

# RESEARCH SUMMARY

## *A study of “reflection” in the International Baccalaureate Diploma Programme*



Summary developed by the IB Research department based on a report prepared by:

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### Background

International Baccalaureate (IB) programmes, including the Diploma Programme (DP), support student attainment on a range of 10 academic and non-academic attributes that are collectively called the learner profile (IBO 2015). At the student level, the attributes of the learner profile define the type of learner the IB hopes to develop through its programmes. At the school level, the learner profile is a set of ideals that can inspire, motivate and focus the work of schools and teachers.

This study focuses on one learner profile attribute in particular: “reflective”. The IB defines the reflective attribute as follows.

*We thoughtfully consider the world and our own ideas and experience. We work to understand our strengths and weaknesses in order to support our learning and personal development (IBO 2013).*

The purpose of this study was to examine the implementation of the attribute by exploring how reflection is interpreted, integrated into instruction and assessed, and how it benefits DP students.

### Research design

Using a mixed-methods design, researchers from the Education Research Center at Texas A&M University employed a four-phase study approach consisting of:

- an exploration of reflective thinking in the research literature
- an examination of reflective thinking in DP schools
- an investigation of strategies and policies that facilitate reflective thinking in DP schools
- a comparison of select DP schools in order to develop detailed narratives of case-study sites that are successful in integrating reflective thinking in instruction and practice.

Quantitative and qualitative data were collected from the following sources.

- Surveys of DP teachers and administrators in 31 schools across the United States (US) and Canada
- Interviews with teachers and administrators, surveys of DP students and classroom observations of DP classes at six case-study sites.

### Findings

#### Literature review

##### *Interpretations of “reflective”*

Three broad themes emerged from the literature on the interpretation of reflection. First, reflection is viewed as a set of metacognitive skills and practices known as metacognitive reflection (Mitchell 2010; Tanner 2012). Second, reflection is defined as reflectivity, which entails separating a new experience from one’s own background and bias in order to view the new experience from a different, often cultural, perspective (Blank 2000; Kember, McKay, Sinclair and Wong 2008). Third, reflection is a sequence of steps called “process reflection”, similar to an inquiry process that starts with an experience and leads to a changed understanding and/or action (Davis 2003). The researchers further concluded from their review that:

- reflective thinking strategies generally result in increased academic achievement
- the development of student reflective thinking is a complicated process requiring a focus on multiple types of strategies, including cognitive, metacognitive and affective/motivation strategies
- the teacher heavily influences how students interpret reflective thinking; when teachers model and encourage students to practise reflective thinking, students’ achievement and skills in reflective thinking improve.

Results from the literature review were subsequently used to:

- provide a framework for describing and recognizing reflective teaching practices, examples of reflection activities and ways to facilitate and assess reflective thinking and learning
- identify benefits of student reflection in secondary school education
- inform the development of the *Reflective Instruction Survey for Teachers and Administrators* (RISTA).

## DP educators' interpretations of "reflective"

The research team administered the RISTA to teachers and administrators ( $n = 802$ ) at a sample of DP schools in Canada and the US ( $n = 31$ ). Three faculty groups completed the survey: DP administrators; teachers teaching only DP courses; and teachers teaching both DP and non-IB courses. The RISTA explored how each group interpreted "reflective" as well as the significance given to the attribute in the written, taught and learned curriculum.

Data analysis was centred on the broad themes from which the survey questions were drawn: reflection on cognition and reflection on self. Analysis of responses for the "reflection on cognition" items revealed statistically significant differences on three items among the three groups surveyed. DP administrators were significantly more likely than DP teachers teaching IB courses only to perceive reflective thinking as a skill that could be taught most effectively through practice of an iterative cycle of steps or through practising reflective strategies. In addition, DP administrators were significantly more likely than both groups of DP teachers (IB-only or both IB and non-IB) to believe that reflection is most effectively taught through explicit instruction of the concept. Analysis of responses for the "reflection on self" items also revealed a significant difference among the three groups on one survey item. The DP teachers, whether teaching IB courses only or a combination of IB and non-IB courses, were significantly more likely than administrators to perceive that reflective thinking involves examining personal knowledge related to a problem.

Respondents to the RISTA were asked 17 questions related to their perceptions of ways in which instruction in DP classes in their individual schools supports student reflection. As a whole, the three groups had the highest mean ratings on items related to students' thinking about what they were doing as they were completing activities ("Students in my DP classes are encouraged to think about what they are doing in order to complete activities or assignments") and to students connecting between new learning and their experiences. Lower mean scores were returned by the three

groups for an item proposing that reflection requires an extensive amount of time thinking over experiences related to activities ("Instruction in my DP classes requires extensive time spent thinking over experiences related to the activity"). These two results may suggest that IB survey respondents perceive reflection to be an active process, in which students are reflecting on work as it is being completed, rather than thinking back on activities or experiences once they have occurred. This view is in line with Schön's idea of reflection-in-action (1987), in which participants consider an activity, their knowledge related to the activity and changes in their knowledge as an activity is being completed.

## Case study results

Two-day site visits were conducted with six schools in the US and Canada that were identified as having a higher level of engagement with reflective thinking.

### Student questionnaire

DP students at each case-study site were administered the IB-Student Reflective Thinking Questionnaire (IB-SRTQ) during the site visits ( $n = 205$ ). The survey uses four sub-scales of reflective thinking, ranked by depth of reflection: habitual action; understanding; reflection; and critical reflection. The first scale, **habitual action**, includes rote activities that one can complete by memory; this is considered to be the lowest level and does not require reflection. **Understanding**, the second scale, refers to situations in which one understands something without relating it to other situations (Bloom 1979). During **reflection**, the third scale, one actively, carefully and persistently considers one's beliefs and knowledge "in the light of the grounds that support it and the further conclusion to which it tends" (Dewey 1933: 9). Finally, during **critical reflection**, considered a higher form of reflection, one begins to consider why one thinks as one does and may change beliefs as a result of an experience.

Analysis of survey responses revealed statistically significant differences between sites on each of the four sub-scales. Overall mean scores for the habitual action scale were lower than those for any other scale, indicating that DP students at all sites identified less strongly with habitual action than with the other three scales. Conversely, the overall mean score on the understanding scale was the highest of any of the four scales, indicating that the DP students surveyed felt most strongly that DP courses required an understanding of concepts and course content.

The IB-SRTQ findings are in line with those from previous research (Kember et al. 2000; Leung and Kember 2003), in which students surveyed ( $n = 303$ ) identified most strongly with the understanding and reflection scales and least strongly with the critical reflection and

habitual action scales. Kember et al. (2000) hypothesized that scale scores for critical reflection items in the aforementioned study were lower because critical reflection requires “a significant change of perspective” (2000: 385), which is brought about only by identifying assumptions one has about an issue and redefining both one’s assumptions and perspective (2000: 391). In addition, the rigour of the undergraduate courses of the students surveyed in the study by Kember et al. (2000) dictated that habitual actions, such as memorization and repetitive activities, were not a primary means of instruction for the students surveyed. Given the DP’s focus on preparing its students for successful post-secondary education, it is not surprising that the student survey results regarding habitual action, in the current study, closely mirror those of Kember et al. (2000).

### *DP teacher and administrator interviews*

Qualitative data collected during semi-structured interviews at the case-study sites were examined across cases to determine common themes related to participants’ definitions/interpretations of “reflective”, instructional strategies to encourage reflection among DP students, and benefits of reflection and reflective thinking for students. Respondents identified three themes related to definitions of “reflective”: reflective thinking as a tool for academic growth; reflective thinking as a tool for personal growth; and reflective thinking as a tool for metacognition.

Reflective thinking was identified as a tool for academic growth to a great extent at all sites the researchers visited. To some extent, however, it was the theme discussed in the most superficial terms, using reflection as a synonym for “review”. Some participants, for example, described reflection as a process of “going back and looking at your mistakes” or “... looking at things you’ve done in the past”. Participants at most sites also considered reflection to be a tool for personal growth. One teacher, for instance, described reflection as a process of “digging deeper and reflecting upon ... how that has affected me as a person.” Finally, reflective thinking as a tool for metacognition was a theme evidenced at some, but not all, sites. One participant compared reflection to finding an inner space in which to consider one’s learning.

*It has very much to do with metacognition and the capacity to almost, in a sense, create an internal space ... I feel very strongly that the students who do this well ... are students who are willing to step back from their own actions, their thoughts, their behaviours and they create that inner space of awareness.*

### *Instructional practices used by DP educators to encourage reflection*

Participants identified several strategies for integrating reflection into instruction: collaborative learning, class discussion, critical writing and self-evaluation.

- **Collaborative learning:** Participants in all case-study sites used a variety of collaborative learning strategies to encourage reflective learning in their classes. Some strategies were as simple as “peer-to-peer reflections” or “think/pair/share”. Other participants identified more complex strategies, such as what one interview participant described as asking students “to workshop with other students as to the strengths and weaknesses of their material”.
- **Class discussion:** Participants across all sites also identified class discussion, ranging from open discussions to “more formal Socratic discussions” as a valuable tool for integrating reflective thinking into their teaching.
- **Critical writing:** Many teachers, in all subject areas and across all the case-study sites, also discussed using logbooks, reader response journals and post-performance reflective journals to encourage reflection. For example, as a dance teacher from one of the schools explained:

*We keep a dance journal, and in it they—they do a lot of things. One, any time we do a performance, I make them watch their performance ... They have to reflect on—on their performance, and usually I’ll give them a specific thing to look at, or I’ll take the IB rubric and say, “Okay, you know the criteria here, I want you to look at this piece, and you know, how would you evaluate yourself?”*

- **Self-evaluation:** Lastly, many participants reported that they use some form of evaluation tool to provide a framework to encourage students to reflect on both their own work and their peers’ work as a way of integrating reflection into their instruction. One participant, who had discovered that students who evaluated other students’ work first were more accurate in evaluating their own work, shared their experience.

*Often I find that ... it’s a little bit easier for them to do it helping someone else, so I’ll have them do that first, as well, and then apply the same method to looking at their own work.*

### *Benefits of reflection for students*

Teachers and administrators across the case-study sites generally agreed that “reflective” was “one of the most important attributes” for the academic and social development of their DP students. Two prevalent themes were identified across the sites in terms of the benefits

of reflection for DP students: academic benefits and psychosocial benefits. First, participants at many of the sites believed that reflective thinking helped their students to understand their learning from a more constructivist model. This was communicated as follows by one teacher.

*Learning isn't just what you are presented and given from supposedly the font of knowledge that are [sic] the teachers. It is you, learning about yourself and learning your strengths and weaknesses as a student, as a learner, as a person and in every facet of your life.*

Other participants posited that reflective thinking gave their students “a sense of their own personal accountability” and allowed them to evaluate their own academic progress.

Many participants theorized that reflective thinking had the potential to result in psychosocial benefits for their students, such as helping them to think outside the context of their own experiences and to critically examine their own beliefs and judgments. One participant, for example, concluded that if she can help her students to become more reflective in their thinking, they are more likely to recognize the limitations of their knowledge, to be tolerant and open-minded, and a good, informed citizen.

*You can't be open-minded and tolerant if you're not reflective on your own position in the world.*

## Summary

Although encouraging reflection among students can be challenging, educators agreed that “reflective” was “one of the most important attributes” for the academic and social development of DP students. DP teachers and administrators tended to interpret reflection in three ways: as a tool for academic growth, personal growth and/or metacognition. The results from the teacher and administrator survey indicated that respondents generally perceived reflection as an active process, in which students are reflecting on work as it is being conducted, rather than thinking back on activities or experiences after they have occurred. Based on the student survey, DP students identified most with a perception of reflection as understanding (understanding of concepts and course content) and least with habitual action (rote activities that one can complete by memory). Lastly, respondents identified a number of strategies for incorporating reflection into the curriculum, including: collaborative learning, class discussion, critical writing and student self-evaluation.

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This summary was developed by the IB Research department. A copy of the full report is available at [www.ibo.org/en/about-the-ib/research/](http://www.ibo.org/en/about-the-ib/research/). For more information on this study or other IB research, please email [research@ibo.org](mailto:research@ibo.org).

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