Chapter 12: Differentiation and the International Baccalaureate Diploma Program

One evening over dinner in Bangkok, Laurie McLellan, a veteran international school administrator, told us the story of how he had presented the International Baccalaureate examination results to the Board of Directors at a European international school. The Board listened as Laurie presented an analysis of the exam results. He compared the school’s scores with the world-wide averages and answered questions as to what the marks meant and how the scores were arrived at. At the conclusion of the presentation, a Board member asked Laurie to convey the Board’s heartiest congratulations to two students whose total point count was more than forty points. Only a very small proportion of IB Diploma students world-wide score more than forty points. Laurie paused for a moment and then agreed to do so on the condition that the Board also extend its congratulations to Sophie (named changed) who had achieved a 24 point diploma, the minimum IB qualification. The Board Members appeared momentarily confused. Laurie explained that Sophie had a learning disability and had been receiving learning support since grade two. Her effort, persistence and commitment had been truly remarkable. In Laurie’s mind, Sophie’s achievement was equally worthy of recognition and congratulations.

1 Many of the observations, practices and principles addressed in this chapter can also be applied to other external examination systems such as the College Board Advanced Placement, British ‘A’ levels or the IGCSE.
We suspect that Sophie’s achievement was also a result of sensitive and skillful teachers who were able to differentiate instruction in a meaningful way for her.

Advanced learner programs such as the International Baccalaureate Diploma Program are sometimes characterized as elitist. Unfortunately during such conversations, the term “elitist” is rarely defined. Elitism is a belief that certain persons or members of certain classes or groups deserve favored treatment. We would argue that there is nothing (except perhaps the cost) that is inherently elitist in the IB program. However, there are schools that have implemented it in an elitist fashion. The question, in our mind, comes down to equity of access.

Several years ago Bill was on an accreditation team visiting a large international school that included the IB Diploma Program in its high school. During an interview, the IB Coordinator proudly announced to the visiting team that for past five years, the school had a 100% IB pass rate and an average diploma score of 35 points. These results were annually published in the school’s newsletter and were a considerable source of pride in the community. There is no question that an average diploma score of 35 points for a large school is a very good result.

In fact, it is *too good.*

Such a high average diploma score over five years suggests that student admission to the IB program was strictly controlled and highly selective. The only students who were admitted were those that the gatekeepers were confident would succeed and be a credit to their school. This particular school didn’t take risks on students. This school would not have given Sophie the opportunity to earn her 24 point diploma.
Bill faced a similar situation when he first arrived at the International School of Kuala Lumpur and he informed his Board of Directors that it was his intention to increase the number and range of students admitted to the IB program. He went on to inform them that this would reduce the average IB diploma scores and possibly the pass rate. After some discussion, the Board accepted that the individual learning needs of students outweighed the school’s need for glowing statistics.

We believe that an elitist approach to the implementation of advanced learner programs, such as the IB, have colored some teacher and administrator perceptions and made it difficult for individuals to see the important role that differentiation can and should play in these programs. In some respects this is a self-fulfilling perception. If schools only admit those students who are sure to achieve very good exam results, there is a very strong likelihood that the school will achieve outstanding results overall. When this happens, there is a strong temptation on the part of those responsible to interpret the glowing exam results as proof positive of a highly successful program. It is natural to want to celebrate success. However, this sometimes leads a school to wonder what possible role differentiation might play in a program that is already working so well. This is another way of saying: “If it isn’t broken, don’t fix it.”

We would argue that highly selective admissions in a program such as the IB suggests that the system is fundamentally broken.

In our twenty five year experience with the IB program, we believe that most students in our international schools are intellectually capable of the challenge in one form or the other. In fact, we would suggest that the critical success predictor for students entering the IB program is not intelligence, but rather maturity of attitude and work habits. For example, for fifteen years in the 1980’s and 1990’s the International
School of Tanganyika Ltd only offered the IB program in grades 11 and 12. There was very little selectivity in admissions and approximately 60 to 70% of the students completed the full IB diploma with a very creditable pass rate of between 90-95%. The remaining students did IB certificate courses. In those 15 years, only a very small handful of students were denied admission to the high school.

It would also appear from a review of the IB Assessment Handbook (2004) that students with learning disabilities and attention deficit disorder (ADD) are expected to be admitted and to take the examinations. In fact, the IB Assessment Handbook clearly outlines the procedures and modifications that may be allowed for these students (IBO, 2004, p. 11).

In our experience, very bright, highly motivated students will achieve outstanding exam results -- some times in spite of their teachers. Sophie, however, needed outstanding teachers and differentiated pedagogy to support her in her bid for the diploma.

Differentiated instruction in advanced learner programs such as the IB is the marriage of excellence and equity in education.

**Five Frequently Asked Questions about Differentiation in the IB**

When we conduct differentiation workshops in international schools around the world, we are often asked questions about how differentiation fits with external examination courses, such as the IB or AP. We have collected five such questions and will examine the assumptions upon which they may be based and their possible implications.
1. “IB exams aren’t differentiated – in fact, most college courses aren’t differentiated – are we really doing kids a favor by making things easier for them?” The question suggests a misunderstanding about what we should and should not differentiate. Success on an IB examination is the learning standard (in UbD terminology the ‘desired outcome’) and should NOT be differentiated. However, we can choose to differentiate how we help students achieve this outcome. There are numerous pathways to understanding. As Mel Levine (2007) writes: “Students…benefit from discovering their preferred routes to comprehension. Some understand best verbally; others thrive on graphic representation; still others gravitate towards hands-on, experiential learning. In all instances, we should encourage them to represent information richly in their minds and, if possible, in multiple modalities (by thinking of examples, using mental imagery, rewording and elaborating, and so on (p.17)).”

Teachers support student learning enormously when they make learning easier by capitalizing on student strengths or interests.

It is true that many university courses do not include differentiation. A college introductory biology course with three hundred students is unlikely to be differentiated. However, the absence of varied, student-centered pedagogy at university level is hardly an argument for its absence in relatively small, at least in comparison, high school classes.

In this context, we are wise to recall Arthur C. Clarke’s (1986) observations in an article entitled *July 20th, 2019: Life in the 21st Century*. He calls for a paradigm shift in education’s basic emphasis: “Our current educational system evolved to produce workers for the Industrial Revolution’s
factory-based economy, for work that requires patience and docility…

Students learned to sit in orderly rows, to absorb facts by rote, and to move as a group through the material regardless of individual differences in learning speeds…” If you ever wondered why so many schools in the past were perceived to be boring, Clarke provides a possible answer. Life as an assembly line, factory drone was boring, and the ability to endure boredom was considered to be an essential life skill. Boring schools were excellent preparation for boring lives. But, as Clarke points out “no factory jobs will be left in 2019. Except for a few technicians to watch over control panels, tomorrow’s factories will be automatic, with computers directing robot workers (Powell, 2000).”

Do we do students a favor by making learning easier for them? In a word, yes. There is no intrinsic value in difficulty for difficulty’s sake. There is no value in complexity when the alternative is simplicity. The days are past when we believed that the stoic endurance of boredom or chronic anxiety produced admirable character traits. The question suggests that there may be confusion between what is “rigorous” and what may be “onerous” or “arduous”. Alfie Kohn has commented: “A lot of horrible practices are justified in the name of ‘rigor’ or ‘challenge’. People talk about ‘rigorous’ but often what they really mean is ‘onerous’, with schools turned into fact factories. This doesn’t help kids become critical thinkers or lifelong learners (in O’Neill & Tell, 1999).”

‘Making learning easier’ means making it more stimulating, challenging and meaningful for students. It is one of the most fundamental obligations of every teacher.
2. “Differentiation is fine in the elementary and middle schools, but is it really applicable for the IB in the high school?” The question seems to suggest that as we grow older, we somehow become homogenized as learners; that our experience in schools wears smooth our unique rough learning edges; and that a “one size fits all” teaching in the high school will be as effective as differentiated instruction. The research, however, suggests that at least some of our intelligence preferences and learning styles are hard wired in our brains and will be with us for a lifetime. High school learners need a varied, student-centered approach to learning just as much as their younger colleagues do.

The question might also imply that the learning experience in the high school is significantly different from that of the elementary or middle school and might not lend itself to differentiation. While there is no question that learning in the high school involves greater complexity of concepts and increased content, we need to beware of falling into the false dichotomy that pits content coverage against teaching for understanding. The IB course of study will have a prescribed syllabus that the teacher will need to cover. That is non-negotiable. The students must be prepared for the examination. However, content coverage isn’t, by itself, sufficient examination preparation. When content coverage becomes king and teaching for understanding the vassal, we end up with instruction becoming more important than learning.

We would ask, not rhetorically, whether something can be taught that isn’t in fact learned. More than fifty years ago Ralph Tyler (1949) argued that suggesting that “I taught them, they just didn’t learn it” was as foolish as saying ‘I sold it to them, they just didn’t buy it.’
The IB examinations reward students who show deep conceptual understanding of what they have studied. Students do this by demonstrating higher order thinking skills such as analysis, comparison, evaluation, prediction and by applying concepts in novel situations or new circumstances. Teachers need to teach for understanding as well as cover content. This isn’t an either/or situation. One of the most effective ways of accomplishing this is to use varied instructional approaches that tap into student strengths, intelligence preferences, learning styles and interests.

3. “I have barely enough time to teach the IB syllabus, where does the time come from for differentiation?” There are two time-related issues when it comes to differentiated instruction. One is classroom time and the other is planning and preparation time. Let’s look at them separately.

Classroom time is usually not something the teacher has much control over. The master schedule of classes usually dictates when classes will meet and for how long. So, teachers have little flexibility in terms of increasing instructional time. They do, however, have control over how classroom time is used. In other words, it is their responsibility to prioritize the use of classroom time with respect to the most important learning outcomes.

The idea that differentiated instruction takes more classroom time than “one size fits all” teaching is predicated on the misunderstanding that differentiation is something added – like an extra-curricular activity or an optional field trip. It is, in fact, a different way of doing the same thing – but, from the perspective of the learner, doing it more effectively and more efficiently.
Teachers do, however, have control over the amount of time they spend planning lessons and there can be no question that, at least initially, differentiated instruction takes more preparation time. This is why we counsel teachers who are embarking on the differentiation journey to “keep it simple and social.” Teachers need to budget the planning time so that it is adequate but that they also preserve a life for themselves outside of school work.

While differentiation will require more planning time initially, over time teachers will come to build a repertoire of successful differentiation strategies and instructional activities. Once this repertoire is established, lesson planning time may actually decrease. Marie-France Blais, a French teacher at the International School of Kuala Lumpur wrote to us about how differentiation had changed her teaching over the years. “Whereas it used to be a mammoth task to ‘include’ differentiation in my planning, it has now become a way of thinking / planning / teaching.”

4. “IB course selection and admission criteria result in pretty homogenous classes. Is there really a need for differentiation?” It is a fallacy to think that IB students represent a homogeneous or monolithic set of high achieving students. Like their peers in non-examination classes, they too learn in unique ways and find specific subjects more difficult or easier than others. Many go through periods of self-doubt and wonder if they should have registered for the program in the first place. Nick Bowley, head of school at the International School of Tianjin, China, notes that one of the marks of a truly outstanding school is the number of borderline students who go on to earn the full IB diploma.
Having said that, course selection does provide for a degree of differentiation, in the sense that students select courses that will be of interest to them and at an appropriate readiness levels (Standard vs. Higher level courses). However, course selection doesn’t take into consider how individual students learn most efficiently.

If a variety of instructional approaches represents a more effective learning environment than a single style (e.g. lecture or question and answer seminar), why wouldn’t we want this for IB students?

5. **“Doesn’t differentiation stigmatize kids?”** In this case, the question is a valid in the elementary or middle school as it is in an external examination program such as the IB. We suspect that the questioner may be confusing “streaming” or “tracking” with differentiation. In our experience, skilful differentiation does not stigmatize students. In fact, the opposite is the case.

In any classroom (differentiated or not) students take no more than a few days to figure out which of their classmates are achieving rapidly and those who are not. Some well-meaning teachers assume that if they ignore such differences in readiness and achievement rates, the students will as well. We know that this does not happen. In classrooms where learning differences are not addressed explicitly, students often develop status hierarchies of their classmates. This ranking contributes to perceptions of high and low status (Cohen, 1998) which in turn can profoundly affect learning. Cohen observed that low status children participate less in class activities and discussions and
therefore benefit less from them. The perception of low status on the part of classmates actually inhibits learning.

When learning differences are addressed directly with students, they come to understand that intelligence isn’t monolithic – that while Imran may struggle in math, he plays the trumpet beautifully; while Sarah may write beautifully, the thought of acting on stage petrifies her. In addition, when teachers address learning differences explicitly, they have the opportunity to help their students develop respect for diversity. Students come to understand that there are many ways to learn something and that each of us brings to the classroom a different mix of talents, strengths and proclivities. For these reasons, stigmatization is less likely to occur in a differentiated classroom.

A former colleague of ours, Oscar Nilsson, now head of Bandung International School in Indonesia, gave all incoming IB Diploma students the Dunn & Dunn Learning Style Inventory so that they could be aware of their own learning style and become conscious of what conditions they needed in order to optimize their learning.

**Differentiation in the International Baccalaureate Diploma Program**

In 2000, we published an article in the journal *IB World* (originally entitled “The Pedagogy of the Pressured” -- the editor, failing to see allusion of Paulo Friere’s work, changed it to “The Pedagogy of Pressure”). The article was critical of both the IBO’s lack of attention to pedagogy (in the diploma program) and the generally “one size fits all” teaching we had witnessed in the IB program in a variety of schools – some with outstanding reputations.
The article focused on the pressure and stress that students often encounter in the IB program and we suggested that one source of stress might be from the absence of attention that many IB teachers and the IBO place upon pedagogical craftsmanship.

*The combination of bright, highly motivated students and vast content landscapes to ‘cover’ has often proved a deadly combination for the actual craft of teaching. From our experience, most IB pedagogy is the proverbial “chalk and talk”, seminars and small group discussions. Science courses will include hands-on activities and projects are used when the IB program requires them, but for the most part the teaching strategies are traditional and unimaginative and are oblivious, sometimes blithely so, to recent developments in the educational implications of brain research, learning styles, cognitive psychology, multiple intelligence theory and constructivism. In the absence of direct attention to instructional practice, most teachers teach as they themselves were taught.*

*(Powell and Kusuma-Powell, IB World, Fall 2000.)*

However, the times are changing.

In 2006 the IBO published a critically important document entitled *The IB Learner Profile Booklet.* The learner profile in the IB is not a new concept. It was originally part of the Primary Years Program (PYP) and was called the “PYP Student Profile.” What is significant now is that the IBO has extended the profile to all three of its programs, including the Diploma Program. “The IBO is introducing the learner profile into all three programmes so that it becomes the common ground on which all IB World Schools stand, and contains the essence of what they, and the three programmes, are about (IBO, 2006, p. 1) The profile describes a series of attributes to which IB students and their teachers should be striving. These include inquiry, critical and creative thought, open-mindedness, collaboration, effective communication, compassion and reflection. It is a comprehensive and impressive document and its applicability to the Diploma Program is most welcome.
Established in the late 1960’s, the IB Diploma Program set out to develop in the last two years of secondary school a course of study for international schools which would be recognized as a university entry qualification by prestigious universities around the world. This was much needed at the time and a major development focus was understandably on developing the credibility of the diploma. While important innovations, such as CAS and Theory of Knowledge, were included, there was little focus during those early years on pedagogy or how the most efficient and effective learning took place. We wrote in 2000: “How many times have we heard from IB teachers that “constructivism” isn’t applicable to the IB program or that IB teachers simply do not have the time to explore brain-based teaching?...If quality teaching is often sacrificed upon the altar of content coverage, the largest single group to suffer will be…the students. The unspoken assumption is that within the IB Diploma program there is so great a demand for content coverage that there is no time for examining or reflecting upon effective pedagogy. Not only is this untrue, but it actually undermines intellectual rigor, waters down otherwise stimulating syllabi and creates unnecessary stress and anxiety in both teacher and student (Powell & Kusumapowell, 2000).”

Over the years, the IB has stressed the importance of students “learning how to learn” and the publication of the IB Learner Profile is a significant milestone in that direction. From our perspective, it provides a most welcome emphasis on pedagogy, including differentiated instruction. “The curriculum can be defined as what is to be learned (the written curriculum), how it is to be learned (the taught curriculum) and how it is to be assessed (the learned curriculum). This gives equal focus to content, teaching methodologies and assessment practices (emphasis ours) (IB Learner Profile, 2006, p. 2).
The *IB Learner Profile* encourages teachers, IB coordinators and school administrators to ask questions such as:

- “Is it possible to create more experiences and opportunities in the classroom that allow students to be genuine inquirers?”

- “How much attention do we pay to how students interact with other students in group-work activities? Could we give more time to helping them work effectively as part of a team?”

- “Could we create more opportunities to discuss ethical issues that arise in the subject(s) we teach?”

- “How well do we model empathy, compassion and respect for others in our classrooms and around the school?” (IBO, 2006, p. 3)

These are the kind of questions that will cause schools and teachers to recognize the importance of differentiation within the Diploma Program. However, the IB itself recognizes the challenge that the Learner Profile may pose:

> The IBO recognizes that the introduction of the IB learner profile may present a challenge for schools. It invites schools to evaluate critically their learning environment and make the changes necessary to enable all its students and teachers to work towards developing the values of the profile. Such changes should lead to a truly collaborative learning environment, the strengthening of professionalism among the teaching staff and a commitment by the school to invest in professional development. For most schools this will not mean starting from the beginning, but may involve a refocusing of attention, creative thought and resources. For some schools the introduction of the learner profile will necessitate a major shift in direction.

> --*IB Learner Profile Booklet*, 2006.

From 2006, schools offering the MYP and Diploma programs are expected to focus on monitoring student development (in light of the learner profile) by “engaging students and teachers in reflection, self-assessment and conferencing…The implementation of the IB learner profile is specified in these practices, and schools will be expected to address them as part of the self-study in the programme evaluation process (IBO, 2006, p. 3).”
If there were still a question about the place of differentiation within the IB Diploma Program, the *IB Assessment Handbook* would seem to put the matter squarely to rest. Over the years the IBO has recognized that some assessment procedures unfairly discriminated against students with learning disabilities. The *IB Assessment Handbook* includes the following paragraph which describes its policy in terms of assessment bias in special education.

*A further aspect of bias that must be countered is the potential for an assessment task to discriminate unfairly against students with special educational needs such as dyslexia, attention deficit disorder or impaired vision. The conditions under which assessment tasks are taken should make appropriate allowances for such students, so that they can demonstrate their level of educational achievement on equal terms with other students.*

*IB Assessment Handbook, 2004, p.11*

Presumably, if the IB makes provision for students with learning disabilities in terms of assessment, we should also do so in terms of our differentiated instruction.

**A Few Examples of IB Differentiation in Action**

**IB English Language A:**

A number of years ago Janet Tan and Lynn Coleman, high school English teachers at the International School of Kuala Lumpur, devised an extremely effective differentiated learning activity for their study of Joseph Conrad’s *Heart of Darkness*. Janet and Lynn had their IB student design and paint a mural along the corridor in front of their classroom depicting the novel’s plot, characters, and important themes. The novel is a picaresque tale that follows the narrator’s journey up the Congo River as such it lends itself beautifully to visual representation. The students were
instructed to represent the key scenes in the novel and include important symbols, themes and quotations.

The first panel of the mural depicts Marlowe, sitting “Buddha-like” at twilight on the deck of a ship anchor in the Thames. Beneath Marlowe are the words: “We live as we dream – alone.” In the background, we see the cityscape of London against the words: “And this also has been one of the dark places on earth.”

The Thames River merges almost surrealistically into a map of West Africa showing the Congo River. Within the map we see Africans chained to trees (presumably rubber trees). The next few panels depict the voyage up the river, replete with significant quotations from the book. The final panel depicts a prostrate Kurtz, pale and drawn with the words beneath: “The horror, the horror.”

Following the IB English examination, Bill questioned the students on how it went. Without exception, all the students he spoke with commented that when they had been writing about Heart of Darkness, they had been able to “see” the mural in their mind and draw upon it. The process of having the students select important images, identify significant quotations and represent them visually was unquestionably a most powerful learning strategy for these students.

**IB History and Economics**

Michael O’Leary, Chairman of the Social Studies Department at ISKL also uses murals in his IB Economics classes. He writes: “Aside from the traditional pen and paper tasks, I really like using murals. I ask students to pick 10 to 15 concepts from the unit and create a mural showing the audience how they fit together and why they are significant… There is a writing component that goes with the mural to assist the viewer to know what he or she is looking at…The visual approach allows students
to show me what they understand…I find this the most effective and fun way to get to understanding.”

Michael and his colleagues also look to differentiate when it comes to the selection of reading material. In addition of the standard text, they try to identify supplementary readings (eg. from *The armchair economist*, *The world is flat*, and *The undercover economist*) from popular mainstream books that have as their target audiences, readers who don’t have a background in economics.

The social sciences lend themselves to high interest simulations and Michael and his colleagues orchestrate simulated trials on the subject of war guilt for World War One and Two and in IB Economics they do a large scale pit market where students are able to see for themselves how pricing structure works.

On a more individual note, if Michael knows that a student is going to have difficulty with a particular type of question, he will often provide a prompt of some kind. For example, he will include in the margin of the student’s test paper a partially worked out example. Michael recognizes that this is a “touchy” issue, because if students plan on taking the IB exam, they will have to learn to work without this support. However, he see this classroom support in building student confidence so that students are more relaxed and therefore better able to access their memory. For Michael, fair is not equal; fair is getting what you need.

**IB Biology**

In this instance, the IB biology students at International School of Tanganyika in Dar es Salaam seemed to know intuitively that a kinesthetic activity would support their learning. During the last six weeks before the examination, the teacher assigned small groups of student the responsibility for reviewing with the entire class important
aspects of their study of biology. The trio that had responsibility for how human vision works drew a diagram on the whiteboard labeling important parts of the eye and brain including the optic nerve, the optic chiasma and the visual cortex of the brain.

They then distributed to the rest of the class different colored ribbon and had the students form a physical tableau illustrating how visual images cross from the left side of the eye to the right side of the visual cortex. Each student in the class was then provided with an opportunity to stand on a desk and have a “bird’s eye view” of how visual images travel from the left and right eyes to the visual cortex of the brain. It was a simple and brief and effective learning activity.

**IB Psychology:**

IB Psychology teacher, Elaine Scroggins, created a series of activities and reporting alternatives for a unit of how attitude may correlate with human behavior. The alternatives allowed students choice in terms of learning styles and production preferences.

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<th>IB SL PSYCHOLOGY</th>
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<tr>
<td><strong>Objective:</strong> To assess the extent to which attitudes and behaviors correlate</td>
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<tr>
<th>Activity Alternatives</th>
<th>Reporting Alternatives</th>
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<tr>
<td><strong>Choice #1:</strong> With at least 3 other students, plan a debate which reflects various theoretical findings regarding the correlation between attitudes and behaviors. Incorporate examples from everyday life which support and challenge these findings.</td>
<td><strong>Choice #1:</strong> Orchestrate and participate in the 10-15 minute debate. Have members of the class who are not participating judge the debate, according to the criteria you and the 3 other students have created.</td>
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<td><strong>Choice #2:</strong> Write a news story reflecting the latest information regarding the correlation between attitudes and behaviors. Design a series of at least 5 questions which highlight aspects of the attitude-behavior relationship reflected in the news story.</td>
<td><strong>Choice #2:</strong> Invite 4 – 5 classmates to read your news story and to answer the accompanying questions in writing for you to correct.</td>
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<tr>
<td><strong>Choice #3:</strong> Create a series of skits (mini-play with at least 3 scenes) reflecting the various</td>
<td><strong>Choice # 3:</strong> Perform skits for 4/5 classmates. Between each scene facilitate discussion</td>
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relationships social psychologists believe exist between attitudes and behavior and which you believe are present in everyday life. Generate at least 2 questions to prompt discussion at the close of each scene.

| Choice #4: Design a visual representation (e.g. poster, collage) reflecting your understanding of the correlation between attitudes and behaviors and how you believe this relationship is reflected in society. Create a worksheet which asks questions about information reflected in your representation. | Choice #4: Provide a 5-minute presentation explaining your visual representation to at least 4 of your peers. Have students complete the worksheet and return it to you for correction. |

IB Geography:

Our friend and colleague, Nick Bowley has taught IB Geography at a number of international schools. Nick developed the following kinesthetic learning activity at the International School of Tanganyika, but has subsequently used it with international school students in Syria and China. The learning activity is a massive board game that takes place on two enormous shower curtains.

In Nick’s words: “The game is a kinesthetic review (or pre-test) of population policies, family planning and economic development. The players throw a giant die to move around a board, spread over the floor, on which there are questions and hazards. The winning team is the first to reach 'home' which in this game means a mummy, daddy, and two children with full tummies…I used the game last year with a group of 11th graders, and they loved it. The scale of the thing, and the movement it required, was quite a hook for them and for the passers by (because we had to play it in the lobby).”
IB Physics

Oscar Nilsson, physics teacher and head of school at Bandung International School, developed a differentiated astronomy unit based on the concept of a learning contract. Each student was called upon to read through the “Contract Package” and determine how he or she would fulfill the various obligations. Some examples from the “Contract Package” include:

**Objective #1: Recall the stages in the evolution of a star.**

Choose at least two.

<table>
<thead>
<tr>
<th>Activity Alternative</th>
<th>Reporting Alternative</th>
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<tbody>
<tr>
<td>Make a map or chart representing the information you have gathered</td>
<td>Display the map or chart and answer questions about it.</td>
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<tr>
<td>Put together a power point presentation on the topic.</td>
<td>Present the program to your classmates.</td>
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<tr>
<td>Imagine that you are a Universal Travel Guide and are taking tourists on a tour of the galaxy. Prepare a voice/video commentary to be played on the Universal Space Transport Shuttle as it tours the hot and cold spots of the universe</td>
<td>Play the commentary/video to your classmates.</td>
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<tr>
<td>Produce a booklet by searching the web for more information on the topic.</td>
<td>Share this booklet with your colleagues</td>
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**Objective #2: Describe the main processes involved in the formation of young stars, red giants, white dwarfs, supernovae, neutron stars and black holes.**

Choose two activities.

<table>
<thead>
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<th>Activity Alternative</th>
<th>Reporting Alternative</th>
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<tbody>
<tr>
<td>Develop a game using the ideas from the topic.</td>
<td>Play the game with several other fun loving astrophysicists.</td>
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<tr>
<td>Put together a presentation/lecture on the topic with overhead transparencies and posters to illustrate your points.</td>
<td>Present the lecture to your classmates.</td>
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<tr>
<td>Activity Alternative</td>
<td>Reporting Alternative</td>
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<tr>
<td>Write and perform a play inspired by the topic.</td>
<td>Present the play to your classmates</td>
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<tr>
<td>Produce a different type of diagram that classifies stars.</td>
<td>Explain the diagram to your classmates.</td>
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<tr>
<td>Write a poem/song about the topic</td>
<td>Share your work with one or two classmates.</td>
</tr>
<tr>
<td>Produce a booklet by searching the web for more information on the topic.</td>
<td>Share this booklet to your colleagues.</td>
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**Objective #3: Classify stars using a Hertzsprung Russell diagram.**

Choose two activities.
Objective #4: Evaluate astronomical observations as evidence for the existence of neutron stars and black holes.

Choose two activities.

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<thead>
<tr>
<th>Activity Alternative</th>
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<tbody>
<tr>
<td>Construct a crossword puzzle based on the topic.</td>
<td>Let other students try to complete it. Check and return their answers to them.</td>
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<tr>
<td>Write and perform a (detective?) story inspired by the topic.</td>
<td>Present the play to your classmates</td>
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<tr>
<td>Produce a 2D flowchart of the process.</td>
<td>Display the chart and answer questions from your classmates.</td>
</tr>
<tr>
<td>Search the web for more information on the topic and produce a booklet.</td>
<td>Share this booklet with your colleagues.</td>
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IB Math:

Colette Belzil, an IB math teacher from the International School of Brussels has developed a brief (5-10 minute) interactive review activity that is particularly effective with complex concepts with numerous details. In this example, Colette uses logarithms.

Review Activity: Instructions to students

"Take out a piece of paper. Put your name on it. Put #1
Next to #1, write down one thing you remember about logarithms.
When you are done put your pencil down.
(Once all the students are finished writing something...)
Pass your paper to another student.

Put #2 on this person’s list. Write down one thing you remember about logarithms that is not already written on this sheet.
When you are done put your pencil down.
Pass this paper to another student. (you cannot take a student’s paper if you have already written on it)

Put #3 on this person’s list. Write down one thing you remember about logarithms that is not already written on this sheet. When you are done put your pencil down."
Pass this paper to another student.

….and so on…”

Continue to circulate the papers for several rounds. The idea is to not repeat any item on any piece of paper.

On the last round, ask students to return the paper in front of them to the original owner.

They can rewrite a rule (eg. \( \log \frac{a}{b} = \log a - \log b \), or \( \log_a b = \frac{\log b}{\log a} \)) or draw a sketch of what a log graph looks like…. ) as often as they want so long as it has NOT already been written on the list.

This is a GREAT way of reviewing, writes Colette:

The number of times I have students circulate the papers depends on the number of elements involved in the lessons I am reviewing. I have used this with log graphs and log rules, exponential graphs and exponent rules, with the different asymptotes and graphing rational functions… I have used it with vector vocabulary as well.

It is a great way of revisiting a previous lesson or lessons that were done before a school break or a long weekend and before going on to the next step, because even if they only remember ONE thing that was covered in the previous 1-2 lessons, by having to see what others have written, it refreshes their minds. They sometimes also see something they had written earlier and realize they had made a mistake 😅 or else find a mistake on the paper they have been handed (and their new entry is the correction).

Alternate method: Sometimes Colette adds the extra step of asking students to look at the list that is returned to them at the end and see if there is anything that may be missing. She may let them take out their notes or book for verification and then ask students to volunteer what may have been missed. If she notices that a key element has been overlooked, it gives her the opportunity to bring it up and review it as needed.

Modern Languages: French

Although Marie-France Blais, a Middle School French teacher at the International School of Kuala Lumpur, is not currently teaching in the IB Diploma Program, many of the differentiation strategies that she has developed could easily be adapted for IB classes. She classifies them in terms of Speaking, Listening, Writing and Reading.
**Speaking**

“Most students easily master key phrases as well as memorize scripted conversations that can be delivered in the target language. Yet promoting spontaneous exchanges has always been a challenge for me. This year, I have devised tasks that bridge the gap between memorized dialogues and pure unscripted speech.

After Malaysia Week (a week-long experiential learning program) the students re-created their Malaysia Week itinerary on an A3 paper labeling the items on their maps with nouns. They then framed their work by writing a selection of infinitive verbs / un-agreed adjectives / link words and adverbs. Armed with this thematic vocabulary and the illustrated map, students were able to share their Malaysia Week (MW) experiences with the whole class or in small groups, constructing their sentences as they described their surroundings and activities. While the sophistication of the phrases varied, each student was able to communicate his/her message. Some students folded the frame underneath their map as they were able to talk about their MW without the visual help of the words.

Some students challenged themselves further and exchanged their maps and described another person’s MW experience, which of course implied the use of different pronouns and possessives.”

**Listening /Understanding**

“I believe most language students often understand far more than what they can express in the target language. In the past, I have had students respond to questions in English about a French story that I would read out loud. This practice allowed me to truly assess whether the students understood the story. If I had made them answer in French, I might have unwittingly assessed their ability to respond in the target language rather than their understanding of the target language. Last year I was introduced to TPRS (Teaching Proficiency through Reading and Storytelling). While I have not been able to embrace all the tenets of this method, I have come to see its questioning method as an invaluable tool in class. It allows me to differentiate the complexity of the questions as well as personalize the issue at hand.

I read the story in French and students are also expected to respond in the target language. Scaffolding the questions gives options to students (see Levels I and II below) and they do not remain tongue tied with nothing to say. The comprehension questions of Level 3 ask students to form a hypothesis and even if it is wrong, they are still using the target language. The elaboration questions of Level IV are seemingly more difficult, but some students do surprisingly well on them.

Here is the sketch of a story and samples of possible ‘scaffolded’ questions:

Simon Leblanc told his wife that he would bake a birthday cake for her 30th birthday on the 5th of May. Mr. Leblanc is a very busy attorney and he forgot about his promise. On the day of his wife’s birthday, he went to a different part of town and bought a scrumptious cake. His wife loved the cake and asked him for the recipe. The next day, Simon hurried back to the bakery to
ask the baker for the recipe. The baker saw Mr. Leblanc rushing back looking tense. The baker thought that Mr. Leblanc was unhappy with his cake so he hid behind the counter of his store.

I. “Either /Or” questions
* Students can either answer with a complete sentence or short answer.
  1. Is Mr. Leblanc married or single?
  2. Did his wife like or hate the cake?
  3. Do you prefer chocolate or vanilla cake?
  4. Is Mr. Leblanc busy or lazy?
  5. Is the baker a brave or cowardly man?

II. “Yes / No / 1 word” questions
* Students can answer either with yes/no or with a complete sentence.
  1. Is Mr. Leblanc a baker?
  2. What is the profession of your dad / mom?
  3. Is the date of Mr. Leblanc’s wife May 5th?
  4. When is your birthday?
  5. Where did the baker hide?

III. Comprehension questions
  1. Why did the baker hide?
  2. Why did Mr. Leblanc choose to buy the cake in a different neighborhood?
  3. Why did Mr. Leblanc have to buy a cake?
  4. Why was Mr. Leblanc looking tense?
  5. What assumption did the baker make?
  6. How can you assume that Mr. Leblanc’s wife loved her cake?

IV. Elaboration
* There are no wrong answers in this section. Debates can spontaneously occur if the students feel particularly drawn to a subject.
  1. Do you think that Mr. Leblanc’s wife was fooled by her husband? Why?
  2. What are some of the ways to ensure that you remember an important date?
  3. Relate a time when you or someone you know felt tense or stressed.
  4. What might have happened if Mr. Leblanc told his wife the truth?
  5. Is ‘total honesty’ preferable to the telling of ‘white lies’? Explain.
  6. List the top 3 qualities that you look for in a friend.
  7. Re-tell the story from the angle of Mr. Leblanc’s wife / the baker.
  8. Who do you identify with most in the story? Why?

Writing
Students have a small writing book that they begin in Basic French which they will keep through Intermediate French until the end of Advanced French. It shows the writing progress made by the students and it becomes a (small or big) source of pride for all. Twice a month (minimum), the students write a story / dialogue in this book. The themes of the writing vary but the students are asked to showcase the structures/vocabulary that they know in French.
For students who suffer from ‘writers’ block’, I provide a file of wordless illustrated stories / postcards / advertising pictures to choose from. Once they have an idea, those students can write up a storm.

For creative students who are hesitant to use newly learnt structures, I provide a ‘must-have’ list of grammatical structures that I expect to see in their writing. The students glue the list next to the story and tick the items as they use them. Ex.: 10 passé composé avec avoir and 3 with être; 3 demonstrative pronouns; 3 temporal adverbs; 2 partitive articles…

For students who are petrified in front of a blank page, I give a list of various stems / nouns / verbs / adjectives that the students weave together in order to create story. Ex.: (stems) On the first day / Then he fell heavily / In my humble opinion (nouns) the lawnmower / some loose change / a multicoloured wig (adjectives) wrinkled / stubborn / dry

Some students have great difficulty “to think in French” and insist on “writing in English first” - their writing thus reflects a direct translation from English to French. I teach these students how to modify their English text in order to achieve a French sounding text.

Some students challenge themselves by taking the text of a well-known French author and imitating its style. It is quite difficult to do but some kids have been quite successful at it.

Daru est instituteur d’une petite école française qui se situe dans une région rude, sèche et solitaire, sur les hauts plateaux d’Algérie. Il regarde deux hommes qui montent lentement la pente à sa rencontre. L’un est à pied, l’autre à cheval. (Albert Camus)

**Reading**

Again as a result of becoming acquainted with TPRS, I have instilled a 15 minutes individual free reading period once a week in class. Students pick a book from the various genres/themes on the bookshelves, pick a comfortable spot / cushion / corner and read! Not having questions to answer after the reading helps students relax about looking up every word they encounter. I have also found some stories on-line which have proven popular with the ‘techie crowd’.

Another form of reading that we do is “peer reading”. Every 2 weeks, I select a piece from one of our students, type it and give it to the whole class. The readers not only enjoy the stories but they are very keen to discover its writers. The writers themselves bask in a small patch of glory! This practice also subtly allows everyone to gauge their own level of writing as it provides a type of anchor paper (an exemplar of the desired outcome).

I recall enjoying in-class oral reading from my own school days . . . So my classes are also getting to read stories out loud by taking turn (most of the time they are
volunteers but at times I “call” on specific students). I make sure that we stop at a crucial point in the story and I love it when they yell for one more page!

Texts (authentic and made for target language learners of varied genres and themes) are regularly used in class. For each of these texts, I provide an optional glossary for the students.

I find summarizing a very powerful way to cut to the chase and find out whether the students have understood the fundamental premises of a particularly difficult text. I quite often have the students working in groups where each provide “one thing” from the text to their group. It often turns into a game as to who has the last morsel to contribute after the others have exhausted their offerings.

Conclusion

Instruction in the elementary, middle and high school takes different forms and differentiated instruction is no exception to this. It will look different in the different divisions of a school. Advanced learner programs, such as the IB, are challenging, rigorous and, to some degree, stressful for both the student and the teacher. Our experience and the experience of many of our colleagues around the world has shown that differentiation in the IB can make the challenge and rigor more manageable for all learners, but particularly for diverse learners. Differentiation can also decrease the stress and anxiety that is commonly associated with this challenging program.

As Marie-France Blais puts it, differentiation is “like a scaffold used to scale a wall. Some students start below others and some will reach far beyond the top of the wall. The speed and energy expended will differ from student to student and so will the route that individuals choose to take -- but all students will end up higher than where they started.”