



Innovating Higher Education through PBL and PjBL: The Republic Polytechnic Experience

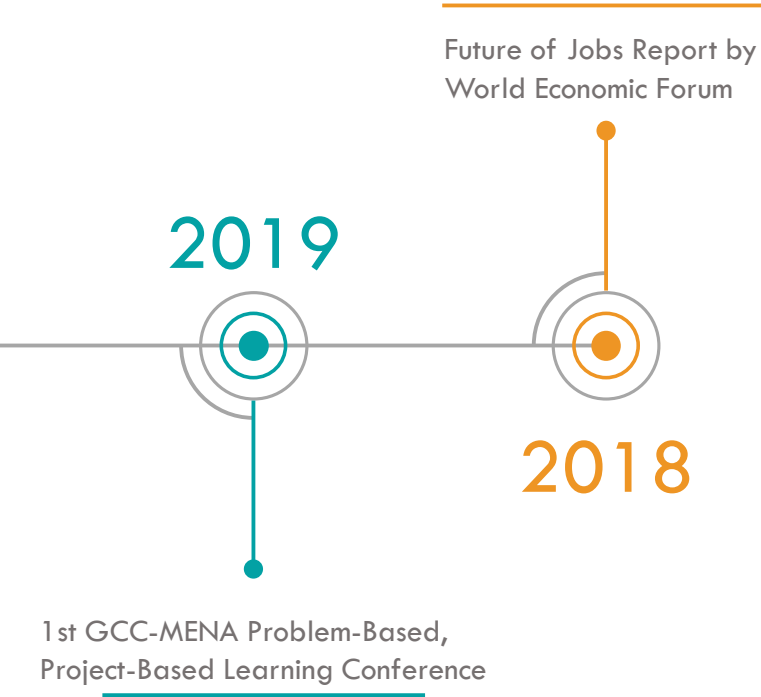
3rd November 2019

Keynote Address

1st GCC-MENA Problem-Based, Project-Based
Learning Conference



BRIEF HISTORY OF TIME



2022 Skills Outlook

Growing

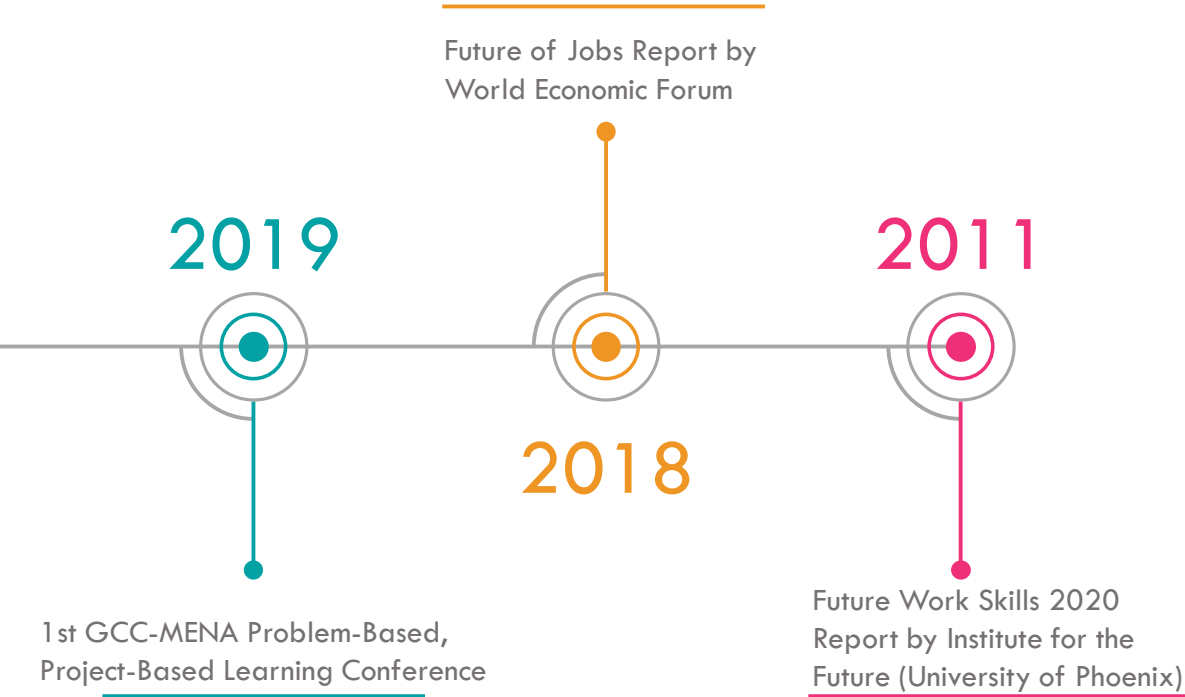
- 1 Analytical thinking and innovation
- 2 Active learning and learning strategies
- 3 Creativity, originality and initiative
- 4 Technology design and programming
- 5 Critical thinking and analysis
- 6 Complex problem-solving
- 7 Leadership and social influence
- 8 Emotional intelligence
- 9 Reasoning, problem-solving and ideation
- 10 Systems analysis and evaluation

Declining

- 1 Manual dexterity, endurance and precision
- 2 Memory, verbal, auditory and spatial abilities
- 3 Management of financial, material resources
- 4 Technology installation and maintenance
- 5 Reading, writing, math and active listening
- 6 Management of personnel
- 7 Quality control and safety awareness
- 8 Coordination and time management
- 9 Visual, auditory and speech abilities
- 10 Technology use, monitoring and control



BRIEF HISTORY OF TIME



Future Work Skills 2020

While all six drivers are important in shaping the landscape in which each skill emerges, the color-coding and placement here indicate which drivers have particular relevance to the development of each of the skills.

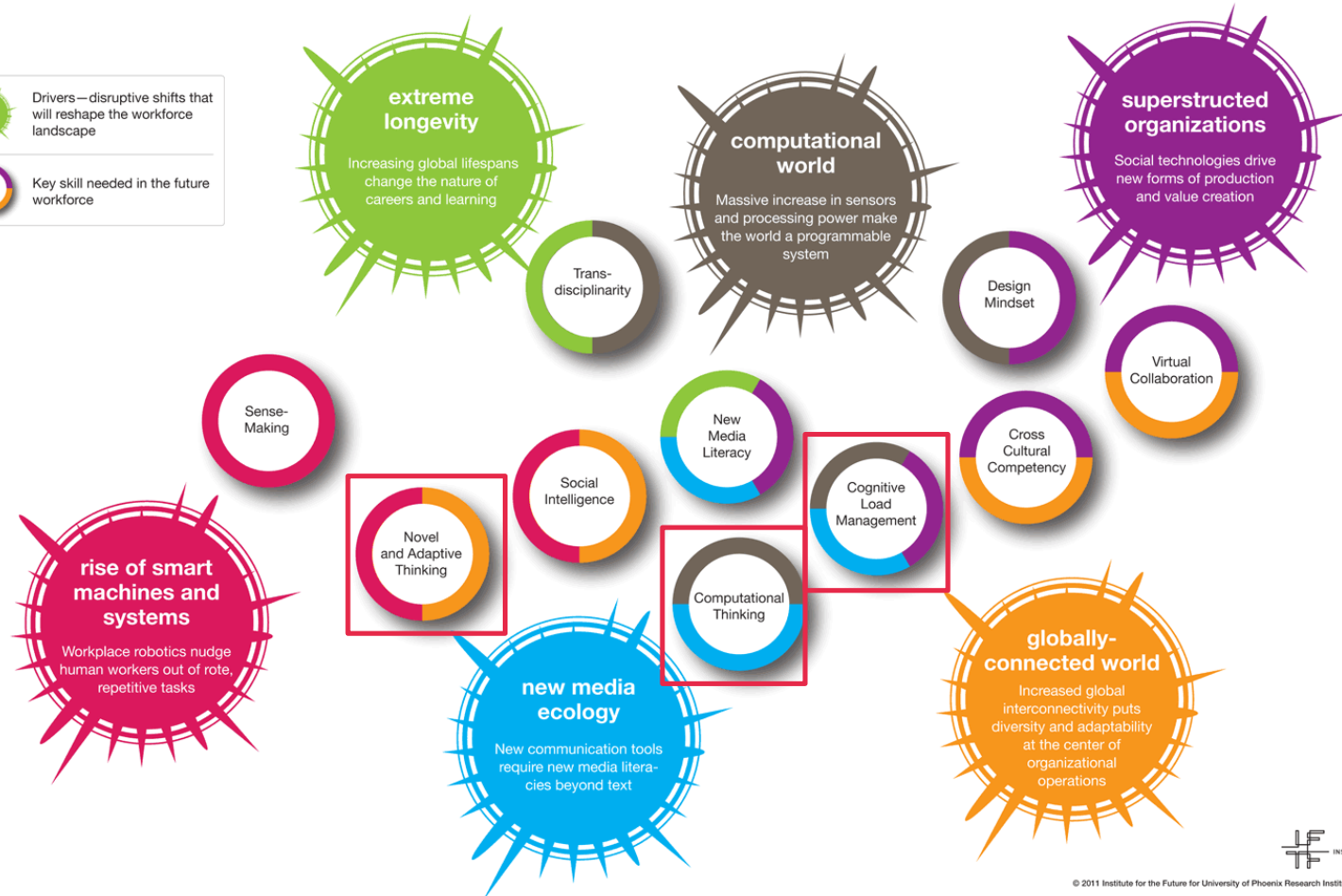
KEY



Drivers—disruptive shifts that will reshape the workforce landscape



Key skill needed in the future workforce





BRIEF HISTORY OF TIME



2019

1st GCC-MENA Problem-Based,
Project-Based Learning Conference

Future of Jobs Report by
World Economic Forum

2018

2011

Future Work Skills 2020
Report by Institute for the
Future (University of Phoenix)

Establishment of
Republic Polytechnic

2002



**REPUBLIC
POLYTECHNIC**

DISCOVER. TRANSFORM. ACHIEVE

Vision

An educational institution of choice for nurturing **innovative**, **entrepreneurial** and **cultured** professionals.

Mission

We **nurture** individuals to **prepare** them for a dynamic world in **partnership with stakeholders**, leveraging **problem-based learning**.



Established in **2002**



7 Schools & **3** Centres
39 Full-time Diplomas
51 Part-time Programmes



Over **12,600** full-time &
4,300 part-time students.

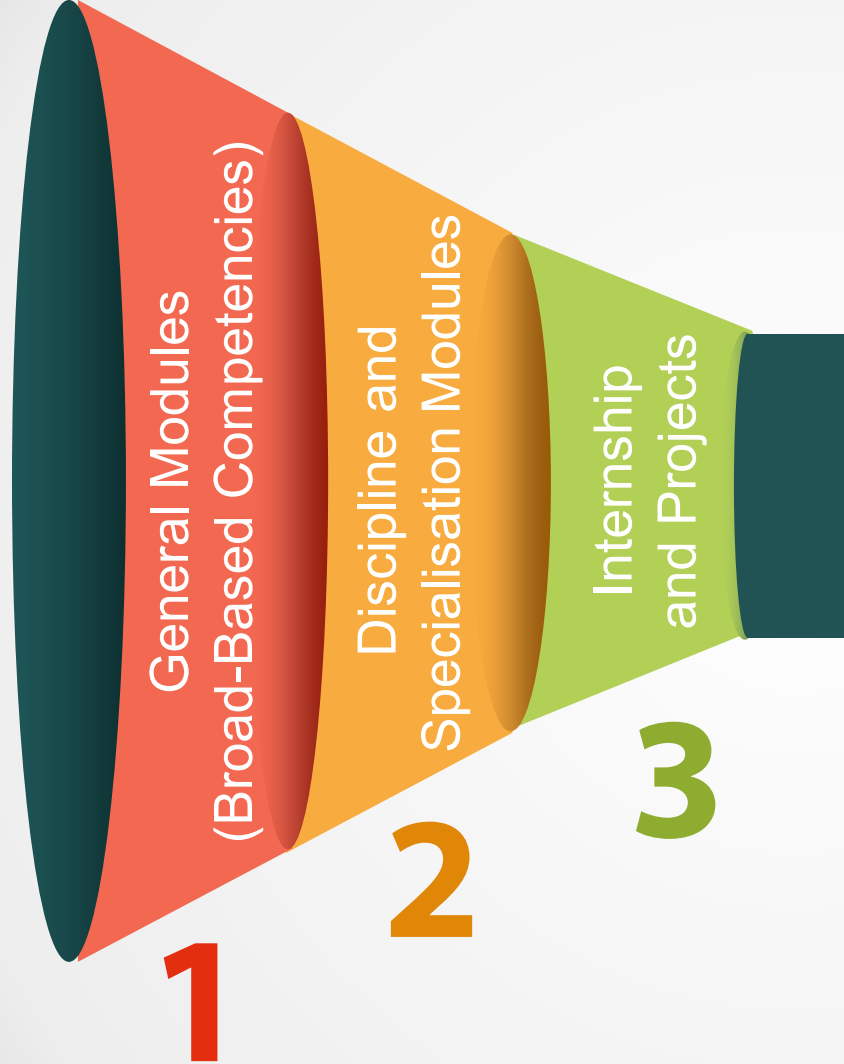


**Problem-Based
Learning (PBL)** and
other authentic learning
modalities





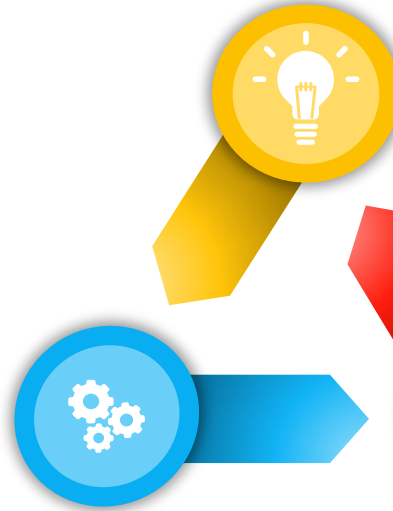
Pre-Employment Training (PET) in RP



The RP Graduate



Graduate Outcomes



**INNOVATIVE
PROFESSIONALS**

**INTEGRATIVE
PROBLEM SOLVERS**

**PASSIONATE GLOBAL
CITIZENS WITH GOOD
CHARACTER**

Partnering Our Students in Lifelong Learning



Pre-Employment Training

Continuing Education and Training

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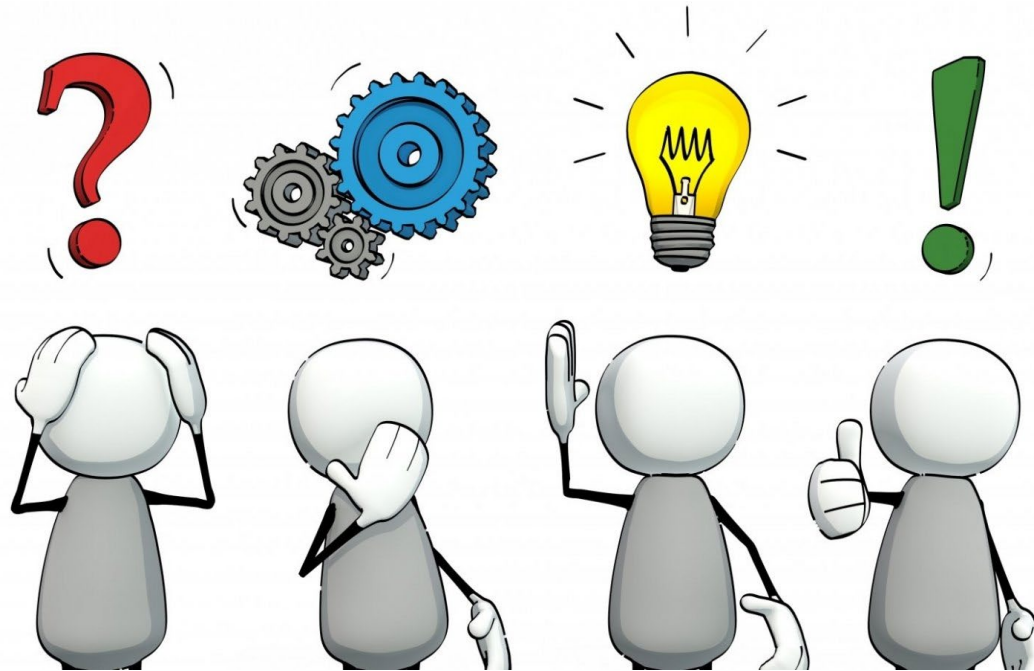
Pro

Cer





Think Back







RP Problem-Based Learning



- Social Constructivist



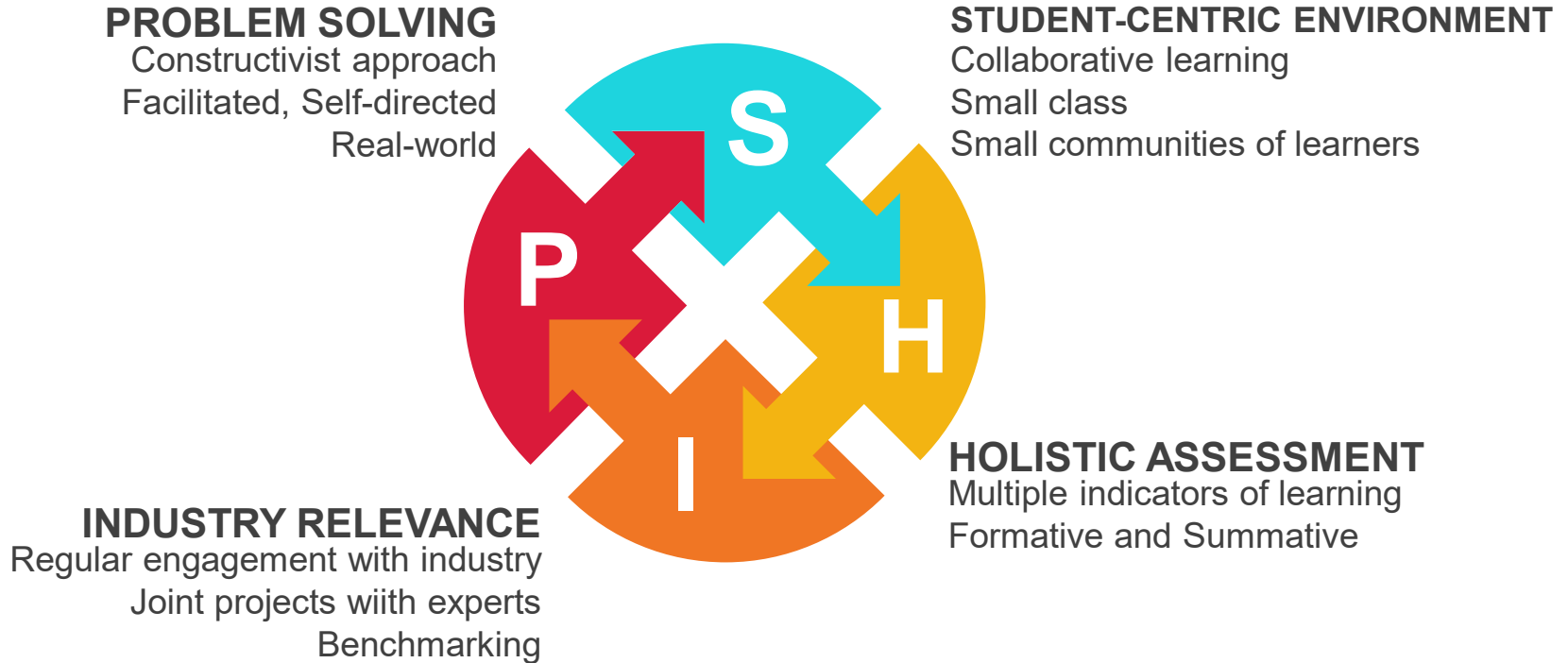
- Promotes Deep Learning



- Fosters Self-Directedness

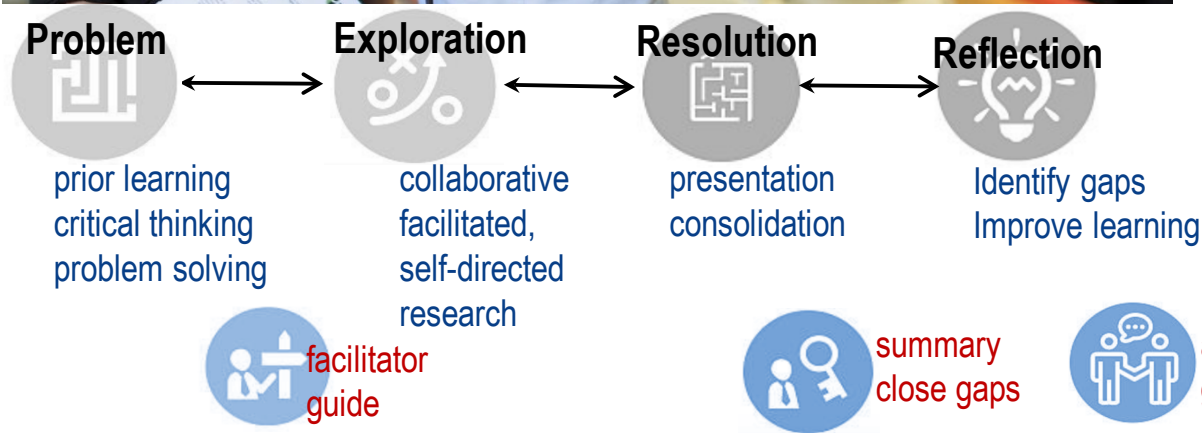


Problem-Based Learning in RP (SHIP)





PBL@RP



Sample Problem Trigger

Singapore is facing an ageing population. By 2030, 28% of its population will be above 65 years old (UN 2017 World Population Ageing report).

Amid the challenges of an ageing population, tremendous opportunities come with increasing longevity. What does it take for Singapore to be a home for all ages, a place where we can grow old with confidence?

Address this issue of an ageing population as Singapore's next generation of leaders to ensure Singapore sustains itself as a nation for 50 more years.





RP Project-Based Learning



• Industry
Collaboration



• Innovation-Driven



• Community-Focused

Case Study 1



Battling Diabetes

How do we help fight diabetes through helping citizens to locate healthier food options and exercise programmes near them?

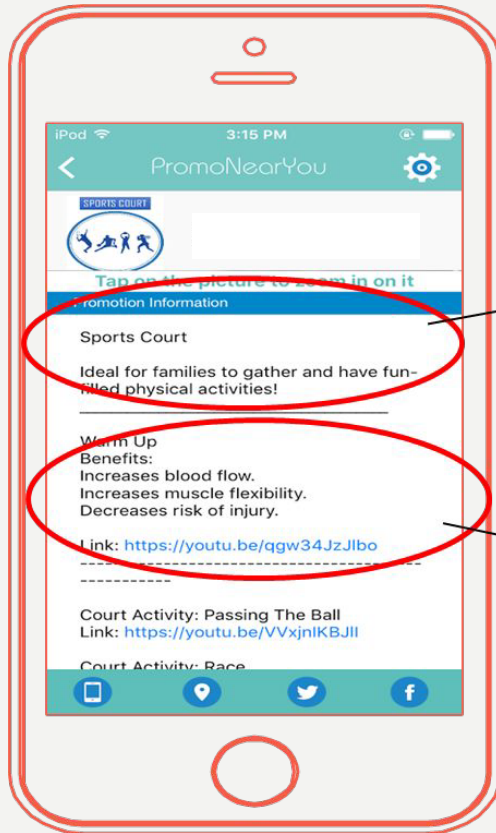
Design Challenges

How do we encourage citizens to lead an active and healthy lifestyle without being physically there?

Solution

Cost-effective approach that considers current lifestyles of citizens and makes use of existing infrastructure

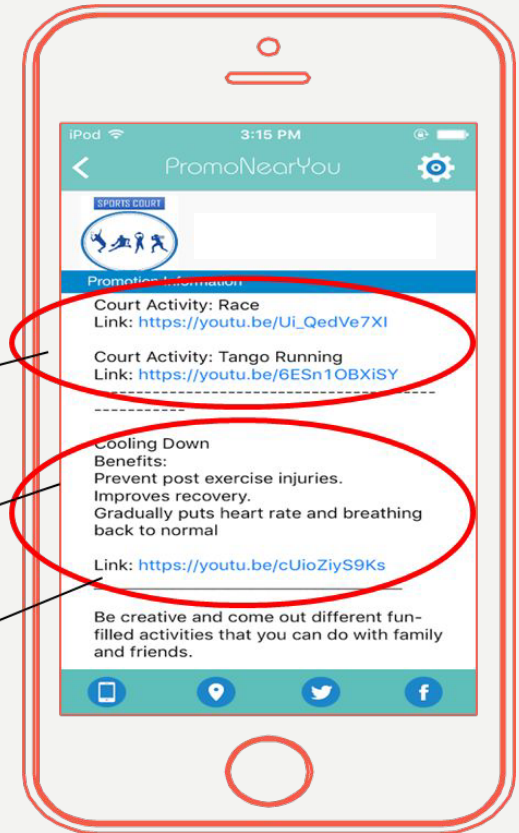
A GLANCE AT OUR FINAL YEAR PROJECT



Fitness Venue & Short summary of what they can do at the venue

Activities listed for them With quick links

1. To get them to follow these Warm-up and Cool down exercises
2. Benefits of these exercises
3. With quick links



FITNESS CORNER



SPOTTI

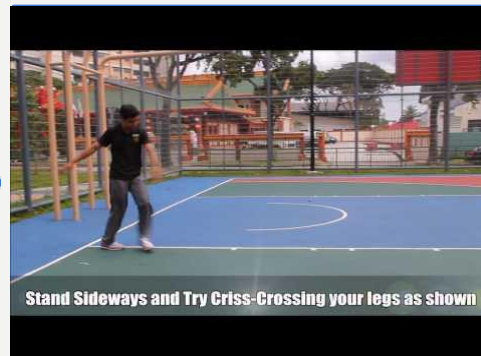
OPEN SPACE



PLAYGROUND



2.Trunk Twist



SPORTS COURT



Video Development

Total of 16 videos
in 37 locations.

Case Study 2



Design Thinking in Engineering

Creating authentic learning experiences through service learning

Design Challenges

Educating the seniors to leverage technology in improving their daily lives

Solution

Integrating service learning,
blended learning and partnering
with government agencies and
welfare organisations



Integrating Service-Learning into an Engineering Module for 900 students



Singapore Sports Museum
National Silver Academy
National Library Board



Republic Polytechnic
Staff and students conduct service-learning activities for beneficiaries at VWO's and Partner's sites



Woodlands Care Corner Seniors Activity Centre
Orange Valley Seniors Activity Centre
Fei Yue Retirees Centre
Pacific Activity Centre
Sun Love Marsiling

Partners

Worked with RP to teach seniors about how technology can improve their daily lives with seniors (e.g. borrowing of library books using self-checkout kiosks)



Beneficiaries

Share users' experience via interviews with students and provide feedback to students' prototypes.



Collaboration with Government Agencies



National Silver Academy Talk
at Chinatown Library



Tampines Regional Library



Singapore Sports Museum



Community Outreach

Provided a platform for partners to reach out to the seniors in the community and expose them to digital services, which is in-line with the Smart Nation initiatives.



Benefits to Students



- Opportunities to Serve the Community
- Learning through Authentic Experiences



Value-Add to Beneficiaries



Keeping Up with Technology

- Usage of mobile phones
- Using technology to improve daily lives



Industry Engagement



Over 1,900 companies are actively engaged with RP through various modes of collaboration

... of which **40% are Small and Medium Enterprises.**

To further deepen our integration and relevance with industry, we actively maintain:

- **200 MOU partnerships**
- **22 joint labs**

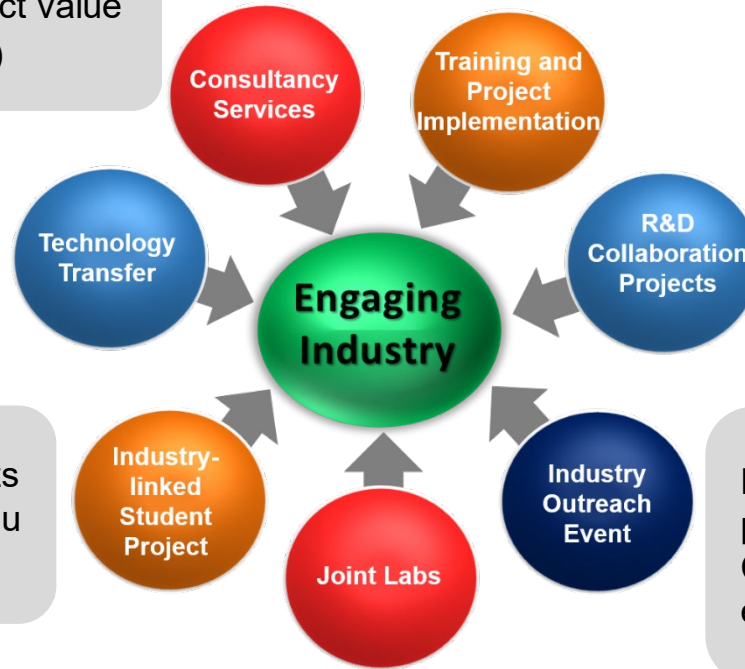
Engaging Industry in Technologies/Innovations



385 projects; total project value of **\$2.6M** (2016 – 2018)

55 licensing agreements

83% of the Student Projects are in collaboration with Industry.



22 joint labs with industry

- **28** R&D projects; **\$4.34M** awarded by Funding Agencies (2016 – 2018)
- **80%** of projects in collaboration with industry

Regular knowledge sharing platforms with industry eg. Conferences, seminars and exhibitions

2019 Success Stories of Republic Poly



Defence scholarship recipients (from far left) Lieutenant Abdul Lateef Mohamed Nasim, Midshipman Allison Tan Sue Min, Mr Alvin Tan and Officer Cadet Keefe Lau at the Istana yesterday. ST PHOTO: KHALID BABA

Sota, poly students awarded SAF Scholarship for first time

Keefe Lau, RP alumnus, the **first** polytechnic student to be awarded the prestigious Singapore Armed Forces Scholarship

Retiree proves 'there's no end to learning' by graduating from poly at 64

• SERAFINA BASCIANO

After almost 40 years since he left school, retiree Patrick Goh decided it was time to go back.

The former Singapore Airlines flight attendant, 64, enrolled in the diploma in information technology (IT) at Republic Polytechnic (RP) in 2016.

Mr Goh admitted that he faced some challenges.

He told The New Paper: "It was a steep learning curve. All the technical jargon was like learning a new language."

"I had to constantly approach my classmates for help, which made me a bit of a nuisance because I didn't want to bother them too much."

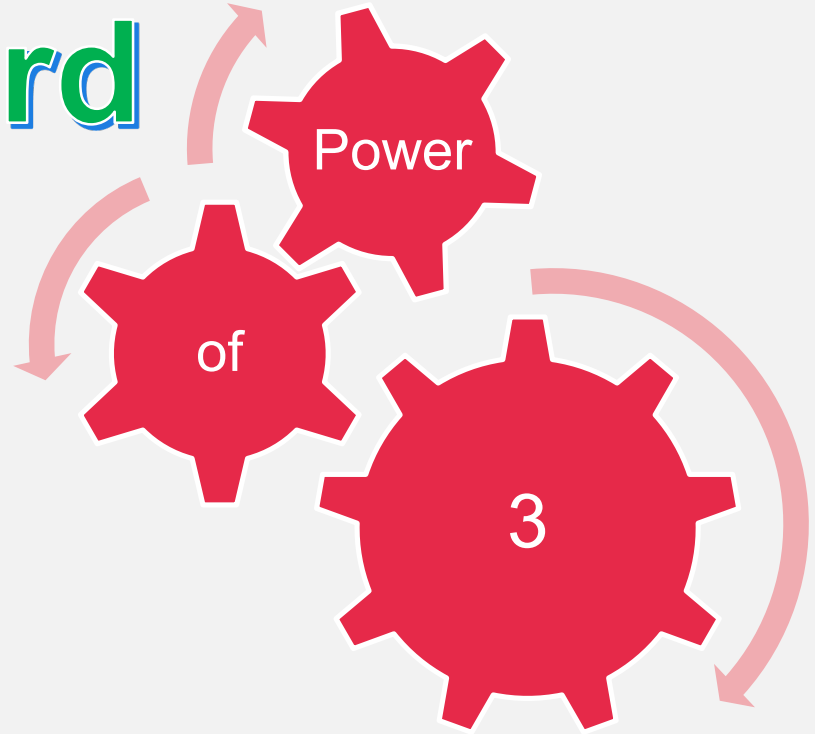


(From left) Mr Patrick Goh and Miss Radhika Subramaniam. PHOTOS: REPUBLIC POLYTECHNIC

her family's financial struggles hinder her academic achievements and leadership potential.

Grateful for the financial assistance from RP, she felt that she needed to give

3 Suggestions: Going Forward





3 Mindsets to Being Future-Ready



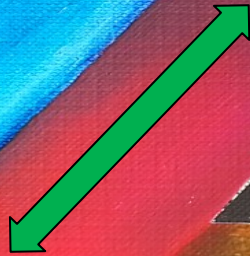
National Framework

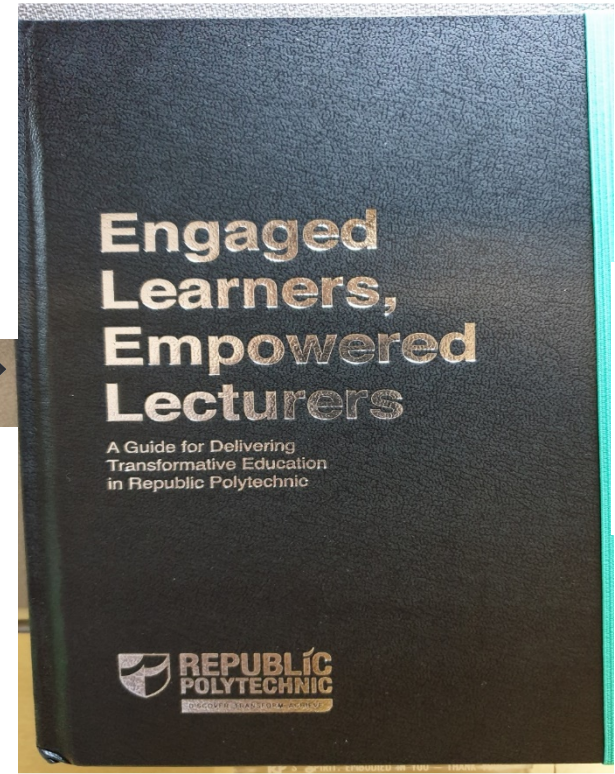
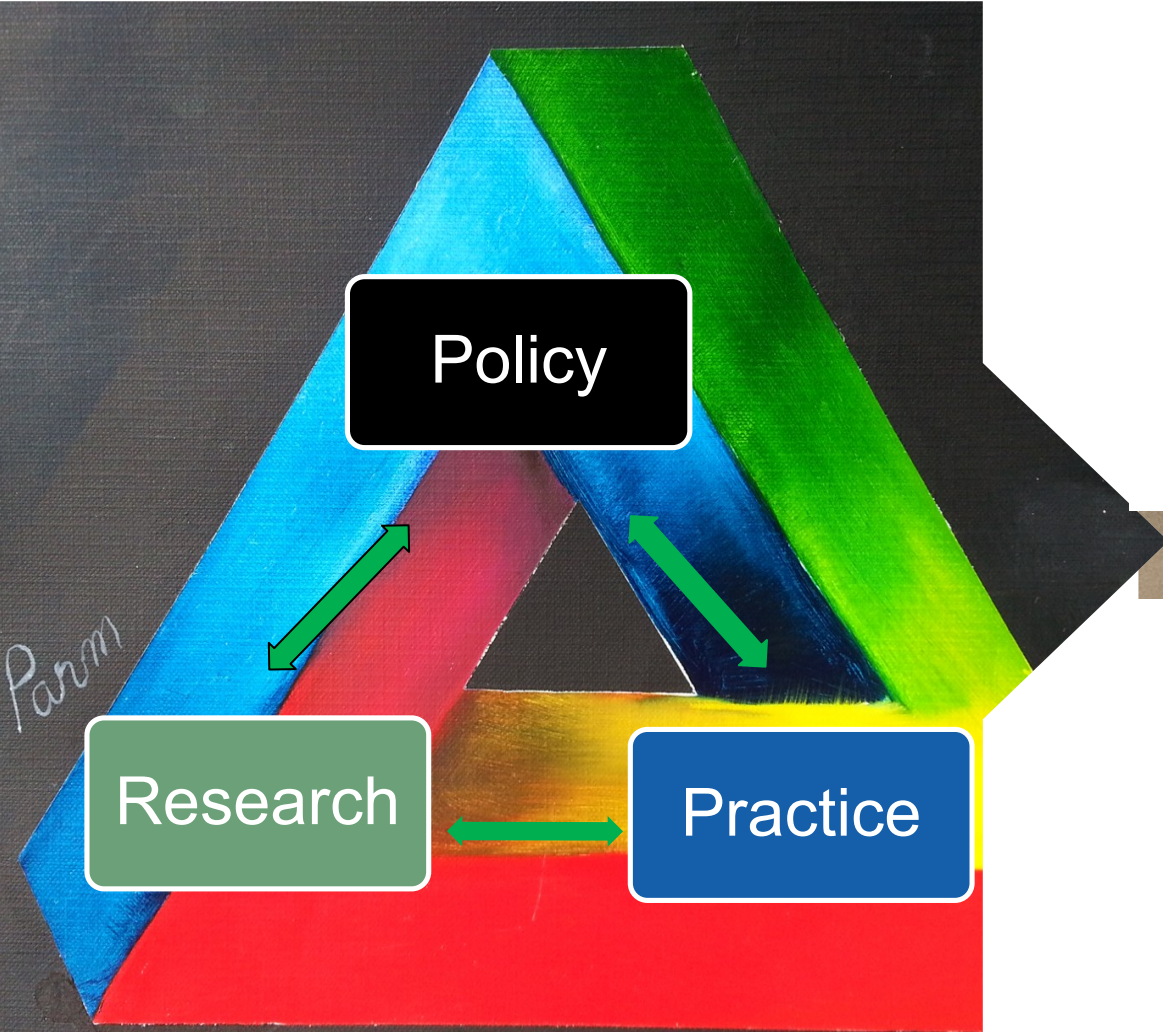
Industry

Educational
Institutions

National
Agencies

Parm





6th International PBL Symposium

25-27 March 2020

@Republic Polytechnic, Singapore

visit: www.rp.edu.sg/symposium/registration.



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Thank you!