

# Teaching, learning and assessment

This theory, that the aim of general education was not the acquisition of general knowledge, but the development of the general powers of the mind to operate in a variety of ways of thinking, had a profound effect on the planning of curricula and methods of assessment.

Peterson (2003: 41)

## Introduction

Three forces shaped the initial development of the Diploma Programme. These were:

- **pragmatic** the need to provide a school leaving diploma that would facilitate university entrance and be recognized in different countries
- **idealistic** the desirability of promoting international perspectives that would encourage international understanding and peace
- **pedagogical** the promotion of critical and creative thinking skills and learning how to learn.

Note: See Peterson (2003), Fox (1998) and Hill (2002) for historical perspectives on the development of the Diploma Programme.

These forces complement each other and continue to inspire the development of the Diploma Programme. The world has become increasingly interdependent since the programme's initial development in the 1960s. The size of the knowledge base continues to grow and the ability to process and evaluate knowledge, not just to acquire it, is more important than ever. Universities and employers are increasingly seeking to attract globally aware, adaptable learners who are able to apply and transfer their skills and knowledge to new contexts.

The approach to teaching and learning adopted in a school is a critical factor in determining the success of the Diploma Programme. This section considers appropriate pedagogical practices and should be read together with the section on "Teaching and learning" in *Towards a continuum of international education*.

## Planning a Diploma Programme course

Diploma Programme subject guides, teacher support materials and other supporting documents published by the IB are designed to help teachers plan and prepare their own course of instruction; they are not intended to prescribe a course. The concept of creative teacher professionalism, introduced in "Philosophy and principles of the Diploma Programme", is critical in understanding the pivotal role played by teachers in designing their own course of study and teaching it in an effective way.

While some published textbooks will be useful, and a number of course companions have been written specifically for the IB programmes, it is undesirable and ineffective to teach any IB course to a textbook or a course companion. Textbooks contain general guidance, whereas teachers are the best-placed professionals to know their own students and understand the context in which they are teaching. Instruction also needs to be differentiated, engaging with and challenging each learner's current level of understanding.

IB subject guides, although dealing with very diverse disciplines and subject areas, have some common features. The “Nature of the subject” section provides a general description of the subject and its place in a particular subject group. Guidance is given on distinctions between HL and SL, expectations (if any) of prior learning, links to the Middle Years Programme and links to the TOK course. The “Aims” section identifies the overarching aspirations and intentions of the course, some or all of which are common to the subject group.

The section on “Assessment objectives”, together with the “Syllabus outline” and “Syllabus details”, provides further essential information for teachers in planning a course. Objectives describe what students will be expected to do at the end of the course and what will, therefore, be assessed. While the nature of different academic disciplines means that the explanation and development of syllabus content and assessment objectives vary to some extent in different subject groups, the following practices are applied.

- Common command terms have been defined and are being incorporated in new guides as subjects undergo curriculum review. This applies to all guides published from 2007 onwards. Command terms are key terms and phrases used in the syllabus content and in examination questions to indicate what is required in response to a particular command. This also suggests the type and depth of response that is expected. Developing an in-depth appreciation of this, in the context of a particular subject, is essential for teaching the course and achieving the desired learning outcomes. Command terms broadly follow established taxonomies such as Bloom’s taxonomy of educational objectives (Bloom 1956).
- Teachers should familiarize themselves with specimen papers and markschemes, which provide examples of different types of response and reproduce examiners’ comments on student work.
- The relative mark awarded for a question is a general indicator of the level of detail that a student is expected to provide when answering a question.
- Syllabus outlines within subject guides frequently indicate the relative weighting attached to different components of the syllabus by suggesting teaching hours. These add up to the recommended total hours of 150 hours at SL and 240 hours at HL.
- A number of subject guides, including those for groups 4 and 5, use teachers’ notes or “amplifications/inclusions/exclusions” columns to clarify the depth of treatment for specified content.

Diploma Programme courses are deliberately designed to be synoptic rather than modular. This means that, in most instances, student understanding is examined at the end of the course, looking at the whole course and not just aspects of it. Students have to be able to recall, adapt and apply knowledge and skills to novel questions and contexts. The implications of this for course design and teaching are significant and include the following.

- Skill development and application need to be integrated into course design together with syllabus content coverage.
- Skill development needs to be constantly reinforced in a learning spiral. Once a skill is learned or developed, it should be reinforced by its application in different contexts.
- The amount of syllabus content to be covered is substantial. It is, therefore, particularly important to develop and reinforce excellent study skills and habits early in the course. Effective course planning avoids overloading students with coursework and results in effective teaching and learning from the first day of instruction.

Teacher collaboration is essential where more than one teacher is involved in teaching a course, as schemes of work must be developed collaboratively. Final internal assessments are collected by subject, not by teacher, and are sent for moderation as school samples, not class samples. Teachers can improve practice by sharing ideas with their colleagues and observing classes. Teacher collaboration should be seen as an important aspect of professional development.

## Approaches to teaching a Diploma Programme course

Good teaching practice is not specific to the IB or to any programme of study. However, the IB philosophy and principles have implications that teachers need to be aware of in their teaching practice and that might be different from other teaching contexts they have experienced.

There are a wide range of teaching strategies and approaches that should be used in the classroom. Individual teachers and students have their preferred learning and teaching styles and some styles are more prevalent in different cultures and national settings. What is essential is that each student is actively engaged in classroom activities and that there is a high degree of interaction between students and the teacher, and also between the students themselves.

Learning should focus on meaningful questions and contexts and the voice of the learner is considered to be as important as the voice of the teacher. The teacher is viewed as a supporter of student learning, rather than a transmitter of knowledge, making use of questions and tasks that help the student work in their “zone of proximal development”. This term, originally used by Vygotsky (1962 and 1978), represents the range of achievement that lies between what the student can manage on their own and what they can manage with the support of the teacher. The emphasis is on engaging and challenging the learner’s existing mental models in order to develop a greater depth of understanding and to improve performance.

Whole-class instruction that encourages open discussion, in which the teacher challenges student thinking and demonstrates a range of appropriate responses, can be extremely effective. In comparison, a teacher who lectures, and involves students as passive recipients rather than active participants in the classroom, is likely to be less effective. Overemphasis on lecturing is incompatible with the aims and principles of the Diploma Programme. Teachers should use a variety of different approaches at different times, employing a mixture of whole-class, group and individual activities that are representative of the learner profile.

The learner profile stresses the importance of inquiry. Students are expected to develop their natural curiosity, together with the strategies and skills needed to become autonomous lifelong learners. 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. Diploma Programme courses specify a large amount of content, with the area of study often defined in considerable detail. It is the way in which content is presented in class that is critical. The aims and objectives of each course emphasize the importance of students investigating answers for themselves. IB assessments are designed to reward evidence of independent student thinking leading to considered individual responses, so it is important that students practise these skills at every opportunity. Different subjects also provide a number of opportunities for students to design their own inquiry, with the extended essay as the ultimate structured inquiry exercise.

Learning how to become an effective learner requires students to realistically evaluate and regulate their own learning and performance. “Metacognition” is a term used to refer to reflective thinking strategies, attitudes and other competencies used to monitor and control learning. Metacognitive strategies and skills can be nurtured in a supportive learning environment that focuses on the affective as well as cognitive competencies identified in the learner profile. In order to become independent learners, students need to develop powers of reflection, self-confidence and self-awareness, a willingness to communicate ideas without fear of losing face, and a willingness to take risks and be open-minded.

Students learn best when (reproduced from *Towards a continuum of international education*):

- their prior knowledge is considered to be important
- learning is in context
- context is relevant
- they can learn collaboratively

- the learning environment is provocative
- they get appropriate feedback to support their learning
- diverse learning styles are understood and accommodated
- they feel secure and their ideas are valued and respected
- values and expectations are explicit
- there is a culture of curiosity at the school
- they understand how judgments about learning are made, and how to provide evidence of their learning
- they become aware of and understand how they learn
- metacognition, structured inquiry and critical thinking are central to teaching in the school
- learning is engaging, challenging, rigorous, relevant and significant
- they are encouraged in everything they do in school to become autonomous lifelong learners.

## Supporting language learning

All teachers are language teachers. Each subject has a specific vocabulary and requires language both as a tool for understanding the subject and for communicating ideas. Students have to learn to be precise in their use of language. Assessments in all subjects require students to express themselves in written form. Additionally, groups 1, 2 and 6 all have oral assessment practices. Schools need to have a language policy that identifies the principles and practices teachers are expected to adopt (see *Guidelines for developing a school language policy*).

Teachers need to provide additional support for students who are working in a language of instruction that is not their best language. For guidance on this see the IB publication *Learning in a language other than mother tongue in IB programmes*.

## Developing interdisciplinary perspectives

Time pressure will require that teachers focus on covering the syllabus and teaching to the aims and objectives of their course. Some aims, objectives and syllabus content encourage reference to, and even collaboration with, other subjects. There are natural overlaps between different disciplines that can be productively explored and used to reinforce discipline-specific knowledge, understanding and skills. Mathematical concepts are used in a number of subjects, various forms of written critical response are related to each other, and the content and skills taught in one subject group may overlap with other disciplines. Developing these links can help build bridges in students' minds and support the development of metacognitive understanding and performance.

The TOK course, which requires students to reflect on the nature of human knowledge across all disciplines, provides an excellent platform for building interdisciplinary understanding. As students compare and contrast different ways of knowing and the different methodologies used in areas of knowledge, they are forced to reflect on what it means to be human. In order to encourage this, links with TOK are identified in individual subject guides. Teachers are encouraged to explore their own links with the TOK course and are expected to support the development of this learning experience in the teaching of their own course.

## Assessment

Diploma Programme teachers need to understand how formal assessment is conducted. Formal assessment is defined as assessment directly contributing to the final diploma qualification. Most formal assessment is external, and includes examinations or work completed during the course and then sent to an external examiner. Some formal assessment is internal, requiring the teacher to mark the work before it is moderated by an external moderator. The principles, practices and challenges involved in formal diploma assessment are considered in detail in *Diploma Programme assessment: Principles and practice*.

It is important to stress that the single most important aim of Diploma Programme assessment is that it should support curricular goals and encourage appropriate student learning. Diploma Programme assessments measure students' achievement levels against published criteria that are derived from the course aims and objectives. Students need to understand what the assessment expectations, standards and practices are and these should all be introduced early in the course and be the focus of class and homework activities. The formal assessment requirements make it clear how summative assessment will be conducted, and how the student will be judged at the end of the course.

Teachers have responsibility to design and provide formative assessment structures and practices that help students improve their understanding of what constitutes excellence and where their own work stands in relation to this. Formative assessment is also important for the teacher, as it should provide detailed feedback on the nature of the students' strengths and limitations. The emphasis here, a key component of learning how to learn, is on making the student a better judge of their own performance and then helping them develop strategies to improve. Formative assessment focuses on assessment as an essential learning process. Schools use a number of practices and instruments to support this, including:

- student self-evaluation supported by the teacher
- systematic use of detailed assessment descriptors (rubrics, matrices)
- peer evaluation mediated by the teacher (either face to face or using an ICT resource such as a blog).

Assessment instruments primarily designed for formal assessment at the end of the course should also be adapted and used formatively as part of the learning process.