

*Developing an Instrument for Self-Evaluation of Teaching and Learning  
Competencies:  
A Review of Faculty Professional Development and the Changing Higher  
Education Landscape in Singapore*

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The Asian Conference on Education & International Development 2017  
Official Conference Proceedings

**Abstract**

This scholarly paper forms part of a doctoral study focused on the development and validation of an instrument for the self-evaluation of teaching and learning competencies for the purpose of faculty professional development. The rapid expansion of the higher education sector in Singapore has called for new approaches to university teaching that are adjusted to modern, more student centered, and technologically enabled learning contexts. The changing visions on student learning and the evolution of the teaching role require university teachers to develop themselves professionally on a continuous basis. It is therefore timely to have a taxonomy of teaching and learning competencies that can be used within a professional development model for academics to perform a self-assessment of their current pedagogical knowledge and skill levels as well as to set their learning and development goals. This paper is a systematic literature review of the concepts, theories and contexts involved in competency studies as well as the dynamic changes in the Singapore higher education landscape.

Keywords: teaching and learning competencies, higher education, professional development frameworks.

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## Introduction

The higher education landscape in Singapore is fast evolving in tandem with global trends in educational development (Cheong, 2015). Slightly over two decades ago, when most universities worldwide, including the publicly-funded ones in Singapore, were more selective and admitting smaller percentages of secondary school leavers, the definition of teaching usually meant lecturing to an elite group of very intelligent and highly motivated individuals. The “prevailing conception of teaching” was focused on “what teachers did, not what students learned” (Altbach, Reisberg and Rumbley, 2009, p. 113).

Since then, like the rest of the world, the number of universities in Singapore and their total student enrolments have grown significantly. Currently, there are six publicly-funded, autonomous universities established, namely the National University of Singapore (NUS), the Nanyang Technological University (NTU), the Singapore Management University (SMU), the Singapore University of Technology and Design (SUTD), the Singapore Institute of Technology (SIT), as well as SIM University, recently renamed as Singapore University of Social Sciences (SUSS) (Davie, 2017). According to the statistics provided by the Ministry of Education (MOE), approximately one in four students from each Primary One cohort are currently able to obtain a place in one of Singapore’s publicly-funded universities. By 2020, there will be an increase of three thousand more university places which will raise the cohort participation rate (CPR) to forty percent (*Final Report of the Committee on University Education Pathways Beyond 2015*, 2012).

With the ‘massification’ of university education since the 1980s, the teaching role of academics has also shifted from the traditional teacher-centered focus towards greater emphasis on student-centered learning (Barr & Tagg, 1995; Kinchin, Hatzipanagos & Turner, 2009; Weimer 2013). The expansion of student cohorts naturally meant that the body of learners is now more diverse - with varying degrees of intellectual capacity, prior knowledge, skills and preparation for tertiary study (Biggs, 2003). This growth phenomenon requires faculty to develop greater understanding on ways to enhance the learning of individual students, rather than teaching to an assumed-knowledge ‘elite’ (Dearn, Fraser and Ryan, 2002; Mok, 2000). Putnam and Borko (as cited in Tigelaar, Dolmans, Wolfhagen, and Vleuten, 2004), argued that changing visions on student learning and the evolution of the teaching role required that teachers continuously developed themselves professionally.

At the same time, as a result of the advancement in information technology which led to knowledge explosion, globalization as well as socio-political and economic change, the past twenty years had also witnessed several other major developments which drove educational transformation. These developments included the drive towards outcomes based education, quality assurance in higher education, integration of information and communication technology into the classroom, and scholarship of teaching and learning (Cheong, 2015; Hassan, 2011). These variables would directly impact the role of academics and warranted the need for professional training and development. Hassan asserted that in a knowledge society, it was equally important for academics to produce academically rigorous research outputs while “concomitantly being accomplished and imaginative facilitators of learning in the midst of vast and available knowledge” (Hassan, 2011, p.479).

Even though important changes were taking place, relatively little research existed on the status and role of teaching and learning in higher education around the world (Altbach et al, 2009), much less in Singapore. It was also argued that “while the research role of academic work is professionalized through doctoral study and active engagement in a scholarly community, there is no commensurate rigor in the preparation and ongoing support for the teaching role” (Dearn et al, 2002, iv). Often, academics had to navigate their own way through the uncertain and confusing higher education terrain. In the past, academics could readily self-educate in order to keep abreast of new developments and maintain high skill levels. However, with the intensified pressure brought on by educational transformation, Camblin and Steger (as cited in Hassan, 2011) argued that any presumption that that kind of self-development could still apply in this millennium was to ignore the pace at which knowledge and understanding was advancing and disregard the need to keep abreast with modern higher education trends.

### **The Singapore education system**

Spurred by the economic recession in the mid-eighties, the Singapore education system went through a major restructure. The changes involved the shift from teacher-centric to learner-centered pedagogy. The Ministry of Education (MOE) embarked on an “ability driven” education system which focused on “helping each child realize his or her full potential” (Chan, Tan and Khoo, 2007, p. 184). In 1997, MOE envisioned the concept of ‘Thinking Schools Learning Nation’ (TSLN) to signify a nimble education system moulding a future generation capable of undertaking 21<sup>st</sup> century challenges. In 2003, MOE initiated the call for ‘Innovation and Enterprise’ (I&E) in schools, followed by the ‘Teach Less Learn More’ (TLLM) movement in 2004. TLLM was designed to encourage greater effectiveness and efficiency in teaching, and to inculcate life-long learning in students. Since 2009, the emphasis had shifted to being “flexible and diverse” and the development of a “broad based education” to provide for a greater choice and more holistic approach to student development (Lim, 2010, p.122). Teachers were no longer expected to be disseminators of knowledge but facilitators of learning. Their pedagogy would be anchored on how students learn.

The National Institute of Education (NIE), the sole teacher preparation institution in Singapore, was tasked with the responsibility of helping trainee teachers who were schooled in traditional methods, adopt the new pedagogy (Chan et al, 2007). In the 2009 report ‘A Teacher Education Model for the 21<sup>st</sup> Century’ by NIE, a Graduated Teacher Competencies Framework (GTFC) was developed for pre-service teacher preparation as well as the professional development of existing in-service teachers employed by the Ministry. Such continual changes and improvements in the mainstream education (i.e. primary and secondary) would ultimately impact the development of higher education as new cohorts of students move up to the universities.

### *The higher education sector*

In knowledge-based economies, governments see universities as “engines for social change and expansion of prosperity” (Ramsden, 2003, p. 3). It is evident that the

Singapore government had also leveraged on education as a social engineering tool to align with other sectors such as the business economy, national defence and community support. The mission of publicly funded universities is to “train people with enhanced capacity for innovation, creativity, and quality performance” (Mok, 2000, p. 166). Enhanced human capital skills are deemed as crucial to Singapore’s economy leading to new educational changes and more investments into educational resources and infrastructures (*Final Report of the Committee on University Education Pathways Beyond 2015*, 2012).

In 1997, the International Academic Advisory Panel (IAAP) which included renowned academics and Presidents of several top universities from Europe, America and Japan was formed to help the Singapore government establish strategies and directions to turn local universities into world class institutions. The IAAP noted then that higher education was skewed towards increasing students’ employability and ensuring economic growth. The panel was of the view that the goal of producing employable graduates, while proven useful for the 20<sup>th</sup> century, may no longer be suitable for the changing demands of the 21<sup>st</sup> century.

Apart from the carefully planned expansion of the university sector which encompassed increased undergraduate education opportunities for citizens in autonomous universities, growth in postgraduate enrolments, as well as a new applied pathway for tertiary education by building on the successful polytechnic model (Poon, 2013); another key driver towards the building of a global knowledge economy was the Agency for Science, Technology and Research (A\*STAR), the government agency which provided generous funding for research and attracted top scientists and scientific companies into Singapore. Foreign nationals with scientific, technical or managerial skills were recruited to work in multi-international corporations and in higher education. Some of the local universities, especially NUS and NTU, established research partnerships with leading universities around the world with a focus in selected fields, including bioinformatics, information sciences and medical technologies (OECD, 2011). The Ministry also initiated plans to promote more social science research at universities as well as the review of undergraduate curricula to emphasize on grooming students with creativity and critical thinking skills (Mok, 2010; Poon, 2013).

In a Straits Times article that highlighted the dynamic changes in the higher education scene, Professor Cheong Hee Kiat, the President of SUSS, predicted that online learning would become a primary mode of study instead of a supplement for face-to-face didactic teaching. He was of the view that the “21st century learner will demand new pedagogies and the ability to judiciously use and interact with data” (Cheong, 2015). More innovative approaches would surface as universities find ways to cater to more individualized and independent learning needs, as well as to facilitate communities of learning and knowledge exchanges. He added that the roles of university teachers and learners would overlap. Faculty will undertake the role of facilitators of learning rather than communicators of knowledge, which would pose as a challenge even for the experienced academic.

Since the first university was built in Singapore over a century ago, it appears that no higher education professional development models, based on a validated framework of teaching competencies, have been defined for higher education. In spite of the

challenges ahead in preparing the 21<sup>st</sup> century learner to be future work ready, there is no consistent “roadmap” by which faculty can develop their competencies in teaching and learning over the course of their academic careers. Unlike the developments in the primary and secondary sector, the way the different universities prepare and support faculty for their teaching roles remains largely an exclusive and ad hoc effort. It is therefore useful and timely to conduct a comprehensive study on what teaching and learning competencies are pertinent or essential in modern, more student-centered local higher education teaching contexts.

### **Teaching and learning competencies**

For this study, competencies will be defined as a “cluster of related knowledge, skills and attitudes (K, S, A) that affects a major part of one's job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and that can be improved via training and development” (Parry, 1996, p. 50). According to Parry, this definition was derived from the suggestions of several hundred specialists in human resource development (HRD) during a conference on the subject of competencies in Johannesburg, South Africa, in October 1995. Since learning can be described as a cognitive (knowing), affective (feeling) and psychomotor (doing) behavior, Parry pointed out that all three domains were at work in a competency.

A competency framework is a model which describes the particular combination of knowledge, skills and attitudes necessary to perform a role in an organization effectively and is often used as a “human resource tool for selection, training and development, appraisal, and succession planning” (Lucia & Lepsinger, 1999, p.5). Other uses of competency models include training curriculum design, coaching, counseling and mentoring, as well as career development (McLagan, 1996). McLagan believed that competency models were more reliable than job descriptions and were more valid than skills lists, and hence can be used as a focal point for organization development.

Parry (1996) explained that a major consideration in competency studies was in the definition of a competency as an input or an output of human behavior. In the United Kingdom (UK), competencies were typically viewed as outcomes. Employees display competencies in the degree to which their performance meets or exceeds prescribed work standards. In the United States (US) however, competencies were seen mainly as inputs comprising clusters of knowledge, skills and attitudes that affect an individual's ability to perform. According to Garavan and McGuire (2001), the UK approach was arguably broader, as it encompassed not only personal attributes of the individual, but also made reference to a range of guidelines and personal effectiveness issues required in the performance of a job.

A combination of the UK and US approach will be applied in the formulation of teaching and learning competencies descriptions for this program of research. Tigelaar et al. (2004) leveraged on the writings of Bos (1998) as well as Stoof, Martens, Van Merriënboer and Bastiaens (2002), and defined teaching competencies as “an integrated set of personal characteristics, knowledge, skills and attitudes (KSA) that are needed for effective performance in various teaching contexts” (Tigelaar et al, 2004, p.255). Applying this definition, the teaching competencies to be identified

through this study will therefore be “integrated” in form, implying that some competencies will embody a combination of KSA for the performance of a particular teaching function whereas others can be categorized distinctively as a type of knowledge or attitude for effective performance. The competencies identified will be viewed as a whole repertoire a faculty member has at his/her disposal. The importance of “context” will also be factored into consideration, implying that teaching competencies will be viewed in the light of various contexts in which teaching takes place.

For generations, prominent scholars like Dewey (1904), Scheffler (1965), Green (1971), Fenstermacher (1978), Smith (1980), and Schwab (1983) had engaged in discussions of what qualities and understandings, skills and abilities, traits and abilities render someone a competent teacher (as cited in Shulman, 2004). Such intellectual discourses on teaching competencies continue to echo in the conference rooms of educators today. Ramsden (2003) asserted that becoming skilled at teaching entailed the development of the ability to “deploy a complex theory of teaching in the different contexts relevant to teaching and learning of that subject matter” (Ramsden, 2003, p.107). The primary aim of this study is to identify the types of teaching and learning competencies required in modern, more student-centered and technologically enabled local university teaching contexts. To do so, it is important to first establish and comprehend the theories of teaching in higher education.

### **Theories of teaching in higher education**

The evolving role of the university teacher had been widely acknowledged in professional literature, with the paradigm moving from teaching (or instruction) to learning (Barr & Tagg, 1998). Traditionally, university teaching had been seen to be “dominated by a whole class, teacher-centered, non-interactive mode of lecturing” (Kinchin et al., 2009, p.46). Where such traditional practice had been compared with a more student-centered approach, observers such as Lord (1999) deemed the latter as more superior in terms of the quality of learning and elicitation of positive student attitudes (as cited in Kinchin et al., 2009).

Drawing on the early research and writings of Martin and Balla (1991) as well as Biggs (1999), Ramsden (2003) put forward three theories of teaching pertinent to the higher education context. The first theory described teaching as the transmission of authoritative content or demonstration of procedures to students. The teacher, who took center stage in the traditional didactic lecture, was seen as the source of undistorted information. A modern version of this ‘teaching as telling’ theory is encapsulated in the idea of ‘delivery’ of courses and the belief that the quality of university education can be enhanced by transferring knowledge more efficiently with the aid of information technology. This theory, which typified a surface approach, posited that learning would occur as long as a quantity of information was transmitted to students. Teachers who subscribed to this theory would attribute any failures to learn to students’ personality weaknesses and lack of capabilities like laziness, unwillingness to work, inability to absorb new materials, poor preparation. Biggs (1999) aptly called this ‘blame-the-student’ theory.

The second theory described teaching as a “supervision process” which involved the “articulation of techniques designed to ensure that students learn” (Ramsden, 2003,

p.109). This theory held that students would learn through reacting and doing (i.e. active learning) based on the assumption that there was a finite set of techniques to enable student understanding. The definition of teaching was extended beyond the knowledge transmission mode to include the organization of student learning activities using a set of efficient procedures in order to cover the content. Improving teaching meant expanding the teacher's repertoire of skills and techniques. This theory undergirded many attempts for teaching innovation and professional development in higher education.

While the first two theories presented teaching as a linear process, the third theory which this research study seeks to expound, represented a more relative or complex view. In this theory, teaching was understood to be a "process of working cooperatively with learners to help them change their understanding" (Ramsden, 2003, p.110). Teaching was about making student learning possible. Based on the notion that teaching was a speculative and reflective activity, improving teaching meant listening to students and teaching peers. The continuous improvement of skills through the construction of increasingly detailed professional knowledge would become an integral part of teaching from this perspective. This theory implied a greater receptivity in teachers to educational principles and research and recognized the complementarity between teaching and research on how to help students learn. Teachers who subscribed to this theory would employ a variety of strategies and methods to help students learn or change their understanding. The activities of teaching would be seen as "context-related, uncertain and continuously improvable" (Ramsden, 2003, p.112).

### **Faculty professional development**

Faculty development, according to Diamond (2002), emphasized the improvement of the individual faculty member's teaching skills through activities like classroom observations by professional educational development staff, the use of videos to analyze teaching styles and techniques, peer reviews of teaching, personal consultations, as well as workshops and seminars. The term 'faculty development' (Gillespie & Robertson, 2010; Sorcinelli, 2007; Villa and Alegre, 2008; McQuiggan, 2012) was also referred to in literature as professional development (Dearn et al., 2002; Gopal, 2011), educational development (Ramsden, 2003), or staff development (Ullah, Khan, Murtaza, and Din, 2011; Hassan, 2011).

The major outcomes for faculty development in higher education included "improvement in the productivity of the individual faculty members through improvement of their teaching effectiveness", "facilitation of focused change with more emphasis on what students learn and less on what faculty members cover", "improvement of faculty attitudes towards teaching", and the "demonstration of the institution's concern for the individual" (Diamond, 2002, p.4).

Based on a study on the potential new directions for faculty development which involved five hundred directors of teaching and learning centers, faculty members, department chairs, academic deans and other senior administrators, Sorcinelli (2007) discussed the constellation of issues that were driving change and shaping the future of faculty development and summed up the challenges as follow:

- The changing professoriate
- The changing nature of the student body
- The changing nature of teaching, learning and scholarship.

In view of the above discussions, the proposed development of an instrument for the self-evaluation of teaching and learning competencies to be used within a faculty professional development model will be timely and handy for preparing academics of the future as well as for existing faculty to set their learning and development goals.

## **Professional standards or development frameworks**

### *National frameworks*

Professional standards or development frameworks have already been established in countries with longer histories in the development of higher education. In the United States of America, the National Board for Professional Teaching Standards (NBPTS) and the Committee on Promoting and Evaluating Teaching Effectiveness (PETE) had put considerable efforts into defining teaching competencies (Hollins, 2011; Tigelaar et al., 2004). In the United Kingdom, professional bodies such as the Staff and Educational Development Association (SEDA) constructed the Professional Development Framework (PDF) and The Higher Education Academy (HEA) developed United Kingdom Professional Standards Framework (UKPSF) which contained general descriptions of the main dimensions of the roles of teaching and supporting learning within the higher education environment. In Australia, the Australian Institute for Teaching and School Leadership (AITSL) had recently developed the National Professional Standards for Teachers outlining what teachers should know and be able to do.

These frameworks, with different characteristics and histories of development, use the term ‘professional standards’ in place of ‘competencies’. Gilis, Clement, Laga, and Pauwel (2008) did a detailed comparison between the national frameworks in terms of the method used to establish them, their form and content, as well as the functions they serve. Their comparative analysis is illustrated as Table 1 below:

	<b>UK Professional Standards Framework (PSF)</b>	<b>Australian National Professional Standards for Teachers</b>	<b>US National Board for Professional Teaching Standards (NBPTS)</b>
Methods	Use of expert opinions	Use of expert opinions	Use of expert and teacher opinions
Function	Development	Development Assessment Certification	Development Assessment Certification
Form	General levels Distinction between knowledge, skills and attitudes	General levels Distinction between knowledge, skills and attitudes	General levels Distinction between knowledge, skills and attitudes
Outcome	Behavioral	No outcome	No outcome

measures	indicators and several levels of performance	measures	measures
Content	Areas of activity Core Knowledge Professional Values	Professional Knowledge Professional Practice Professional Engagement	Core propositions regarding commitment to students, subject matter, student learning, reflection and relations with colleagues

**Table 1: Comparative Analysis of National Frameworks for Professional Teaching Standards**

*Competency study in The Netherlands*

A similar study by Tigelaar et al (2004) in The Netherlands was propelled by dynamic changes in the higher education, where approaches to teaching were likewise becoming more student centered. The authors highlighted the weaknesses and obsolescence of the existing frameworks in their country which neglected the dimension of the teacher as a person. Furthermore, it was argued that those frameworks were not validated, too narrowly defined, and not adjusted to modern approaches to teaching. The aim of their study was therefore to develop a new and validated framework of teaching competencies in higher education context. A framework was constructed with the following domains:

- The person as teacher
- Expert on content knowledge
- Facilitator of learning process
- Organizer
- Scholar or lifelong learner

*Staff development needs study in Pakistan*

Unlike the previous study which was focused on teaching competencies, this study by Ullah et al (2011) was focused on the training needs of faculty in higher education. Citing the earlier work of Sisodia (2000), the authors believed that the success of educational reforms and innovations depended on the quality of teaching, which, in turn, depended on the quality of teacher education. Ullah et al noted that staff development was primarily concerned with the identification, formation and enhancement of skills. The main objectives of their study were:

1. To explore the training needs of the university teaching staff
2. To identify the areas in which development was needed
3. To formulate recommendations for staff development to improve higher education in Pakistan

The data analysis identified training gaps in multiple areas, including the philosophy of education, educational psychology, research techniques, professional trends, professional competencies, professional attitudes, professional ethics, global

innovations in teaching strategies, classroom management, counseling and guidance, student discipline, communications skills, learning theories and supervision. Overall, there was strong endorsement from the ground for staff development.

The idea of conducting a training needs assessment is largely similar to the intent of a competency study in that both are concerned with the identification of the knowledge, skills and attitudes essential for effective teaching. However, a training needs survey would be more pertinent in an institutional context (e.g. as commissioned by the university's leadership) or at a state or community level (e.g. endorsed by educational authorities or consortiums). A competency study, for the proposed research, would be less imposing in nature, and hence may elicit more voluntary responses when implemented at the ground level.

#### *Professional development needs study in South Africa*

Hassan (2011) was of the view that academics were ill-prepared to take on the challenges of educational transformation and that professional training and development which could provide the appropriate support to faculty was often neglected. The aim of his study was to determine the needs and perceptions of academics regarding their professional development within the context of educational transformation. The research was conducted at the University of Limpopo in the north-west province of South Africa.

On educational transformation surrounding curriculum development and innovative methods of teaching and learning, participants perceived that they possessed adequate knowledge of outcomes based education (OBE). According to Hassan, the findings demonstrated a gap between the participants' perceptions of their knowledge and skills, and their perceived need for training in OBE. Problem based learning, which was construed as another form of innovation in teaching and learning was another concern of the staff surveyed as seventy-seven percent indicated that there was a need for staff development programs that would help them improve their facilitation skills.

Overall, the attitudes towards staff development was positive. The participants however, indicated that they should not be compelled to attend staff development programs. Such responses were hardly surprising since the promotion system in that university traditionally favored research and publication over teaching, an observation made by Hassan which was similar to the earlier research done by Morley (2003). Morley (as cited in Hassan, 2011) asserted that the pressure to be research active is an antithesis to the scholarship of teaching and learning because of the demand for research outputs at the expense of producing knowledge of high quality. On this note, the implications of a competency study as a roadmap or guide for faculty professional development would be more appealing and appear as less of a 'compulsion' as compared to a training needs assessment.

#### **Conclusion**

It is evident from the review of literature that numerous precedent competency studies or faculty professional development needs studies were carried out in many continents including the United States, Europe, Australia, South Africa, India as well as in the

Middle East. The review has highlighted a gap for similar research in Asia, and for this particular study, Singapore.

The proposed self-rating instrument for teaching and learning competencies developed through this study can be used by the participating universities as a professional development tool for preparing academics of the future as well as for their existing faculty to set their learning and development goals. Universities can develop their professional development programs in teaching and learning support around this instrument. Its central purpose would be to help university teachers seeking to enhance the learning experience of their students, by improving their competencies in teaching and learning support. It has a wide range of uses, but it could, for example, be used to:

- Promote the professionalization of teaching and learning support in universities;
- Foster creative and innovative approaches to teaching and learning;
- Demonstrate to students and other stakeholders the professionalism that faculty and institutions bring to teaching and support for student learning;

The proposed instrument, which will factor in new ideas about teaching and learning in modern, student centered contexts can also be useful for providing notions of what constitutes teaching excellence (Chism, 2004), and provide a future reference point for teaching evaluation in higher education.

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