduate degree structure against the first cohort of the four-year undergraduate degree structure to see how the compulsory SL requirement implemented in the four-year programme affected students' civic engagement 18 months after their graduation.

Co-facilitated by Dr Grace Ngai, Head of SLLO and Dr K. P. Kwan, Professional Project Fellow, the seminar speaker, Dr Shuheng Lin, Service-Learning Officer, first guided the audience through the inspiration of the study.

She pointed out that even though there was research evidence suggesting that civic learning from SL does "stick" if a programme is well structured with an emphasis on students' civic outcome, very little was known about the longer-term impact of mandatory SL programme that had a comparison group. Having identified the research gap, the SLLO research team promptly made use of the unique curriculum revamp (three-year degree to four-year degree) that took place at PolyU in AY2012/13, which also introduced a compulsory academic SL requirement for all undergraduates to enrich the existing literature.

To elaborate, an alumni survey was administered to the following students approximately two years after their graduation to investigate their participation in civic engagement activities, such as donating to charities and volunteering for the community:

1. 2014/2015 graduates who fall under the last cohort of the three-year degree structure
2. 2015/2016 graduates who fall under the first cohort of the four-year degree structure with mandatory SL

Dr K.P. Kwan (left), Dr. Shuheng Lin (middle), and Dr Grace Ngai (right) chairing the seminar

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On the whole, the survey data suggested that 2015/16 graduates who were not initially inclined to community service but required to take SL were more likely to donate and volunteer as fresh graduates than those who were otherwise similar but did not go through mandatory SL. The statistic also demystified the common preconception that mandatory SL would lead to a decrease in civic engagement among students who were initially eager to serve by leaving a "sour taste" among them.

Looking forward, the research team is planning to administer another survey that studies the impact of PolyU's SL outcomes five years after students' graduation. The team also seeks to enrich their research deliverables in this upcoming study by taking the intensity of service activities into account and hopefully, identify the factors of mandatory SL programme that determine post-graduation civic engagement.

The sharing of Dr Lin was followed by an active Q&A session in which the audience exchanged their thoughts and experience over the bitterness and sweetness of institutionalising mandatory SL to both students and teachers.

To have a detailed look into the seminar, check out the video recording and download the PowerPoint handouts via the links below:

Video

https://bit.ly/31t6AbY

Handouts

https://bit.ly/3EkXhcx