The IB Teacher Professional: Identifying, measuring and characterizing pedagogical attributes, perspectives, and beliefs

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Abstract

This research project aims to provide empirically-grounded insights into what constitutes 'The International Baccalaureate Teacher Professional', in both theory and practice. A mixed methods design was employed to improve current understanding of the essential attributes, perspectives, and beliefs pertinent to an IB Teacher. The research used an online survey, focus groups with IB teachers, and document review to address the research questions. Invitations to complete an online survey were emailed to 14,407 IB teachers who previously participated in an IB workshop; 3,845 surveys were completed. The online survey was comprised of the 45 item Teaching Perspectives Inventory (TPI) (Collins & Pratt, 2003), demographic items, and four open-ended items. Comparisons between IB teachers and a sample of non-IB teachers were examined. A total of eight one-hour focus group sessions were held in Spain, Peru, Hong Kong, and the United States with a total of 72 participants. The open ended items and the focus group transcripts were qualitatively coded. The constant comparative method (Glaser & Strauss, 1967) was used to identify emerging descriptive and theoretical themes. The content analysis involved the systematic review of 73 IB documents.

The results from the analysis of the TPI suggest that IB teachers are similar to the TPI sample. Both groups have Nurturing as the dominant perspective with 'back up' perspectives of Apprenticeship and Developmental. However, the actual scores are different. When the IB TPI scores are compared to the norms of other primary and secondary teachers, the IB teachers are in at least the 60th percentile on Social Reform, Developmental, Apprenticeship, and Transmission, indicating that IB teachers have high scores relative to the TPI preK-12 sample in all four of these perspectives. The qualitative analysis of the focus group produced the following themes: 1) global, 2) open minded 3) flexibility, 4) teaching approach/skills/beliefs, 5) collaboration, 6) good teaching, and 7) love teaching. The overall themes identified in the content include 'Approaches to Teaching', 'Beliefs about Teaching', and 'Tools to Facilitate Effective Teaching'. 'Approaches to Teaching' emphasizes inquiry-based teaching focused on developing student understanding. The theme 'Beliefs about Teaching' addresses the guiding philosophy and theoretical underpinnings that inform the instructional practice. The common beliefs about teaching mentioned in the IB documentation include: global or international perspective, sense of social responsibility, and holistic education. 'Tools to Facilitate Effective Teaching' that were coded in the IB documentation include teacher collaboration, assessment, teacher reflection, and teacher adaptations of instruction.

Introduction

Background

The practice of teaching and what it means to be a good teacher has been discussed throughout history, from Socrates and the ancient Greeks to the Swiss philosopher Rousseau to recent discussions involving teacher accountability. At times and among certain people the misconception that there is "one way" to be a good teacher has been perpetuated. However, many different styles and philosophies can drive instructional decisions that result in effective teaching (see Joyce, Weil and Calhoun, 2004). Given that there is not one right way to teach and variations in approaches are natural due to numerous contextual factors such as students, subject content, classroom dynamics, culture, and school characteristics, there is much curiosity surrounding effective teaching. Teachers and educators in general are examining, with great interest, what it means to be a teacher (see Gage, 1978; Shulman, 1986; Hattie, 2002). This study examines the perspectives of a specific population of teachers, International Baccalaureate teachers, with the hopes of better understanding this population. This research aims to promote reflection and discussion about teaching within a variety of disciplines, contexts, and cultures and contribute to the understanding of teaching within IB programmes.

The International Baccalaureate Organization. The International Baccalaureate (IB) is a non-profit educational foundation, motivated by its mission to develop inquiring, knowledgeable and caring young people who help create a better and more peaceful world through intercultural understanding and respect. The organization has built a hard-earned reputation for quality, high standards and pedagogical leadership in the field of international education, encouraging students across the world to become engaged world citizens who are active, compassionate and lifelong learners. The IB Learner Profile (Appendix A) is the IB mission statement translated into a set of learning outcomes for the 21st century. The attributes of the profile express the values inherent to the IB continuum of international education; these are the values that should infuse all elements of IB programmes and, therefore, the culture and ethos of all IB World Schools. The Learner Profile provides a long-term vision of education. It is a set of ideals that can inspire, motivate and focus the work of schools and teachers, uniting them in a common purpose.

Founded in 1968, the organization currently works with more than 3,466 schools in 143 countries to develop and offer four challenging programs to approximately 1,046,000 students aged 3 to 19 years (IBO, 2012). The IB Primary Years Programme (PYP), for students aged 3 to 12, focuses on the

development of the whole child as an inquirer, both in the classroom and in the world outside. The IB Middle Years Programme (MYP), for students aged 11 to 16, provides a framework of academic challenge that encourages students to embrace and understand the connections between traditional subjects and the real world. The IB Diploma Programme (DP), for students aged 16 to 19, is an academically challenging and balanced programme of education with final examinations that prepares students for success at university and beyond. The IB Career-related Certificate (IBCC), for students aged 16 to 19, is the newest offering from the IB. The IBCC incorporates the vision and educational principles of the IB Programmes into a unique offering specifically designed for students who wish to engage in career-related learning. The IB works with state and privately funded schools around the world that share a commitment to quality international education. The organisation also provides professional development workshops for more than 60,000 teachers and administrators annually.

IB Professional Development. The following description is provided by IBO Professional Development.

The International Baccalaureate's professional development supports the ongoing commitment of our educators to be critical, reflective practitioners who value lifelong learning. IB professional development gives educators opportunities to develop a deeper understanding of what it means to be an excellent, internationally minded teacher. It goes beyond helping educators simply learn new skills by encouraging them to develop new insights into pedagogy and their own practices. The International Baccalaureate is committed to supporting the ongoing development of a worldwide professional learning community of internationally minded teachers, school leaders and school administrators by providing high-quality (Chen & Dean, 2011; Dean, Tait, & Kim, 2012), innovative products and services to help new, experienced and expert school leaders and educators understand, support, and successfully deliver IB programmes. The IB offers a three-category system, and each category has distinct goals and objectives that cater to a wide range of educators with a variety of IB experiences. A school implementing any of the IB Programmes needs to make a commitment to ongoing teacher professional development. Each programme has different requirements that are evaluated at the time of authorization and during their evaluation cycle. In general, all schools are required to provide IB PD for some or all of their teachers (Appendix B).

Rationale and Purpose of the Study

Teachers play a significant role in student success (NCTAF, 1996) as measured by multiple approaches in diverse contexts. As such, many education reform efforts are targeted at teacher quality and significant research into pedagogical practices and theory is conducted on a regular basis. Research suggests that IB participation could improve, among others, secondary school academic performance (ACER, 2010; Caspary, 2011; Saavedra, 2011; Wade, 2011), college enrollment, persistence, and achievement (Coca et al, 2011, Caspary & Bland, 2011; HESA, 2011; IBO, 2010a), and student perceptions of school environment (Coca et al, 2011; IBO, 2010b; Wade, 2011). With the growth of the IB (IBO, 2012) and the positive findings surrounding student outcomes, there is intensifying interest in how and why the programmes work.

The findings from this research will offer insights that could assist in the design and implementation of IB's professional development and services to schools as well as promote awareness and understandings among the wider educational community of the IB teacher professional, their distinctive qualities and related teaching and learning perspectives and beliefs. This study is guided by the following research questions:

1. What are the *perspectives* of existing IB educators as measured by The Teaching Perspective Inventory? What patterns exist in the population?
2. What are the important *pedagogical attributes, perspectives, and beliefs* of an IB teacher professional as defined by existing IB educators?
3. What are the important *pedagogical attributes, perspectives, and beliefs* of an IB teacher professional, as defined by IB documentation?
4. What are the commonalities and/or points of departure as identified from a comparative analysis of the various data corpuses derived from existing IB teacher community, IB documentation, and extant literature?

Literature Review

Before undertaking a study of this nature it is important to document the extant literature in the field. A literature review aimed at describing the important *pedagogical attributes, perspectives, and practices* of excellent teaching was commissioned. Glynn Kirkham in collaboration with the IB Global Research Team conducted a review of the extant literature on excellent teaching.

Purpose of the review

Writing of her father, who was a teacher, Jorgensen (2008) wrote,

> He was an expositor – a teacher gifted with the ability to break difficult things down into simple elements and present them in a clear and logical manner. I saw him preparing to teach, taking his students seriously, preparing outlines for their study, and teaching them for the long haul rather than for their immediate gratification. (p. 18)

In those few words, she has captured some elements of excellent teaching: making accessible the inaccessible, clarity, preparation, respect for students and care for their long-term well-being. This review seeks to explore the concept of the excellent teacher from multiple perspectives, recognising that the definition is dependent on the values and contexts that underpin teaching at a particular time and place. The act of teaching has been described as both an art – implying creativity and unpredictability - (Parini, 2005; Jorgensen, 2008) and a science (Calderhead, 1995; Morine-Dershimer, 1989; Gray, 1983) – implying testable theories and logical frameworks - and as both art and science (Mazarno, 2007). Teaching is a highly complex activity. Not only is each learner unique (Bullough, 2011), but so is each teacher (Watkins and Mortimore, 1999). Teachers bring with them their own ideas of what is valuable in teaching, and what their role is as teachers. Their knowledge and understanding of teaching is a unique *pot pourri* of their own cultural, religious, ethical and personal values, their experience of being taught, what they may have found meaningful in their initial teacher education, their observations of other teachers, their own practical experience with students, and their continued learning through reading, observing, attending sessions on their subject or pedagogy and reflections (German & O'Day, 2009). Since each teacher's experience is unique, it is therefore possible to suggest that each attains a unique theory of excellent teaching.

One might assume that if a teacher were qualified, s/he should in turn be excellent. However, this clearly depends on the conception of 'excellence' which in turn hinges on which outcomes are valued in educational systems. Thus, it becomes important to look beyond general qualifications and beyond current policy statements to determine what makes an excellent teacher. This review of relevant literature on the theme of excellent teachers aims to suggest some characteristics of teachers that are claimed to enhance students' learning and/or their performance, as noted in the research. The following warning is however important. Jackson (2010) citing Harber (2004) reminded us of a persistent tension in relation to the nature of learning valued within schooling. She wrote:

> There has always "been a conflict between education for control in order to produce citizens and workers who were conformist, passive and politically docile on the one hand and those who wanted to educate for critical consciousness, individual liberation and participatory democracy on the other". (p. 46)

Excellence needs therefore to be seen in relation to educational values. While there is one assumption that equates teacher excellence with raising pupil test scores, some authors have questioned the role of such externally prescribed systems in promoting the 'critical consciousness, individual liberation and participatory democracy' described above. The following review has been presented against this backdrop of diversity in claims for excellence.

Strategy for the review

Berliner's (2005) argument that it is nearly impossible to adequately measure teacher quality indicated the complexity of this phenomenon. And yet, there is growing concern about the quality of education which has compelled considerable attention to examining the attributes of good teaching and thus attempting to measure them. This is particularly so given that the teacher has been noted to make more difference to pupil attainment than the school (Creemers in Reynolds, 1996). This attempt is often driven by governments' economic motives and the perceived link between excellent teaching and a thriving economy.

When observing a very good teacher, or very good teaching, the issue becomes how best to record, report and feed back the phenomenon when the variables are so diverse, complex and difficult to define. A blanket search of "teacher competences" from university accessible electronic sources returns 85,739 references. The databases Australian Education Index (AEI), British Education Index (BEI) and ERIC revealed 15,965 results; 2,146 of which were peer-reviewed. Some 4,080 were recognised from Taylor and Francis's Educational Research Abstracts Online and EBSCO's Psychology & Behavioural Sciences Collection. This suggested that the concept of "teacher competences" was widely used, and yet much disagreement existed as to the core elements of these. Given the range of teacher values and contexts across the world, this is hardly surprising. However, both policy-makers and teachers constantly strive to become more informed about how to improve teaching and learning on a continuing basis, and thus the literature in this area continues to abound.

In determining which literature to examine for this review, the emphasis has been put on those excellent teachers who have been recognised by a variety of names, including: "good teachers" (Moore, 2004); "accomplished teachers" (Winsconsin DPI, 2009); "excellent and advanced skills teachers" (Taylor

and Jennings, 2004); and "value-adding teachers" (Hanushek, 2010; Rosenkvist, 2010; Exstrom, 2010; Toch, 2011). This is just one way to sift through multiple possible focuses for our review. First, the study addresses theoretical frameworks for understanding teacher excellence. Further, the study delves into the discussion of systems for evaluating and rewarding excellent teachers and developing teacher excellence. Finally, the review explores the effect on their knowledge, values, skills, attitudes and practices of teachers' work environments. This section has been written because of the considerable influence of factors associated with different contexts on teaching and learning in classrooms.

Definitions

Within this paper, there are operating definitions for significant terms such as "students", "teachers", "excellence" and "competence." In the interests of simplicity, regardless of age, all those who attend schools or colleges are termed as "students." "Teachers" include educators of students at all levels including pre-primary, primary, secondary, and postsecondary.

Excellence. The critical factor in teaching is not just the performance of the teacher, but that their performance impacts the active engagement and learning of students. The teacher provides enabling knowledge, encouragement and direction (Ellsworth, 1997; Denton & Ryder, 2009; Patchen & Crawford, 2011). Thus teaching *excellence* has been defined here to mean that there is a positive impact on learning, and in some situations teacher excellence could be measured in terms of student attainment. Since measurement of learning is a problematic area, however, given the often indiscernible and unpredictable nature of learning, it is worth focusing for our definition on Walker's (2008) description of the effective teacher as one who is "excellent in helping respondents to learn" (p. 63), whether this is measureable or not. The word 'excellent' rather than 'effective' is used throughout this document because of the complexities associated with the word 'effective' in the past thirty years which confuse the issue of interest.

While this definition of excellence is focused on student achievement, it is important to bear in mind the responsibilities teachers also have to colleagues and the profession. The General Teaching Council for Northern Ireland (GTCNI) (2004) pointed out the need for excellent teachers to be good colleagues, and declared the core values of the profession to be: "Trust, Honesty, Commitment, Respect, Fairness, Equality, Integrity, Tolerance and Service", with "a commitment to serve...at the heart of professional

behavior" (p. 2).[1] According to the GTCNI, through their actions as professionals and people, excellent teachers added value to the experiences of both their students and colleagues, as well as their own.

Competence. The European Commission (2004) referred to competence as "a combination of skills, knowledge, aptitudes and attitudes, including the disposition to learn" (*Implementation of Education and Training 2010*, 2004, p. 3). Staničić (2005) would add 'values' to this list, and reiterated the importance of being aware of one's values to carry out the functions of teaching. Kirkham (2007) distinguished between competence and competency through the recognition that competence incorporated a set of competencies. Thus, a person was more or less competent to do a specific job because s/he exhibited the competencies required by that post (Staničić, 2005). Crucially, the Organization for Economic Cooperation and Development (OECD) highlighted the contextual nature of competency, by going beyond knowledge and skills and highlighting the need to successfully incorporate the complex demands of one's particular context (OECD, 2005).

Brett et al. (2009, p. 15) suggested that excellent competences involved elements such as:

1. "knowledge (knowing what);
2. attitudes and behaviours (being aware of how we act, in context and why);
3. dispositions (being open to change, feeling motivation);
4. procedural skills (knowing how to do);
5. cognitive skills (treating information, critical thinking and critical analysis);
6. experiential skills (to know how to react and adapt on the basis of previous knowledge, social skills)".

Drawing on these sources, for the purposes of this paper, competence is defined as possessing the skills, knowledge, attitudes, and abilities to successfully execute the job required in the given context, and incorporates dispositions, pedagogical attributes, perspectives and practices.

[1] complete set of the GTCNI competences for teachers may be found in Appendix 1

One facet of teachers' excellence relates to their assuming dispositions which are conducive to students' learning (Freeman, 2007; Ritchhart, 2002; Johnston, 2004). Siegel (1999, p. 209) gave a widely recognized definition of a disposition as "a tendency, propensity, or inclination to behave or act in certain ways under certain circumstances", which might not actually be manifested. However, these were not simply latent potentials nor did they emerge automatically; they developed through experiences (Carroll, 2012). Teaching dispositions were thus culturally and socially constructed and for this reason varied from context to context (Buchmann, 1993). The new standards for teacher education programs from the National Council for the Accreditation of Teacher Education (NCATE, 2002, p. 53) defined dispositions as "the values, commitments, and professional ethics, that influence behavior toward students, families, colleagues, and communities, and affect motivation and development as well as the educator's own professional growth". This review explores those dispositions in teachers which have appeared most conductive to supporting students' learning.

In addition to appropriate dispositions, it might be said that excellent teachers should possess both strong pedagogical knowledge and a relatively in-depth knowledge of the domain material. John Dewey, often considered father of modern pedagogy (1902), championed the idea that teachers must use both logical and psychological teaching methods. The logical included the extensive subject matter knowledge, or domain knowledge, which was held by experts in the field. The psychological component was similar to pedagogical content knowledge, i.e. the approaches and practices that teachers used to *facilitate* subject-specific learning (Shulman, 1986). In other words, Dewey claimed that it was important to support the development of both domain knowledge and pedagogical knowledge. Ozden (2008) suggested that content knowledge positively influenced pedagogical knowledge, although traditionally most emphasis has been placed by (conservative) political bodies on content to the exclusion of pedagogy. Illeris (2007), on the other hand, emphasized that *how* content was taught or learned affected the very content itself.

Practices. Practices may be defined as the actions teachers actually employ as practitioners and professionals: "The actual application of an idea, belief or method, as opposed to theories relating to it" (OECD, 2010). As stated above, these practices may give evidence of an underlying disposition or a teacher's knowledge.

Frameworks for understanding teaching excellence

More than half a century ago (1960) Calabria investigated school principals' conceptions of excellent teachers, finding the most common factors being: "Subject-matter mastery, motivation, dedication, co-

operation, sense of humour, creativity, efficiency, control, discipline, standards, promptness with reports, methods, excellence with … examinations, generosity with personal time for students." Current educationalists still include many of these when describing excellent teachers today. Researchers and educators have examined these competencies in a variety of ways in an attempt to describe excellent teaching in more detail. Many frameworks for understanding teacher excellence have been developed, including those created by Goe, Bell, & Little (2009), Carioca *et al.* (2009), Vašutová (1998), Ogienko & Rolyak (2009), Hattie (2002) and Black and Wiliam (1998). In relation to the first of these, Goe, a research scientist and expert in evaluation processes at Educational Testing Service and the National Comprehensive Center for Teacher Quality in the United States, was commissioned to examine teacher excellence using a range of methods (2010). Collecting data through such sources as observation of teaching, student attainment scores and measures of teachers' contribution to the learning of others through collaboration, Goe identified the special qualities of excellent teachers as listed in Table 1.

Table 1

Qualities of excellent teachers according to Goe, Bell, & Little (2009)

	Excellent teachers
1	have high expectations for all students and help students learn, as measured by student growth benchmarks
2	create an atmosphere where students want to attend school, are promoted on time to the next grade and graduate
3	make learning interesting, monitor student progress, adapt instruction as needed, and evaluate learning using different kinds of tests
4	value diversity and civic involvement
5	collaborate with other teachers, administrators, parents and other educators to help students with special needs and those at high risk of failure to succeed

Adapted from Exstrom (2010)

A study by Carioca *et al.* (2009) established a model for evaluating teacher and trainer competences within a common European framework, and identified four areas in which teachers' competences were demanded:

(a) learning space - the place in which the pedagogical relationship occurs between teacher/trainer and learners – normally, but not in all cases, the classroom;

(b) organisation - the system of the institution as a learning organisation;

(c) community/society - referring to their role in changing social processes and in developing local communities; and

(d) professional - action with respect to their own learning and professional development process.

Both being part of a wider learning community and developing specific competencies were seen as significant. Carioca *et al* designated competencies in terms of "areas of engagement." These competencies they believed, when developed over time and with professional support, led to greater teacher excellence.

As another example of competences written into policy, in England the Department for Education has stipulated a teacher's competences as follows (DfE, 2012). It is notable that no mention was made here to teachers' need for professional development not to their role in changing social processes in local community, nor to their role as generators of knowledge.

At the classroom level, an excellent teacher must:

1. Set high expectations which inspire, motivate and challenge pupils
2. Promote good progress and outcomes by pupils
3. Demonstrate good subject and curriculum knowledge
4. Plan and teach well structured lessons
5. Adapt teaching to respond to the strengths and needs of all pupils
6. Make accurate and productive use of assessment
7. Manage behaviour effectively to ensure a good and safe learning environment.

And, at a personal and professional level,

- Teachers uphold public trust in the profession and maintain high standards of ethics and behaviour, within and outside school.
- Teachers must have proper and professional regard for the ethos, policies and practices of the school in which they teach, and maintain high standards in their own attendance and punctuality.
- Teachers must have an understanding of, and always act within, the statutory frameworks which set out their professional duties and responsibilities.

An influential writer in the field of competences who was based in former Eastern Europe, Vašutová, researched teacher competences for more than twenty years. Her 1998 framework emphasised teachers' knowledge of theories related to pedagogy more than the practice-related frameworks presented above. Her framework formed the basis for initial teacher education (and professional development) in pedagogic institutes across Eastern Europe. Vasutova (2001) identified the following as essential for the Czech Republic's Struktura profesních kompetencí v návrhu standardu (Structure for professional competence of teachers and proposed standards). Teachers should have competence in:

- subject knowledge/professional subject knowledge;
- didactics and psychodidactics;
- general pedagogy;
- diagnostics and intervention;
- social, psychological and communicative skills;
- managerial and values-related fields; and
- developing professionally and personally within the culture and other expectations.

Similarly, Ogienko & Rolyak (2009) from the Ukraine determined three types of competencies for their teachers in their Model of Professional Teachers' Competences Formation: European Dimension. They grouped the competencies into 3 types: Key, Basic and Special. This framework recognised the importance of values, language and culture (key elements in the IB environment and in many schools around the world), but the weighting of the competences tended to be towards the development of the teacher as a conveyor of knowledge, and not the teacher as a facilitator of learning. Importantly, though, teachers' own research was placed in the Special Competencies, which emphasised the place of the teacher as a researcher of his/her own practice. As a member of a wide community of learners, an excellent teacher continued his/her own professional inquiry into the field and contributed towards it.

In this sense, s/he was seen as responsive to his/her situation rather than imposing on it and rather than being a victim of it.

A theoretical emphasis on excellent knowledge and understanding – rather than excellent classroom practice - typified the approach maintained in other countries too. The orientation was not towards student learning outcomes but to an enhanced knowledge base of the teacher. It is not being argued here that such knowledge is unimportant – and indeed, practice without understanding has also been critiqued (e.g. Marshall and Drummond, 2006) - but that the balance has sometimes been disproportionate to the needs of the activity of teaching. The weighting of higher education in relation to initial teacher education has been reported to increase theoretical knowledge about teaching at the expense of pedagogic understanding, didactics and practice. Some policy-makers especially at the conservative end of the political spectrum, have decried the fact that, despite the goal of pedagogic competence, training has too often been focused on theory rather than student learning (Buchberger, 1998; Beck, 2008). Thus, a balance is sought between competence in practice and competence in understanding theoretical and values-based concepts.

The student-learning orientation of excellent teachers described by Hattie (2003) was not included in all the models described above. When researching the dimensions of excellent teachers, Hattie however identified many aspects of teachers' *practice* as contributing to their excellence. Table 2 below illustrates the elements of each major dimension as classified by Hattie in which the emphasis on students' learning as well as teachers' teaching is notable.

Table 2

Strategies and qualities of good teachers (Hattie, 2003)

Teaching activity	Strategies and qualities of good teachers
Lesson planning and preparation	Making clear what pupils are to do and achieve
	Considering how planning interacts with the management of classes and lessons
	Managing lesson introductions
	Managing question and answer sessions

Understanding children's learning	Viewing children as imitative learners
	Viewing children as learning from didactic exposure
	Viewing children as thinkers
	Viewing children as managers of their own knowledge
	Judging what can be expected of a pupil
	Helping pupils with difficulties
	Encouraging pupils to raise their expectations
Influencing motivation	Creating a relaxed and enjoyable atmosphere in the classroom
	Presenting work in a way that interests and motivates
	Providing conditions so that pupils understand the work
Classroom management	Retaining control in the classroom
Teachers' personal dispositions	Developing personal mature relationships with pupils
	Exercising personal talents
	Building the confidence and trust of pupils

Adapted from Cogill (2008, p. 3)

Black and Wiliam (1998) typified subsequent proponents of the international Assessment for Learning movement, in their emphasis on the following assets of excellent teachers.

They claimed that excellent teachers

- Provided feedback that moved the learner forward
- Engineered excellent classroom discussions, questions and learning tasks
- Activated students as the owners of their learning (e.g. using self-assessment and peer assessment)

- Clarified and shared learning intentions and criteria for excellence with students
- Encouraged students to collaborate with and learn from each other.

Although these assets described teachers who carried out Assessment for Learning practices in the classroom, they are noticeably similar to the assets described above by other researchers who were exploring excellent teachers generally. This might also suggest that the appropriate and ongoing use of learning-enhancing assessments is one essential characteristic of the excellent teacher.

Many educators have agreed that the core purpose of teaching is to enable learning to occur, although what this learning consists of is disputed. Pardoe (2009) argued that excellent learners were the product of excellent teachers, but the word 'excellent' begs a discussion of the values behind the concept of excellent learning. It is important to define the quality of learning resulting from teaching, since there are simplistic as well as complex models of learning in circulation among educators and non-educators alike. Learning of facts for regurgitation in tests is of a dramatically different quality from learning, for example, about cultural sensitivities in order for a person to show respect to others in a society. In regard to excellent teachers, it is worth inquiring how far the 'excellent' teacher should manage deep understanding and how far it is merely their students' formal attainments that count. From some authors' perspectives, it is *how* learning is enabled which makes the difference between surface and deep, or rich and emaciated, conceptions of learning. Thus the more excellent teacher not only promotes richer learning but the process of promoting this is itself an enriching experience (Watkins, 2010). In similar vein, Cogill (2008) examined teacher activities – what teachers actually did in promoting learning. She indicated that the management of a structured (and yet not rigid) learning environment coupled with a genuine respect for the students as individuals were important in bringing about rich learning. Pardoe (2009) suggested that an excellent teacher was him/herself a lifelong learner who engaged in their own 'excellent' learning in order to promote the excellent learning of their students. Pardoe also stressed that achieving what she coined as rich learning had to be coupled with enjoyment (also a key component of the English "Every Child Matters" policy), for as is indicated later, many researchers have suggested that excellent teachers shared and enjoyed appropriate humour with their students (Bullough, 2012). This aspect of excellent teaching could however appear in tension with aspirations towards, for example, competitive test scores.

In England, a recent study into teaching which evaluated value for money against a range of teaching strategies (Higgins *et al*, 2011) concluded that the following were the most cost effective practices: appropriate teacher feedback (Black *et al*., 2003; Hargreaves, 2012; Hattie& Timperley, 2007;

Matsumura et al., 2002); pupils' self-regulation especially in assessment and learning how to learn (Black *et al*., 2003; Cotton, 2000; Yesseldyke & Bolt, 2007); peer-support; plus early teacher interventions or one-to-one tutoring where there were problems. These conclusions reinforced the perspective that the teacher's nurturing of rich learning through an educative process, rather than just directing teaching to certain goals, constituted excellence.

Excellence has also been defined in terms of the personal qualities of teachers, as follows.

Personal qualities of excellent teachers

Research has suggested that one critical aspect of excellent teaching is teacher personal qualities (Stronge et al., 2011). Whether the excellent teacher has been described as "charismatic" (Moore, 2004) or "with attitude" (Riley, 2003) or "sincere" (Nieto, 2003), personal qualities have been seen to play a part in teacher excellence. This finding has not, however, implied that some people could not develop into excellent teachers. Such characteristics can be inherent – but they can be learned and they can also be tentative. Changing qualities can be the result of teacher professional development or teacher reaction to other experiences including a change in personal circumstances.

Generally, research has suggested that excellent teachers were encouraging, that they cared about learning and they cared about students. They were also kept going by "love, autobiography, hope, anger, intellectual work and the ability to shape the future" (Nieto, 2003, p. 386). Personal qualities which have been shown to contribute to excellence included being: caring (Adams & Singh, 1998; Collinson, Killeavy & Stephenson, 1999; Fielding, 2007; Yandell, 2007); fair (Agne, 1992; McBer, 2000); encouraging (Stronge et al., 2011; Riley, 2003); responsible (Stronge et al., 2011); enthusiastic (Bain & Jacobs, 1990; Rowan, Chiang & Miller, 1997; Riley, 2003); and humorous (Bullough, 2012; Girdlefanny, 2005; Riley, 2003; Lipman, 2004).

Following her bilateral and collaborative research with Seashore (2000) on "what makes a good teacher" Riley was commissioned in 2003 by the General Teaching Council (England) to understand what made professional teachers, as she calls them "teachers with attitude". She discovered the following distinguishing personal characteristics (Table 3) of those teachers. Riley acknowledged that excellent teachers also possessed qualities relating to, for example, their subject knowledge base and their knowledge about pedagogy as referred to by Carioca *et al.* (2009).

Table 3

Distinguishing personal characteristics of excellent teachers as described by Riley (2003)

Enthusiasm and energy	An excitement for teaching
Flexibility and adaptability	Confidence and firmness
Openness and an encouraging approach	Resilience, flexibility, innovation
Sense of humour	Emotional intelligence (ability to review relationships and self-evaluate)
Creativity, imagination, divergent thinking	Willingness to recognise the role of other adults in developing children as learners

Ideas about the personal qualities necessary for excellent teachers have changed as perspectives, research, and accountability programs have shifted. What does not seem to have changed is the importance of the affective domain in determining not only teacher survival but also students' attitudes to teachers and to schools and in consequence, their engagement with learning. This emphasis on teachers' affective qualities does not, however, always receive attention in educational policies focused on 'raising standards' (see Ball, 2003) and indeed, some authors have written against their inclusion within research into excellent teaching (Ecclestone and Hayes, 2009). Bibby's (2009) writing illustrated the chasm between a teacher's desire to raise test scores and children's need for emotional support. Moore's work, which also researched the views of young students, suggested that it was the affective domain which determined for students the 'good' teacher. They said:

> A good teacher … is kind, generous, listens to you, encourages you, has faith in you, keeps confidences, likes teaching children, likes teaching their subject, takes time to explain things, helps you when you are stuck, tells you how you are doing, allows you to have your say, doesn't give up on you, cares for your opinion, makes you feel clever, treats people equally, stands up for you, makes allowances, tells the truth, is forgiving.
>
> (Descriptions by Year 8 pupils, aged 12-13 years, DfEE-commissioned McBer Report 2000, p. 3).

According to Hare (2010) and Walker (2011), the capability to promote learners who were critical, independent and reflective was dependent on the individual teacher's own view of his/her self-efficacy or his/her belief that one can bring about desired effects. This concept of self-efficacy has been an emerging strand in the research into the make up of the excellent teacher, particularly in relation to management of the self as a professional in the classroom (Bandura, 1997; Brouwers & Tomic, 2000;

Stronge, 2007; Skaalvik & Skaalvik, 2008). Self-efficacy should not be confused with self-esteem which is a more emotional and less maleable trait than self-efficacy. Stronge (2007, p. 31) emphasised that purposeful and systematic reflection on their own work positively impacted on teachers' concept of self-efficacy: "Belief in one's efficacy and maintaining high expectations for students are common among teachers who reflect." Those with a strong sense of self-efficacy viewed challenges/problems as tasks to be mastered. They became more deeply engaged in activities and established a stronger sense of commitment to those tasks. They also demonstrated greater resilience and were able to recover from disappoiontments and setbacks. The suggestion was, therefore, that excellent teachers demonstrated these competences and modelled them to and for their students. The importance of self-management was additionally recognised as essential to protect from burnout the excellent teacher who consistently promoted good learning among his/her classes (Brouwers & Tomic, 2000).

Pedagogical attributes of excellent teachers

The following section in this paper addresses those attributes related directly to excellent teachers' instructional decisions. These might include: discerning the need for instructional differentiation (Langer, 2001; Molnar et al., 1999; Weiss et al., 2003); holding appropriate expectations for student learning (Peart & Campbell, 1999; Palardy & Rumberger, 2008; Wentzel, 2002); poignant questioning (Allington, 2002; Cawelti, 2004; Stronge et al., 2011); and creativity in using teaching strategies (Vasutova, 1998; Riley, 2003). The establishment of an appropriate climate for learning in the classroom (Stronge et al., 2011; McBer, 2000; Hattie, 2011) has also been defined as a key characteristic of an excellent teacher. Classroom climate or discipline has been described by Durkheim (1961, p. 149) as the morality of "a small society". Indeed, researchers argue, if there were no order in the learning environment (or space) then little planned learning would occur.

Subject specific knowledge is clearly critical for excellent teaching, but some authors have argued that even more important is the ability to enable others to develop their own inquiry into and understanding of the subject matter. Excellent teachers are masters and mistresses of their subject: they know and understand the subject and their enthusiasm for the subject stands to make the subject 'come alive' and thus become intriguing as well as accessible to others. The excellent teacher, in contrast to just a subject expert, also understands what elements of the subject might not be easily comprehended by others (Nieto, 2003).

Teachers' ideas/beliefs about learning and the world frame their instructional decisions. Sometimes these beliefs have been referred to as a teaching philosophy and could have an emphasis on:

- moral education (ie the philosophy that morals should be taught through education, Campbell, 2004);
- holistic education (ie the idea that students' whole being should be developed, Harwell & Daniel, 2012; Murthy & Murthy, 2011);
- character education (ie the concept of building young people's characters through education, Gamble, 2012; Stiff-Williams, 2010);
- learning focused education (ie the idea that the student's learning has priority in education, Darling-Hammond, 2000; Molnar et al., 1999; Wenglinsky, 2004; Zahorik et al., 2003); or even
- internationally-minded education (ie the philosophy that international awareness should be promoted in all education, International Baccalaureate website, 2012).

While the literature has represented a variety of perspectives as useful, the general consensus has been that excellent teachers were guided by some explicit underlying philosophy (Nieto, 2003; Riley, 2003) that served as a particular motivation for them and ignited their passion for supporting learners with their learning.

For excellent teaching, teacher practice should be deliberate: it should be chosen deliberately by teachers as the most appropriate action in their classroom, based on a variety of factors. Context, school needs, school leadership, student needs, educational research findings and personal philosophy all play a role in the practices an individual chooses to employ, although sometimes there are tensions among conflicting factors, for example, such as personal belief and school leadership.

Essential aspects of excellent teaching

The research literature has suggested, in summary, that an excellent teacher might have a sense of humour, creativity, a positive attitude, fairness, flexibility and resilience. S/he might be forgiving, show compassion, display a personal touch and be aware of affect. S/he will display dynamism, entrepreneurship and enthusiasm in his/her work.

An excellent teacher is committed to his/her students, their learning and their learning outcomes. S/he would aim to promote richness in learning, to motivate students by setting a good example and make learning interesting. S/he is likely to provide opportunities for learning in different ways and for different groups, sustaining an enabling learning atmosphere. S/he will be cultivating a sense of belonging among his/her students and showing them respect.

At the same time, an excellent teacher is likely to be managing his/her time and resources efficiently as well as discipline and structuring within the classroom. In lessons, s/he will be well prepared, planning efficiently and showing clarity. S/he will be particularly clear in the setting, maintaining and communicating of high expectations to students. The learning of students s/he is likely to monitor frequently, in particular through assessment for learning strategies and through pupils' own self-evaluations. She will provide feedback discerningly and in line with recent research findings into the impacts various forms of feedback may have on learning.

In terms of his/her own learning, his/her pedagogical knowledge will be strong and backed by rigorous research findings. S/he is likely to think systematically about practice and learn richly from experience and from others' support. S/he will use appropriate methods, strategies and curricula as indicated through rigorous educational research findings. In order to enhance his/her self-development, s/he is likely to be engaging in on-going personal and professional learning, learning about self and learning about learning, able to admit mistakes and learn through self-critique. This learning will be supported through his/her fruitful collaboration with others, whose opinions and initiatives s/he tends to value, leading to his/her heightened respect for and from colleagues.

The suggestions above are that if a teacher displays these attributes and practices, then s/he is likely to be 'excellent' in the sense of helping to promote students' rich learning. As forewarned at the start of this review, however, such excellence may or may not equate to raised test scores for those students.

Rewarding excellent teachers

Excellent teachers do by definition make a difference and in some cases there is an external reward system for their excellence in addition to the satisfaction they may feel within themselves for having done good socially. Rewards are sometimes related to additional professional development or written evidence of, for example, achievement, evidence of enhanced competences, enhanced knowledge, skills or professional attitudes. While excellent teachers may be said to achieve greater student outcomes, this criterion does not constitute excellence by itself and therefore the process for recognizing excellent teachers is complex and controversial. These rewards may be seen as an inappropriately business-like feature of an essentially human endeavour (Fielding, 2007).There are many professionals who consider teaching to be a reward in itself and are wary of material rewards.

Where attempts are made by policy-makers to measure excellence, there is no current method that is applied across the board internationally. Schwarz et al (2007, p. 28) perceived a widespread recognition that teaching excellence related to teachers generating knowledge:

> The common element in all countries is the recognition that good teaching is an intellectual enterprise, in which teachers draw upon knowledge and evidence to solve problems particular to their school. Retaining and supporting excellent teachers means making them part of that knowledge-generating enterprise, not just passive recipients of prescriptions handed down from above.

But even this need is disputed in some systems where the emphasis lies rather on teachers' transmission of prescribed knowledge. For example, in England the Secretary for Education, Michael Gove, suggested that learning from others was the best route for teachers' development into excellent teachers, but he made no reference to individual teachers' own enterprises nor their original contributions to the field of teaching:

> Teaching is a craft and it is best learnt as an apprentice observing a master craftsman or woman. Watching others, and being rigorously observed yourself as you develop, is the best route to acquiring mastery in the classroom (Gove, 2010).

In a major report for the OECD on evaluation of teachers, Isoré (2009) provided an account of current empirical evidence for teachers evaluation. This highlighted difficulties in assessing a) the effects of evaluation schemes on teaching quality, b) teachers' motivation and c) student learning. However, Isore claimed (ibid, p. 7) that "evaluation provides opportunities to recognise and reward teaching competence and performance, which is essential to retain excellent teachers in schools …" The development of tools and instruments for measuring teacher excellence is therefore useful so that future teachers may receive the most beneficial development opportunities and also to encourage excellent teachers to continue their good work. On the other hand, because teacher excellence is a much disputed concept, as indicated in the pages above, its measurement on a large scale continues to be a controversial issue.

Thornley (2007) adapted the English Office for Standards in Education (OFSTED) inspection criteria for a good lesson to derive what might be an example of an 'outstanding' lesson. Outstanding is the highest grade given by OFSTED inspectors for lessons observed and for overall school performance. An outstanding lesson is, by their definition, an example of excellent teaching, and thus their criteria are worth considering. However, it must be noted that some educators find OFSTED's attempts to define excellence inappropriate given the clearly political motives of the OFSTED body. For example, note that in their list of 'outstanding' features, the teacher's attention to published or practitioner educational research findings is not listed as a requirement for excellent teaching! -nor is teachers' inquiry

emphasized into their students' needs and learning, nor their study of the field in which they are operating. These omissions minimize teachers' role as seekers after wisdom and truth in a general sense.

According to OFSTED, in 'outstanding' lessons, the criteria in Figure 1 prevail. All of the criteria are teacher-dependent variables (McBer, 2000) since the teacher determines the climate for learning and has established clear methods for working with the students to achieve this state. The teacher has prepared and established the work schedule (and possibly content), giving relevant and timely positive feedback and assessment. The teacher has inspired the students through a creative, enthusiastic and encouraging atmosphere. The teacher makes use of appropriate didactics, pedagogic knowledge and knowledge of the students. The teacher has set high but achievable expectations with built-in support and the students know what is expected of them; there is a challenge for all. The teacher encourages the students to make use of self-assessment, self-reflection and supportive co-operation. The teacher models the behaviour expected of the students and demonstrates respect for each of them and for the work which they have achieved. The teacher has elicited from the students the meaningfulness of the activity within their own context and beyond. Thornley (2007) saw enthusiasm and enjoyment produced by the relationship between the teacher and the students as central to the outstanding lesson. It is worth noting how closely the criteria described by Thornley matched those from the McBer (2000) Report shown in Table 4 below.

A. *All students are challenged and make good progress, especially those at the ends of the ability range and those who lack confidence; some make exceptional progress; a lot of ground is covered in the lesson but stragglers are not left by the wayside.*

B. *Enthusiasm and enjoyment pervade the classroom.*

C. *The teaching is exciting and interesting (for example, through use of stimulating resources or other adults in the lesson); it may be inspired, although it doesn't have to be.*

D. *All the students are involved in the lesson and all contribute in some form.*

E. *Teaching methods are very well matched to the content and to the learners - some may be original or innovative; for example, content closely linked to students' experiences or to interesting practical situations.*

F. *The teacher checks progress throughout the lesson; assessment is regular and helpful.*

G. *Students evaluate their own and others' progress accurately and constructively .*

H. *All students know how to improve as a result of regular and constructive feedback; where appropriate this is linked to national criteria or examination requirements.*

J. *The teacher develops students' basic and other cross-curricular skills, for example, literacy, numeracy, independent learning and PSHE (Personal, Social and Health Education).*

K. *Students have easy access to, and make use of, additional resources which they use independently to support or enhance their learning.*

L. *Students go out of their way to help each other; they provide mutual support.*

M. *The classroom is a lively and interesting place; it includes good displays of students' work (representing all abilities), things which give a subject specific flavour to the room, and annotated examples of levelled work used to support learning.*

Figure 1. *Criteria-referenced judgments for an outstanding lesson (based on OFSTED, DfE England)*

While enthusiasm and excitement were mentioned here by Thornley, where there is performance-measurement, the attainment of the students in relation to stated goals would be the more usual criteria against which to judge a lesson. Student attainment, whether goals have been met, are clearly aspects of good or outstanding teaching but its monopoly as the only valid assessment criteria is disputed.

In Table 4 below, the terms “main professional grade”, “threshold”, and “outstanding teacher” refer to teachers’ pay in England. Teachers must produce a portfolio of evidence against a set of standards to pass through to the ‘threshold’ grade and this is usually after six or more years of teaching. Those who pass through are considered in English state policy to be ‘excellent’ teachers. The use of personal and professional portfolios has emerged as a means of reflecting this excellence. The importance of a reflective diary as part of the portfolio is used in various branches of education - it is a requirement, for example, in Steiner-Waldorf schools that all teachers complete a daily log of reflections on their teaching and the achievement of the students. Teachers who meet the relevant set of standards in UK state schools may currently progress to the role of ‘outstanding’ teacher (Advanced Skills Teacher), who has a higher salary than the ‘threshold’ teacher and is considered to be more effective.

Table 4

Level of characteristics demonstrated by teachers at different career levels and roles

Characteristics	Main professional grade	Threshold	Outstanding teacher
Challenge and support	2	3	3
Confidence	2	3	4
Creating trust	2	3	3
Respect for others	3	3	4
Analytical thinking	2	2	3
Conceptual thinking	2	2	3
Drive for improvement	2	3	4
Information seeking	1	2	4
Initiative	2	3	3
Flexibility	2	3	3
Holding people accountable	2	3	4
Managing pupils	2	3	4
Passion for learning	3	3	4
Impact and influence	2	3	4
Teamworking	3	4	4
Understanding others	2	3	3

Source: McBer (2000, p. 68)

Similarly, the University of Winsconsin's Institute for Learning Partnership has a programme of professional development leading to the award of "Accomplished Teacher" which should reflect excellent teaching and learning. The underpinning standards are incorporated from the National Board for Professional Teaching Standards (Appendix C) and the Wisconsin Department of Public Instruction. The Wisconsin Professional Development Certificate (WPDC) Core Propositions and Standards include 5 propositions which are a manifestation of their particular conception of excellence:

1. Teachers are committed to students and their learning
2. Teachers know the subjects they teach and how to teach those subjects to students
3. Teachers are responsible for managing and monitoring student learning
4. Teachers think systematically about their practice and learn from experience, and
5. Teachers are members of learning communities.

While the Wisconsin standards are referred to as professional development they are also presented as practices that each excellent teacher should be implementing. The notable addition in this list is teachers' membership of learning communities. While 'knowing' their subjects and how to teach them [item 2] suggests a fixed conception of knowledge, an inquiry-based learning community could challenge teachers to become constant learners who question and also construct knowledge, including research findings.

Developing teacher excellence

Initial teacher education. In the life of the teacher, professional competence, which leads to excellence, is often first assessed during the period of initial teacher education (ITE). Some countries of the world, it should be noted, do not have a system of ITE, in which case teachers are expected to learn through experience and support from senior staff in schools themselves. In most other cases, ITE is meant to enable them to become excellent as practitioners and professionals. ITE certainly has an impact - although sometimes deleterious – on the dispositions, pedagogical attributes, perspectives, and practices of new teachers and how they understand their role.

As discussed earlier in this review, there appears a contrast between the practical skills needed to be an excellent teacher and the heavy theoretical focus of many teacher education programs (Vasutova, 1998). Knowledge of the theoretical aspects of pedagogy – to the exclusion of practical ones – has been the focus of many initial teacher education programmes in the past. Examples of such an emphasis have been noted in Eastern European schools of education and pedagogic institutes and the same can be said for many Arab and African countries (Villegas-Reimer, 2003). Emerging teachers from these programmes

have minimal practical experience in the classroom because their preparation for teaching sits in the theoretical field. This approach is not without criticism, as Buchberger, Greaves, Kallos, & Sander (1996) explained at the end of the 20th Century:

> The development of pedagogical competence is one of the key targets of initial teacher education and the continuous professional development of teachers. Nevertheless, the curriculum of teacher education is marked by an uneven ratio of academic and professional studies (at the expense of pedagogical and didactical disciplines and teaching practice). The fact results from incorrect judgment on the ratio between the subject matter and pedagogical components in the teacher profession. The discrepancy deepens with the higher degree of schools/higher level of education.

Recent research into ITE has suggested that the tensions between theory and practice have been given serious consideration more recently (see for Elstad, 2010; Reid, 2011; Knight, 2012). The OECD (2007) has helped to highlight (to varying degrees of receptiveness by university faculties of education and teacher education colleges in some parts of the world) the importance of practice in initial teacher education, particularly in relation to the amount of practical experience teachers need in the classroom and their interaction with students. This practical emphasis does, however, not imply that teachers' reading of educational research, including theoretical aspects, is not highly valuable to practicing teachers. Wilkins' (2011) research illustrated how such reading could, when approached appropriately, be transformative of teachers' practice.

Continuing professional development

Another critical attribute of teacher initial training, wrote Rømer (2008, p. 15), was that it instilled "the expectation that teachers have the right and responsibility to participate in continuous professional development throughout their careers." Some authors argue that excellent teachers remain excellent only by continuing their professional development through formal, informal and/or non-formal means. In some cases this is achieved by reflective self-evaluation within an institutional setting. It is the responsibility of the teacher to be alert to her/his professional educational needs, guided by monitoring through peer observation, inspection and/or mentoring among other sources of suppport. Continuing professional development is recognised as a key component in developing and maintaining excellence as a teacher and this is a professional activity which many believe is most effective when carried out collaboratively (Goe, Bell, & Little, 2009; Gates Foundation, 2011; Barber & Mourshed, 2007; Pianta, 2011). Lectures on improvement have also been a feature of CPD in the past, but there have been shifts

away from such an impersonal emphasis in some communities. For example, there has been a recognition that teachers develop most effectively if they choose which practice to focus their learning on and collaborate and converse with colleagues both inside and beyond their own school (Postholm, 2012). Teachers' own interpretations of educational research –both theoretical and practical - have also been shown to affect their practice transformatively.

Barber and Mourshed (2007) emphasised the importance of coaching and mentoring as a form of teacher development in excellent systems, especially in the first (or induction) year of practice. They declared that if you wanted good teachers then you had to have good teachers to support them. They promoted the use of "expert teachers" to observe, coach, model good instruction, and help trainees reflect on their practice. In constructivist camps, such a mentor could be conceived of as enabling the learner to come to his/her own professional interpretations and decisions, using inquiry-based approaches to reflection and consequent action (reflexivity). The excellent mentor would enable the learner (mentee) to examine rigorously his/her practice and guided them to sources which might enable the learner to better achieve professional learning goals and/or personal learning. The excellent mentor would also feedback accurately (and with professional empathy) observations on practice, but only after first hearing the mentee's own description and analysis. Loretto (2012) described the following qualities of a good mentor: is willing to share expertise, has positive attitude and personal interest in the mentoring relationship, demonstrates enthusiasm in the field, values on-going learning, provides constructive feedback, is well-respected by colleagues, sets and meets on-going goals, values the opinions and initiatives of others, and motivates others by setting a good example. Hargreaves (2010, p. 116) listed the following alternative set of qualities: being approachable, empathetic, non-judgmental, calm, positive, encouraging, sympathetic, trusting, humorous, and a good listener, as well as having good eye contact. It can be seen how these qualities translate into some of the recognised characteristics of excellent teachers.

The European Commission (2004) had no doubt about the importance of professional development for teachers to remain excellent, and suggested both proper incentives and wide opportunities for teachers to review their professional learning needs and acquire new knowledge and skills and develop competencies as they progressed professionally. The following quote is from a spokesperson for the Singaporean National Institute of Education in an interview for a major international report by McKinsey and company. It demonstrated how some countries managed the professional development of their teachers:

> You can have the best curriculum, the best infrastructure and the best policies but if you don't have good teachers then everything is lost. We provide our teachers with 100 hours of professional development each year. If you do not have inspired teachers, how can you have inspired students? (Barber & Mourshed, 2007, p. 27)

Gazda-Grace (2002) lauded the importance the International Baccalaureate Organisation placed on benefits accruing from professional development by highlighting the training programs it provided for its teachers. The Organisation believed that learning-focused activities were appropriate and necessary to raise teacher excellence as well as to achieve improved student outcomes. The Gates Foundation (2011) findings on student achievement and teacher observation suggested that, as a form of professional development, criteria-centred observation and feedback on professional practice (as also noted by Goe, Bell, & Little, 2009) had a real impact on present and future teacher performance and on student achievement. However, other authors have noted that the manner in which this is done can be crucial in determining its impact. Teachers' choice in the focus and means of their development appears to be closely correlated to its success (see Hustler *et al.*, 2003).

Pianta (2011) constructed a model for teacher development derived from an analysis of teacher-student interactions. In his model, he identified teacher excellence as being dependent upon their interaction in three domains: emotional support; classroom management; and instructional support. How well the teacher established these elements was directly related to student achievement. Pianta believed that through the professional development of teachers in these elements greater student attainment could be achieved. Pianta's model reinforced the focus on the wide-ranging factors which led potentially to enhanced student learning. The next task would then be to decide which *kinds* of emotional support, classroom management and instructional support were most valuable.

Testing for accountability purposes and the role of context

Campbell *et al.* (2004, p. 452) argued that "an approach to educational excellence that largely ignores the social, economic and political context within which the performance of the education system is evaluated is open to question." Schools operate in different contexts which can affect their capacity to support young people's learning. In some contexts, education is considered a business: a very big business with high investment. In this rhetoric, governments invest, on behalf of their citizens, significant percentages of state funds into education. Politicians and taxpayers look for a return on that investment (OECD, 2011).The OECD PISA scores and the public nature of the results in an international league table have become a means by which their return on investment can be clearly seen, and poor

results have led to a number of national initiatives, for example, a congressional act of the United States "The No Child Left Behind Act of 2001." Governments who wish to retain power and who believe that a better educated workforce will contribute to the country's economy, will continue to seek means of displaying and proving the excellence and efficiency of the national education system. Systems and structures are established in some countries which attempt to ensure that the investment continues to be productive. The irony lies in the fact that sometimes the very systems set up to enhance education lead to destructive side-effects which are deeply uneducational (see for example, Ball 2003).

Such systems and structures often hinge on measuring the excellence of schools and teachers. Attempting to measure the outcomes of teachers' performance is recognised by Booher-Jennings (2007, in Rosenkvist 2010, p. 5) as being actually a means of finding out who is *not* doing 'well' (though rarely for finding out why they are not doing 'well'). Performance measurement may incentivise some teachers to do better (who then might appeal for greater reward) although as Ball (2003) stressed, it may also lead to unsustainable pressure and fear among teachers and students alike, stifling their efforts at creativity and healthy risk-taking.

A regime of student testing as one means for measuring teacher excellence can have both positive and negative effects. The use of regular testing for purely diagnostic purposes may be in the best interests of the students since the "teacher can use test results to identify student weaknesses and strengths in order to improve classroom instruction" (Rosenkvist 2010, p. 5). Assuming that the tests are valid and reliable and used professionally to support learning, diagnostic testing provides a means of enabling the good teacher to become even better by causing her/him to reflect on current practice and to find out new ways to improve practice to facilitate greater learning. This process is known in some situations as Assessment for Learning.

As Darling-Hammond (2010, p. 2) reminded the reader, 'The No Child Left Behind Act (2001)' called for "moving beyond the designation of teachers as 'highly-qualified' to an assessment of teachers as "highly-effective" based on student learning evidence". This 'student learning evidence' came to be equated with pupils' performance on standardised, often nationally administered, tests. There is, however, the danger that such an emphasis could lead to teachers' acceptance of mere performativity as the symbol of their excellence, rather than the complex qualities discussed above. In addition, teachers operate in a breadth of contexts with varying levels of support and diverse populations of students (Berry et al., 2010, p. 2): lower raw test scores in one school might reflect teacher excellence better than higher scores in another.

Thus many educators call for new tools for assessing excellence, tools which are sensitive to context and inclusive of all desirable learning outcomes not just test scores. Nonetheless, the measurement of outcomes remains a pertinent question as such measurements yield easily accessible figures which some consider to be better than no figures. A less burdensome use of test results which could be considered as an alternative model of measurement was reflected in England in the 1980s; a sampling of test results was taken in rotating districts year by year during the Assessment of Performance Unit (Mason et al, 1986). Rosenkvist (2010) acknowledged Vaishnav (2005) in describing another and more recent alternative use of measurement:

> Value-added assessment is a method used to measure the excellence of a school and its teachers using data on individual students' academic growth over time. It is the act of comparing students' scores with their own past scores that distinguishes value-added assessment. A methodological more advanced version is contextual value-added assessment, which takes into account contextual factors such as students' socio-economic background (Rosenkvist 2010, p. 8).

This measure is used in many countries to establish levels of achievement although the validity and reliability of the tests themselves continues to be an issue. Another model used for determining achievement has been the internal accountability model. This model recognised the complexity of teaching and suggested that it was "too complex an activity to be governed by top-down defined provisions" (ibid, p. 9). Rosenkvist continued by stating that:

> Excellent teaching rests on professionals acquiring specialised knowledge and skills and being able to apply such knowledge and skills to the specific contexts in which they work. In this model schools and teachers are held accountable for how they conduct their profession – i.e. their interaction with colleagues and students – and not their students' test results (Rosenkvist 2010, p. 9).

Such a model requires a professionalism found, for example, in the professions of law and medicine (although perhaps not in every legal and medical practitioner). For such a model to work, the highest professional standards are required to be enforced with a clear code of practice and conduct in place. However, such approaches are dependent on professional negotiation, responsibility-taking and peer review. From a statistician's point of view this could lead to lack of reliability and to subjectivity; from a politician's point of view it could lead to an uncontrollable workforce; while from the individual teacher's, it would be likely to be a source of encouragement and development.

Conclusions

From the point of view of most teachers, facilitating and enhancing students' learning is the crucial goal of the art and science of teaching. The research evidence over the past 40 years on teacher excellence highlights a range of characteristics of excellent teachers. There seems little doubt that over time there has been considerable consistency and consonance with the findings, no matter how they were classified or defined. Indeed, at first glance it would appear that little had changed since Hildebrand's classification in 1971 (see Appendix D). One notable change in some contexts, however, is the decreased focus on teaching and in turn the increased focus on learning and the learner.

We can assume that every teacher strives to be excellent. It is an expectation by society of those who have the responsibility to take on the role and/or who have gained certification to practice. However, this review has illustrated that it is not possible to summarise indisputably what an excellent teacher is and each teacher will hold different values in relation to this question. What teachers think, know, do, and care about is important for student outcomes but is none-the-less hard to standardise. For the purpose of retaining and supporting excellent teachers more and more countries have developed minimum competence standards for teachers. In some cases, levels of competence have been described, which recognise the greater achievement of some teachers compared to others. These measures are based on a number of factors and evaluated in different ways including self-evaluation, peer evaluation, leader evaluation, and student evaluation. All are seeking and requiring clear evidence on which to base their assessments. But there are still complex problems associated with making such assessments and indeed, making standardised definitions of teaching excellence at all.

Schools and teachers are being held more and more accountable for their professional activity and its impact on students' learning (and, perhaps indirectly, on the future of the state). To be an excellent teacher is to recognise that although some ends may remain constant, such as enhancing students' love of learning, the means of achieving these and the contexts will change. The excellent teacher is likely to enjoy the challenge of change and be excited by it.

Methods

Research Design

In order to gain a better understanding of the above, this project uses a concurrent mixed methods design over the course of 18 months to investigate the attributes, perspectives and beliefs pertinent to

an IB Teacher. The strength of the mixed methods design is that it capitalizes on the strengths of both quantitative and qualitative research (Greene 2007). To address the research questions, quantitative analysis of Likert survey items was combined with qualitative analysis of open-ended survey items, focus group transcripts, and IB documentation.

Research Question 1: IB teacher perspectives as measured by the TPI

Research Question 1, the perspectives of IB teachers as measured by The Teaching Perspectives Inventory (TPI) (Collins & Pratt, 2003), was addressed by administering the TPI online to IB teachers who recently participated in IB professional development. Because IB schools are required to support ongoing professional development, this sample does not necessarily contain teachers that self select to attend professional development, and therefore is representative of IB teachers. The online survey was sent in the three official languages of the IB to 14,407 IB teachers who participated in IB PD between July 2010 and April 2011. The survey link was sent to the teachers in an email and the link was open for 17 days, with a reminder sent after one week, and a second reminder sent after two weeks. Of the 3,845 responses received 3,194 completed the majority of the demographic information (response rate and bias information is available in Appendix E). The vast majority of respondents were teachers (91.4%) and female (70%) with between one and five years IB teaching experience (65%), but nearly 60% had over 10 years of teaching experience in general. Approximately half of the respondents were DP teachers (48.9%), followed by PYP (28.4%) and MYP (21.2%). Demographic summary of the respondents is shown in Appendix F. Of the 3,194 responses with demographic information, 3,184 had all the TPI items answered and were therefore used for the analysis. Those respondents who left major blanks were not scored. Additionally, nine responses were "too good to be true", meaning every question was answered with "Always" or "Strongly Agree". To be consistent with previous research using the TPI (Pratt, Collins, & Selinger, 2001), respondents whose overall total is 220 or more (225 is a maximum score) were eliminated.

Scoring of the TPI. Each respondent was scored for each of the 5 teaching perspectives. The IB teacher means and SD were calculated for each perspective. The scores for all IB teachers were averaged so that the means of IB teachers could be compared to a similar sample from the TPI database. IB teacher scores were also examined by gender and level of instruction to determine if these subgroups differed from the total IB population.

IB teachers' scores comparison to TPI preK-12 sample. The TPI database contains records for all those who have completed the TPI since its inception in 2001. Currently, the database consists of 173,429 respondents. Of these respondents, 21,660 respondents identified their primary responsibility as teaching Pre-K through secondary (1,463 pre-school teachers, 8,816 elementary teachers, and 11,380 secondary teachers) with the remaining respondents indicating primary responsibility as a manager, researcher, student or other. This sample of 21,660 preK-12 teachers is used as a comparison group (TPI preK-12 sample). Percentile ranks were used to compare IB teachers' average perspective scores to the TPI preK-12 sample. Percentile ranks are helpful in showing how an individual compares to the rest of the population. A common use is in intelligence testing, test takers receive their percentile rank and can determine how they performed compared to the rest of the population that took the assessment. A percentile rank of 98 is interpreted to mean the individual performed better than 98% of the population. The scores of the teachers in the TPI preK-12 sample were organized into a frequency distribution so that it could be determined where the average IB teacher score ranked. The group analysis was broken down to also examine how males and females from the two groups compared. Finally, scores broken down by programme (PYP, MYP, DP) were compared to the TPI preK-12 sample organized by instructional level (pre-school, elementary, and secondary) to see if difference exist based on level of instruction.

Cohen's *d* as a measure of effect sizes were calculated to quantify the differences between the groups compared. Cohen established general guidelines for interpreting effect sizes for the social sciences (small (d>.2), medium (d>.5), or large (d>.8)) (Cohen, 1988).

Research Question 2: Attitudes, perspectives, and beliefs defined by IB educators

Research Question 2, *attributes, perspectives, and beliefs* defined by current IB educators, was addressed using qualitative data collected from in-person focus groups and the online survey. Two separate hour long focus groups guided by a 4-item protocol were conducted at workshops in each of the following countries: Peru, Spain, Hong Kong, and The United States. Focus groups were held between September 2011 and December 2011. Workshops for focus groups were selected to represent a variety of regions, workshop categories, and programmes. Additionally, workshops with over 100 participants were targeted (Table 5).

Table 5
Focus Group Workshops

Start Date	End Date	Location	Description	Registered	# in focus	# in focus

					group 1	group 2
8/31/2011	9/2/2011	Lima, Peru	PYP Category 1,2,and 3	113	8	7
10/15/2011	10/17/2011	Hong Kong, China	PYP Category 2 and 3	259	11	7
10/21/2011	10/23/2011	Madrid, Spain	DP/MYP/PYP Category 3	129	9	13
12/2/2011	12/5/2011	Baltimore, MD, USA	PYP/MYP/DP	364	9	8

All registered workshop participants were emailed an invitation to participate in the focus groups prior to the workshop. Participants were selected so that a sample across IB programmes and years experience teaching the IB were represented. Across the eight focus groups there were a total of 72 participants. One benefit to the focus group format was that the interaction between participants was able to be observed; this enabled more detailed data addressing why participants felt the way they did. Open-ended questions were asked during the focus group so that the participants could create the response unconstrained by the researcher's views (Creswell 2008). The same four open-ended items used in the focus groups were added to the online TPI survey to better understand participants' views about IB teaching specifically and these were qualitatively analyzed along with the focus group data.

The coding of focus group data and selected survey questions. Coding of the focus groups and open-ended survey responses was performed by Dr. Asher Beckwitt with review and consultation by IB Research. The focus group transcriptions and responses from three of the open-ended survey questions were analyzed collectively. The first open-ended survey question was analyzed separately because the data consisted of singular word responses and a word frequency count was appropriate (If there was an IB teacher profile, what do you consider to be 5 to 10 critical attributes that should be included? Please list and briefly describe each one.). The remaining open-ended survey questions and the focus group transcripts were analyzed using an inductive approach (Maxwell, 2005).

The data were coded and analyzed in NVivo 9 Software. Line-by-line open coding technique (Glaser & Strauss, 1967) was used and each sentence was coded with at least one code. To maintain authenticity participant's own words were used to create the codes. A constant comparison method (Glaser & Strauss, 1967) was used to systematically compare and assign codes. The same codes were consistently used to code text that represented the idea, not necessarily an exact word match. For

example, many respondents discussed the importance of *collaboration*. Text was coded *collaboration* anytime the idea was mentioned, not just the term. *Collaboration* was coded when respondents mentioned collaboration, team work, working together, etc.

During the coding process, codes were added or modified as necessary based on new understandings that emerged (Schilling, 2006). The data were reduced by combining similar codes. Codes were compared and organized into descriptive categories (i.e. IB teachers and teaching) enabling easier analysis.

Research Question 3: A*ttributes, perspectives, and beliefs* defined by IB documentation

Research Question 3, *attributes, perspectives, and beliefs* defined by IB documentation, relied on qualitative content analysis. A systematic review of 73 IB produced documents was undertaken. Content analysis enables large volumes of text to be reduced to a set of core ideas (Patton, 2002). The researcher is able to analyze the document collection as one unit and ascertain the perspective or stance of the author or authors. The objective was to search, read and objectively and systematically review relevant IB documentation (ie, IB-published materials such as curriculum documents, teacher training materials, and position papers) so that inferences can be made about the focus of the IB. This study does not attempt to define what *should* be, but instead aims to show what the analysis revealed.

Materials. Appendix G lists all the materials included in the review and is organized by programme. In general, the materials included were subject area guides, position papers, and the programme guides. In total 72 documents and one book, The Changing Face of International Education (Walker, 2011), were included in the analysis. This book is published by the IB and edited by former Director General, George Walker. All of the materials included are available to IB teachers on the Online Curriculum Center (OCC) except for the book. The (OCC) is a password-protected IB website designed to support teachers of the four IB programmes. The OCC provides teachers with opportunities to work collaboratively, view IB publications, and keep up-to-date with curriculum developments.

Methods. A deductive approach to qualitative content analysis was utilized to code IB documentation to address the question, what does the IB documentation identify as the essential and/or important *pedagogical attributes, perspectives and beliefs* of an IB teacher professional? Qualitative content analysis enables the researcher to extract meaning from large amounts of text. This process is described as "data reduction and sense-making . . . to identify core consistencies and meanings" (Patton, 2002, p.453). Often qualitative content analysis uses an inductive approach that requires the researcher to start with small ideas and build to larger ideas. The deductive approach to

qualitative content analysis can be useful because it enables theories and variables from previous research to be used to in the current analysis (Berg, 2001). The deductive approach was selected for this project because it enables general ideas, such as themes identified in the focus groups, to be reduced to more specific ideas. Generally, inductive analysis involves exploring the data to see what themes emerge and deductive analysis involves examining the data with a specific purpose in mind. In this case, the general ideas were taken from focus group themes, survey response themes, and results from the TPI. The deductive approach enabled a purposeful examination of the documents so that the data could be reduced in a way that made sense for this study—ideas relating to teachers, teaching, and teaching approaches as identified in the other data sources. Each document was read and imported in NVIVO 9 software and codes from the coding scheme were searched for in the document and coded using NVIVO 9. A coding scheme was created using the both qualitative themes from the focus groups and open-ended survey items and the quantitative themes from the TPI, themes from extant literature on teaching, and a word frequency count (Table 6). The codes were summarized and then organized into larger codes (codes and subcodes). Codes were then examined to determine if any commonalities existed that suggested a common underlying theme (Maxwell, 2005). All the codes related to teachers, teaching, and teaching approaches because the coding scheme was created for this purpose. Therefore, this step focused on identifying more specific ideas relating to teaching that were represented in the codes. The codes were merged into three larger overarching themes: Approaches to Teaching, Beliefs about Teaching, and Tools to Facilitate Effective Teaching.

Coding scheme. The coding scheme used is shown in Table 6. The codes included words or ideas relating to IB teaching that were brought up frequently by the focus group participants or survey respondents, such as adapt, assessment, community, and connections. Additionally, aspects of Social Reform and Nurturing perspectives identified in the TPI were included. Codes were also taken from the relevant literature on excellent teaching, such as inquiry and differentiation. A word frequency count was run on the IB documents and the most frequent (and appropriate) terms were included in the coding scheme. Many of the codes included in the coding scheme are derived from multiple sources, such as inquiry, social responsibility, assessment, and collaboration.

Appendix H shows the codes, subcodes, and related ideas. The related ideas are terms that have the same or similar meaning to the codes or subcodes. For example, the subcode 'real world' is related to the idea of 'real life' and both are considered a subcode of the larger code 'connections'. Illustrative examples of some of the codes are included in the findings section. The numbers of references for each

code are indicated in the 'reference column'. This should be interpreted with caution as it does not indicate the number of times the code was mentioned; it indicates the number of times the idea was referenced. An idea could contain the code (subcode or related idea) several times, but still only be coded once because it was all a part of one singular thought. Additionally, the code could refer to the idea without explicitly referencing the exact code. The number of references is helpful in gauging how the frequency of codes compares to each other.

Three themes emerged from this coding that enabled the individual codes to be sorted into broader ideas: Approaches to Teaching, Beliefs about Teaching, and Tools to Facilitate Effective Teaching. These themes were identified because individual codes were found to share properties. Inferences about the connections among the code properties were made by exploring patterns and describing dimensions of the code. For example, the properties of the code 'inquiry' include: teaching method, student centered, research-based, and many other descriptors. Each code was described and overlap among the descriptors was used to build the themes. When possible the largest common denominator or broadest idea was used to create themes, meaning instead of building a theme around 'student centered' the theme was built around teaching approaches because student centered can be collapsed into teaching approach. The themes with the codes they include are shown in Table 6.

Table 6
Themes and their descriptions

Theme	Codes	Description
Approaches to Teaching	connections inquiry student thinking student centered unique learner Teacher as guide	The codes included describe guiding teaching philosophies of excellent IB teachers. Teachers design inquiry-based student centered lessons with a focus on developing student thinking. Additionally, teachers plan for each learner's unique needs while enabling connections not only between and across subject areas, but also to the real world.
Beliefs about Teaching	global, international, cultural Sense of social responsibility whole student	The codes included describe the guiding beliefs about the purpose of teaching. Teachers are guided by a sense of global awareness and social responsibility. Additionally, teachers believe that a holistic approach to education better

		prepares students for the world.
Tools to Facilitate Effective Teaching	teacher reflection collaboration assessment teacher adapt, create, modify	The codes included describe the resources or processes that enable teachers to be effective. Teachers should reflect on their practice by not only using assessment data and collaborative teams, but also through continued professional development. Teachers must be prepared to create and adapt lessons and materials as they reflect on teaching and gather new information about their students.

Research Question 4, comparison among the data corpuses, is explored in the discussion section of this report.

Limitations. This research method relied heavily on self-reported data from IB teachers. The TPI, focus groups, and open-ended items might not reflect the actual practice of IB teachers. There could be some social desirability to report a certain practice and that might influence the responses. Additionally, while participation in IB Professional Development is required for schools, the selection of teachers within schools might not reflect the population of IB teachers.

Instruments

The Teaching Perspectives Inventory. Building on Kember's (1997) analysis of teaching perspectives in higher education Pratt (1992; 1998) qualitatively identified five substantially different views of teaching: Transmission, Apprenticeship, Developmental, Nurturing, and Social Reform (Table 3). The Teaching Perspective Inventory (TPI) operationalizes Pratt's five teaching perspectives into five separate scales addressing actions, intentions, and beliefs. Each teaching perspective can be represented by an effective teacher or an ineffective teacher. All perspectives are equally valuable and one is not better or worse than another (Collins & Pratt, 2010). The TPI is often used as a tool by teachers to reflect on their teaching perspectives. Upon completion of the inventory, each individual teacher receives a profile indicating their strongest, or dominant, perspective and scores for the other perspectives.

Table 7

Description of each perspective (Pratt, Collins & Sellinger, 2001)

Transmission:	Transmission teachers have strong content commitment, teacher's primary responsibility to represent the content accurately and effectively for learners. Good teachers take learners systematically through sets of tasks that lead to content mastery.
Apprenticeship:	The teacher is highly skilled at what they teach. Effective teaching is a process of enculturating learners into a set of social norms and ways of working. Learners progress form dependent learners to independent workers.
Developmental:	Effective teaching must be planned and conducted "from the learner's point of view". Good teachers must understand how their learners think and reason about the content. The primary goal is to help learners develop increasingly complex and sophisticated cognitive structures for comprehending the content.
Nurturing:	Effective teaching assumes that long-term, hard, persistent effort to achieve comes from the heart, as well as the head. People are motivated and productive learners when they are working on issues or problems without fear of failure. Learners are nurtured by knowing that (a) they can succeed at learning if they give it a good try; (b) their achievement is a product of their own effort and ability.
Social Reform:	Effective teaching seeks to change society in substantive ways. From this point of view, the object of teaching is the collective rather than the individual. Good teachers awaken students to the values and ideologies that are embedded in texts and common practices within their discipline. Good teachers challenge the status quo and encourage students to consider the how learners are positioned and constructed in particular discourses and practices. To do so, common practices are analyzed and deconstructed for the ways in which they reproduce and maintain conditions deemed unacceptable. Class discussion is focused less on how knowledge has been created, and more by whom and for what purposes.

Each of the five teaching perspectives is represented by nine items. Respondents receive a profile reporting their dominant perspective (the perspective with a score one standard deviation (or more) above the mean of the remaining four) and their recessive perspective (the perspective with the lowest score). Scores range from 9 to 45 for each perspective. Previous research on the TPI uses a dataset from 2009 containing over 100,000 responses representing US, Canada, and 120 other countries. Responses were completed in many first languages other than English, including Spanish, French, Mandarin, Cantonese, and Hindi. Approximately 1/3 of the total responses are from teachers of school aged children (16.6% secondary teachers, 15.9% elementary school teachers) and the remaining responses are from educators who work with learners outside of primary and secondary classrooms. Nurturing is the most common dominant perspective (50%), with Social Reform as the least common dominant perspective (3%). Respondents whose first language was not English had slightly higher, but significant, Social Reform totals (Collins & Pratt, 2010). The updated sample analyzed by Collins in March 2012 (TPI preK-12 sample) identified 21,660 respondents who taught pre-school, elementary, or secondary learners. This sample of 21,660 is used throughout this study as a comparison group for the IB teachers who participated.

Reliability. High internal consistency was found when the TPI was tested by Collins and Pratt (2001) with teachers in Canada, Singapore, and the United States (alpha reliabilities are Transmission .81, Apprenticeship .88, Developmental .85, Nurturing .92, Social Reform .82, and overall consistency of .80) (Pratt, Collins, and Selinger , 2001). Chronbach's alpha reliabilities for respondent average .76 across the five scales (Collins & Pratt, 2010) and all the scales exceed the benchmark of .70 set by Nunnally and Berstein (1994). Test retest reliability with 500 respondents, averaged .67 (Collins and Pratt, 2010).

Validity. Collins and Pratt (2010) have performed several validity checks, including face validity and principal component analysis. During the development of the TPI, statements for each scale were created using "I statements" from interviews with teachers who exemplified the perspective. Graduate students correctly sorted the items into its respective perspectives with 95% accuracy, establishing face validity (Collins and Pratt, 2010). Principal component analysis suggested each item contributes to its respective perspective, as no item had communalities less than .30, suggesting all 45 items contributed to defining a perspective (Collins and Pratt, 2010).

Open-ended survey items. In addition to the TPI items, surveys contained 4 open-ended items seeking to understand respondents' views about teaching the IB programmes. Respondents were asked the following:

1. If there was an IB teacher profile, what do you consider to be 5 to 10 critical attributes that should be included? Please list and briefly describe each one.
2. Are there any differences between an IB teacher and a non-IB teacher? If yes, please describe.
3. What changes, if any, have you experienced since becoming an IB teacher?
4. What excites you most about being an IB teacher?

Additionally, background information, such as teaching experience, IB teaching experience, IB programme and subject area was requested from each respondent. The full survey is available in Appendix I.

Focus group protocol. Hour-long focus groups in Spain, Peru, Hong Kong, and the United States were conducted using a 4-item protocol. The focus group items replicated the 4 open-ended items from the online survey (Appendix J). The focus groups were recorded and each session was transcribed. A translator was available during each focus group session held outside the U.S., but was not needed.

Results

Research Question 1: IB teacher perspectives as measured by the TPI

The IB TPI average scores can be viewed in two ways. First, in isolation, as an average IB teacher profile, similar to the profile an individual would receive after completing the TPI. Second, the TPI average scores for the IB sample can be compared to the average scores for the TPI database sample.

IB teachers' overall scores. There are five perspective totals, one for each of the perspectives (see an example profile in Appendix K). When the sample of IB teachers are viewed as one unit, meaning the average score for each perspective is used as the perspective score, the average IB teacher's profile has Nurturing as the dominant perspective with 'back up' perspectives of Apprenticeship and Developmental. The average for IB teachers was calculated for each perspective (Table 8).

Table 8

IB teachers' mean score for each perspective					
Variable	**Mean**	**Std Dev**	**Minimum**	**Maximum**	**N**
TRANSMISSION TOTAL	34.65	4.65	9	45	3184
APPRENTICESHIP TOTAL	36.87	3.77	9	45	3184
DEVELOPMENTAL TOTAL	36.03	3.75	9	45	3184
NURTURING TOTAL	37.44	4.25	9	45	3184
SOCIAL REFORM TOTAL	32.15	5.21	9	45	3184

IB teachers' overall scores comparison to TPI preK-12 sample. The patterns observed in the IB population are similar to the TPI preK-12 sample with some exceptions (Table 9). Nurturing is the dominant perspective for both groups and is generally higher for females than males. Social Reform is the lowest perspective for both populations. The five perspectives are not mutually exclusive and the majority of respondents hold at least one dominant perspective with several other 'back-up' perspectives that are high. As described above, if average IB teachers were to be described in these terms, they would be dominant in Nurturing with 'back up' Apprenticeship and Developmental perspectives. The TPI preK-12 sample population is also dominant in Nurturing with 'back up' Apprenticeship and Developmental perspectives. While the IB and TPI populations are similar, higher scores in Social Reform suggest IB teachers are stronger in this perspective, especially IB female teachers. This was further explored using effect sizes and it is suggested the effect is small (*d*= 0.05).

Table 9

Female and male IB teacher mean scores and TPI preK-12 sample teacher mean scores

	IB sample mean N=3,183	TPI sample mean N=21,659	Effect Sizes (Cohen's *d*)
TRANSMISSION TOTAL	34.65 (SD=4.65)	33.59 (SD=4.65)	0.05
Female	34.50 (SD=4.73)	33.57 (SD=4.59)	0.04
Male	35.00 (SD= 4.42)	33.64 (SD=4.77)	-0.07
APPRENTICESHIP TOTAL	36.87 (SD=3.77)	36.55 (SD=3.80)	0.02
Female	37.10 (SD=3.68)	36.68 (SD=3.72)	0.03

Male	36.32 (SD= 3.91)	36.27 (SD=3.96)	0.003
DEVELOPMENTAL TOTAL	36.03 (SD=3.75)	35.03 (SD=4.17)	0.06
Female	36.16 (SD=3.78)	35.15 (SD=4.13)	0.06
Male	35.71 (SD=3.66)	34.78 (SD= 4.23)	0.05
NURTURING TOTAL	37.44 (SD=4.25)	37.77 (SD=4.38)	-0.02
Female	37.88 (SD=4.13)	38.19 (SD=4.20)	-0.02
Male	36.41 (SD=4.36)	36.88 (SD=4.61)	-0.02
SOCIAL REFORM TOTAL	32.15 (SD=5.21)	30.82 (SD=5.59)	0.04
Female	32.40 (SD= 5.06)	30.44 (SD= 5.47)	0.07
Male	31.54 (SD=5.50)	31.64 (SD=5.70)	-0.003

When the IB TPI scores are compared to the norms of other primary and secondary teachers, the IB teachers are in at least the 60th percentile on Social Reform, Developmental, Apprenticeship, and Transmission, indicating that IB teachers have high scores relative to the TPI preK-12 sample in all four of these perspectives (see Figure 2). This comparison suggests that IB teachers have higher scores in Social Reform, Developmental, Apprenticeship, and Transmission than 60% of the TPI preK-12 sample. Having four high scores is not unusual, but having four high scores at the 60th percentile is interesting because it suggests that IB teachers identify with these four perspectives more than the average teacher in the database TPI preK-12 sample. The four perspectives for which IB teachers score in the 60th percentile are not the four highest scored perspectives for IB teachers. Nurturing is actually the highest scored perspective for IB teachers, but because so many teachers in the database sample have dominant Nurturing perspectives the average IB score is low compared to the database sample. IB teachers rank in only the 42nd percentile on Nurturing. When reading the percentile sheet it is important to note that a score of 32 in one column is not equivalent to a score of 32 in another column because scores in the column of the more popular perspective will be higher. For example, a 32 in Social Reform is considered high, but a 32 in Developmental is considered low.

Figure 2

Percentile sheet. IBO compared to other K-12 teachers with at least 5 years experience (N=21,660).

	Transmission	Apprenticeship	Developmental	Nurturing	Social Reform	Belief	Intent	Action	Total
%ile	43	44	44	45	43	72	73	73	215
98%	42		43		41	70	71	71	209
		43	42	44				70	
95	41	42			39	67	69	69	201
	40		41	43				67	
90	39	41	40			65	66	66	195
					37	64			
85	38	40	39	42	36		64	64	190
						63			
80	37				35	62	63	63	187
		39	38	41					
75%						61	62	62	184
	36				34				
70			37	40		60	61	61	182
		38			33				
65	35						60	60	179
			36			59			
60		37		39	32		59		177
		f			m	58		59	
55	34		f	f	31	m		f	175
	f,m	m	35	38		f	58f	58	f
50%		36	m		f	57	m	m	173m
	33				30				
45			34					57	171
				37		56	57		
40	32			m	29			56	169
		35				55			
35			33	36	28		55		167
	31							55	
30						54	54		165
		34	32	35	27			54	
25%	30					53	53		163
				34	26			53	
20	29	33	31			52	52		160
				33	25		51	52	158
15	28	32				51		51	157
			30	32	24	50	50		155
10	27	31	29	31	23		49	50	154
	26			30	22	48	48	49	151
5	25	30	28	29	21	47	46	48	148
	24	29	27	28	20	46	45	47	145
2%	23	28	26	27	19	44	44	45	141
1%	21	27	25	26	17	42	42	43	138
Dominant:	**14%**	**32%**	**15%**	**57%**	**4%**				

Gender differences. Statistically significant differences for males and females exist in the IB sample, but the differences are not large. Females and males differ in Nurturing (37.9 compared to 36.4, $p<.001$), Action totals (59.9 compared to 58.7, $p<.001$), Transmission (34.5 compared to 35.0, $p=.005$). In all cases except Transmission, females' scores are slightly higher than males. The same patterns are observed in the TPI preK-12 sample with one exception, males are slightly higher in Social Reform in the TPI preK-12 sample.

PYP, MYP, and DP comparisons. Grade level was a variable of interest because as suggested by Gage (1962) teaching has been shown to vary significantly based on grade level. Mean scores were calculated by programme (PYP, MYP, DP) (Table 10). A total of 48 respondents did not identify their programme and were removed from the analysis.

Table 10

TPI scores for IB teachers by programme

Perspective	**PYP (N=901)**	**MYP (N=675)**	**DP (N=1560)**
TRANSMISSION TOTAL	31.51 (SD=4.62)	34.63 (SD=4.11)	36.45 (SD=3.86)
APPRENTICESHIPTOTAL	36.77 (SD=3.63)	37.07 (SD=3.48)	36.84 (SD=3.96)
DEVELOPMENTAL TOTAL	35.94 (SD=3.97)	35.92 (SD=3.63)	36.15 (SD=3.69)
NURTURING TOTAL	38.95 (SD=3.63)	37.12 (SD=4.19)	36.73 (SD=4.41)
SOCIAL REFORM TOTAL	32.46 (SD=4.73)	32.02 (SD=5.10)	32.05 (SD=5.53)

For the categories of programme (PYP, MYP, and DP), two of the profiles present statistically significant differences among the various levels. Transmission is highest for DP instructors and lowest for PYP instructors (M= 36.5, SD= 3.86 compared to M=31.5, SD= 4.62, $p< .001$). Nurturing is highest for PYP and lowest for DP (M=38.95, SD=3.63 compared to M=36.73, SD= 4.41, $p<.001$). These differences are statistically significant and suggest the PYP teachers hold a different perspective than DP teachers on these dimensions. This warrants further investigation to see if these patterns are present in practice.

Comparisons to TPI preK-12 sample based on programme. The level of instruction appears to impact the IB population as it does for the larger TPI preK-12 sample. Similar patterns between IB and the TPI preK-12 sample are observed (Table 11). Transmission is generally higher for secondary teachers just as it is for DP teachers. Similar to PYP, pre-school and elementary teachers have higher Nurturing scores. Cohen's *d* was calculated as a measure for effect sizes comparing the IB and the TPI preK-12 sample on Social Reform because this perspective had the largest difference and warranted further exploration. Effect sizes were found to be small (higher mean for IB teachers) for both comparisons of secondary with DP teachers (*d*=0.05) and elementary with PYP teachers (*d*= 0.05).

Table 11

TPI scores for TPI sample by instructional level

Perspective	**ELEMEMENTARY (N=6557)**	**PRE-SCHOOL (N=1103)**	**SECONDARY (N=9031)**
TRANSMISSION TOTAL	33.18 (SD=4.75)	32.90 (SD=5.82)	34.18 (SD=4.58)
APPRENTICESHIPTOTAL	36.49 (SD=3.86)	36.44 (SD=4.14)	36.33 (SD=4.00)
DEVELOPMENTAL TOTAL	35.03 (SD=4.15)	34.86 (SD=4.50)	35.05 (SD=4.27)
NURTURING TOTAL	38.69 (SD=4.00)	39.14 (SD=4.05)	36.76 (SD=4.75)
SOCIAL REFORM TOTAL	30.36 (SD=5.48)	32.56 (SD=5.79)	30.50 (SD=5.78)

Research Question 2: Attitudes, perspectives, and beliefs defined by IB educators

Several main themes were identified within the focus groups and open ended questions. After the codes were organized into larger descriptive categories the main themes were evident by the categories with the most frequently referenced codes. In many instances, the references to the codes that comprise each theme are in the hundreds. IB teachers were consistent with their responses and many of the codes below (Table 12) were referenced over 100 times. Themes that emerged: 1) global, 2) open minded 3) flexibility, 4) teaching approach/skills/beliefs, 5) collaboration, 6) good teaching, and 7) love teaching.

Table 12

The main themes that emerged from the qualitative analysis

Main Code Names	Themes	Illustrative quote	Description
1. internationalism, global, international minded or worldly experience	Internationally minded	"My mindset has become much more global in nature. I think that this has helped to make me a better educator and a better teaching colleague." "I enjoy what I do every day and I love being in contact with students from different countries because it helps me to adapt my teaching methods, as well as my understanding and tolerance to other cultures."	Teaching students to think globally, using a variety global issues in teaching, being aware of and respectful of other cultures
2. open minded, not narrow minded, flexible, willing to change	Open-minded	"The way of thinking and perspective on [instructional] approaches are quite different ... accept new concepts in teaching and learning which are out of conventional bound." "must look out for new knowledge, new application. must be open minded and able to adapt to changes" "open-mindedness and willingness to change for the benefit of teaching so that students learn"	Being open to new ideas, new experiences, and new cultures. Also, being open to changing teaching approach. This theme includes both open-minded and being flexible because one important aspect of being open-minded is growing from the different views.

3. flexibility, free thinking, free bird, minimum supervision, not limited, less constrained, own resources, allow teacher to design curriculum, choose books, unit, activities, course, material, independence, autonomy to teach, construct content, voice, or freedom of thought	Flexibility	"I am given the freedom to teach the way I feel is the most effective! Rather than having to teach materials I can teach students using the materials as a means to achieve the best learning. I feel that I am helping students to think not just memorize for a moment and forget." "Now I feel free to choose, together with the students or by myself, activities that I have always wanted to do but was not able to do due to 'lack of time' or 'lessons based on a book' and not on the real interests of my students. Working as an IB teacher has also helped me realize, in a faster way, the abilities and needs every student has. Boredom is easily avoided in an IB setting"	The freedom to exercise professional judgment and design materials and activities that not only meet the students' individual needs, but also align with the general philosophy of the IB. Being an IB teacher means adopting the IB approach to education, but it also enables teachers to determine the best way to use this approach.
4. concept based, real world, project based, independent learners , student centered, facilitator/guide on the side, teach student to think, challenge students,	Teaching approach, skills, and beliefs	"I really learned, being a teacher, that you can get a lot of math out of just from the real world experience. You just don't have to go from a book and just teach	This theme includes the pedagogical approaches, beliefs, and activities described by the IB teachers. Inquiry concepts and real world learning dominated the

individual needs, reflect, inquiry-based, knowledge, subject matter		them traditional what is slope-intercept form, that's a basic thing - kids can do it." "But yes, eventually did they understand, did they understand concept behind that, you know, and what is a real artifact and what can you connect in the real world experience."	responses.
5. work together, collaborative, collaborate or team work	Collaboration	"I think planning collaboration is key because you don't want to do the same thing that somebody else is doing - that's time wasted. If you can share information that's going to help a lot." "Because we offer the IB program I'm more aware that I need to work with other departments, so I have the Art teacher in my class or I have a Maths teacher, who happens to be from Lebanon in my class to - just to open up my mind and my students' minds about different things."	Teachers working with each other to reflect on teaching, share resources, and collaboratively plan instructional activities.
6. No difference, good teaching is good	Good teaching	"I now have a clearer vocabulary with which	IB isn't the only group of good teachers, good

teaching, good teaching		to teach and connect with the students and IB colleagues. I am happier as a teacher to be teaching closer to the theory of good learning than in my earlier career. I understand more about good teaching practice and learning." "Love the focus on concepts and the fact that our learning should lead to some sort of 'action' or change in the way we respond to the/our world." "If you're a good teacher you've probably been already teaching these things. You're not just teaching just the concepts, but you're showing - you're trying to teach them to be a good citizen, you're trying to teach them about community service, you're trying to teach them to think outside of the box. So a lot of these things I don't think it's anything new really. It's what all teachers should be teaching already." "I think the IB program	teaching is caring and thinking about the whole student, and being student centered, other do this—just with the IB it is fixed component of the program.

		just kind of puts it all together, lay it out in perspective for us all to make sure we are doing all of this. Because teaching is not just about teaching two plus two, but about a lot more. We're just expanding it from the classroom.”	
7. enjoyment, excitement, love for teaching, passionate	Love teaching	IB has changed my life. It gave me a very different perspective of life. Earlier I was working to earn my bread and butter. But IB made me too a learner. Learner profiles helped me foster effective teaching and learning. It made me think, reflect, read more and inquire about many things. Initially I started with my subjects..... but after 4 years I can say I learned a lot about other subjects too. I myself being homeroom learned many concepts and subjects that I didn’t learned because of strict teachers when I was in school. I never imagined earlier that teaching could be this interesting and challenging. When I took carrier it was	Overwhelmingly, the IB teachers spoke about a love for learning and teaching.

		because I wanted to earn my living..... but today teaching and learning is my passion	

Challenges of IB teachers. The main challenge that emerged was that teachers felt as though they and their students had to work harder. Teachers felt that they spent more time grading and completing paper work than they did before becoming an IB teacher or compared to non-IB teachers in their schools.

Attributes of the IB teacher profile. The first open ended survey item asked respondents to identify attributes they would include in an IB teacher profile. This question was analyzed using a word frequency. The most common responses include: learner, knowledgeable, open-minded, thinker, caring, worldly, understanding, creative, and reflective. Many of the common attributes listed by the teachers are clearly drawn from the Learner Profile (IBO, 2008). Teachers often responded that the same attributes of the learner profile should be the teacher profile. The teachers expressed the idea that they are role models for the students and if they desire an outcome in the student they must embody it themselves.

Research Question 3: A*ttributes, perspectives, and beliefs* defined by IB documentation

Content analysis of IB documentation was used to identify attributes, perspectives, and beliefs contained in IB documentation**.** The materials used in this content analysis implicitly implied and explicitly stated essential and/or important *pedagogical attributes, perspectives and beliefs* of an IB teacher professional. The overall themes identified in this coding process provide a picture of what the IB documentation implies about being an effective IB teacher. The themes identified in this analysis include 'Approaches to Teaching', 'Beliefs about Teaching', and 'Tools to Facilitate Effective Teaching'. In addition to examining the ideas represented in the materials it is also important to consider the language and tone in the documents.

Approaches to Teaching. The theme 'Approaches to Teaching' includes the particular strategies IB teachers incorporate as they plan instructional activities. 'Approaches to Teaching' includes the specific methods that comprise IB teacher practice. In general, the IB documents promote inquiry-based

teaching focused on developing student understanding. The strategies described in the IB documentation that contribute to IB approaches to teaching include: inquiry, connections between the content and the real world, connections between and across content and topics, focus on student thinking, student centered learning, addressing the needs of unique learners, and the role of the teacher as a guide. The IB teacher approaches teaching prepared to address unique learner needs, while also enabling students to develop their thinking and understanding of the content. Inquiry-based instruction is at the core of the IB approach to teaching and encompasses all the terms coded in the theme of approaches to teaching. Each of the IB programmes address inquiry in the documentation. The PYP curriculum "should emphasize the active construction of meaning so that students' learning will be purposeful" (Making the PYP happen: A curriculum framework for international primary education, 2009). In the MYP "the teacher facilitates student learning by creating opportunities for and supporting student inquiries; by asking carefully thought-out, open-ended questions; and by encouraging students to ask questions of each other as well as of the teacher" (MYP From Principles into Practice, 2008). In the DP programme documentation "a culture of curiosity at the school" and the importance of students developing "their natural curiosity" are emphasized and it is also stated "the aims and objectives of each course emphasize the importance of students investigating answers for themselves" (Diploma Programme: From Principles into Practice, 2009).

The underlying principle of inquiry-based education is that students have a natural curiosity towards the world and if that is used to enable them to learn about academic topics they will not only be motivated to develop their understanding, but also by exploring the topic they will have a deeper understanding of the material (Bruner, 1966). The concept of inquiry-based instruction is not new or unique to the IB; it has roots in the work of Dewey (See *The Child and the Curriculum* (1902) in which Dewey expresses his belief that children must connect to the content), Vygotsky (see *Mind in Society: Development of Higher Psychological Processes* which discusses scaffolding and early constructivist thought), and Piaget (see *The Origins of Intelligence in Children* (1952) which also outlines a constructivist approach). The IB documentation often uses the term 'constructivist learning' when describing student inquiry, "the desired personal characteristics of students . . . fit very well with a constructivist theory of student learning, in which students actively engage in the learning process, take responsibility for their own learning, and enlarge their knowledge, understanding and skills through inquiry" (Diploma Programme: From Principles into Practice, 2009). The term "inquiry-based instruction" can be traced back to Jerome Bruner in the 1960s and is informed by constructivist thought. Inquiry-based instruction enables and depends on student centered classrooms and an emphasis on thinking rather than retaining information

(Bruner, 1966; Wiggins and McTighe, 1998; Marzano, Pickering, and Pollock, 2001). Inquiry-based instruction can be implemented in all disciplines and enables the teacher to be the guide, or facilitator of learning experiences, while also enabling teachers to differentiate instruction based on each student's learning trajectory and needs (Bruner, 1985; Tomlinson, 2001). The IB emphasizes inquiry-based instruction throughout the documents with 1) specific references made to an inquiry approach and 2) indirect references made to inquiry through descriptions of the elements of inquiry based education (connections to the world, student centered, teacher as a guide, etc).

Beliefs about Teaching. The theme 'Beliefs about Teaching' addresses the guiding philosophy and theoretical underpinnings that inform the instructional practice. Often beliefs about teaching are overarching ideas educators have about the purpose of education or the purpose of schooling. The common beliefs about teaching mentioned in the IB documentation include: global or international perspective, sense of social responsibility, and holistic education. The mission of the IB provides insight into the beliefs that guide the IB:

> The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.
>
> To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment. These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right (IBO Website, 2012).

The mission statement addresses all three major codes in the 'Beliefs about Teaching' theme. The IB documentation explicitly addresses international perspective, social responsibility, and holistic education.

The document analysis revealed many descriptions of an approach to teaching and learning that is grounded in an understanding of international mindedness. One of the stated aims of all IB programmes is to "develop internationally minded people . . ." (Learner Profile, 2012) and therefore the expectation is that IB teachers believe that one outcome of an IB education is being internationally minded. There is an "obligation to explore the meaning of internationalism and to give our teachers and school communities powerful reasons to embrace it in their teaching and planning" (Promoting

International Mindedness in Our Schools, 2005). IB teachers are tasked with "promoting a class and school environment that welcomes and embraces the diversity of languages, cultures and perspectives" (Language and learning in IB programmes, 2011). With this outcome in mind, IB teachers are to make instructional decisions based on the idea that students should develop as internationally minded individuals.

Another core belief, as expressed in the mission statement and IB documentation, is that of social responsibility. The IB articulates this in many documents, including From Diploma Programme Principles into Practice (2009), "While helping students acquire international perspectives and understanding is essential, it is not sufficient. Students also need to develop the "will to act" and the skills and values necessary to make a positive contribution to society. Responsible citizenship is based upon compassionate and well-informed citizens who become proactively involved in their communities."

Finally, the belief that a whole child approach to education, or holistic education, is the foundation for encouraging "students across the world to become active, compassionate and lifelong learners" is explicitly stated throughout the IB documentation. For example, one of the fundamental concepts underpinning the MYP is holistic learning, which represents: "the notion that all knowledge is interrelated and that the curriculum should cater to the development of the whole person, the attributes of which are described by the IB learner profile" (Concurrency of learning in the IB Diploma Programme and Middle Years Programme, 2010). Further, "each programme promotes the education of the whole person, emphasizing intellectual, personal, emotional, and social growth, through all domains of knowledge, involving the major traditions of learning in languages, humanities, sciences, mathematics, and the arts" (Towards a Continuum of International Education, 2008). Holistic education is commonly understood to be concerned with the development of all the aspects that make us human: intellectual, emotional, social, physical, artistic, creative and spiritual. Key tenets of holistic education include a balanced relationship between each aspect of the person and the whole person (Miller, 2007).

The beliefs about teaching as described in the IB documentation mirror the mission of the IB and it is expected that IB teachers will believe in the mission of the IB and use this to guide their teaching. The interaction or relationships among each of these core beliefs is just as important as the individual belief. Developing students who have a sense of social responsibility is a desired outcome of holistic education and being internationally minded isn't complete without a sense of common humanity. All three beliefs taken together form the basis for the IB teacher's philosophy of education. As stated in Towards a Continuum of International Education (2008),

> The IBO is unapologetically idealistic in believing that education can foster understanding among young people around the world, enabling future generations to live more peacefully and productively than before. By emphasizing the dynamic combination of knowledge, skills, independent critical thought and international awareness or intercultural understanding, the IBO espouses the principles of educating the whole person for a life of active, responsible citizenship.

Tools to Facilitate Effective Teaching. Beliefs lay the foundation for approaches to teaching. The set of enablers that allow the chosen approaches to be implemented are considered the tools that facilitate effective teaching. Resources to facilitate teaching can include actual practical classroom tools such as instructional technology, but can also include tools in the more abstract or active sense, such as collaboration. The tools that were coded in the IB documentation include teacher collaboration, assessment, teacher reflection, and teacher adaptations of instruction because when the properties of each of these codes were examined it appeared they all helped teachers do their jobs. The term 'Tools' is a succinct way of describing these teaching devices. Each of these tools is designed to enable teachers to efficiently and effectively plan instructional activities that align with their beliefs and incorporate the approaches they have selected (Marzano, Pickering, & Pollock, 2001; Popham, 2003). For example, collaboration enables teachers to design instructional approaches together, drawing on a variety of skills and experiences, while also ensuring a consistent education for students in different classrooms. For a teacher to work in isolation designing units of inquiry or designing instruction addressing the social and emotional aspects of the learner would not only be time consuming, but also would result in an activity limited to only one perspective. Additionally, to teach with an approach that emphasizes connections to the real world and connections among content areas and topics requires teachers to understand the students' total experience at school, "hence the insistence on collaborative planning across subjects and through the unifying contexts of the areas of interaction. Students should understand that knowledge is interrelated and that real-world issues require insights across disciplines" (Concurrency of learning in the IB Diploma Programme and Middle Years Programme, 2010). In this example collaboration enables teachers to utilize an approach that embraces connections (one of the codes in the 'Approaches to Teaching' theme).

The tool of assessment enables teachers to better understand student progress towards a goal and the teacher can then modify instruction so that the unique needs of the learner can be met (as identified by the assessment) (Marzano, 2007; Popham, 2003). As stated in Towards a Continuum of International

Education (2008), "in all cases, assessment structures support identifiably sound classroom practice by giving feedback to learning." Teachers use this feedback to ensure they are designing instructional activities with the desired results (whole child, internationally minded, academic rigor, social responsibility, etc).

Teacher reflection is a very powerful tool for teachers and is often considered a foundation for effective teaching (Bauer, 1991; Pratt, Collins & Sellinger, 2001; Larrivee, 2000; Marzano, Boogren, Heflebower, Kanold-McIntyre, Pickering, 2012; Osterman & Kottkamp, 2004). Teacher reflection enables teachers to recognize how well they are meeting the needs of all students, enables teachers as decision makers, and also models self-awareness and self-reflection for students (Larrivee, 2000). Teacher reflection is often referred to as 'teacher reflective practice' or 'reflective practitioners' or 'reflective practice.' Donald Schön (see *The Reflective Practitioner*, 1983) and John Dewey (see *How we think* (1910) and *Democracy and education: An introduction to the philosophy of education* (1916)) have both contributed significantly to the field of reflective practice and many current ideas of teacher reflection are derived from their work. Teacher reflection as a tool for IB teachers enables a holistic approach to education because holistic education requires growth by both student and teachers through the critical examination of existing values and beliefs (Hare, 2006).

The ability to adapt lessons and modify activities is very closely tied to collaboration, assessment, and reflective practice (DuFour, 2004; Marzano, 2007). Teachers reflect on practices that were effective with their students and share strategies with colleagues so all teachers can make changes that will lead to effective instruction for all students. Teachers use assessment data to inform instructional decisions and in turn change or adapt teaching to address the needs of the students. Adapting instruction is a critical component of the teacher reflective cycle (Bauer, 1991). The tool 'teacher adaption of instruction' is more an outcome of all the other tools mentioned in the IB documentation than a tool of its own. Adapting and modifying instruction is an important aspect of many teaching approaches, but is it especially important for IB teachers because the philosophy of education and approaches to teaching require "an awareness of the different social, cultural, economic and political contexts . . .[and] it is essential to appreciate that curriculum is never static nor immutable but is a process of constant evolution in response to an ever-changing world" (Curriculum alignment, articulation and the formative development of the learner, ND). Each of the tools coded under the theme of 'Tools to Facilitate Effective Teaching' is an enabler for effective IB teachers—teachers who believe in an international

perspective, social responsibility, and a holistic education experience delivered in an inquiry based approach.

In most of the documents the language chosen by the author clearly indicates that students are the focus and education revolves around their needs and knowledge. Frequently, the language used discusses what students will be able to do and then the reader can deduce what the teacher will do to enable the student outcome. For example, stated in the *Diploma Programme from Principles into Practice*, "Students are also expected to think for themselves so that they can approach complex problems and apply their knowledge and skills critically and creatively to arrive at reasoned conclusions or answers." This does not explicitly state the ideal teaching approach, but it is understood that to enable students to think for themselves instruction must focus on developing student understanding as opposed to focusing on the teacher as the deliverer of knowledge.

Consistent Message. The Changing Face of International Education: Challenges for the IB (Walker, 2011) includes direct references to the required pedagogy for successful international education. The IB Chief Academic Officer, Judith Fabien, authors Chapter 2 (Principled Teaching and Learning). Fabien explicitly outlines the IB's intended pedagogy (Walker, 2011, pg 24):

> The model required for international education in the 21st century, is that of the teacher as the "intellectual leader" but also the guide to and facilitator of learning, enabling students to construct meaning for themselves. In 1916 John Dewey advocated that classrooms be seen as laboratories for democracy, and this concept continues to resonate strongly with many educators worldwide today.

Fabien's statement addresses three core ideas of effective pedagogy in the IB: the teacher as a learner, empowering students as learners, and democratizing the classroom. Fabien credits these three ideas with creating classrooms that challenge the historical models of instruction and enable teachers to "teach in the most purposeful, creative, effective and rewarding ways (pg 24)." Fabien builds on these core ideas with the seven principles of pedagogy: valuing the knowledge and experiences of students, teaching through concepts, putting learning into context, differentiating the learning experiences for the range of learning abilities and styles, structuring teaching around inquiry and critical thinking, developing students to become independent, lifelong learners, and creating a stimulating learning environment and a community of learners. While it is acknowledged that these principles are not all

encompassing or fixed, Fabien does explicitly state that these ideas are critical to developing the IB learner profile.

Both the implicit and explicit descriptions of teaching in the materials analyzed align with the ideas outlined by Judith Fabien in The Changing Face of International Education. The themes that emerged from the content analysis suggest that excellent IB teachers:

- design inquiry-based student centered lessons
- focus on developing student thinking
- plan for each learner's unique needs
- enable connections not only between and across subject areas, but also to the real world
- are guided by a sense of global awareness and social responsibility
- believe in a holistic approach to education
- reflect on their practice using assessment data and collaborative teams, and continued professional development
- create and adapt lessons and materials as they reflect on teaching and gather new information about their students

The seven principles of pedagogy described in The Changing Face of International Education (Walker, 2011) and Towards a continuum of international education (IBO, 2008) are mapped to the themes and codes that emerged from the larger analysis.

Table 13
Themes from the analysis and the seven principles of pedagogy

Theme from the analysis	The seven principles outlined by Judith Fabien
Approaches to Teaching	
design inquiry-based student centered lessons	valuing the knowledge and experiences of students
focus on developing student thinking	structuring teaching around inquiry and critical thinking
plan for each learner's unique needs	differentiating the learning experiences for the range of learning abilities and styles
Beliefs about teaching	
enable connections not only between and across subject areas, but also to the real world	teaching through concepts putting learning into context a community of learners
are guided by a sense of global awareness and social responsibility	

believe in a holistic approach to education	developing students to become independent, lifelong learners
Tools to Facilitate Effective Teaching	
reflect on their practice using assessment data and collaborative teams, and continued professional development	
create and adapt lessons and materials as they reflect on teaching and gather new information about their students	creating a stimulating learning environment

Several codes from the analysis do not perfectly map to the seven principles of pedagogy. The codes represent a method for accomplishing the other principles (reflect on practice, use assessment data, collaborative teams, and professional development). The ideas of social responsibility and global mindedness extend beyond principles of pedagogy and are core tenets of the IB mission.

Discussion

The findings from this research aim to offer insights into the IB teacher professional that could not only assist IB internally, but also contribute to the research on excellent teaching in the larger educational community. The evidence from the focus groups, open ended survey items, TPI, and content analysis provide a picture of what constitutes the IB teacher professional in terms of attributes, perspectives, and beliefs. The research referenced in the literature review provides a description of excellent teaching beyond the IB. To fully understand the impact of this research the findings were compared to the existing literature in an effort to understand how IB fits into the bigger picture.

The essential *pedagogical attributes, perspectives, and beliefs* of an IB teacher professional defined by IB educators and IB documentation

Attributes. Overwhelmingly, the IB teachers expressed that if they were to describe themselves they would use the IB learner profile. Specifically, the IB teachers believed being an IB teacher meant 1) being a learner themselves; 2) knowledgeable about teaching, their content area, and the world; 3) being open-minded and growing from learning from others; 4) being a thinker and problem solver, knowing that one size does not fit all; 5) being caring and understanding; 6) being creative in teaching and learning; 7) being reflective in their teaching; and 8) being worldly and aware of different cultures and global issues. The content analysis reinforces these IB teacher characteristics. IB documentation frequently referenced IB teachers as models of the learner profile and also explicitly stated the

importance of creativity in teaching. Creative teachers are needed so that instruction can be differentiated, real-world based, rooted in inquiry, and unique to the context of learning.

Perspectives. IB teachers seem to be motivated to educate the whole student, with an emphasis on enabling education to be a vehicle for making a better world. The quantitative results suggest that IB teachers have the highest total score for Nurturing, Apprenticeship, and Developmental perspectives. While not one of the highest perspectives for IB teachers, when compared to the larger TPI preK-12 sample the Social Reform average for IB teachers was at the 60th percentile, indicating that it is higher than 60 percent of all teachers completing the scale. While many IB teachers do not have a dominant perspective in Social Reform, the scores for Social Reform are relatively high, indicating it is a perspective they value. Those teachers with high Social Reform scores intend to change the world one student at a time. When compared to the TPI preK-12 sample the IB appears to be strong in Social Reform. Research on the larger TPI preK-12 sample suggests that respondents whose first language was other than English had slightly higher Social Reform totals (Collins & Pratt, 2010) suggesting that perhaps the international dimension has an impact on this perspective. Across PYP, MYP, and DP Social Reform totals are similar (32.46 (n=901, SD=4.72), 32.02 (n=675, SD=5.09), 32.05(n=1560, SD=5.53)), suggesting this perspective is consistent across all programmes for IB teachers.

The qualitative analysis revealed that IB teachers valued teaching with an internationally minded approach and embodying and instilling open-mindedness. The words used to describe open-mindedness and internationally minded go beyond just teaching methods. The ideas include tolerance, assistance and understanding of others. These ideas are essential to the descriptions IB teachers provided and align with descriptions in the IB teacher documentation.

The content analysis predictably provided the most explicit description of the IB teaching perspective. The content analysis suggests that a sense of social responsibility guides the IB teacher. The IB aims to create caring young people that will make a positive impact on the world. The IB literature describes this in the internationally minded approach and whole child educational approach.

Beliefs. The views on beliefs about practice gleaned from the IB teachers and documents suggest that IB teachers value using inquiry-based instruction and the flexibility to use their professional judgment. IB teachers expressed the importance of inquiry-based instruction consistently. The IB documentation also explicitly states the benefits of an inquiry-based approach. Additionally, IB teachers articulated the importance of flexibility to design effective instructional activities based on the needs of

their students and the context of their school and as a group tends to draw from research based best practices. This flexibility enables teachers to use their professional judgment to form their teaching practice. Based on the focus group data and content analysis this practice incorporates an inquiry-based instructional approach that connects to the world and across disciplines.

If the attributes, perspectives, and practices of IB teachers were to be described succinctly the description would include inquiry, global, whole student, connections, social responsibility, creative, and flexible. The data sources support the notion that IB teachers are advocates of whole student inquiry-based instruction with the purpose of creating global citizens who have a sense of social responsibility. The teachers are models of the learner profile, with an emphasis on 'open-minded', who are also creative and able to adapt learning to meet the needs of the students. The importance of connections between and across the content and to the real world was present in all the data sources. The IB teachers were fairly consistent in their responses on the TPI, focus groups, and open-ended survey items, suggesting IB teachers are similar.

An excellent teacher as defined and described in extant literature

The extant literature on excellent teaching is a dense collection of studies informed by numerous researchers across the world. It is nearly impossible to account for all of, or even a majority of, the research on excellent teaching. The literature review produced for this study focused on what practitioners refer to as "highly effective," "high-valued," or "excellent teachers" and looks beyond general teaching qualifications. The evidence from the review was organized to address the elements described in the research questions, 'the important pedagogical attributes, perspectives, and beliefs of an excellent teacher described in extant literature.'

The references in the extant literature to excellent teaching are numerous; therefore the conclusions drawn from the literature are broad. The extant literature does not provide a concise description of an excellent teacher. Instead, a variety of attributes, perspectives, and beliefs are described that all can contribute to excellent teaching.

Attributes. The literature suggests that critical attributes of excellent teachers include both pedagogical attributes and personal attributes. Pedagogical attributes such as content knowledge, pedagogical content knowledge, and classroom management were dominant ideas (Nieto, 2003). Personal attributes such as caring (Adams & Singh, 1998; Collinson, Killeavy & Stephenson, 1999;

National Association of Secondary School Principals, 1997), creative (Riley, 2003), and flexible (Riley, 2003) were equally as important.

Perspectives. The literature suggests that a variety of perspectives guide excellent teachers including holistic, moral, student-centered, emotional development, etc. The consensus is that it is not the specific perspective that enables a teacher to be excellent, but the presence of any research supported perspective—something that serves as an underlying guiding philosophy (Nieto, 2003; Riley, 2003) that motivates and excites teachers. Teachers with a specific perspective, regardless of the perspective, are working towards something bigger and are driven by their belief about the role/purpose of education. IB teachers embrace international mindedness and this drives them. Other excellent teachers could embrace similar perspectives or different perspectives and be equally as effective.

Practices. The evidence from the literature describes many different practices included in excellent teachers' arsenals. Professional practices and classroom practices both during instructional hours and outside instructional hours are described. The importance of classroom practices such as monitoring student progress (Goe, 2010; Stronge, 2007) and providing feedback (Black et al., 2004; Chappuis & Stiggins, 2002; Hattie& Timperley, 2007; Matsumura et al., 2002) are well documented in the literature. Professional practices such as self-development (Loretto, 2012; Weimer, 2011; Ogienko & Rolyak, 2009; Pantic & Wubbels , 2009), professional collaboration (Goe, 2010; WPDC, 2009; Calabria, 1960), and purposeful planning (McBer, 2000; Stronge, 2007; Pardoe, 2009; Cogill, 2008) dominate the literature. A focus on monitoring both student and teacher development is essential to being an excellent teacher.

The extant literature reviewed describes excellent teachers in a similar, but broader manner than the IB documentation. The literature suggests excellent teachers are guided by a variety of perspectives and approach teaching in numerous ways. As opposed to the IB, that champions holistic and inquiry-based approaches grounded in a belief that IB students strive to create a better more peaceful world. These differences aside, the idea of an effective teacher is very similar. The IB could be viewed as one specific subset of excellent teaching; IB teachers are not the only excellent teachers, but they are one group who collectively adopt one of the many approaches that research suggests is effective. Excellent teachers, both IB and non-IB, are caring, flexible, and creative professionals who adopt instructional approaches to meet the needs of their students.

Commonalities and points of departure among existing IB teacher community, IB documentation, and extant literature

The fourth research question in this study aimed at uncovering any commonalties and points of departure among the data corpuses. The TPI survey and the literature review provided opportunities for certain kinds of comparisons between IB teachers and the non-IB teaching population. The IB teachers appear to be aligned with the TPI and extant literature findings with a few prominent exceptions.

Teaching Perspectives Inventory. The teaching profile for the average IB teachers was found to be similar to the profile of the average teacher in the TPI database with some exceptions. Both groups have the same dominant and 'back up' teaching perspectives. Averages for both groups of teachers were dominant in Nurturing, with 'back-up' perspectives of Apprenticeship and Development perspectives. Further, Transmission totals are highest for secondary teachers and DP teachers. Nurturing totals are highest for elementary teachers and PYP teachers. This suggests that both as a group and broken down by individual programme level, IB teachers mirror their colleagues in TPI results.

However, despite having the same teaching profile (meaning the same perspective received the highest score for both groups); the actual scores for the two groups are different. Even though the IB teachers scored highest in Nurturing, the scores for Social Reform, Developmental, Apprenticeship, and Transmission are high when compared to how other teachers generally score on these perspectives. Instead of having one or two very high scores on perspectives the IB teachers' scores on all the perspectives are relatively close. This leads to an unusually low score on the highest perspective (Nurturing) and unusually high scores on the lower scoring perspectives (Social Reform, Developmental, Apprenticeship, and Transmission). This suggests that IB teachers identify strongly with Social Reform, Developmental, Apprenticeship, and Transmission even though they did not present in the profile as dominant.

The extant literature. There are a myriad of effective teachers and innumerable descriptions for excellent teachers; therefore it is natural to have many commonalities between the attributes, perspectives, and beliefs of IB teachers and the literature on excellent teaching. The literature findings are broad enough that many of the identified attributes, perspectives, and beliefs of IB teachers are included as examples of one type of effective teaching. The IB attributes, perspectives, and beliefs identified are not the only examples of excellent teaching in the extant literature, but many are

frequently referenced. Additionally, there are several aspects of IB teaching that appear to be a critical aspects of the IB's unique identity.

Commonalities. The identified attributes, perspectives, and beliefs of IB teachers identified in this study are well documented in the IB literature and clearly expressed by the IB teachers. As shown in the literature review, many of these very same elements are used to describe excellent teachers. The language used in the literature review is slightly different than the language used in the IB report. For example, the terms 'disposition' and 'attributes' are used separately in the literature review, but the IB report combines these ideas into 'attributes'. The table below shows the alignment among identified attributes, perspectives, and beliefs in the literature review and elements of IB teaching identified in the content analysis, focus groups, and open-ended survey responses (Table 14).

Table 14
Alignment among attributes, perspectives, and beliefs

Extant literature	IB sources	Description
1. Dispositions/Attributes		These are the personal dispositions or qualities of excellent teachers. Either developed though experience (Carroll, 2012) or inherent (OED, 2010).
• *creativity* (Walker, 2008; Riley, 2003; Thomson et al., 2004; Ogienko & Rolyak, 2009; Calabria, 1960)	• being creative in teaching and learning;	Creative
• *fairness* (Walker, 2008; Kelly, 2001; Thomson et al., 2004)	• being understanding; • Learner Profile (aspects not mentioned individually, but included in the Learner Profile that align with extant literature): principled	Fair
• *flexibility* (Kelly, 2001, Riley, 2003) • *providing opportunities for learning in different ways and for different groups of students* (Goe, 2010; Stronge, 2007; Pardoe, 2009)	• being a thinker and problem solver, not one way • being reflective in their teaching	Ability to adapt based on student needs

• *resilience* (Riley, 2003)	• being open-minded and growing from learning from others	Determined and open
• *showing compassion* (Walker, 2008; Thomson et al., 2004) • *displaying personal touch and affective attributes (*Walker, 2008; Thomson et al., 2004; Hattie, 2003)	• being caring	Affective attributes
• *Subject knowledge* (Ogienko & Rolyak, 2009; SBL, 2004; European Commission [EC], 2004; WPDC, 2009; Witcher et al., 2001; Pantic & Wubbels, 2009; Hattie, 2003; Calabria, 1960) • *Methods of teaching the subject* (SBL, 2004; WPDC, 2009; Pantic & Wubbels , 2009) • *Knowledge of the curriculum* (Turner-Bisset, 1999; Pantic & Wubbels , 2009) •	• Knowledgeable	Knowledgeable
2. Perspectives		
• *Enthusiasm, dynamism* (Weimer, 2011; Hildebrand, 1971) • *Excitement for teaching* (Riley, 2003; Witcher et al., 2001) • *Enthusiasm in the field* (Loretto, 2012) • *Motivation, dedication* (Calabria, 1960) • *Holistic education* (Harwell & Daniel, 2012; Murthy & Murthy, 2011)	Whole student	Excellent teachers are excited to teach and derive motivation from a perspective that matters to them. It seems IB teachers embrace holistic education and this could serve as the source of motivation for them.
3. Practice		
• *methods and strategies* (OFSTED; Calabria, 1960) • *Prepared* (Walker, 2008; Thomson et al., 2004; Cogill, 2008) • *Lesson planning* (McBer, 2000;	Inquiry-based learning	Excellent teachers have a specific method they use, such as inquiry-based learning.

Stronge, 2007; Pardoe, 2009;
Cogill, 2008; OFSTED)

- *Inquiry-based learning*

The literature is rich with descriptions of attributes, perspectives, and practices of excellent teaching. It is not expected that excellent teachers embody all of the identified attributes, perspectives, and practices. These are simply a collection of research-based findings that the literature suggests improves teaching and therefore improves student learning. Excellent teachers, IB or otherwise, are a combination of creative, fair, flexible, open, caring and knowledgeable. Excellent teachers have an underlying belief about teaching that motivates them and they choose among many evidence based best practices.

Departures. International mindedness as a teaching perspective is not well documented in the literature outside of the IB. It seems to be an essential aspect of the unique identity of IB teaching. This is not to suggest that other teachers don't embrace this belief. The literature at this time simply does not indicate there are many other groups of teachers who collectively embrace this belief. Further, by combining international mindedness with inquiry-based teaching and social responsibility the IB has created a unique identity simply by the combination selected.

As evidenced by the TPI results, the document analysis, and focus groups, the IB teacher community tended to embrace the ideas of social responsibility and international mindedness more than the non-IB community, but this is not to suggest that a disconnect exists or there is disagreement in the education community. The extant literature on excellent teaching incorporates these ideas; they just aren't the ideas repeatedly presented in the literature. Teaching is complex and describing excellent teachers is not a simple task. The intention of the description in this report is to provide one documented accounted of an effective combination of skills, perspectives, and practices. It is important to note that not all IB teachers are represented by the profile outlined in this report; and IB teachers certainly champion additional perspectives and adopt practices not discussed in this report.

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Appendix A

IB Learner Profile (IBO, 2008)

The aim of all IB programmes is to develop internationally minded people who, recognizing their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.
IB learners strive to be:

- **inquirers—**their natural curiosity has been nurtured and they actively enjoy learning
- **thinkers**—they exercise initiative in applying thinking skills critically and creatively to solving complex problems
- **communicators**—they receive and express ideas and information confidently in more than one language
- **risk-takers—**they approach unfamiliar situations without anxiety and have the confidence to explore new ideas
- **knowledgeable**—they have explored themes that have global significance and have acquired a critical mass of knowledge
- **principled**—they have a sound grasp of the principles of moral reasoning and have acquired integrity, honesty and a sense of justice
- **caring**—they show sensitivity towards the needs and feelings of others, and have a sense of personal commitment to helping others
- **open-minded**—they respect the values of other individuals and cultures and seek to consider a range of points of view
- **well-balanced**—they understand the importance of physical and mental balance and personal well-being
- **reflective**—they give thoughtful consideration to their own learning by constructively analysing their personal strengths and weaknesses.

Appendix B

IB Professional Development Requirements

Each programme has different requirements that are evaluated at the time of authorization and during their evaluation cycle:

1) PYP requires all heads of school (or designees) and teachers hired during the period under review to participate in IB category 1 or category 2 workshops, as applicable. Prior to authorization, the pedagogical leadership and all faculty who work with PYP students must all be trained in IB category 1 workshops.

2) MYP requires the head of school (or designee) to participate in an appropriate IB workshop. At least one teacher per revised subject group (since authorization or previous evaluation) must participate in an IB workshop designed for that purpose. At all times, at least one teacher per subject group must have been trained in an IB category 1 or 2 workshop. It is recommended that teachers and pedagogical leaders who have been hired during the period under review should participate in appropriate IB workshops. Additionally, prior to authorization, at least one teacher per subject group and the MYP coordinator must attend IB category 1 workshops related to their subject areas/responsibilities. And, an on-site general MYP workshop aimed at all MYP teachers must be organized through the relevant IB office.

3) The DP requires the Head of school (or designee) to participate in an appropriate IB workshop. Diploma Programme teachers, theory of knowledge (TOK) teachers, creativity, action, service (CAS) coordinator and Diploma Programme coordinator must participate in an IB category 1 or 2 workshop related to their subject or role. At least one Diploma Programme subject teacher per subject/TOK/CAS coordinator must participate in a relevant IB workshop if the subject or course has been reviewed during the period under review and a new guide has been published. Additionally, the IB expects the school to provide further opportunities for staff to attend IB-recognized professional development activities as evidence of its ongoing commitment to professional development and in support of the continuing implementation of the programme.

Appendix C

Teachers who succeed in achieving the US NBPTS demonstrate the following:

Proposition: Teachers		a*	b	c	d	e
1	**Committed to Students and Their Learning**	are dedicated to making knowledge accessible to all students and believe all students can learn.	treat students equitably. They recognize the individual differences that distinguish their students from one another and they take account for these differences in their practice.	understand how students develop and learn	respect the cultural and family differences students bring to their classroom.	are concerned with their students' self-concept, their motivation and the effects of learning on peer relationships and are also concerned with the development of character and civic responsibility.
2	**Know the Subjects They Teach and How to Teach Those Subjects to Students.**	have mastery over the subject(s) they teach. They have a deep understanding of the history, structure and real-world application	have skill and experience in teaching it, and they are very familiar with the skills gaps and preconceptions students may bring to the subject	are able to use diverse instructional strategies to teach for understanding.		

		s of the subject.				
3	**Responsible for Managing and Monitoring Student Learning**	deliver excellent instruction. They move fluently through a range of instructional techniques, keeping students motivated, engaged and focused.	know how to engage students to ensure a disciplined learning environment, and how to organize instruction to meet instructional goals.	know how to assess the progress of individual students as well as the class as a whole.	use multiple methods for measuring student growth and understanding, and they can clearly explain student performance to parents	
4	**Think Systematically about Their Practice and Learn from Experience.**	model what it means to be an educated person – they read, they question, they create and they are willing to try new things.	are familiar with learning theories and instructional strategies and stay abreast of current issues in American education	critically examine their practice on a regular basis to deepen knowledge, expand their repertoire of skills, and incorporate new findings into their practice.		
5	**Members of Learning Communities.**	collaborate with others to improve student learning. They	are leaders and actively know how to seek and build partnerships	can evaluate school progress and the allocation of resources in order to	know how to work collaboratively with parents to engage them	

			with community groups and businesses.	meet state and local education objectives	productively in the work of the school	

Adapted by the author, Glynn Kirkham, from The Five Core Propositions ©1987 National Board for Professional Teaching Standards. All rights reserved. (NB * for cross-reference purposes only.)

Appendix D

Characteristics of excellent teachers

Classification title	**a**	**b**	**c**	**d**	**e**	**f**
Organization and Clarity	explains clearly	is well prepared	makes difficult topics easy to understa nd	uses examples, details, analogies, metaphors, and variety in modes of explanation to make material not only understanda ble but memorable	makes the objective s of the course and each class clear	establis/h es a context for material
Analytic/Synthe tic Approach	has a thorough comman d of the field	contrasts the implication s of various theories	gives the student a sense of the field, its past, present, and future directions , the origins of ideas and concepts	presents facts and concepts from related fields	discusses viewpoin ts other than his/her own	
Dynamism and Enthusiasm	is an energetic , dynamic person	seems to enjoy teaching	conveys a love of the field	has an aura of self-confidence		
Instructor-Group Interaction	can stimulate , direct,	encourages independen t thought	uses wit and humo(u)r	is a good public speaker	knows whether or not	is concerned about the

	and pace interaction with the class	and accepts criticism	effectively		the class is following the material and is sensitive to students' motivation	quality of his/her teaching
Instructor-Individual Student Interaction	is perceived as fair, especially in his/her methods of evaluation	is seen by students as approachable and a valuable source of advice even on matters not directly related to the course				

Table designed by Glynn Kirkham from Stanford University Faculty of Education using Hildebrand's 1971 classification.

Appendix E

Response rates and bias

The overall response rate to the TPI was 26.6% and is in keeping with average response rates for online surveys, if not slightly below average. Average response rates tend to be reported in the 25% to 35% range. An important aspect of survey response is the representativeness of the sample to the population (those sent the survey). In this case the survey was sent to 14,407 teachers who had attended an IB workshop in the previous year (2010). We know several important attributes of these teachers and can check for representativeness in the sample of respondents to better inform our interpretations of the results.

One key attribute is the programme in which the teacher is currently (at the time of survey administration) teaching. We use as a proxy for this, the programme of the professional development attended. The table below provides the applicable information.

Programme	Surveys sent	%	Survey responses	%
PYP	4865	33.92	865	27.58
MYP	3360	23.43	504	16.07
Diploma	6117	42.65	1767	56.35

Using the chi-squared goodness of fit test with 2 degrees of freedom, $\chi^2 = 246.7$ with $p < .05$. This indicates that there is a significant difference in responses by programmes. The results should be interpreted knowing that they are biased by over representation of Diploma programme teachers.

Another known attribute is the region in which the teachers attended a workshop. This is a reasonable proxy for region for current working location. The IB is divided into three regions: Americas (IBA), Africa, Europe, and Middle East (IBAEM), and Asia Pacific (IBAP). The table below provides the applicable information.

Region	Surveys sent	%	Survey responses	%
IBA	7791	54.1	1529	48.04
IBAEM	2734	19.0	689	21.65
IBAP	3882	26.9	963	30.25

Using the chi-squared goodness of fit test with 2 degrees of freedom, $\chi^2 = 46.7$ with $p < .05$. This indicates that there is a significant difference in responses by regions. The results should be interpreted knowing that they are biased by under representation of the Americas (IBA) region.

The third attribute we can investigate is that of gender. The table below provides the applicable information.

Gender	Surveys sent	%	Survey responses	%
Female	10068	70.5	2243	70.5
Male	4213	29.5	940	29.5

Using the chi-squared goodness of fit test with 1 degree of freedom (equal to a test of proportion in this case), $\chi^2 = .002$ with $p > .05$. This indicates that there is not a significant difference in responses by gender.

Appendix F

Survey Respondent Demographics

	Frequency	Percent
Gender		
Female	2251	70.5
Male	942	29.5
Highest Degree		
HS Diploma	27	.8
Assoc Deg	18	.6
Bachelor	990	31
Prof Certification	377	11.8
Other Post Grad	132	4.1
Masters	1516	47.5
Doctorate	110	3.4
Post Doc	23	.7
Years of IB Teaching Experience		
0	144	4.5
1	426	13.3
2	567	17.8
3	453	14.2
4	333	10.4
5	305	9.5
6	215	6.7
7	141	4.4
8	122	3.8
9	71	2.2
10	109	3.4
11-15	196	6.1
16-20	72	2.3
21-25	17	.5
26 or more years	18	.5
Years of Teaching Experience		

0	8	.3
1	29	.9
2	69	2.2
3	117	3.7
4	106	3.3
5	158	4.9
6	164	5.1
7	140	4.4
8	149	4.7
9	123	3.9
10	240	7.5
11-15	657	20.6
16-20	524	16.4
21-25	325	10.2
26 or more years	384	12.1
Believe Difference Exists Between IB Teachers and Non-IB Teachers		
No	593	18.6
Yes	2027	63.5
No answer	574	18
Role or Function		
Teacher	2918	91.4
Coordinator	127	4
CAS coordinator	13	.4
Head of School\Principal	20	.6
Counselor	7	.2
Librarian	6	.2
Other	102	3.2
Programme/Level of Instruction		
PYP	906	28.4
MYP	677	21.2
DP	1563	48.9

No answer	48	1.5

Appendix G

Document	Programme
Making the PYP happen: A curriculum framework for international primary education	PYP
Making the PYP happen: Pedagogical leadership in a PYP school	PYP
Arts scope and sequence	PYP
Coordinator's handbook 2011 - 2012	PYP
Developing a transdisciplinary programme of inquiry	PYP
Exhibition guidelines	PYP
Programme standards and practices	PYP
Language scope and sequence	PYP
Math scope and sequence	PYP
Science scope and sequence	PYP
The Primary Years Programme: A basis for practice	PYP
The Primary Years Programme as a model of transdisciplinary learning	PYP
Arts guide	MYP
Coordinator's handbook 2011-2012	MYP
Coordinator's notes, November 2011	MYP
MYP: From principles into practice	MYP
Humanities guide	MYP

Mathematics guide	MYP
Sciences guide	MYP
MYP unit planner	MYP
Academic honesty	DP
Biology guide	DP
Business and management guide	DP
Candidates with special assessment needs	DP
Chemistry guide	DP
Classical languages guide	DP
Computer science guide	DP
Coordinator's notes, March 2012	DP
Creativity, action, service guide	DP
Dance guide	DP
Design technology guide	DP
Diploma Programme assessment: Principles and practice	DP
Economics guide	DP
Environmental systems and societies guide	DP
Extended essay guide	DP
Film guide	DP
Further mathematics HL guide	DP

Geography guide	DP
Global politics pilot guide	DP
History guide	DP
Information technology in a global society guide	DP
Language A: language and literature guide	DP
Language A: literature guide	DP
Language A: literature guide	DP
Classical languages guide	DP
Language B guide	DP
Mathematics HL guide	DP
Mathematics SL guide	DP
Music guide	DP
Philosophy guide	DP
Physics guide	DP
Psychology guide	DP
Social and cultural anthropology guide	DP
Sports, exercise and health science guide	DP
Technology guide	DP
The Diploma programme: From principles into practice	DP
Theory of knowledge guide	DP

World religions guide	DP
Concurrency of learning in the IB Diploma Programme and Middle Years Programme	Continuum
Curriculum alignment, articulation and the formative development of the learner	Continuum
East is East and West is West	Continuum
Guidelines for developing a school language policy	Continuum
Holistic education: An interpretation for teachers in the IB programmes	Continuum
IB learner profile booklet	Continuum
Approaches to teaching and learning across the Diploma Programme	Continuum
Language and learning in IB programmes	Continuum
Learners without borders: A curriculum for global citizenship	Continuum
Learning in a language other than mother tongue in IB programmes	Continuum
Promoting International Mindedness in Our Schools	Continuum
Special educational needs within the International Baccalaureate programmes	Continuum
Thought, word and deed: The roles of cognition, language and culture in teaching and learning in IB World Schools	Continuum
Towards a continuum of international education	Continuum

Appendix H

Coding scheme used in the qualitative content analysis and the frequency of the codes

Coding scheme used in the analysis and frequency of codes				
Name	sub codes	related ideas	Sources	References
connections		Making connections, Connect curriculum, link, cross curricular, interdisciplinary, real world, real life, interconnectedness, transdisciplinary, student interaction with content, student connect to learning, relevant learning	28	104
	application		15	21
	real world		9	20
	experiential learning		3	8
	problem-based learning		3	4
	hands-on		1	1
	active-learning		1	1
inquiry		Inquiry approach, reflecting, exploring, investigating, constructivism, question	24	99
collaboration		Work in team, work together, collaborate, PLCs, vertical and horizontal articulation	17	55

assessment		20	52
global, international, cultural	International, worldly, intercultural, multi-cultural, bi-culture	22	49
Sense of social responsibility	We are all the same, not judging, social change , better world	20	45
student centered	student responsibility, Student driven, learning driven, student directed, student initiated, student manage own learning, co-constructer	23	45
unique learner	Unique students, different approaches, differentiation, cultural differences, not all the same, scaffolding	17	44
scaffolding		8	18
whole student	holistic, learning capital	15	42
Teacher as guide	Teacher facilitate, facilitator, teacher as a guide, teacher as advisor, moderator, scaffolding	21	39

teacher adapt, create, modify	Freedom, less restrictive, own design, own resources, teacher directed curriculum, teacher designed resources, free thinking, not limited, less constrained, independence, autonomy, freedom of thought, teacher creativity, imaginative	18	39
student thinking	learning to learn, Student understanding, analysis, critical thinking, epistemology, not just facts, conceptual development, developing understanding	13	33
teacher reflection	Reflective teaching, reflect on practice	11	29
learner profile	Inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk takers, balanced, reflective	14	26
formative assessment	feedback	13	25
pedagogical	Pedagogy, teaching methodology	12	22

	teaching approach	12	23
	teacher as model	7	9
	role models	1	1
	teacher role	3	3
integrity		10	21
community		11	20
technology		9	19
student reflection		9	18
language		8	16
creativity		5	15
parents		6	14
breadth and depth		7	12
challenge students		7	11
student collaboration	student grouping, cooperative learning, flexible grouping	6	11
ongoing learning	Adding new techniques, lifelong learning, developing, constant development, challenge yourself, learning process, constantly in process, constantly on journey, feel like a student again, revitalized teaching	3	9
clear goals		5	8
special needs		5	7

university prep		2	6
arts		3	4
safe environment		4	4
skill-based		4	4
teacher creativity		2	4
interaction		4	4
open-mindedness		3	3
time		1	3
NOS		1	2
teacher knowledge		2	2
PYP themes		2	2
standards		2	2
disciplinary specific		2	2
summative assessment		1	1
service learning		1	1
curriculum map		1	1
experimental		1	1
subject matter knowledge	Subject matter expert, in-depth understanding	1	1
hidden curriculum		1	1
textbook		1	1
anticipate		1	1
standardized tests		1	1
not inquiry		1	1

backward design		1	1
self-esteem		1	1
passion	Excitement for teaching, excitement for content area, passion for IB mission	1	1
be understanding	Be understanding, supportive, supporter, inspirer	0	0

Appendix I

Online Survey: Teaching Perspective Inventory (Pratt & Collins, 2003).

Welcome! You are about to begin taking the Teaching Perspectives Inventory. Its main section consists of 45 questions about your views of teaching. In addition, there are a few questions about you and your background.

Some of these questions ask your name and e-mail address so we can forward your TPI results to you in hard-copy format. Other questions ask about your employment circumstances, your career experience, the kinds of learners you most often work with, and your geographic location. We are particularly interested in how teachers, educators and trainers in various professional sectors may or may not differ. As well, we are striving to build norms for the TPI that span the spectrum of international education.

Please be assured of the confidentiality of any information you supply. Thus we encourage you to answer all questions honestly and completely - if you leave some items blank, your individual TPI Profile cannot be calculated accurately and the system will prompt you to click the 'Back' button and to go back to fill in the missing information. You should be able to complete the entire TPI in less than 20 minutes.

After you have completed all the questions, click Submit and wait a moment while the TPI website calculates your results. You will then see a Profile Sheet keyed to your individual answers. You will then want to click your browser's Print button to make a 2-page hard copy of your results and the interpretation that follows.

Click here to begin taking the Teaching Perspectives Inventory...

Respondent Information

First Name

Last Name

Your E-Mail Address

Taking the Teaching Perspectives Inventory...

This inventory will help you identify your perspectives on teaching. As you consider the following statements, think of specific content and learners. If you are not primarily a teacher or instructor, think of a situation in which you usually have some educational responsibility.

NOTE: Because these statements represent contrasting views of teaching and learning, you will agree with some, but not all, of the statements below. Try to discriminate between statements that do and do not represent your views.

Different Educational BELIEFS:

What do you believe about instructing or teaching?

For each statement, select the response that best represents your Agreement or Disagreement.

Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

1. Learning is enhanced by having predetermined objectives.
2. To be an effective teacher, one must be an effective practitioner.
3. Most of all, learning depends on what one already knows.
4. It's important that I acknowledge learners' emotional reactions.
5. My teaching focuses on societal change, not the individual learner.
6. Teachers should be virtuoso performers of their subject matter.
7. The best learning comes from working alongside good practitioners.
8. Teaching should focus on developing qualitative changes in thinking.
9. In my teaching, building self-confidence in learners is a priority.
10. Individual learning without social change is not enough.
11. Effective teachers must first be experts in their own subject areas.
12. Knowledge and its application cannot be separated.
13. Teaching should build upon what people already know.
14. In learning, people's effort should be rewarded as much as achievement.
15. For me, teaching is a moral act as much as an intellectual activity.

Different Educational INTENTIONS:

What do you try to accomplish in your instruction or teaching?

For each statement, select the response that best represents how OFTEN it represents your educational intention.

Never | Rarely | Sometimes | Usually | Always

16. My intent is to prepare people for examinations.
17. My intent is to demonstrate how to perform or work in real situations.
18. My intent is to help people develop more complex ways of reasoning.
19. My intent is to build people's self-confidence and self-esteem as learners.
20. My intent is to challenge people to seriously reconsider their values.
21. I expect people to master a lot of information related to the subject.
22. I expect people to know how to apply the subject matter in real settings.
23. I expect people to develop new ways of reasoning about the subject matter.
24. I expect people to enhance their self-esteem through my teaching.
25. I expect people to be committed to changing our society.
26. I want people to score well on examinations as a result of my teaching.
27. I want people to understand the realities of working in the real world.
28. I want people to see how complex and inter-related things really are.
29. I want to provide a balance between caring and challenging as I teach.
30. I want to make apparent what people take for granted about society.

Different Educational ACTIONS:

What do you do when instructing or teaching?

For each statement, select the response that best represents how OFTEN you do that action.

Never | Rarely | Sometimes | Usually | Always

31. I cover the required content accurately and in the allotted time.
32. I link the subject matter with real settings of practice or application.

33. I ask a lot of questions while teaching.

34. I find something to compliment in everyone's work or contribution.

35. I use the subject matter as a way to teach about higher ideals.

36. My teaching is governed by the course objectives.

37. I model the skills and methods of good practice.

38. I challenge familiar ways of understanding the subject matter.

39. I encourage expressions of feeling and emotion.

40. I emphasize values more than knowledge in my teaching.

41. I make it very clear to people what they are to learn.

42. I see to it that novices learn from more experienced people.

43. I encourage people to challenge each others' thinking.

44. I share my own feelings and expect my learners to do the same.

45. I link instructional goals to necessary changes in society.

BACKGROUND:

A few final questions about you and your educational responsibilities . . .

1. What is your primary role or function?

    a. Teacher

    b. Practitioner

    c. Manager

    d. Administrator

    e. Researcher

    f. Other (specify in box at right)

2. With which group is your primary educational responsibility?
    a. PYP
    b. MYP
    c. Diploma Programme

3. What is your gender?

    a. Female

    b. Male

4. What is your highest academic degree?

    a. High School Diploma

    b. Bachelor´s degree

    c. Master's degree

    d. Doctorate

    e. Other (specify in box at right)
5. How many years of IB teaching experience do you have?
6. How many years of general teaching experience (IB and non-IB) do you have?
7. What languages are you fluent in (written/spoken)?

Open-ended items:

1. If there was an IB TEACHER PROFILE, what do you consider to be 5 to 10 critical attributes that should be included? Please list and briefly describe each one.

    ❑ _____

    ❑ _____

    ❑ _____

    ❑ _____

    ❑ _____

    ❑ _____

    ❑ _____

    ❑ _____

- ❑ _____
- ❑ _____

2. Are there any differences between an IB teacher and a non-IB teacher?

   - ❑ No difference
   - ❑ Yes. Please describe the key differences below.

   other. _____

3. What changes, if any, have you experienced since becoming an IB teacher? *(Note: These changes could be related to general attitudes, teaching styles, and/or professional mindsets and practices, among others)*

4. What excites you most about being an IB teacher?

Appendix J

Focus group protocol

- **Welcome**
- **Overview of IB Research Department/hand out postcards**
    - Our charge is to understand impact of IB programmes on students and schools & to assess the quality of our services. We often work with external university and research partners.
    - Today, we're interested in getting your input - specifically about what constitutes an IB teacher.
- **Introductions (brief)**
- **We are recording this session so we can transcribe the data. Your identity will not be revealed and any references made to individuals will use pseudonyms. Your participation in this research study is voluntary. You are free to withdraw your consent at any time.**

1. If there was an IB TEACHER PROFILE, what do you consider to be 5 to 10 critical attributes that should be included? Why?

2. Are there any differences between an IB teacher and a non-IB teacher? If so, please describe. Why? What factors impact these differences?

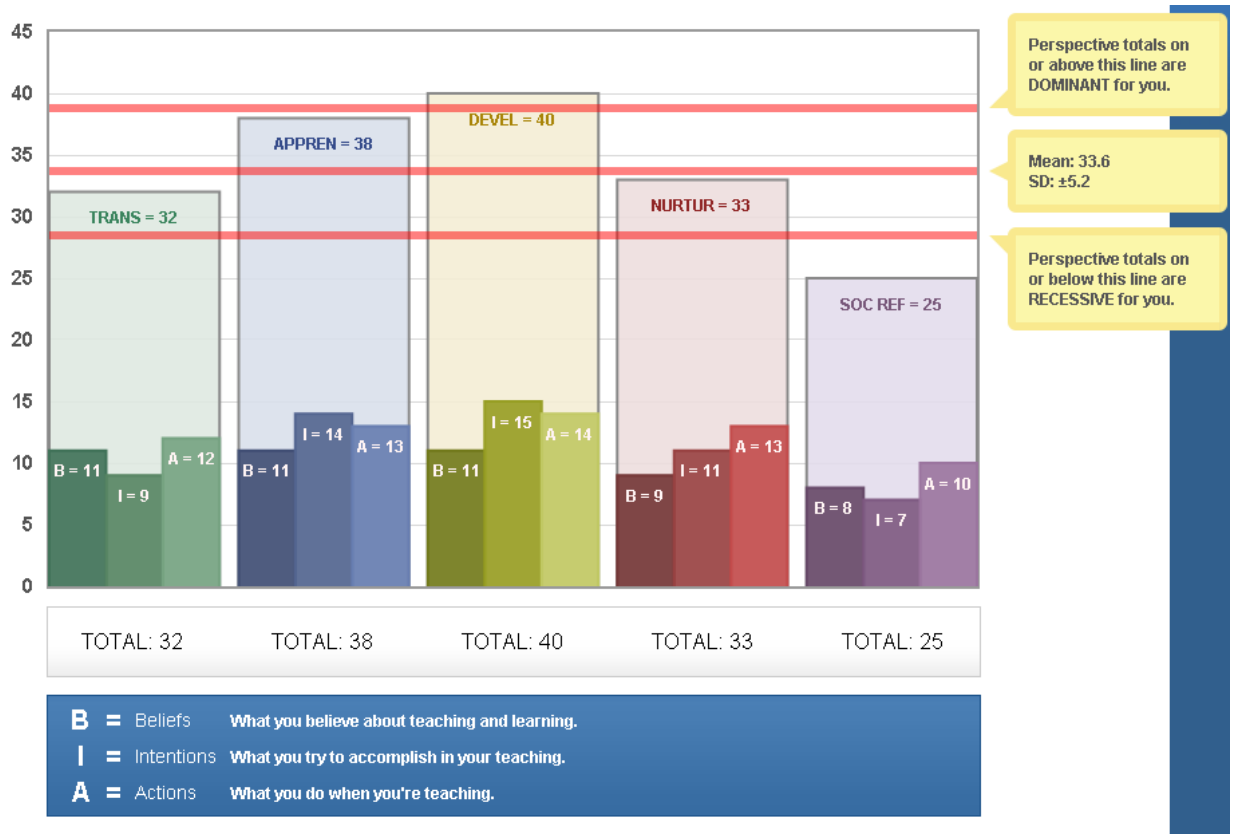
3. What changes, if any, have you experienced since becoming an IB teacher? *(Note: These changes could be related to general attitudes, teaching styles, and/or professional mindsets and practices, among others)* When do these changes take place? Why?

4. What excites you most about being an IB teacher? Why?

Appendix K

TPI sample profile (the TPI instrument (Collins & Pratt (2003) is used with permission from Collins and Pratt)

After completing the TPI a respondent receives a profile indicating their dominant and recessive perspectives. Scores for Beliefs, Intentions, and Action are also displayed.



Beliefs total: **(B) 50**

Intentions total: **(I) 56**

Action total: **(A) 62**

Overall Total: **(T) 168**

The respondent reviews the description of their dominant perspective and reflects on the description. In the example above the dominant perspective is Developmental (Pratt, Collins & Sellinger, 2001):

> Effective teaching must be planned and conducted "from the learner's point of view".
> Good teachers must understand how their learners think and reason about the content.
> The primary goal is to help learners develop increasingly complex and sophisticated cognitive structures for comprehending the content.

Additionally, the respondent could reflect on the alignment or lack of alignment among Beliefs, Intentions, and Actions. In the example above, Action totals are the highest. This could prompt further reflection on the respondent's Beliefs and Intentions. More information on the interpretation of TPI results can be found on the TPI website (Collins & Pratt, 2012): http://beta.teachingperspectives.com/drupal/tpi/summary-five-perspectives