ENHANCING TEACHING SKILLS: A PROFESSIONAL DEVELOPMENT FRAMEWORK FOR LECTURERS

Helene Leong, Mark Nivan Singh, Dennis Sale
Department of Educational Development
Singapore Polytechnic

ABSTRACT

In Singapore, polytechnic lecturers are considered as dual professionals and are expected to be experts of their disciplines as well as possess a deep knowledge of learners and the teaching strategies needed to engage and develop them holistically. Core to a qualified, committed and high quality teaching force is the preparation, induction, and professional development of our lecturers.

Singapore Polytechnic (SP), like most tertiary institutions, offers a range of professional development activities to equip new faculty with essential teaching and learning skills and provide ongoing flexible professional development to further and strengthen necessary pedagogic competencies throughout their career. SP recognizes that lecturers at different points of their teaching careers will have different professional development needs and may require specific re-skilling to respond effectively to new institution and national educational directives.

This paper describes the professional development programmes offered in SP. It also outlines the Lecturer Competency Framework that was jointly developed by 5 Singapore Polytechnics and adopted in SP in 2015. This is comprised of 6 broad competency domains with 11 subsumed competencies, which have been subsequently customized to the institution's context, based on survey data input from a range of SP teaching staff.

KEYWORDS

Professional development, competency framework, Singapore Polytechnic

INTRODUCTION

As professional teachers, our key role is enhancing the learning opportunities and achievement outcomes for the range of learners we teach. Furthermore, as the term professional implies, we must be as current and competent in the most evidence-based knowledge and practices as we can be. Hence, from this basic premise, there can be little argument that professional development must be central to enhancing professional practice, and much is made of the need for lifelong learning in a world of exponential knowledge production and rapidly changing occupational structures.

The core business of educational institutions is ultimately about maximizing student learning opportunities, the student learning experience and student attainment levels. There are many factors that contribute to achieving this, but the quality of teaching (however defined) is the most significant one. For example, Izumi and Evers (2002), from an overview of research on the impact of teachers on student achievement, summarized:

> …nothing is as important to learning as the quality of a student's teacher. The difference between a good teacher and a bad teacher is so great that fifth-grade students who have poor teachers in grades three to five score roughly 50 percentile points below similar groups of students who are fortunate enough to have effective teachers. (ix)

Similarly, at school level, Rowe & Rowe (1993) argued:

> On the basis of our findings to date it could be argued that effective schools are only effective to the extent that they have effective teachers. (p.15)

Petty (2009) fully contextualized the importance of good teachers in real life terms when he wrote:

> Good teachers touch people's lives for ever. If you teach well, some of your students will only succeed because of your excellent teaching. They then might go on to get more advanced qualifications and skills, again just because of your expert teaching. Then they might get a career, indeed a whole life, built on your excellent teaching. No other profession is that consequential and enabling. (v)

In the following sections of this paper, we outline key aspects of the professional development framework in Singapore Polytechnic (SP) and how is has evolved in response to changes in the educational landscape – both in the global and local context. The paper then focuses more specifically on key initiatives targeted towards meeting the diverse competency requirements of the present (and emerging) teaching role (as we frame it) in cost effective evidence-based ways.

FACULTY DEVELOPMENT AT SINGAPORE POLYTECHNIC

SP recognizes that lecturers, at different points of their teaching careers, have different professional development needs and may require specific re-skilling to respond effectively to new institutional and national educational directives. The professional development programmes in SP are, therefore, organized into three broad strands to support:

- the needs of new hires to develop knowledge of their students, how they learn, and what the best pedagogic practices are to support student learning and attainment;
- the on-going deepening of knowledge and skills necessary to implement new school, institutional and/or national initiatives; and
- the development of pedagogic leaders to enhance and innovate best practices in teaching and learning for SP.

Supporting the Needs of New Hires

As a significant number of new academic faculty possess little formal teaching experience, a structured programme for new full time lecturers, the Certificate in Teaching (CT), has been a central feature of professional development at SP. CT participants attend a one-week induction programme, a week-long workshop on integrating ICT in teaching and learning, and various specialised workshops on selected pedagogical topics such as learning design, classroom management and effective assessment practices. At the end of the programme, the participants are required to produce a portfolio of evidence of their work in the course. (see Annex 1 for details of the CT course).

In a recent revision, greater emphasis was placed on developing skills sets that enable our lecturers to:

- Integrate information-communication technologies (ICT) into learning design and teaching
- Develop real work - focused integrated curriculum
- Facilitate active learning
- Use assessment for learning
- Enhance intrinsic motivation in the learning process

Another significant change in our CT programme was a shift from a largely face-to-face workshop delivery mode to a blended one. Content delivery is now mostly online and the face-to-face component focuses on the systematic development of key teaching skills through an Extended Teaching Practicum using a Lesson Study (Stigler & Hiebert (1999) and Supported Experiment Approach (Petty, 2015). This is facilitated by a sustained learning relationship between participants and their supervisors, who provide the necessary mentoring and coaching support when needed.

On-Going Development of Lecturers
After graduating from the CT course, lecturers engage in regular professional development to expand their teaching competencies through a range of specialized workshops. These are standalone programmes in which academic faculty can request and participate in, or workshops specifically tailored to the needs of particular programmes or initiatives. In addition, a range of online workshops are also available on the SP's Learning Management System, BlackBoard (BB).

Teaching and Learning Initiatives
New national and institutional needs and directions often require changes to curricula, teaching and learning strategies and assessment methods. To enable lecturers to adapt and/or innovate existing practices, pilot new approaches and build capabilities, specific training and support of early adopters through small group consultancies are provided. Examples of such initiatives include Design Thinking, CDIO, Holistic Education, Intrinsic Motivation, Facilitation for Learning Express and Flipped Classroom.

Platforms for sharing and learning
Sharing platforms help create a culture of enquiry, evaluation of practices and collaborative learning. Some examples of Communities of Practice (CoP) in SP include the Active Learning Community in the School of Architecture and the Built Environment, the ICT Enabled Learning Community and the Academic Mentors CoP. SP organizes monthly Educational Roundtables and the yearly Excellence in Education and Training Convention (EETC) where lecturers are invited to share best classroom practices and innovative teaching and learning ideas that they are implementing, to the wider SP teaching fraternity.

DEVELOPMENT OF PEDAGOGIC LEADERS

As academic staff progress in their careers, there are a range of specific professional development programmes to prepare them to meet the responsibilities of new roles to which they may be appointed.

Course chairs
Course chairs are responsible for the strategic positioning, management and curriculum design of their courses. Professional development for course chairs takes the form of short workshops and focussed discussions of best practices. The course chair learning community is also a platform for Senior Management to discuss new developments in the education landscape. In addition, course chairs' knowledge and skills in course strategic positioning and curriculum design were enhanced through consultancies with EDU.

Academic Mentor

Academic mentors lead school-based teaching and learning projects and contribute to their school's and SP's wider professional development activities by leading CoPs and cross Polytechnic teaching and learning projects. They are experienced academic faculty who choose the Teaching Career Track. In preparation for this role, they complete a 100-hour blended learning programme aimed at strengthening their abilities to mentor fellow colleagues, and advise them on curriculum design and pedagogy.

Deputy Directors (Programmes)

Deputy Directors provide guidance to course chairs on programme direction and strategy. At the Pedagogy Community meetings, the deputy directors meet once a month to share and appraise innovative teaching and learning practices. This facilitates cross pollination of ideas as well as collaboration on educational initiatives across schools.

TEACHING AND LEARNING COMPETENCY FRAMEWORK FOR POLYTECHNIC LECTURERS

In 2013, a national committee for teaching and learning was set up by the Ministry of Education, Singapore, with the objective of "initiating, developing and nurturing a strong teaching and learning culture across all polytechnics". The first project of the committee was to identify a set of competencies that polytechnic lecturers should develop as they progressed in their careers as educators in the polytechnics. The framework defines what polytechnic lecturers are expected to know and be able to do at each stage of their careers, including key supporting professional values. It also identifies a professional development roadmap that assists lecturers in their journey as polytechnic lecturers. The outcomes of this project echo the call of the European Commission's Report (2012) *Rethinking Education: Investing in skills for better socio-economic outcomes:*

> to revise and strengthen the professional profile of all teaching professionals by reviewing the effectiveness as well as the academic and pedagogical quality of initial teacher education … the professional development of teaching staff based on **clearly defined competences needed at each stage of a teaching career**, and increasing teacher digital competence.

Identification and Validation of Lecturers' Teaching and Learning Competencies

A seventeen member project team from the 5 polytechnics, through an extensive literature review and the polytechnics' own competencies frameworks, identified a preliminary set of 6 competency domains and 16 underpinning competencies. Collectively, the descriptors for these were painstakingly crafted for further validation. This was conducted through a focus group session involving polytechnic lecturers from all five polytechnics, including 20 teaching staff from Singapore Polytechnic (SP). Further feedback was sought from two external reviewers; one from industry and another from academia, who were based in Singapore. The feedback obtained from the focus group and external reviewers were used to streamline the preliminary framework to 11 competencies, within the 6 competency domains.

An e-survey was conducted in 2014 to obtain feedback on the competencies from teaching staff. 184 teaching and management staff from Singapore Polytechnic (SP) participated in the survey. Table 1 and 2 show the age and years of teaching experience of the SP respondents who participated.
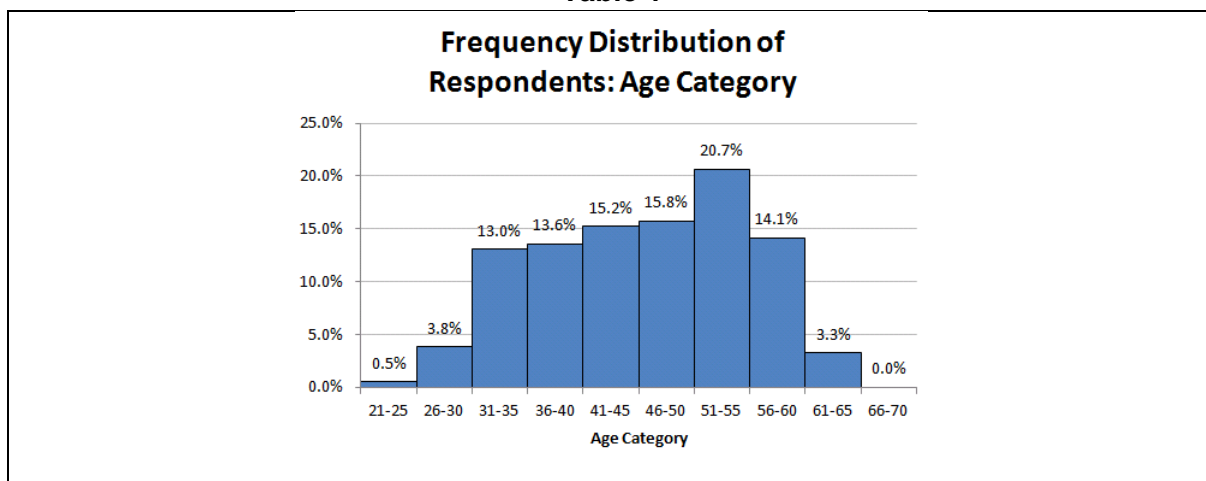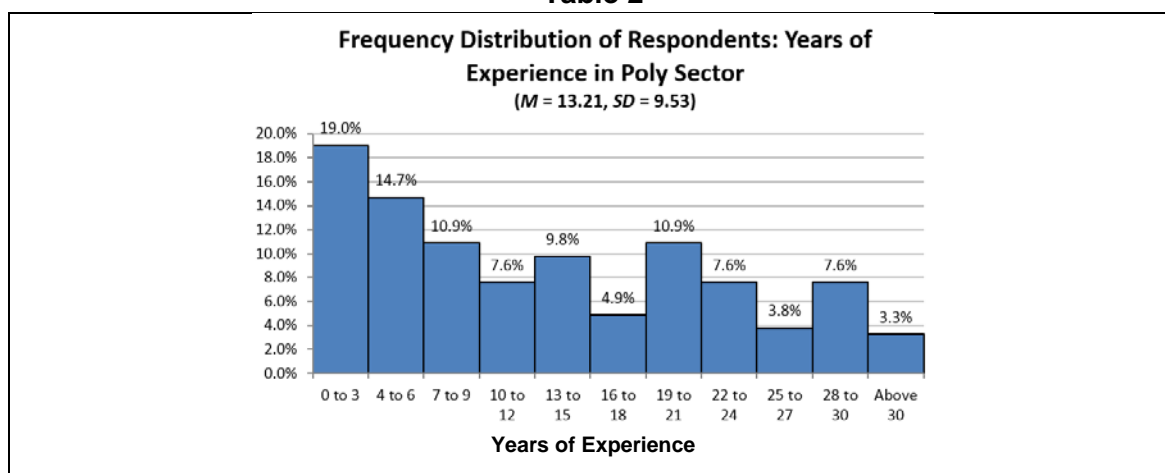
Table 1

Frequency Distribution of Respondents: Age Category

Table 2

Frequency Distribution of Respondents: Years of Experience in Poly Sector (M = 13.21, SD = 9.53)

Results and discussion

The responses from the e-survey were largely positive and confirmed the work of the project team. 89% of all respondents felt that the proposed framework was useful in guiding them to develop professionally in the competency domains (Table 3).

86% of the respondents also felt that the framework provided a comprehensive coverage of the key teaching and learning competencies (Table 4) but 45% felt that there were "slightly too many" competencies (Table 5) in the framework.

It was notable that the majority of the respondents in SP perceived the competencies proposed as clear, relevant and useful in helping them plan for their professional development needs, regardless of the proficiency levels they are at (Table 6).

Of the proficiencies, 29% and 24% of the respondents felt that they were advanced in facilitating effective learning and curriculum design respectively (Table 7). For dual professionalism, while 18% of the respondents felt that they had advanced competencies in the area, another 45% felt that they had basic competencies. Not surprisingly, the two competencies, Pastoral Care and being a Reflective Practitioner, that were ranked the lowest in importance had the highest percentage of respondents (60%) who felt they had basic level competencies in both.
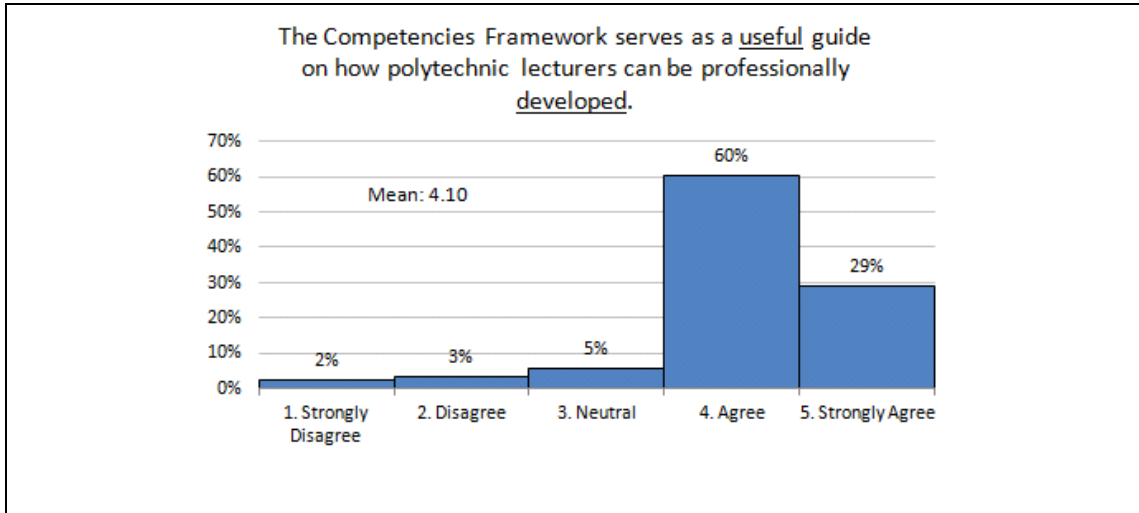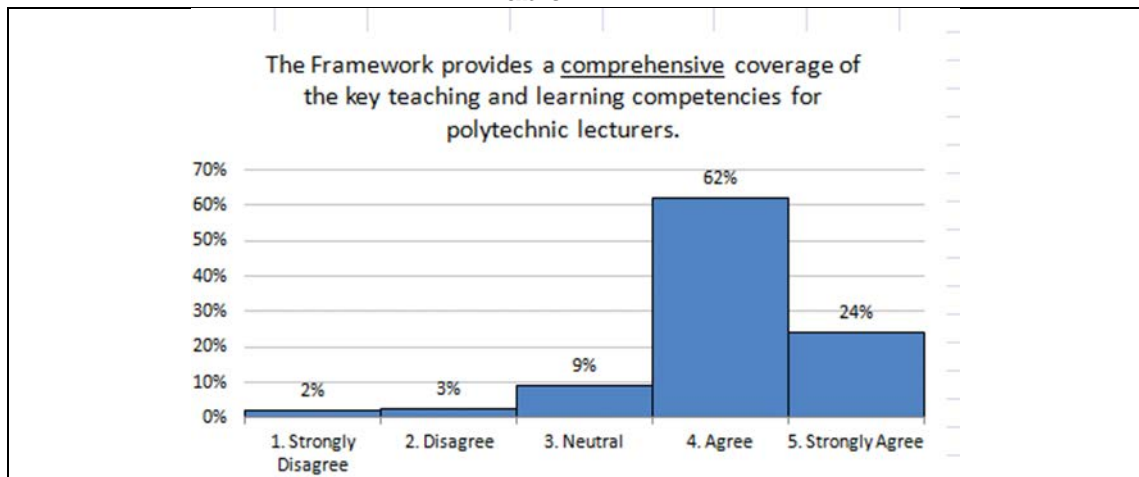
Table 3

The Competencies Framework serves as a _useful_ guide on how polytechnic lecturers can be professionally _developed_.

Mean: 4.10

Response	Percentage
1. Strongly Disagree	2%
2. Disagree	3%
3. Neutral	5%
4. Agree	60%
5. Strongly Agree	29%

Table 4

The Framework provides a _comprehensive_ coverage of the key teaching and learning competencies for polytechnic lecturers.

Response	Percentage
1. Strongly Disagree	2%
2. Disagree	3%
3. Neutral	9%
4. Agree	62%
5. Strongly Agree	24%

Table 5

What do you think of the total number of competencies in the framework (i.e., 11)?

Mean: 3.54

Response	Percentage
1. Too Few	1%
2. Slightly Too Few	3%
3. Just About Right	45%
4. Slightly Too Many	45%
5. Too Many	7%

Table 6

% Agreement that Competencies are Clear, Relevant & Helpful
(Broken down by Proficiency Levels) - SP

Table 7

% Breakdown of Respondents' Proficiency Levels Across 11 Competencies
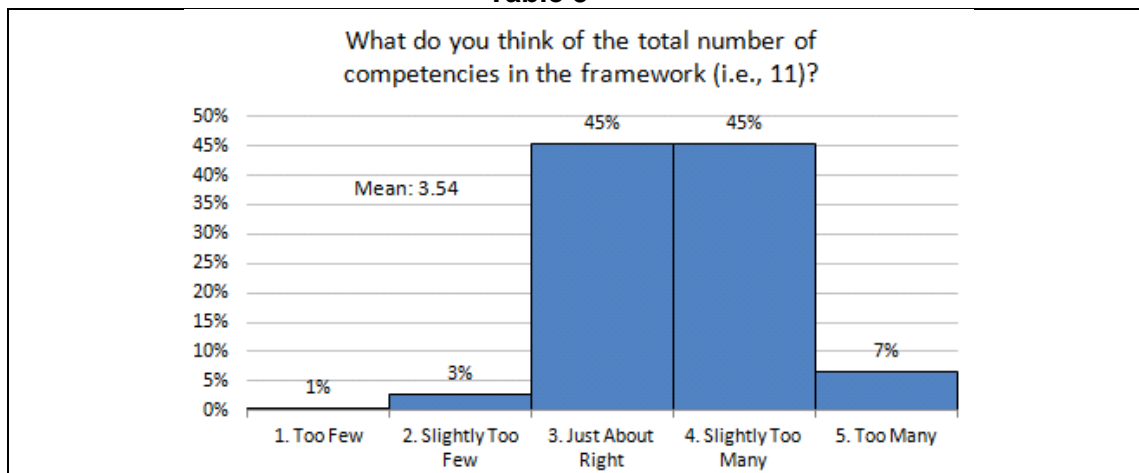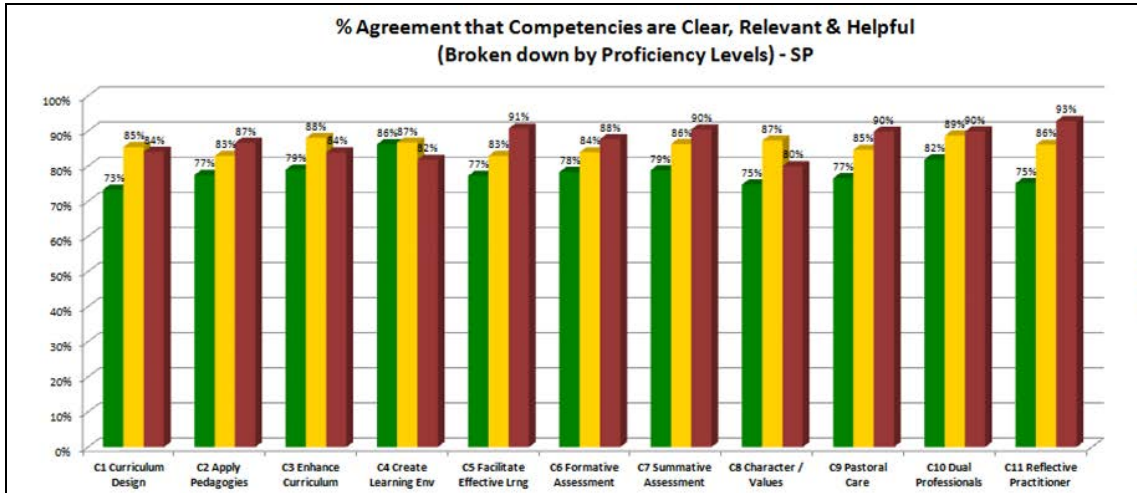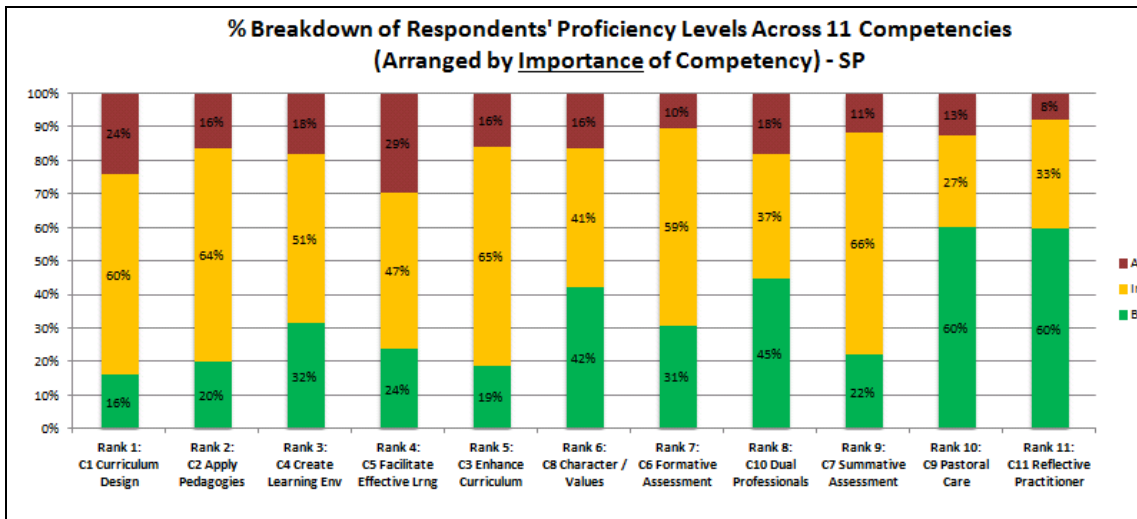(Arranged by <u>Importance</u> of Competency) - SP

On the whole, the majority of respondents positively validated the domain areas, the 11 underpinning competencies and their descriptors.

Customising the Framework for SP's context
The project team agreed that each polytechnic would have flexibility to customise the matrix for its lecturers by using local examples to provide context. SP's customised framework* has taken into consideration its current teaching and learning focus areas, which includes utilizing educational technology in teaching and learning; skill enhancement; development of professional identity, and lifelong learning (Table 8).

Table 8

Competency Domains	Customised Competencies for SP Lecturers
1. Curriculum Design and Development	• Design curriculum and lessons that align with the learning outcomes, students' learning needs and real-world/industry-relevant context • Apply appropriate pedagogies and technologies in planning the curriculum • Enhance curriculum and lesson design through feedback

		• *Design and develop work-place learning curriculum (eg internships and OJT) according to the needs of students and industry*
2.	Facilitation of Learning	• Create learning environments that facilitate students' achievement of the learning outcomes • *Facilitate learning experiences with elements of autonomy, mastery, relatedness to enhance the Intrinsic Motivation of students* • *Leverage on Eduutech to design and facilitate a variety of ICT-enabled lessons* • *Create learning experiences that nurtures students' professional identity and formation.*
3.	Assessment For and Of Learning	• Design and implement formative and diagnostic assessments to improve student learning and achievement of learning outcomes • Design and implement summative assessment to record student achievement • *Analyse student performance and provide support structures/ mechanisms for feedback in the module/subject by leveraging on Edu Tech tools and learning analytics*
4.	Holistic Student Development	• Develop students' character, values, and social and emotional learning capacity • Provide basic pastoral care and career advisement
5.	Dual Professionals	• Identify relevant developments in industry, disciplinary content and pedagogy to enhance the curriculum • *Engage industry in developing students' skill sets and professional identity*
6.	Reflective Practitioners	• Engage in reflective practice through collaborative action research and professional learning communities

*Work-in-Progress

Conclusion

As teaching quality is the most important single factor in determining student attainment levels, it's essential that we provide training and support to maximize the capability of our teaching faculty. This will involve keeping abreast of new research and knowledge relating to how humans learn and the implications this has for designing and facilitating the student learning experiences.

Certainly, over the past decade or so, much has changed concerning our understanding of what teaching methods work best and the underlying principles involved. As a result, Petty (2009) argued that teaching may finally be ready to:

> …embark on a revolution, and like medicine, abandon both custom and practice, and fashions and fads, to become evidence-based (cover page).

Collectively the research evidence (e.g., Bransford, 1999; Marzano, 2007; Mayer & Alexander, 2010; Hattie & Yates, 2014) is now providing us with a heightened pedagogic understanding of the various facets of highly effective teaching and what strategies tend to work best and why. Hence, we can now start to talk about professional practices in teaching from an evidence-

base as is the case in the more established professions. For example, Darling-Hammond & Bransford (2005), from surveying the research findings, concluded that:

> There are systematic and principled aspects of effective teaching, and there is a base of verifiable evidence of knowledge that supports that work in the sense that it is like engineering or medicine. (p.12)

Furthermore, this approach is extended to our professional development model, focusing on in-depth collaborative engagement of faculty in addressing curriculum challenges with strong mentoring and coaching support (Gulamhussein; 2013; Timperley et al., 2008; Joyce and Showers 2002).

The establishment of the Teaching and Learning Competencies Framework provides guidance for polytechnic lecturers' professional development throughout their careers and supports existing major curriculum innovations at SP, such as the CDIO Engineering Education Framework. It is also helping to identify areas of professional development that may need to be further enhanced in future (e.g., dual professionalism, pastoral care and reflective practice).

In summary, SP is committed to the ongoing professional development of Academic Staff throughout their career progression, which is facilitated through the wide range of strategically planned professional development activities outlined in this paper. The overarching goal is the provision of quality learning experiences for our students; maximizing their learning opportunities and preparing them to be Work, Life and World ready.

REFERENCES:

Bransford, J. et al. (1999) *Brain, Mind, Experience & School.* D.C: National Academy Press, Washington.

Darling-Hammond, L., & Bransford, J., (2005) Preparing Teachers for a Changing World: what teachers should learn and be able to do. Jossey-Bass, San-Francisco.

European Commission's Report, (2012) *Rethinking Education: Investing in skills for better socio-economic outcomes.* Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee & the Committee of the Regions. Strasbourg.

Gulamhussein, A., (2013) *Teaching The Teachers: Effective Professional Development in an Era of High Stakes Accountability.* National School Boards Association, Centre for Public Education.

Hattie, J. & Yates, G. C. R., (2014) *Visible Learning and the Science of How we Learn.* Routledge, New York.

Izumi, T. L. & Evers, W. M. (2002) *Teacher Quality.* Hoover Institutional Press, San Francisco.

Joyce, B. R. and Showers, B., (2002) Student Achievement Through Staff Development, 3rd Edition. ASCD, Alexandria, CA.

Marzano, R. J. et al., (2007) *Designing and Teaching Learning Goals and Objectives: Classroom Strategies That Work*. Marzano Research Laboratory, Colorado.

Mayer, R.E. & Alexander, P. A. (2011) *Handbook of Research on Learning and Instruction*. Routledge, London.

Petty, G. (2009) *Evidence-Based Teaching: A Practical Approach.* Nelson Thornes, Cheltenham.

Rowe, K.J., & Rowe, K.S. (1993) Assessing student behavior: The utility and measurement properties of a simple parent and teacher-administered behavioural rating instrument for use in educational and epidemiological research. Paper presented at the annual Conference of the Australian Association for Research in Education, Fremantle, WA.

Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2008) 'Best Evidence Synthesis on Professional Learning and Development'. *Report to the Ministry of Education*, Wellington, New Zealand.

BIOGRAPHICAL INFORMATION

Helene Leong is the Director of the Department of Educational Development at Singapore Polytechnic. Her current focus is on the use of technology in education, enhancing students' intrinsic motivation, and the pedagogy for professional formation and identity. She is also the co-leader for the CDIO Asian region.

Mark Nivan Singh is the Senior Manager at the Department of Educational Development at Singapore Polytechnic. He works closely with new lecturers to help hone their pedagogic literacy and assist them in their transition from the industry to teaching. Mark's current focus is on enhancing the professional development experience of lecturers in SP.

Dennis Sale is the Senior Education Advisor in the Department of Educational Development at Singapore Polytechnic. He has worked extensively in all areas of teacher professional development and is author of the book 'Creative Teaching: An Evidence-Based Approach' (Springer, 2015).

Corresponding author
Helene Leong
Director
Department of Educational Development
Singapore Polytechnic
500 Dover Road
Singapore 139651
helene_leong@sp.edu.sg

Certificate in Teaching (Higher Education)

The Certificate in Teaching (CT) course has been the main vehicle for providing the key understandings and basic competences in preparing academic faculty for their professional teaching role in Singapore Polytechnic. It is the initial teacher education programme to enable them to approach their teaching from a solid pedagogic base.

For the development of professional competence, the key focus is on the application of the most current and validated knowledge bases relating to human learning and how these can be systematically applied to the design of curriculum, teaching practices and assessment of learner performance.

Key Features

Title	Duration	Remarks
Induction	1 week (Full Time)	The induction programme is designed to help ease new staff into their role as an SP lecturer before they begin actual teaching. In this phase, they learn basic pedagogical knowledge and skills such as: • Lesson Planning • Classroom Management • Designing for Active Learning • Basic Facilitation Skills
Using Technology for Teaching and Learning	1 week (Full Time, conducted during School Vacation)	This week long workshop focuses on the core knowledge and skills needed to integrate the use of technology to improve teaching and learning outcomes. Key areas covered include: • The useful affordance of using technology for teaching and learning • Key trends in using ICT for teaching and learning • Designing an ICT based lesson • Useful tools and apps for teaching and learning
Specialised Workshops	Online	Lecturers participate in online workshops to help them hone and sharpen their pedagogical knowledge and skills. Lecturers attend a variety of workshops such as • Lesson Study Using Supported Experiments • Designing and Assessing Performance Based Assessment • Inquiry Based Learning • Facilitating Online Learning • Motivating Students
Lecturers will also need to submit a teaching portfolio that will showcase the application of knowledge and skills learnt on the CT course		