

CRITICAL THINKING, GLOBAL MINDEDNESS, AND CURRICULUM  
IN A SAUDI ARABIAN SECONDARY SCHOOL

by

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## ABSTRACT

Globally minded critical thinking skills have become important in both education and the workplace. This study examined how one PK-12 school in Saudi Arabia is implementing the International Baccalaureate (IB) program to support the development of students' globally minded critical thinking skills while remaining respectful of existing cultural norms, including those relating to religion and gender. The study focused on the knowledge, motivation and organizational assets that humanities and social studies teachers possess that are promoting the school's successful transition to the IB program. It also identified ongoing needs that teachers and the school should address to fully implement globally minded critical thinking into curriculum and instructional methods. Findings suggest that teachers need pedagogical expertise and knowledge of Saudi cultural norms. They should also demonstrate positive, adaptive behaviors and attitudes and possess values aligned with those of the rest of the organization, as well as the IB program. Teacher also need consistent expectations and accountability mechanisms together with sufficient organizational resources and support.

*Keywords:* International Baccalaureate (IB), critical thinking, global mindedness, Saudi Arabia

## CHAPTER ONE: INTRODUCTION

The ability to think critically has emerged as one of the principal academic and workforce competencies of the twenty-first century (American Association of Colleges and Universities, 2007; Eisner, 2010; Uhalde, Strohl & Simkins, 2006; Wagner, 2008). Countries seeking to transition to a globalized knowledge economy have prioritized the development of critical thinking skills in secondary and tertiary education (Ananiadou & Claro, 2009; Burn, 2002). As a result, schools and universities around the world have introduced new pedagogical and curricular models to meet this demand, with varying success (Che, 2002; Hallinger, 1998; McGuire, 2007; Mok, 2007; Wiseman, Alromi, & Alshumrani, 2014). One secondary school model that continues to gain popularity globally is the International Baccalaureate (IB); it mandates a standardized set of academic outcomes, including the development of critical thinking skills, for all graduates of its program regardless of geographic location (Hill, 2007; Tarc, 2009). In fact, the IB Learner Profile embeds critical thinking within the definition of global mindedness, which the IB terms “international mindedness,” at the heart of the IB’s philosophy (Wells, 2011).

At the same time, as Spring (2015) has noted, most countries seek to retain, reproduce, and transmit certain cultural values, norms, and traditions through education. At the secondary school level those cultural norms are frequently addressed in humanities and social studies classes, particularly in terms of citizenship education (Disinger, 1992; Evans, 2015; Lazere, 1992; Sim & Print, 2005). Simultaneously humanities and social studies classrooms are often key sites for the development of students’ critical thinking skills (Newmann, 1990, 1991; Onosko, 1991; Saye & Brush, 2002; Ten Dam & Volman, 2004). At times those two goals may conflict. Therefore, the problem of practice addressed by this dissertation is how to build capacity in secondary schools for students to develop globally minded critical thinking skills

through humanities and social studies curricular reform while remaining sensitive to local cultural norms, including those pertaining to religion and gender.

### **Background of the Problem**

Although critical thinking is often cited as a cornerstone for student and worker success in an increasingly globalized world, no scholarly consensus exists as to its exact definition (Dede, 2010; Foundation for Critical Thinking, 2015a; Vandermensbrugge, 2004). According to P21: Partnership for 21<sup>st</sup> Century Learning (n.d.), critical thinking in education is usually linked to the following skills: problem solving; logical reasoning; analyzing and evaluating arguments, evidence, and points of view; self-reflection; and systems thinking. These skills cluster toward the higher end of the revised version of Bloom's taxonomy, which was updated in part to emphasize the importance of self-reflection in higher-order cognitive processes (Krathwohl, 2002).

Educators are likewise divided as to whether critical thinking skills are best developed in the context of subject-area content knowledge or through separate, specialized instruction (Griffin, 2014; Rotherham & Willingham, 2009; Senechal, 2010). Members of the latter group, sometimes referred to as the twenty-first century skills movement, argue that students become more proficient, engaged critical thinkers through learning activities that prioritize the real-world application of skills. Mastery of traditional academic content is relatively less important and occurs through the process of skills acquisition (Bellanca & Brandt, 2010; Trilling & Fadel, 2009). Educators who favor more content-driven curriculum, including advocates for the Common Core State Standards in the United States, counter that critical thinking has been an essential aspect of good education since Ancient Greece, and that content knowledge serves as the foundation upon and through which higher-order thinking skills are built (Ravitch, 2000,

2010; Senechal, 2010). For example, one Common Core advocate, the Bill and Melinda Gates Foundation, believes that critical thinking should be taught through disciplines related to literacy acquisition, including English and language arts, science, and social studies. It is partnering with curriculum and assessment development specialists to create classroom and teacher-preparation materials in support of those standards (Phillips & Wong, 2010). Yet despite their disagreements over pedagogy and curriculum, both Common Core and twenty-first century skills proponents frame their recommendations regarding critical thinking skills in terms of workforce readiness. Both consider the ability to think critically as essential in a competitive, complex and rapidly changing economy.

Many educators also link critical thinking to global awareness, due to recognition of the world's growing interconnectedness over the past half century (Burnouf, 2004; de Andreotti, 2014; Gibson, Rimmington, & Landwehr-Brown, 2008; Merryfield, 2008b). One form of global awareness, "global mindedness" (sometimes called "global competence," "global citizenship," or "international mindedness"), seeks to develop graduates who can combine knowledge of complex global issues with self-reflective recognition of multiple, diverse perspectives and critical analysis of systemic, interconnected problems (Hill, 2012b; Merryfield, Lo, Po, & Kasai, 2008). In this model, education for global mindedness must go beyond simply introducing students to the customs and practices of other countries and cultures. Thus, while no standard definition of global mindedness exists (Cause, 2011), it is increasingly considered a key aspect of "critical global citizenship" (de Andreotti, 2014; Eidoo et al., 2011).

Although much of the research on critical thinking and its relationship to global awareness has centered on North American educational institutions (Merryfield, 2008a), some recent studies have focused on schools and universities in Asia (Che, 2002; Hallinger, 2008;

Wang & Woo, 2010; Zhang & Lambert, 2008) and, to a lesser extent, the Middle East (Bataineh & Alazzi, 2009; Simpson & Courtney, 2007). However, harkening back to the challenges of defining critical thinking, debate exists among scholars as to whether Western educational models can adequately assess the ways that non-Western learners demonstrate critical thinking skills (Stapleton, 2001).

The International Baccalaureate Organization (IBO) is at the forefront of discussions regarding the educational link between global mindedness and critical thinking (Bunnell, 2008, 2009; Hill, 2012a). The IB was initially developed in the 1960s to create a standardized curriculum that would enable students enrolled in international schools to move between schools and countries with minimal academic disruption, as well as to provide an internationally recognized secondary school diploma. It emerged from the curriculum of the International School of Geneva that, in the words of former school head Ian Hill, “practiced a teaching methodology which promoted critical inquiry, dialogue in the classroom, and a creative approach to teaching” (2012a, p. 342). By the mid-2000s, the IBO had developed and articulated a comprehensive educational philosophy and set of desired learning outcomes encapsulated in the IB Learner Profile (see Appendix A). Critical thinking skills and global mindedness appear prominently and are conceptualized as interwoven (Wells, 2011).

In 2018, the IBO celebrated its fiftieth anniversary. As of May 2018, there were 6,258 authorized IB programs offered in 4,781 schools; 59.4% of schools are located in the Americas, 17.3% are located in the Asia Pacific region, and 23.2% are collectively located in Africa, Europe, and the Middle East (IBO, 2018a). The IB program has been, and continues to be, adopted by many national schools (i.e. public and private schools with student populations coming mostly from the country where the school is located), bringing with it a standardized

examination system and curriculum that emphasizes global mindedness as a core attribute (Bunnell, 2011; Tarc, 2009; Tarc & Beatty, 2012). The IB program positions itself as a curricular model that holistically teaches the twenty-first century skills and competencies necessary for global citizenship, including successful participation in the global knowledge economy.

Yet, even as K-16 institutions worldwide have prioritized skills tied to academic and workforce readiness in a modern global economy, most national secondary schools, both public and private, still retain at least some traditional roots in civic education, particularly in the humanities and social sciences. The belief that mass education should be a means of inculcating patriotism and a nation-state's values became common in many countries during the nineteenth century and was reinforced in the United States during the Cold War (Albisetti, 1983; Anderson, 1991; Brockliss & Sheldon, 2012; Brooks, 1985; Carretero, 2011). That understanding of schooling's purpose, particularly regarding history education, is also evident in the recent debates over interpretation of historical events in U.S. textbooks and Advanced Placement exams (Evans, 2015; Urist, 2015; Westheimer, 2015). In this view, civic education's purpose is social reproduction of dominant societal values rather than social transformation. The goal of maintaining and transmitting a society's values and norms through education is also prominent in other countries (Cummings, Gopinathan, & Tomoda, 2014; Lee & Fouts, 2005; Morris & Morris, 2000).

Traditional cultural values and norms in some societies may conflict with the values and norms promoted through a globalization and standardization of curriculum, including in the IB program (Peterson, 2003; Spring, 2015). According to Resnik (2012), "certain national contexts and educational traditions encourage IB schools, while others hinder their propagation" (p. 249).

For example, despite the rapid growth of the IB program in the United States, the IB curriculum has been criticized as a challenge to American values (Bunnell, 2008, 2009). Moreover, the global citizenship goals of the IB program may conflict with the desire of some countries to inculcate patriotic concepts of nationalism and national citizenship through their education systems. For example, in Australia one proposal to model a new national curriculum on the IB Diploma Programme (DP) caused tensions because the IB is considered “a curriculum for citizenship beyond the nation” (Doherty, 2009, p. 73). On the other hand, the national adoption of the IB curriculum in Mauritius has been viewed as a means of emphasizing the country’s specific post-colonial identity, even while acknowledging that the IB’s curricular standards are, by their very nature, a product of Western culture (Poonoosamy, 2010). Starting in 2008, the IBO began to address concerns about curricular and cultural autonomy by allowing national schools to develop and implement their own curriculum to meet local content standards. In addition, IB students are now encouraged to “develop a strong sense of their own identity and culture” as well as international mindedness (as cited in Poonoosamy, 2010, p. 20). The question remains, however, whether the IB program can successfully promote global mindedness and critical thinking while still honoring and “supporting the preservation of individual cultures and national identities” (Hayden & Wong, 1997, p. 349), given that fact that the IB’s epistemological approach has been labeled inherently Western (van Oord, 2007).

### **Addressing the Problem Through a Promising Practice Study**

Addressing the problem of how to build capacity in secondary schools for students to develop globally minded critical thinking skills while remaining sensitive to local cultural norms, including those pertaining to religion and gender, is important for several reasons. First, it affects students’ preparation to meet the academic and workforce challenges of an increasingly

competitive globalized world. Universities, particularly the most selective institutions in North America, Australia and Europe, prioritize admitting students who demonstrate critical thinking in their academic coursework (Conley, 2007). Employers also seek workers who can problem solve in various situations and contexts and who can communicate constructively with people from diverse backgrounds (Casner-Lotto & Benner, 2006; McLester & McIntire, 2006).

Second, although many students around the world find the development of critical thinking skills challenging (Halpern, 1998; Kennedy, Fisher, & Ennis, 1991/2013; Marin & Halpern, 2011; Van Gelder, 2005), additional barriers may exist for students from certain countries, particularly in Asia, the Middle East, and Africa (e.g., Gashan, 2015; Ijaiya, Alabi, & Fasasi, 2010; Innabi & El Sheikh, 2007; Zhang & Lambert, 2008). Many students in those regions lack access to curriculum designed to grow their critical thinking faculties or access to teachers trained in critical thinking pedagogy. Moreover, in some countries, cultural norms preclude teachers and students from discussing certain topics because they are deemed too controversial. In other cases, a classroom based on critical inquiry and problem solving would itself violate existing cultural or political norms. However, without the critical thinking skills developed through questioning, problem solving and reflection, all students will be less able to compete in a global economy at the very time that their countries need them to do so.

One method to address this need is to study approaches that have proved effective in other contexts. This study identifies one such approach used at a school in Saudi Arabia, examining it as a targeted case study through which to identify promising practices that might be transferred to other institutions seeking to address the same need. Decision makers seeking to do so must understand why certain strategies, policies, and actions at the case study school were



effective, and for whom, as well as what barriers might exist in their own contexts that might preclude successful implementation.

This promising practice study examines one school in Saudi Arabia that has identified the improvement of globally minded critical thinking instruction as an organizational goal. To meet this goal, school leaders decided to adopt the IB program. During data collection for this study, the school was in the midst of planning for and implementing the IB. Therefore, this study presents a window, in real time, into an educational entity undergoing a process of significant change. It analyzes the factors that are contributing to the successful adoption of the IB, with particular focus on how the school is using the IB to develop students' globally minded critical thinking skills while remaining respectful of existing Saudi cultural norms. Moreover, because IB implementation is ongoing, certain organizational needs continue to exist and should be addressed for the school to reach its goal. These ongoing needs are also identified.

### **Organizational Context and Mission**

The Dhahran Ahliyya Schools (DAS) organization is a private, not-for-profit PK-12 day school founded by Khalid Ali Alturki and Dr. Sally Alturki in 1977 in Dammam, Kingdom of Saudi Arabia. Dammam is located on the east coast of Saudi Arabia and is home to Saudi ARAMCO, the government-owned oil company. The region is home to a relatively diverse international population due to its important role in the global oil industry. DAS is accredited by both Saudi government and United States entities. The school has two divisions, one for boys and one for girls. Starting in third grade, students are taught exclusively by instructors of the same gender. Teachers are recruited locally and from abroad.

Originally an Arabic-medium school, DAS now offers a dual-language English-Arabic program with an international focus while retaining an Arab Muslim identity. DAS is in the

process of gradually adopting the IB program to cement its commitment to an inquiry-based, globally minded curriculum. The school was authorized for the IB Primary Years Programme (PYP, grades PK-5) in spring 2018 and is currently a candidate for the Middle Years Programme (MYP, grades 6-10). After the MYP is implemented, DAS will decide whether to apply to offer the DP (grades 11-12); it will also continue to offer the Saudi Muqararat diploma. Regardless of a student's choice of diploma program, however, DAS is committed to providing a consistently high standard of instruction and an innovative curriculum that leverages best practices in education from around the globe.

DAS senior administrators employ a data-driven decision-making model to guide educational policies. In addition to its academic faculty, DAS employs a small research staff who help the school interpret student performance data collected through the MAP software suite so that teachers may personalize learning for each student. The school also uses MAP test scores to target areas for growth for each teacher, grade, and department of the school. Teachers and academic supervisors have access to their students' interim MAP assessment results throughout the year.

Academically, DAS ranks among the best schools in Saudi Arabia, with its students consistently earning scores at or close to the top of the national exam results for both Arabic- and English-medium programs. Both male and female students participate in a variety of co-curricular programs in addition to their regular academic classes, including robotics, Model United Nations, and Model Arab League. Its robotics teams have won both national and international competitions. Many students also volunteer through the school's community service program.

As of academic year 2017-2018, DAS' school population consisted of 2,025 students; 95% were Saudi Arabian nationals and the remaining 5% were Arabs of other nationalities. DAS relies on tuition to meet most funding requirements and does not offer scholarships. The school is housed in a building built by Saudi ARAMCO, the national oil company, and leased to DAS. The lease is paid in kind through reservation of 50% of the seats for Saudi ARAMCO dependents, who pay 65% of the standard tuition. Approximately 50% of the students therefore have parents who are employed by Saudi ARAMCO. In 2013 DAS established a Board of Advisors, similar in function to a board of trustees at an independent school in the United States, to promote the school's fiscal sustainability, provide strategic guidance, and broaden community partnerships. On the whole, staff turnover is relatively low; just over half of DAS employees have been working at the school for more than five years, including approximately 13% who have worked at the school between 10 and 15 years, and 20% who have worked at the school for more than 15 years (DAS, n.d.d). However, *teacher* turnover is higher, particularly among female faculty.

The school's fiscal stability, well maintained campus facilities, and consistent academic results have kept applications to the school high. As a result, DAS is selective in admissions, receiving many more applications for openings than it can enroll. Graduates typically matriculate to universities in Saudi Arabia and elsewhere in the Gulf region, Europe, and North America. Ninety-eight percent of DAS graduates attend 4-year colleges and universities.

The mission of DAS is as follows: "Inspired by the principles of Islam, the mission of DAS is to empower each student to be a compassionate, thinking, lifelong bi-lingual learner who makes a positive difference, locally and globally" (DAS, n.d.c, para. 1). DAS' Learner Profile lists several characteristics related to critical thinking, including the term "critical thinking"

itself. Moreover, the DAS Learner Profile expects students to be open-minded “learners with international mindedness” who engage with issues and ideas of global importance in a spirit of critical self-reflection (DAS, n.d.c, para. 5). In return, DAS explicitly commits to students that they will “feel that they are being asked to apply higher level thinking skills to their learning” (DAS, n.d.c, para. 3). Along with a global focus, the school simultaneously emphasizes and celebrates its local roots and core religious values: “Our vision is to provide a world-class education with an Arab and Islamic identity through a pioneering learning community that is sustainable and socially responsible” (DAS, n.d.c, para. 2).

### **Organizational Performance Status**

Since its founding, DAS has sought to create a student-centered learning environment for local students while developing best practices and educational materials that could “contribute to the development of Arab education on a wider scale” (DAS, n.d.b, para. 1). DAS uses the metaphor of the school as a “laboratory,” exploring and refining educational practices that may be shared with others. In keeping with its mission to support educators throughout the Arab region, DAS also established its own publishing house, Dar al-Kitab, to translate books on learning and pedagogy into Arabic. The school’s founders recognized a need for quality professional development materials in Arabic and started the press in response. Thus far, Dar al-Kitab has published hundreds of volumes. Publishing reinforces the impression that DAS lives its espoused values of serving as a learning laboratory for the Arab world and promoting lifelong learning for teachers as well as students. DAS also provides professional development outreach to other schools in the region.

DAS’ philosophy holds that student learning stands on three pillars: professional collaboration, support, and a results orientation (see Appendix B). To this end, DAS

administrators have developed and implemented a number of policies, programs, and practices to improve the caliber of its teachers, curriculum, and pedagogy. DAS considers an ethos of continuous improvement to be a hallmark of the school and invests heavily in professional development for teachers. In fact, teacher training has been at the heart of DAS' work for decades. The school's founders saw a need for teachers in Saudi Arabia who were academically qualified as well as open to a student-centered learning philosophy. Because education in Saudi Arabia has traditionally been teacher-centered, with an emphasis on lecture and rote memorization, DAS began providing extensive professional training early on to help its teachers adapt to DAS' particular educational philosophy, methods and practices.

Since the early 1980s, DAS has made a concerted effort to hire based upon potential rather than experience, choosing to train most of its teachers in house. Today, DAS recruits teachers from a variety of countries; however, all teachers, regardless of prior work experience, must participate in the school's standardized system of professional training and evaluation called the Plan for Continuous Progress in Learning (PCPL). The PCPL is based on current trends in international educational research. Through portfolio production, seminar attendance, and classroom observations, teachers must demonstrate proficiency in various categories of professional practice in order to progress up the school's salary scale (PCPL, 2014). School administrators commented that most teachers still come from more traditional educational backgrounds, so it is important that they are acculturated to DAS' values and standards through the PCPL.

The school published its first PCPL in 1982, with revisions in 1988, 2009, and 2014 in order to reflect the development of best practices in the field of education as well as the school's identity within its evolving national context. The introduction to the 2014 PCPL explicitly

describes how Saudi society has changed since the school's founding more than 40 years ago. It also affirms the school's commitment to continue evolving to meet its students' needs, most notably through the continuous learning of its teachers. The PCPL assumes that students learn most effectively within a school environment that is collaborative and supports continuous learning by all employees, teachers and non-teachers alike. As the 2014 PCPL states, "The learning of the individual, the group and the organization are all interdependent; none can be sustained without the other." More concretely, the PCPL links three elements: professional growth, assessment and evaluation of employee performance, and compensation. As part of the PCPL, each teacher at DAS must progress through a structured series of trainings in professional competencies ranging from classroom management to collaborative learning to Precision Teaching. Compensation is tied to steady, sustained progress through each competency level.

The PCPL system is rigorous and demanding for both teachers and administrators. To advance, teachers must provide tangible evidence that they have met prescribed benchmarks. Teachers must create extensive portfolios that include class lesson planning materials, examples of student work, and observation notes from supervisors. Teachers must also demonstrate self-reflective learning based upon professional development training and feedback from supervisors. The PCPL references Costa and Kallick's (1995) method of continuous growth through feedback spirals. Insufficient progress toward the next level adversely affects a teacher's compensation and ultimately employment. School leaders envision the PCPL as "aligned with the culture of a pioneering professional learning community committed to continuous improvement based on inquiry regarding best practices in assisting learning, whether for students or for adults" (PCPL, 2014).

The 2014 PCPL contains an explicit emphasis on critical thinking instruction. It requires all teachers who reach the second level of the PCPL to take in-house courses on collaborative learning and Precision Teaching. The Precision Teaching method emphasizes conceptual understanding and inquiry. The PCPL also requires teachers to participate in ongoing professional development through frequent participation in departmental and teaching-team meetings, which the school calls professional learning communities (PLCs). PLCs meet at least once per week, and often more, to engage in training, curriculum development, and evaluation of student performance. There is a strong emphasis on collaboration, critical self-reflection, and “deprivatization of practice” (PCPL, 2014, p. 35). Teachers also attend at least one month of meetings in the summer, including in PLCs, before the school year begins. Finally, as of fall 2017, teachers are required to participate in weekly professional development sessions on Tuesday afternoons. Beyond the school’s own professional development program, teachers are sometimes encouraged to attend workshops online and outside of school.

For more than a decade before its decision to adopt the IB program, DAS employed a multilayered model for curriculum design that combined elements of the Association for Supervision and Curriculum Development’s (ASCD) Understanding by Design course planning method (emphasizing conceptual learning through “enduring understandings” and “essential questions”) with academic content standards drawn from organizations like AERO and Common Core, depending on the specific academic subject area. PLCs work together to design curriculum materials for use at each grade level. Teachers produce detailed written unit plans explaining how each content standard is addressed, as well as which student-centered instructional methods are used to teach those standards. The school also provides teachers with access to the MAP software suite to track performance data for each student, identifying gaps in

student skills and tracking growth over time. Some PLC meeting time is devoted to dissecting student' MAP results to guide teacher planning. This process is time consuming for both teachers and the academic supervisors who review and comment on the plans. Nevertheless, they ensure a degree of transparency required in the PCPL.

Structurally, the academic program of the school is overseen by two academic directors, one for the boys' division and one for the girls' division. The academic directors set the overall agenda for student and teacher learning at the school. Academic supervisors for each subject report to the academic directors in each division. The academic supervisors are responsible for mentoring and evaluating the teachers in their departments, reviewing monthly, weekly, and daily lesson plans, observing classes, and providing guidance during PLCs and grade-level meetings. Academic supervisors also provide professional development during department meetings in topics specific to their subject areas and train teachers to learn DAS' expectations, policies, and philosophy. Senior administrators have appointed a veteran Islamic studies teacher and former administrator as the professional "coach" and mentor for academic supervisors. All supervisors receive cognitive coaching in areas such as lesson planning to improve critical thinking to ensure a consistent standard of practice across departments. This coach also helps supervisors learn how to work productively with faculty in areas ranging from lesson planning to providing constructive feedback.

The motto of DAS is, "Each year we will be better than we were the year before." With this ethos in mind, the senior leadership of DAS decided to adopt the IB program to build upon the school's longstanding commitment to fostering international mindedness and meeting global academic standards. Those standards include proficiency in critical thinking, reading, and communication skills.



DAS began actively to plan for and implement the IB program in 2014. Although adoption of the IB program at DAS is still a work in progress, the school has already developed and instituted a number of policies, practices and procedures that are facilitating the transition. School administrators decided to phase in adoption of the IB beginning with the PYP, then moving to the MYP, and then perhaps the DP. The school received full authorization for the PYP program in spring 2018. The IBO requires any school seeking accreditation to follow several steps. First, administrators and teachers must undergo training. Then the school must begin to design and implement the IB curriculum. At that point, the school may apply for IB candidate status. After further progress toward full implementation, the school may apply for official authorization. To obtain authorization, a school must demonstrate compliance with IB practices and standards for that program and undergo a site visit by outside IB accreditors. Authorization for each IB program (PYP, MYP, and DP) occurs separately, and schools may choose to adopt only one or two of the three programs. As of May 2018, 16 schools in Saudi Arabia are fully accredited to offer some form of the IB program (IBO, 2018b), with five schools authorized to offer all three levels (PYP, MYP and DP).

### **Promising Practice Organizational Performance Goal**

In keeping with the school's ethos of continuous improvement, senior administrators at DAS identified the humanities and social studies curriculum for grades 6-12, including Islamic studies, as a key location in DAS' academic program where critical thinking skills should be more intentionally and systematically developed (personal communication, January 2017). Because it is in the midst of MYP implementation, DAS' organizational performance goal is that by June 2020, all enrolled students will demonstrate competency in globally minded critical thinking skills in the school's humanities and social studies curriculum for grades 6-10 in

accordance with IB MYP requirements. This date should approximately coincide with the school receiving IB authorization for the MYP. Senior administrative leadership (including the school's founder and the academic directors of curriculum, among others) identified this organizational performance goal after reviewing the strengths and weaknesses of the school's current academic program. The school benchmarks its performance against international standards such as MAP and PSAT test scores. DAS determined that it must build sustainable capacity in its academic program to develop students' critical thinking skills up to international standards while remaining sensitive to local cultural norms, including those pertaining to religion and gender. After researching curricula in use at peer schools in Saudi Arabia and overseas, DAS senior administrators chose the IB as the model best suited to meet this need. In particular, DAS administrators were drawn to the inquiry-based learning method upon which much of the IB program is built.

Critical thinking instruction through inquiry must be embedded in the design of any IB humanities and social studies curriculum that DAS creates and implements. Failure to do so would result in DAS not meeting the international learning standards determined by the IBO. Equally important, DAS would also fail to reach its own internal benchmarks for learning as stated in the school's mission, learner profile, and criteria for evaluating educational programs.

One reason that DAS decided to adopt the IB program is its desire to standardize curricular planning to enhance educational outcomes. In 2009 the school moved to a new dual-diploma, dual-language International Secondary Program. At present, students at DAS may complete either the Muqararat diploma, accredited by the Saudi Ministry of Education, or the International Diploma (also called the American Diploma), accredited by the North Central Association Commission on Accreditation and School Improvement (NCA CASI), a part of

AdvancED. For the International Secondary Program, DAS teachers redesigned the social studies curriculum using the Project AERO Common Core Plus Standards for international schools; students completing the Muqararat diploma have a somewhat different social studies curriculum based on Saudi national standards. Supported by the U.S. State Department's Office of Overseas Schools, AERO creates and disseminates standards-based curriculum aligned with the Common Core framework in the United States to ensure educational consistency among American-sponsored schools abroad (Office of Overseas Schools, U.S. Department of State, 2017). Science and math curricula for the DAS International Secondary Program were likewise redesigned in accordance with American standards. The school's Arabic literature and Islamic studies curricula, however, were not designed according to American or other international standards. Therefore, the International Secondary Program at DAS has drawn from several sets of curricular standards and has not employed any one consistent framework in its curriculum map.

The school's adoption of the IB program, which encompasses all academic disciplines, was proposed by senior administrators in part to promote curriculum coherence and consistency. It was also proposed to standardize teaching practices. Although DAS considers itself one school, inconsistencies have historically existed within and between the boys' and girls' divisions in terms of both curriculum and pedagogy. Senior administrators identified critical thinking instruction in the humanities and social studies as particularly inconsistent (personal communication, January 2017).

Islam is another key aspect of the school's mission and vision, as is the school's Saudi Arabian identity. It is therefore imperative that any curricular innovations, including adoption of the IB, be respectful of Islamic and Saudi values. This point is particularly germane to the

humanities (which at DAS encompasses English and Arabic language and literature, and Islamic studies) and social studies (which includes history, geography, and electives such as global issues), since questions of religion, gender, and national identity often figure prominently in these academic disciplines. DAS seeks to develop students' critical thinking skills while remaining respectful of the local context, both to retain its accreditation status with the Saudi Ministry of Education and to preserve its reputation with parents, teachers, students, members of the Advisory Board, and members of the local community. In addition, DAS hopes to serve as a laboratory for best practices in inquiry-based, student-centered education in Saudi Arabia, an education that is intellectually challenging and globally minded, yet grounded in Islamic values.

DAS is measuring progress toward the achievement of this organizational performance goal by setting deadlines through June 2020 for each phase of the creation, refinement, implementation, and assessment of the revised humanities and social studies curriculum. At key points in this process, DAS is soliciting input from key stakeholders. It will also request feedback from the IBO to ensure that its new curriculum plan meets IB PYP, MYP and, if applicable, DP standards. Finally, DAS will ensure Saudi Ministry of Education approval, making any adjustments needed to comply with Saudi education policies.

DAS leaders recognize that the school's revised humanities and social studies curriculum must be developed and introduced to DAS secondary school classrooms in a timely, organized, and systematic manner. Otherwise, students' academic experience and DAS' fulfillment of its mission will be negatively impacted. It will also affect the school's long-term sustainability as an independent provider of high quality secondary education as well as its credibility as a laboratory for education best practices in the Arab world.

### **Description of Stakeholder Groups**

Many groups have a stake in the successful implementation by DAS of a new IB humanities and social studies curriculum that develops critical thinking skills. These stakeholders include teachers, school administrators, parents, students, the school's Advisory Board, Saudi ARAMCO, and the Ministry of Education of the Kingdom of Saudi Arabia. However, for purposes of this study, the three most important stakeholders are teachers, school administrators, and the Ministry of Education because of their direct involvement in the process of designing, implementing, and approving the new curriculum.

DAS employs a diverse international teaching staff. As of September 2016, there were 436 faculty members, of which 258 were expatriates and 176 were Saudi nationals (International Schools Prospectus, 2016). The Saudi Ministries of Labor and Education require that a high number of faculty, staff, and administrators be Saudi citizens, regardless of whether their initial qualifications meet the hiring standards of many accredited international schools. Recruitment of international teachers, particularly females, can be difficult partly because of negative perceptions regarding living standards and cultural norms in Saudi Arabia. The school's most recent accreditation report mentioned both issues as challenges for the school (AdvancED, 2013). As a result, DAS recruits both new and experienced teachers and then invests heavily in professional training designed to promote quality and consistency in teaching outcomes. DAS teachers are the stakeholders most directly responsible for developing and implementing the new IB humanities and social studies curriculum at the classroom level, as well as for assessing students' progress toward proficiency in the critical thinking skills mandated by the new curriculum.

School administrators responsible for the academic program at DAS include the Senior Vice President, the Deputy President, and, for each gender-segregated division, a General Director, Academic Director, and Intermediate and Secondary Principals. As with the faculty, DAS administrators include both Saudi nationals and expatriates. School administrators are responsible for establishing and maintaining community support for the transition to the new IB program. They must also provide the resources to create and implement the new IB humanities and social studies curriculum, including time and funds for faculty professional development. Administrators are ultimately responsible for training and supervising classroom teachers and holding them accountable for student performance in meeting the globally minded critical thinking standards of the IB program.

The Ministry of Education oversees primary, secondary, and tertiary education in the Kingdom of Saudi Arabia. The Ministry sets policy and regulates compliance for both public and private secondary schools, including international schools. Most public and private schools therefore follow the same policies, curriculum and instructional methods. Any significant curricular changes implemented at DAS will require Ministry approval, particularly as to whether the new IB curriculum sufficiently respects Saudi cultural norms, including those relating to gender and religion.

### **Stakeholder Group for the Study**

While all stakeholders affect how and whether DAS can meet its organizational goal of developing students' globally minded critical thinking skills through implementation of a new IB humanities and social studies curriculum, DAS teachers play an especially key role. Teachers are tasked with learning IB curricular requirements and then developing, refining, and introducing the new IB curriculum into their classes in a systematic manner that improves

student outcomes. They need to understand and feel confident in implementing the pedagogical models and testing paradigms used by the IBO. Moreover, unless teachers demonstrate and communicate support for the new program, it will be difficult for the school to generate and sustain buy-in from students, parents, and other stakeholders. DAS teachers are diverse in terms of nationality, gender, years of teaching experience, and familiarity with international educational standards and practices. Their ability and desire to learn, understand, and assimilate the requirements of the IB program through targeted professional development is critical to the initiative's success. In addition, since approximately one-third of the teaching faculty are Saudi citizens, and all Islamic studies teachers are technically required by law to be Saudi citizens, it is important to consider their input as to how to adapt the critical thinking requirements of the globally focused IB program into curricular materials relevant to, and respectful of, the local Saudi Arabian context. Therefore, DAS teachers serve as the principal stakeholder group for this study.

In the context of the move to the new IB curriculum, the goal for faculty is that by September 2019, they will have fully created and incorporated globally minded critical thinking instructional models and curriculum that meet IB standards for the MYP into humanities and social studies classes for grades 6-10, while remaining respectful of existing Saudi Arabian cultural norms. Teachers for grades 11 and 12 are also included in the principal stakeholder population because eventually they will be responsible for continuing critical thinking instruction in the school's humanities and social studies classes through graduation, regardless of whether the school decides to adopt the DP. The date of September 2019 was chosen in consultation with the school's founder to allow sufficient time for any knowledge, motivational and organizational gaps which could hinder successful implementation of the new curriculum to be ascertained and

addressed. The school also plans to apply for MYP authorization during the 2019-2020 school year; this timeline provides three full years of MYP implementation for teachers and students before authorization. Teachers began developing and instituting the MYP curriculum into their classes in August 2017. Most teachers for grades 6 to 12 have already participated in some form of professional development for the IB; this training is ongoing.

### **Purpose of the Project and Questions**

The purpose of this study is to analyze the assets of DAS humanities and social studies teachers to successfully promote the development of students' globally minded critical thinking skills through the IB program, and what areas for improvement remain to be addressed. To do so, it identifies teachers' assets and areas of ongoing need in knowledge and skills, motivation, and organizational resources and support that are important reaching the overall organizational goal stated earlier, namely that by June 2020 all DAS students in grades 6 to 10 will demonstrate competency in globally minded critical thinking skills in the school's humanities and social studies curriculum in accordance with IB MYP requirements. The analysis first generates a list of possible assets that allow DAS teachers to promote the development of students' globally minded critical thinking skills through the IB program and then systematically examines those assumed assets to zero in on actual or validated assets. For presumed assets that are not validated, the study lays out possible solutions to convert those ongoing needs to assets. It also evaluates which assets might be transferable to other institutional contexts. While a complete promising practice analysis would focus on all stakeholders, to narrow the scope of this study, the focus of this analysis will be secondary school humanities and social studies teachers at DAS.



As such, the questions that guide this study are the following:

1. What knowledge and motivation assets do DAS faculty members possess in terms of creating and incorporating globally minded critical thinking instructional models and curriculum into humanities and social studies classes, including through the IB program, while remaining respectful of existing Saudi Arabian cultural norms?
2. What is the interaction between organizational culture and context and teacher knowledge and motivation?
3. What practices relating to the areas of knowledge, motivation, and organizational resources are transferable to other organizations?
4. What are the recommended knowledge, motivation, and organizational solutions to address ongoing needs?

### **Conceptual and Methodological Framework**

This promising practice study uses a conceptual framework derived from the gap analysis model developed by Clark and Estes (2008) and adapted to suit the needs of a promising practice study. Gap analysis provides a systematic method to delineate an organization's performance goals and then to determine any gaps between an organization's current performance level and its desired performance level. In this case, rather than concentrate on performance gaps, this study identifies the most important stakeholder assets. In addition, the study identifies any ongoing performance gaps occurring in the midst of significant organizational change. Therefore, the conceptual framework employed in this study may be best termed a "modified promising practice model."

Methodologically, this study employs a qualitative case study approach. It uses descriptive data collected through surveys, interviews, classroom observations, document and

literature review, and content analysis to test assumptions made about stakeholder knowledge, motivation, and organizational assets. Those assumptions were generated from both academic literature and personal knowledge of DAS. The study concludes with an evaluation of those assets that may be transferable to other contexts, together with a set of recommended research-based solutions to ongoing needs. The solutions are evaluated regarding their likely efficacy in addressing the organization's ongoing performance gaps.

### **Definitions**

*International Baccalaureate Organization (IB or IBO):* An international educational foundation founded in 1968 and headquartered in Geneva, Switzerland that provides academic and career preparation programs to schools around the world. Depending on context, IB or IBO may variously refer to the foundation, to any of its programs, or to the diplomas it grants upon successful completion of its programs.

*IB Diploma Programme (DP):* The IB Diploma Programme is a 2-year standardized academic course of study designed to prepare students for entry into institutions of higher education worldwide. The target age group is 16-18 years old. To qualify for the diploma, students must complete a series of internally and externally evaluated examinations in six subject groups, as well as write an extended research essay, pass a course entitled Theory of Knowledge, and participate in community service, athletic, or creative activities. Only schools authorized by the IBO may offer the IB Diploma Programme.

*IB Middle Years Programme (MYP):* The IB Middle Years Programme is a 5-year standardized academic course of study for ages 11 to 16 to prepare them for the IB Diploma Programme. Students must receive instruction in eight academic subject groups, and a minimum of one unit

per year must be interdisciplinary. Only schools authorized by the IBO may offer the IB Middle Years Programme.

*IB Primary Years Programme (PYP):* The IB Primary Years Programme is a standardized curriculum framework for children aged 3 to 12. It utilizes an inquiry-based, transdisciplinary, and thematic approach. Only schools authorized by the IBO may offer the IB Primary Years Programme.

### **Organization of the Dissertation**

This study consists of five chapters in total. This first chapter introduced key concepts and definitions related to the problem of how to build capacity in secondary schools to develop students' globally minded critical thinking skills through humanities and social studies curricular reform while remaining sensitive to local cultural norms, including those relating to religion and gender. Also included was an overview of the study's conceptual and methodological basis. The study employs a modified promising practice model, adapted from the Clark and Estes (2008) gap analysis framework, based on the mission, goals, and relevant stakeholders of the organization described earlier in the chapter. Chapter Two reviews the current literature relevant to this study, including works related to critical thinking skills, humanities and social studies education purposes and practices, and the IB program. In Chapter Three, the assumed knowledge, motivation, and organizational assets for the study are discussed. The chapter also describes the methodology guiding the selection of interview and survey participants, data collection, and analysis. Chapter Four consists of an analytical evaluation of the data and results, while Chapter Five presents transferable practices as well as potential solutions for addressing any remaining performance gaps identified earlier in the study. Finally, Chapter Five closes with a plan that recommends how to implement and assess the proposed solutions.

## CHAPTER TWO: REVIEW OF THE LITERATURE

Chapter Two provides background and context for DAS' organizational decision to prioritize the development of globally minded critical thinking skills in its secondary school students, as well as the school's choice to address this priority through the adoption of the IB program in its humanities and social studies curriculum. This chapter begins with a discussion of the literature on critical thinking skills and its application to the classroom, both in the United States and globally. It links critical thinking skills to humanities and social studies education, focusing on the ways in which critical thinking may reinforce or undermine traditional social norms and notions of citizenship, including in non-Western contexts. It also examines how critical thinking instruction connects to global competence, and the influence of the IB program on the growing educational movement to develop internationally minded critical thinkers. The chapter concludes by discussing insights from the relevant theoretical literature about the knowledge, motivation, and organizational assets that DAS teachers need to successfully implement globally minded critical thinking skills in secondary school humanities and social studies classrooms, including through use of the IB program.

### **Critical Thinking Skills**

#### **Problems of Definition in Education**

Although a large volume of literature has been published on the importance of critical thinking, education scholars do not agree on a common definition; nor do they agree whether it should be classified as a skill or a disposition of mind (Atkinson, 1997; Dede, 2011; Ennis, 1989; Foundation for Critical Thinking, 2015a; McPeck, 1984; Vandermensbrugge, 2004). Critical thinking is included in all the main conceptual frameworks for "twenty-first century skills," an umbrella term generally referring to the skills that workers will need to thrive in the complex

economy and society of the twenty-first century (Dede, 2011). These frameworks are used to guide curriculum design and assessment. Yet, each framework uses the term critical thinking somewhat differently. Critical thinking in education is often linked to problem solving, but may also be linked to creativity, reasoning, decision making, judgment, and information literacy. According to Cuban, “Defining thinking skills, reasoning, critical thought and problem solving is troublesome to both social scientists and practitioners. Troublesome is a polite word; the area is a conceptual swamp” (as cited in Lewis & Smith, 1993, p. 131).

The lack of a consistent definition of critical thinking affects teaching and learning at all levels of instruction. In a study of 104 California university faculty involved in teacher training programs, 89% responded that critical thinking is a major objective of instruction, but only 19% could clearly describe what they meant by critical thinking (Paul, Elder, & Bartell, 1997). A study of critical thinking instruction by 40 teachers at the secondary level in greater Los Angeles public schools yielded similar results. According to Thomas (1999), teachers did not have a vocabulary to talk about critical thinking standards or instruction. Nor could they articulate how they would “reconcile covering content with fostering critical thinking, or what specific critical thinking skills they would like their students to develop” (p. ii).

In a seminal article, Atkinson (1997) argued that critical thinking ought to be considered a tacit social practice rather than a definable concept. As a result, the variety and vagueness of definitions of critical thinking mean that the term can only be understood in context (Vandermensbrughe, 2004). Context may impact perceptions of critical thinking in non-Western settings and lead to mischaracterizations about the critical thinking capabilities of different groups. In Australia, for example, Asian international students have often been

described as deficient in critical thinking skills because they have not been acculturated to the Anglo-Saxon educational context and its learning practices (Vandermensbrugge, 2004).

Defining the meaning of critical thinking in context, then, seems to be a first step toward implementing effective critical thinking instruction in the classroom.

### **History and Main Models of Critical Thinking Research**

Philosophers have questioned the nature and limits of human thought since Ancient Greece; however, in the twentieth century, scholarly investigations into the character and importance of critical thinking branched into two fields: philosophy and psychology (Lewis & Smith, 1993; Paul, 2012; Sternberg, 1986; Thayer-Bacon, 2000). When applied to education, both disciplines have made substantial contributions to critical thinking pedagogy (Dewey, 1916/2001; Krathwohl, 2002; Lai, 2011). Today, most contemporary critical thinking models share a focus on logical reasoning, analysis, metacognition, judgment, and questioning, though they differ in what is emphasized (Bailin, Case, Coombs, & Daniels, 1999; Brown & Keeley, 2007; Dick, 1991; Ennis, 1985; Facione, 1990a; Facione, Facione, & Giancarlo, 2000; Halpern, 2014; Sternberg, 1986; Willingham, 2007). Some models also include creativity (Bailin, 2002; Ennis, 1985; Paul & Elder, 2006; Thayer-Bacon, 2000).

The Western philosophical tradition of critical thinking began with Socrates and continued to engage many of the most influential scholars up to the twentieth century. Socrates established the method of “Socratic questioning” to expose flaws in reasoning and challenge assertions based on beliefs rather than evidence. He also emphasized clarity and logical consistency as the hallmarks of critical thought (Paul, Elder & Bartell, 1997; Tweed & Lehman, 2002). From other Greek philosophers emerged a preoccupation with learning how to reason to apprehend fundamental truths about nature and humanity that might be hidden below the surface

of immediate sensory impressions or preconceived prejudices. Later, during the Renaissance, Francis Bacon's empiricism broadened the reach of critical thinking to include the scientific method, while Descartes pioneered the epistemological model of systematic doubt, arguing for the necessity of disciplined thinking that questions fundamental assumptions. Western philosophy's emphasis on critical reasoning reached its apex during the late eighteenth and nineteenth centuries, as intellectuals applied the principles and methods of scientific inquiry and formal logic to examine social, economic and psychological issues.

In the twentieth century, modern philosophers continued to examine the nature of critical thinking, but with a focus on the qualities and characteristics of critical thinkers and the standards that qualify as good critical thought instead of critical thinkers' behaviors or actions (Bailin, 2002; Facione, 1990a; Lai, 2011). For example, the Foundation for Critical Thinking (2015b), whose work is based on the ideas of the philosophers Richard Paul and Linda Elder, defines critical thinking as "that mode of thinking—about any subject, content, or problem—in which the thinker improves the quality of his or her thinking by skillfully analyzing, assessing, and reconstructing it." This definition further emphasizes "rigorous standards of excellence and mindful command of their use," as well as problem-solving and communication. Finally, it prioritizes "a commitment to overcome our native egocentrism and sociocentrism" (Our Concept and Definition of Critical Thinking, para. 2). Feminist philosophers like Thayer-Bacon (2000) have drawn on the philosophical tradition espoused by Dewey (1916/2001) and others to construct an understanding of critical thinking that is less idealized and more grounded in social context. Nevertheless, the philosophical goals of logical consistency, self-inquiry, and mental discipline remain. Daniel and Auriac (2011) summarize the commonalities between critical thinking and philosophy as follows: "both aim at the development of reflexive and complex

thinking (questioning, conceptualizing, evaluating, etc.) and to do so, both. . . propose logical reasoning, critical dialogue and methodical doubt” (pp. 420-421).

One issue dividing philosophers is the extent to which the *disposition* (i.e. internal motivation) toward critical thinking, as opposed to the mental ability to think critically, ought to be considered a necessary component of critical thinking (Facione, 1990a; Facione et al., 2000). According to Chaffee, “A critical thinker is not only capable of reflecting, exploring, and analyzing but chooses to think in these advanced, sophisticated ways” (as cited in Facione et al., 2000, p. 62). This debate is particularly relevant for educators since it both directly addresses student motivation and contains implications for pedagogical practice.

The twentieth century psychological model of critical thinking differs from the philosophical model in that it has tended to focus on the reality of human cognitive processes rather than ideal modes of thought. Cognitive psychologists emphasize the actions, skills, and behaviors demonstrated by critical thinkers (Halpern, 2014; Lai, 2011; Lewis & Smith, 1993; Sternberg, 1986; Willingham, 2007). These behaviors include, but are not limited to, seeing both sides of an issue, requiring evidentiary support to back up claims, and using facts to deduce and infer conclusions (Willingham, 2007). According to Lewis and Smith (1993), psychologists prioritize problem solving and “are more concerned with the thinking process and how this process can help people make sense out of their experience by constructing meaning and imposing structure” (p. 132), while philosophers focus on reflective thinking; philosophers are “interested in the use of logical reasoning and perfections of thinking to decide what to believe and do” (p. 132).

Because mental processes are rarely visible and measurable, research psychologists must rely for data on the observable actions that ostensibly result from thought. These actions are



often characterized as problem-solving skills or procedures. Academic tests designed to measure critical thinking skills, like the California Critical Thinking Skills Test (CCTST) introduced in 1990, include subcategories such as analysis, inference, evaluation, deductive reasoning, and inductive reasoning. However, philosophers have criticized cognitive psychologists' work on critical thinking as reductionist (Lai, 2011). Bailin (2002) points out that behavior protocols alone are not enough to ensure critical thinking "since any procedure can be carried out carelessly, superficially, unreflectively—in other words, in an uncritical manner" (p. 363).

When applied to education, the most influential twentieth-century cognitive psychology model addressing critical thinking is Bloom's taxonomy of information processing skills, which was revised by Krathwohl in 2002. Bloom's taxonomy orders thinking processes hierarchically, with the highest levels of analysis, synthesis, and evaluation considered to be aspects of critical thinking. The challenge for educators has been to operationalize Bloom's taxonomy, just as it has been difficult to operationalize the other models of critical thinking discussed earlier.

**Critiques of critical thinking theory.** Critical thinking itself has been criticized as reductive rather than universal, thereby marginalizing non-conforming individuals and alternative "ways of knowing" (Atkinson, 1997, p. 77). Atkinson, a specialist in the Teaching of English as a Second Language (TESOL), is sensitive to the Western/Anglo-American socio-political context in which the Critical Thinking Movement of the 1980s and 1990s arose. Atkinson argues that rather than being a visible, teachable set of behaviors, critical thinking is culturally embedded and constructed, "more in the nature of a *social practice*. . . an organic part of the very culture that holds it up as an admirable achievement" (p. 72), making it less readily accessible to learners from other backgrounds. In other words, such learning is tacit; it occurs unconsciously. An analogous term for this concept is *socialization*. If a student is not socialized

in critical thinking, the student may find it more challenging and may be judged to lack this skill or disposition. Language barriers may compound the problem. Furthermore, Atkinson cites the work of feminist theorists who claim that prevalent conceptions of critical thinking reflect “masculinist normativity” (p. 78). Women, it is argued, approach thinking in a way that seeks to unify rather than confront. Clinchy calls this idea “connected knowing” (as cited in Atkinson, 1997, p. 77). Connected knowing seeks to comprehend alternative points of view by looking at issues through other people’s eyes. It therefore contains a strong ethical and empathetic component. According to Clinchy and Atkinson, this method—more akin to cultural anthropology than detached, argumentative logical reasoning—would be considered by most definitions to be non-critical thinking. However, such criticism may be overstated since Paul (2000) does include empathy and ethical judgment in his characterization of “strong” critical thinking. Nevertheless, the point that critical thinking itself is a construct that can exclude other ways of knowing is important since it can affect perceptions of the inherent value of other cultures’ prevailing mental constructs and methods of expression, a point that will be discussed in more detail later in this chapter.

### **Importance of Critical Thinking**

Critical thinking skills are now considered vital for success in the changing worlds of education and work, as well as for engaged citizenship (Ananiadou & Claro, 2009; Conley, 2007; Dede, 2011; Marin & Halpern, 2011; O’Neil, Allred, & Baker, 1997; Salhberg, 2006; Ten Dam & Volman, 2004; Weinstein, 1991). The Organization for Economic Cooperation and Development (OECD) has identified critical thinking and problem solving as integral to the twenty-first century competencies that students must develop, particularly in conjunction with literacy and information technology skills (Ananiadou & Claro, 2009). Dede (2011) and

Sahlberg (2006) likewise situate the importance of critical thinking within the demands of a technologically oriented, knowledge-based economy that rewards mental flexibility and problem solving. This economy is increasingly global in scope.

**Education.** Since the 1980s, American, Canadian, British, and Australian educational reformers have promoted the importance of critical thinking as a key component of academic success as well as workforce readiness (American Association of Colleges and Universities, 2005; Australian Council for Educational Research, 2017; Harvey, Moon, Geall, & Bower, 1997; Province of British Columbia, 2017; Scottish Credit and Qualifications Framework, 2012). Bailin and Siegel (2003) state that “critical thinking is often regarded as a fundamental aim and an overriding ideal of education” (p. 188). Similarly, in a report prepared for the Bill and Melinda Gates Foundation, Conley (2007) lists the core cognitive strategies that university educators expect entering students to possess: “analysis, interpretation, precision and accuracy, problem solving and reasoning” (p. 5). More specifically, college instructors:

expect students to make inferences, interpret results, analyze conflicting explanations of phenomena, support arguments with evidence, solve complex problems that have no obvious answer, reach conclusions, offer explanations, conduct research, engage in the give-and-take of ideas, and generally think deeply about what they are being taught.

(National Research Board, as cited in Conley, 2007, p. 6)

To meet these expectations, educators and government agencies have increased the emphasis on critical thinking instruction in primary and secondary curricula. The Common Core standards in the United States were designed in part according to this premise (Common Core State Standards Initiative, 2010; Kuhn & Crowell, 2011; Office of Overseas Schools, 2017; Phillips & Wong, 2010). One marker of college and career readiness, according to the Common Core, is that a

student can “question an author’s or speaker’s assumptions and premises and assess the veracity of claims and the soundness of reasoning” (Common Core State Standards Initiative, 2010, p. 7).

Although researchers do not agree on the age at which children are considered capable of critical thought in an academic context, many nevertheless advocate for critical thinking instruction to occur systematically throughout the K-12 curriculum (Bailin, et al., 1999; Facione, 1990a). For example, the American Philosophical Association recommends that “from early childhood, people should be taught. . . to reason, to seek relevant facts, to consider options, and to understand the views of others” (Facione, 1990a, p. 27). Others locate the optimal time for critical thinking instruction later into adolescence, depending upon the type of cognitive process emphasized (Kuhn, 1999; Kuhn & Crowell, 2011; Kurfiss, 1988; Laurillard, 1993; Marin & Halpern, 2011). Instruction relating to metacognition (thinking about one’s own thinking processes) and recognition of epistemological uncertainty may be more appropriate for older students, since they entail relatively sophisticated aspects of critical thinking. Regardless of student age, the development of critical thinking skills is now widely considered a central goal of K-12 education.

American colleges and universities have likewise increased their instructional emphasis on the development of students’ higher-order thinking skills over the past few decades (Kurfiss, 1988; Laurillard, 1993; Tsui, 2007), particularly following the Rockefeller Foundation’s recommendation to the U.S. Department of Education that critical thinking be listed explicitly as a goal of both K-12 and higher education (Commission on the Humanities, 1980). Many colleges offer courses in critical thinking as part of general education requirements (Halpern, 1999). All academic disciplines have been affected by efforts to redefine university education to promote critical thinking, but the humanities and social sciences especially so. As enrollment in

humanities majors has continued to decline in American universities, humanities scholars often justify the relevance of their fields through recourse to the mental training in critical thinking that their disciplines provide (Roth, 2014; Tsui, 1999).

Beyond academic achievement, at both the K-12 and university levels critical thinking has been linked to an improvement in global mindedness and awareness of global issues, since it pushes students to consider different points of view and experiences in relation to their own and to engage in systems thinking (Burn, 2002; Burnouf, 2004; Gibson, Rimmington, & Landwehr-Brown, 2008; Gunesch, 2004; Mok, 2007; Spring, 2015). This relationship between critical thinking and global mindedness has been a cornerstone of the IB's philosophy since its inception (Hill, 2012a).

**Workforce readiness.** In a competitive labor market that has grown more global in size and complexity, workers who possess critical thinking skills are sought after by employers (Casner-Lotto & Benner, 2006; Davies, 2006; Eisner, 2010; McLester & McIntyre, 2006). Employers value critical thinking partly because it is considered the basis of sound professional judgment (Facione, Facione, Giancarlo, & Ferguson, 1999). Put another way, companies want workers who can “solve problems to make effective decisions” (Snyder & Snyder, 2008, p. 90). According to a study commissioned by the Conference Board, Casner-Lotto and Benner (2006) report that 92.1% of the employers surveyed consider critical thinking/problem solving to be a very important requirement for new hires just graduating from college. The study defines critical thinking/problem solving as the ability to “exercise sound reasoning and analytical thinking; use knowledge, facts and data to solve workplace problems; [and] apply math and science concepts to problem solving” (p. 16). Critical thinking/problem solving ranked among the top five desired skills, along with oral communication, teamwork/collaboration, professionalism/work ethic, and

written communication; it ranked higher than ethics, leadership, creativity/innovation, and information technology skills (p. 21). These findings were confirmed in a 2007 national poll of registered U.S. voters conducted by the Partnership for 21<sup>st</sup> Century Skills. The poll found that 69% of respondents believe critical thinking and problem solving are “very important” skills that students need to prepare them for the workplace (as indicated by a rating of 9 or 10 on a 10-point Likert scale, with 10 being the highest). Critical thinking and problem solving ranked third overall, after reading comprehension and computer and technology skills (as cited in Eisner, 2010, p. 33).

**Active, democratic citizenship.** Early in the twentieth century, John Dewey in *How We Think* (1910) made the connection between what he called “reflective thinking” and the actualization of democracy. Since then, other scholars have expanded on this idea to justify the importance of critical thinking as the foundation of an inclusive, functioning political system (Glaser, 1985; Nussbaum, 2010/2016; Paul, 2000; Scriven, 1985; Ten Dam & Volman, 2004). Ten Dam and Volman (2004) contend that critical thinking is “a crucial aspect in the competence citizens need” to participate in and contribute to a pluralistic, democratic society (p. 360). Nussbaum (2010/2016) concurs, stating that “cultivated capacities for critical thinking and reflection are crucial in keeping democracies alive and wide awake” (p. 10). With an exponential increase in the volume of information accessible through technology, many people find it challenging to sort, separate, analyze and deploy information critically. The 2016 presidential election in the United States focused the media’s attention on this issue, particularly in light of controversy over the influence of “fake news” on the political process. Regardless of political affiliation, policy makers and citizens both need the skills of critical discernment and judgment to make informed decisions about which candidates to support, as well as which policy

priorities to pursue and how best to execute them. According to Edward Glaser (1985), critical thinking “helps the citizen to form intelligent judgments on public issues and thus contribute democratically to the solution of social problems” (p. 27). He explicitly links critical thinking to *democratic* values and ideals, arguing that “good citizenship” requires “the ability to think critically about issues concerning which there may be an honest (or even a dishonest) difference of opinion” (1985, p. 25). Glaser, a pioneer in the promotion of critical thinking since the 1940s, concludes that critical thinking as an educational objective is “urgently needed” more than ever before (p. 27). Although he wrote these passages in 1985, the message continues to be echoed by others across the political spectrum, including scholars associated with the critical pedagogy movement (Burbules & Berk, 1999; Fisher, 2013; Freire, 1968/2000; Kennedy et al., 1991/2013). For example, Scriven (1985) sees critical thinking as an antidote to the influence of propaganda and other forms of political manipulation. Paul (2000) goes further, arguing that an “intimate connection” exists between critical thinking, moral integrity, and citizenship (p. 163). According to Paul, it is possible to use the cognitive tools of critical thinking in a self-serving way, but such a person would not be a good citizen or a “strong,” completely formed critical thinker. Only fair-minded, empathetic critical thinkers who can reason out of their prejudices and possess the metacognitive capacity to achieve intellectual humility are capable of responsible citizenship in a democracy.

However, critical thinking as a component of active, informed citizenship may not necessarily be welcomed by all governments, particularly if it leads citizens to question the legitimacy of existing groups, structures, and institutions in power or incites demands for democratic reform. In some countries, therefore, tensions may arise between the desire to promote economic growth through educating the workforce in skills like critical thinking that are

considered imperative for success in a knowledge economy, and the potential socio-political consequences of doing so (Nussbaum, 2009, 2010/2016).

**Global competency.** Globalization has driven much of the attention to critical thinking in education worldwide. However, defining critical thinking and its relationship to global competency, or even what constitutes global competency, has been challenging for researchers and policy makers (Burnouf, 2004). A related concern is how best to assess students' global competency. In 2018, OECD will administer the first PISA assessment of global competency in member countries (OECD, n.d.). Countries and organizations like the IB have adopted different interpretations of the relationship between critical thinking and global competency based largely on their perceptions of the goals, methods, and potential consequences, positive and negative, of globalization. As a result, formulating a comprehensive strategy to teach and assess global competency remains a work in progress for many nations. For example, the U.S. Department of Education only released its first-ever integrated international strategy, entitled *Succeeding Globally Through International Education and Engagement*, in 2012 (U.S. Department of Education, 2012).

Countries like Saudi Arabia have prioritized critical thinking due to concerns over long-term economic competitiveness and the need to diversify their economy. Globally competent critical thinkers possess cognitive skills that make them attractive in the global labor market: they can communicate and collaborate productively with people of diverse backgrounds; they can understand, evaluate and appreciate alternative points of view; and they can comprehend and analyze complex issues. They are also cognizant of how global patterns and challenges may connect to local circumstances. Critical thinking underpins each of these skills or attributes.



However, critical thinking also undergirds a *broader* vision of global competency that includes political and social elements (OECD, n.d.). In this model (sometimes called global mindedness or global citizenship), globally competent critical thinkers are valued because they can contribute alternative judgments, insights, and perspectives to policy debates. They are self-reflective about their own limitations and biases, and situationally aware of their place in society and in the world. They possess empathy (de Andreotti, 2014; Ibrahim, 2005). In many cases, such notions of global citizenship contain a normative ideological component. For example, because UNESCO and the Council of Europe see global citizenship education as being premised on “principles of cooperation, non-violence, respect for human rights and cultural diversity, democracy and tolerance,” pedagogy also should be “based on human rights and a concern for social justice which encourage critical thinking and responsible participation” (Osler & Vincent, as cited in Ibrahim, 2005, p. 178).

Here and in other variants of this model, awareness of the consequences of human choices, accountability, and interconnectedness of humans and systems are emphasized (Burnouf, 2004). Because the ideal of interconnected society and culture beyond the borders of the nation-state is promoted, some scholars consider a more accurate term for this version of global competency to be *cosmopolitanism*, from the classical Greek, meaning “citizen of the world.” According to Bromley (2009), “contemporary cosmopolitanism includes two main emphases, universalism, in the form of global citizenship and human rights, and diversity, in the form of celebrating heterogeneous social groups and promoting equal rights for divergent groups” (p. 35). This version of global competency is more common in Western contexts. It is also the normative construct promoted by the IB through its emphasis on what it terms “international mindedness” (Hill, 2007; Resnik, 2012).

### **Issues and Challenges in Teaching Critical Thinking Skills**

Although consensus now exists in many countries that critical thinking skills should be integral to educational objectives, it has been difficult to integrate critical thinking instruction systematically into the classroom (Paul, Elder, & Bartell, 1997; Pithers & Soden, 2000). Beyond a lack of effective teacher training and cultural resistance, there is no agreement as to the best models and methods for teaching those skills, including whether existing pedagogies, curricula, and assessments are effective (Abrami et al., 2008; Abrami et al., 2015; Behar-Horenstein, 2011; Halpern, 1999; Pithers & Soden, 2000; Sternberg, 1987; Terenzini, Springer, Pascarella, & Nora, 1995). In part, these scholarly disagreements parallel the absence of clarity in defining critical thinking and its associated skills described earlier in this chapter. Such disagreements have meaningful, tangible consequences when translated into the classroom. For example, while teaching at Turkey's Istanbul Bilgi University, lecturer Sara Felix realized:

In looking at my students, I must consider how they view CT (critical thinking) and how that shapes their attitudes towards learning it explicitly. And it is not only the students I must consider when defining CT, but also the institution itself and other lecturers with which the students will come into contact. I cannot take for granted that this term is harmoniously understood in terms of theoretical framework, socio-political, or cultural background. (2009, p. 15)

The remainder of this section will summarize some of the most significant debates in the scholarly literature, as well as how they affect critical thinking instruction.

#### **Curricular Models**

Since the advent of sustained academic interest in critical thinking education in the 1980s, researchers have disagreed as to which type of curricular model is most effective in

teaching critical thinking skills: *generalized* critical thinking instruction developed through a separate class curriculum, conscious *infusion* of critical thinking methods into existing subject-area curriculum, or a *mixture* of the two models (Ennis, 1989). The academic subject itself does not appear to be important; in a meta-analysis of 648 studies, Abrami et al. (2015) determined that virtually no difference existed between STEM subjects and non-STEM subjects such as humanities and social studies in terms of effects on critical thinking achievement outcomes.

First, some cognitive theorists believe that critical thinking is best learned through courses with a separate, specialized curriculum focused on logic and other cognitive skills. This type of curriculum develops generic thinking skills that are then considered applicable across all academic disciplines, a process called *transferability* (Billing, 2007; Halpern, 1998). The IB stand-alone course entitled Theory of Knowledge (TOK) is based on this premise. According to the IBO (2014), TOK is epistemological; it “is a course about critical thinking and inquiring into the process of knowing, rather than about learning a specific body of knowledge” (IBO, 2014, para. 4). The TOK course gives students the opportunity “to reflect on the nature of knowledge, to make connections between areas of knowledge and to become aware of their own perspectives and those of the various groups whose knowledge they share” (IBO, 2014, para. 4). All DP students must take TOK to graduate.

In this model, critical thinking skills such as those enumerated in the TOK course may be generalized and thus effectively taught and applied across different contexts (Halpern, 1999, 2001, 2014; Lipman, 1988; Van Gelder, 2005). The key to transferability seems to lie not in whether students are simply given repeated opportunities to practice critical thinking skills in multiple subject areas, but rather in whether students are consciously and specifically taught *how* to transfer those skills, as well as whether instruction is geared toward real-life learning

(Kennedy et al., 1991/2013). Surprisingly, Nickerson (1998) finds that students are more successful at transferring higher-order cognitive processes like metacognition than basic processes like observing, measuring and classifying.

However, other researchers have questioned the extent to which transferability truly exists (Pithers & Soden, 2000; Willingham, 2007). These scholars contend that it is inadvisable to separate critical thinking instruction from subject-area content, and that the most appropriate methods for teaching critical thinking vary across disciplines (Bailin, 2002; Meyers, 1986; Paul, 2005). Critical thinking theorists refer to this concept as *domain specificity*. Bailin et al. (1999) argue that “the depth of knowledge, understanding and experience persons have in a particular area of study or practice is a significant determinant of the degree to which they are capable of thinking critically in that area” (p. 290). Removing domain specificity encourages educators to view critical thinking instruction as the acquisition of a discrete set of skills that are divorced from context. This approach is problematic because critical thinking occurs against a backdrop of “already existing concepts, beliefs, values, and ways of acting” (Bailin et al., 1999, p. 290). As an example, Bailin et al. mention that critical thinking is necessary to decide whether to accept or reject a moral judgment because doing so “requires a clear understanding of the nature of the action or policy being judged, the context in which it is to be carried out, and the range of moral considerations relevant to the judgment” (1999, p. 290).

McPeck (1981, 1990/2017), another leading theorist in the field, goes even further to contend that critical thinking skills are inherently domain-specific, although he does recognize that certain conceptual understandings apply across multiple disciplines. Pithers & Soden (2000) concur: “learning to think involves learning to use content in successively more sophisticated ways in understanding the world” (p. 241). Therefore, researchers like McPeck favor some

version of the *infusion* approach to critical thinking instruction, in which critical thinking skills are developed in the context of existing subject-matter curriculum through explicit attention to specific, often self-reflective thinking practices and techniques (Bailin et al. 1999; Case, 2005; Ennis, 1989; Fisher & Scriven, 1997; McPeck, 1990/2017; Paul, 2005; Perkins, 1993). Critical thinking cannot occur in a vacuum; some background knowledge of a subject is essential because “to think critically, students need something to think critically about” (Lai, 2011, p. 11). Indeed, virtually all researchers agree that a person’s prior knowledge, or *schemata*, affects critical thinking (e.g., Case, 2005; Kennedy et al., 1991/2013; McPeck, 1990; Willingham, 2007).

The *mixed-method* (also known as “integrated”) approach, in which subject-area infusion is combined with separate, generalized critical thinking courses, governs the IB program’s overall philosophy. Within existing course curricula for traditional academic subjects such as history or mathematics, the IB seeks to deepen students’ understanding of core concepts and build critical thinking skills; at the same time, it also seeks to develop students’ critical thinking skills through the non-domain specific TOK course in the DP. Paul (1992), Facione (1990), Hatcher (2006), and Kennedy et al. (1991/2013) all find value in this mixed-method approach. Moreover, according to a meta-analysis of 117 empirical studies (Abrami et al., 2008), the mixed-method approach yielded the most significant gains in students’ critical thinking skills and dispositions. Subject-matter instruction in which critical thinking instruction was only implicit (i.e., not discussed directly, as a stand-alone topic in class) proved to be the least effective. Moreover, students in K-12 settings achieved greater gains on measures of critical thinking than college undergraduates (Abrami et al., 2008).

As stated earlier in this chapter, not all experts agree whether metacognition and motivation (in other words, the disposition toward critical thinking) are integral components of

critical thinking or are instead related constructs (Facione, 1990a; Facione et al., 2000; Halonen, 1995; Halpern, 1998; Lipman, 1988; McPeck, 1990/2017; Paul, 1992; Van Gelder, 2005; Willingham, 2007). Nevertheless, scholars such as Facione (1990) and Paul (1992) argue that critical thinking curricula should include an *explicit* focus on stimulating and reinforcing both the dispositions of mind and metacognition that support critical thinking. Moreover, although consensus is weak about the transferability of critical thinking skills to new contexts, researchers nevertheless recommend that instruction intentionally and explicitly promote *opportunities for transfer* to occur within academic curriculum, since there does not appear to be any downside to doing so (Kennedy et al., 1991/2013; Halpern, 1998; Willingham, 2007).

### **Instructional Strategies and Techniques**

Beyond curricular models, education researchers have debated the efficacy of various instructional strategies to promote the development of critical thinking skills in the classroom (Abrami et al., 2008; Bailin et al., 1991; Bonk & Smith, 1998; Facione, 2000; Heyman, 2008; Nelson, 1994; Paul, 1992; Thayer-Bacon, 2000; Van Gelder, 2005). Five strategies discussed extensively in the literature are collaborative learning, dialogic learning, teacher modeling, personalization, and inquiry. Each has potential relevance for teaching critical thinking skills in an IB school program; moreover, the IB explicitly advocates inquiry-based learning models.

Collaborative learning, sometimes called cooperative learning, is premised partly on the work of the Russian Marxist psychologist Vygotsky, whose zone of proximal development theory posited that students learn more effectively when they can interact with, observe and receive help from another person than when they work alone (Hedegaard, 2008). A survey of cognitive science literature reveals that cooperative learning methods, with feedback on performance, promote effective critical thinking transfer (Billing, 2007, p. 511). At first glance,

this idea seems to contradict Tsui's (2007) finding that independent, self-directed learning has a positive effect on critical thinking development; however, much of the self-directed learning described in Tsui's study took place within an environment of strong faculty and peer support. Thayer-Bacon (2000), Bailin et al. (1999), Bonk & Smith (1998), and Heyman (2008) all conclude that students can develop critical thinking skills through interactions with other students such as through class discussions and small-group assignments. Peer-peer relationships are likewise important in encouraging critical thinking dispositions through positive acculturation, as long as the instructor provides proper scaffolding (Nelson, 1994).

Dialogic learning, or learning through Socratic dialogue and discussion, is also recommended in the literature (Abrami et al., 2015; Fisher, 2007; Kuhn & Crowell, 2011; Lipman, 1988; Nussbaum, 2010/2016; Tsui, 1999, 2002). One well known program employing this method is Philosophy for Children, initially designed for primary school students in the U.S. by Matthew Lipman and subsequently adapted for use in other countries (Daniel & Auriac, 2011; Fisher, 2007, 2013). According to a review of 10 controlled-outcome studies, all studies showed moderate positive gains in critical thinking from this program (Trickey & Topping, 2004). In another study about teaching American history, Pellegrino (2007) demonstrated that measures of students' critical thinking outcomes improved when students engaged in "historical thinking activities" such as presenting their views on a particular historical event or period and then explaining the factors that led to that event. Student responses were evaluated according to other sources of historical information to judge their reliability and to assess the relative value of conflicting viewpoints.

Teacher modeling of "good thinking" has likewise been identified as an important critical thinking instructional technique (Paul, Elder, & Bartell, 1997). It too is based in part on

Vygotsky's zone of proximal development. For example, a teacher might "think aloud" in attacking a problem so that students can follow the teacher's thought processes, including the reasoning methods and techniques of argument substantiation that the teacher employs (Facione, 2000; Paul, 1992). Such an approach demystifies otherwise complicated and potentially intimidating concepts. In addition, it familiarizes students with the idea of metacognition, so that they can in turn "clarify and reflect upon their learning and gain more self-control" (McGuinness, 1993, p. 311, as cited in Pithers & Soden, 2000, p. 234).

Fourth, some researchers suggest that teachers try to personalize critical thinking instruction as much as possible to appeal to their students' lived experiences. This strategy might entail using concrete or common examples to illustrate abstract ideas (Heyman, 2008; Paul, 1992), or graphical illustrations and organizers such as concept maps and argument diagrams (Bonk & Smith, 1998; Hyerle, 2001; Van Gelder, 2005), or simulations (Abrami et al., 2015). Constructivist problem-based learning is also frequently promoted (Bonk & Smith, 1998; Pithers & Soden, 2000). A distinct but related version is the "teaching for understanding" model based on Dewey's idea (1916/2001) of "generative learning," in which instructors approach academic topics more conceptually and intentionally teach for conceptual transfer (Perkins, 1993). Conceptual transfer, it should be noted, is not the same as the generic critical thinking skills transfer discussed earlier in this chapter.

The last instructional strategy advocated for the development of critical thinking skills is inquiry. As mentioned earlier, inquiry-based learning (IBL) is the dominant pedagogy of the IB program (IBO, 2016). Based in constructivist learning theory, inquiry-based pedagogy works to promote active learning by posing questions and problems. It also encourages students to generate their own questions and conduct research to answer them. It has often been linked to



problem-based learning (Centre for Excellence in Enquiry-Based Learning, 2010). IBL has shown promise in a number of academic disciplines including humanities and social studies (Saunders-Stewart, Gyles, & Shore, 2012), although several studies of history teachers found that without intentional IBL training, teachers had difficulty expanding their conception of inquiry beyond the critical evaluation of historical sources and information, toward a method of using that information to create problem statements and to conduct inquiries into the past (Voet & De Wever, 2016, 2017). Careful and intentional teacher scaffolding is important in helping students to succeed in IBL (Hmelo-Silver, Duncan, & Chinn, 2007). Overall, the empirical research literature offers numerous suggestions but less agreement as to the most effective instructional techniques.

### **Assessment**

Measuring student improvement in critical thinking is difficult, in part because of the unresolved debates regarding domain specificity and transferability described earlier (Fisher & Scriven, 1997; Norris, 1989). Moreover, disaggregating the effect of students' actual critical thinking *skills* versus *dispositions* on assessment outcomes is challenging because each is integral to, and reinforces, the other. The only way to know whether a student is engaging in critical thinking is to make that thinking observable in some way (Norris, 1989). The long timeline needed to make substantial progress in developing critical thinking skills also makes measurement difficult, since according to Ennis (1993), "much reflective practice with many examples in a variety of situations is required" (p. 181). For these reasons, Lai (2011) argues that the reliability and validity of existing critical thinking assessment tools are questionable.

Such tools include standardized tests. The most widely used standardized tests include the CCTST, the Cornell Critical Thinking Tests, the Ennis-Weir Critical Thinking Essay Test,

and the Watson-Glaser Critical Thinking Appraisal. All are generic rather than subject-specific assessments and were created by leading scholars in the field of critical thinking. However, because critical thinking theory is itself normative (i.e. contains judgments and criteria), it is possible that multiple-choice tests only assess whether test takers are following “the standards and criteria that have been laid down” (Norris, 1989, p. 23). McPeck (1994) agrees; his research shows that performance on multiple-choice critical thinking tests closely correlates with IQ, so it is unclear whether the test is actually measuring critical thinking. Moreover, the very construct of multiple-choice questions may be affected by extraneous factors such as the political, religious, or empirical beliefs and judgments of the test writers (Norris, 1989).

Most importantly, multiple-choice tests do not provide in-depth insight into test takers’ cognitive processes. To improve the reliability of multiple-choice instruments, Norris (1989) and Kennedy et al. (1991/2013) recommend having test takers verbally explain in an interview the reasoning they used to reach their answer on each question. This suggestion raises an important issue: multiple-choice tests are often preferred because they are cost-effective and can be administered to a large population. Other standardized methods of assessing critical thinking such as essay tests or verbal interviews are much more labor-intensive to score and evaluate (Ennis, 1993). They may also be subject to the same biases that could arise in multiple-choice questions. Furthermore, written tests presuppose a baseline level of literacy or language proficiency that may be unrelated to a person’s ability to think critically.

Some researchers recommend assessments featuring the use of open-ended problems with authentic, real-world applications such as in problem-based learning (Bonk & Smith, 1998; Halpern, 1998; Moss & Koziol, 1991). Inherent in these models is the possibility that problems might have more than one solution; the task of assessment is to measure the quality and range of

solutions presented (also linking to creativity), as well as the cogency and clarity of the thought processes used to reach those solutions. Even “incorrect” answers might be premised on sound critical thinking (Moss & Koziol, 1991). Ultimately, Ku (2009) recommends a multi-faceted assessment model that includes “exercises that allow students to self-construct answers, assignments that facilitate the practice of strategic use of thinking skills in everyday contexts, and when adopting multiple-choice exercises, follow-up questions. . . to probe students’ underlying reasoning” (p. 75). In this way, teachers will be more likely to capture both the cognitive and dispositional elements of critical thinking on assessments.

As important as this topic is, an in-depth survey of the literature relating to critical thinking assessment falls outside the scope of this study, except to the extent that it pertains to the relationship between curriculum and assessments because the IB contains internally and externally evaluated standardized testing as part of its academic program. Multiple-choice questions are rarely used; essays and structured short responses responding to text, case study and data set prompts are more typical (IBO, 2017a).

### **Teachers, Teacher Training, and Professional Development**

Implementing effective critical thinking instruction in the classroom requires that teachers themselves first understand what critical thinking is and then have sufficient training in pedagogy likely to yield positive results (Abrami et al., 2008; Howe, 2004; Innabi & El Sheikh, 2007; Paul, Elder, & Bartell, 1997). In addition, teachers must value critical thinking instruction, feel confident in their ability to teach critical thinking, view their students as capable of higher-order thought, and be able to recognize when their teaching methods are ineffective (Pithers & Soden, 2000; Sternberg, 1987; Tsui, 2001, 2007). Put another way, teachers themselves must possess the *disposition* toward critical thinking to cultivate it in their students.

Tsui (2001, 2007) draws upon Bandura's concept of self-efficacy (1993, 1997) to explain why faculty at some colleges are successful in fostering critical thinking while others are not. Four factors are most important. First, successful faculty members consider the development of critical thinking skills to be a core educational objective of their institution and are enthusiastic about teaching. High teacher morale positively influences both teacher and student motivation (Tsui, 2001). Second, knowledge of critical thinking theory and pedagogy among successful faculty is strong; many can "speak substantively and insightfully about processes surrounding CT development" (Tsui, 2007, p. 225). Such knowledge is stimulated and reinforced through collegial discussion, support and collaboration (Tsui, 2001). Kurfiss (1989) and Haas and Keeley (1998) underscore this recommendation, arguing that institutional support at the departmental and schoolwide level is crucial in promoting and sustaining faculty growth and enthusiasm. Third, successful faculty assume that students can and will develop into excellent critical thinkers and therefore have high expectations for student performance. Tsui (2001) concludes: "While faculty confidence in students' abilities to acquire critical thinking skills is not sufficient in itself to produce cognitive growth, it is a prerequisite" (p. 8). Unfortunately, professors at colleges where students matriculate with limited academic preparation or motivation may be less inclined to focus on critical thinking instruction, either because they find the instructional hurdles too high or because they assume that their students are not ready for higher-order thinking. Yet even at "low selectivity" schools (a way of designating the academic preparation of incoming students), critical thinking instruction can be successful if teacher expectations are positive (Tsui, 2001). Fourth, successful faculty members are generally comfortable with non-teacher-centered pedagogies that encourage questioning and revel in complexity, what Tsui terms "thinking outside the box" (2007, p. 206). In other words,

professors themselves possess feelings of critical thinking self-efficacy and they also consciously work to develop those feelings in their students. Tsui's positive analysis contrasts markedly with Paul, Elder & Bartell's (1997) findings that most university professors cannot articulate how they teach critical thinking or how they balance teaching thinking skills with academic content coverage.

Abrami et al. (2008) list 17 studies showing that critical thinking improves most when teachers receive advanced, specialized training in critical thinking pedagogy and course design, as well as when teachers are frequently observed and held accountable. Tsui (2002) seconds the importance of institutional support, arguing, "If institutions are truly committed to achieving the widely professed educational objective of instilling critical thinking skills in students, then they need to actively support and guide faculty in teaching reform efforts" (p. 759). That support should include opportunities for "collegial exchange on teaching" and frequent seminars, workshops, and training sessions as "a regular component of an institution's ongoing professional development program for faculty. The refinement of pedagogical technique should be expected from all those who teach" (p. 759). Similarly, Hatcher (2006) emphasizes the value of professional development for faculty in creating a "culture of critical thinkers" (p. 267). He credits the statistically significant gains in critical thinking skills (as measured by several standardized tests) made by Baker University students from freshman to senior year to both a mixed-method curricular approach and the consistent, thorough professional development provided to *all* faculty, not just those teaching in the university's stand-alone critical thinking course. Moreover, teachers who possess a deep understanding of critical thinking concepts and instructional methods are more likely to be able to transmit those ideas to their students, as well as to create a climate of thoughtfulness in their classrooms (Onosko, 1992).

Of course, not all teachers are proficient in critical thinking skills themselves (Qing, Chungeng, Shuyu, Liya, & Lijuan, 2012; Stedman & Adams, 2012). In fact, according to Sternberg (1987), “to put it bluntly, [many] teachers and administrators are no better than the students. Sometimes they are worse” (p. 457). Sternberg argues that teachers often “lack the receptivity and openness” of their students (p. 457). He goes on to list eight traps that teachers may fall into that impede effective critical thinking instruction, including believing that critical thinking is “only the students’ job” (p. 457) and that only instructors in stand-alone critical thinking courses (and not also academic subject teachers) should be required to teach critical thinking. As DAS transitions to the IB curriculum, administrators may find these issues pertain to some of the school’s faculty.

Teachers also need to be made aware of any behaviors and biases in the classroom that might impede the development of students’ critical thinking skills, such as only using retrieval and response question types or rewarding quiet students who do not challenge the status quo (Duron, Limbach, & Waugh; 2006; Marlow & Inman, 1992; Pithers & Soden, 2000). As will be discussed in more detail, this problem may be exacerbated in environments where disagreeing with the teacher or questioning existing norms is less culturally or politically expected or accepted (Innabi & El Sheikh, 2007).

### **Challenges in Teaching Critical Thinking in Diverse Global Contexts**

With the global influence of standards and practices to promote critical thinking, educators around the world have attempted to translate critical thinking research into their teaching practices, with mixed results (Ashraah, Al-Nabrawi, Shdeifat, & al-Ali, 2012; Bataineh & Alazzi, 2009; Beyer, 1984; Che, 2002; Hallinger, 1998; Innabi & El Sheikh, 2007; Lombard & Grosser, 2004; Mahyuddin, Pihie, Elias, & Konting, 2004; Miri, Ben-Chaim, & Zoller, 2007;

Simpson & Courtney, 2007; Wang & Woo, 2010). Teachers in non-Western countries face similar challenges as their European and North American counterparts in designing and implementing effective critical thinking instruction. Common difficulties include insufficient institutional support, student resistance, and dearth of teacher expertise and motivation at the primary, secondary and tertiary levels. Moreover, many teachers have not been acculturated to critical thinking as a social practice (Atkinson, 1997).

Another challenge for educators worldwide is that a lack of diversity appears to negatively impact students' development of critical thinking. Research by Laird (2005) and Gurin, Dey, Hurtado, and Gurin (2002) demonstrates positive correlations between campus racial diversity and improvements in American university students' self-assessed critical thinking skills. Diversity itself is not the only important factor; interaction among different racial groups also matters (Laird, 2005). These findings may contain important implications for societies beyond the United States since many countries and cultures (including Saudi Arabia) are relatively homogeneous. In such environments, it can be difficult for members of minority groups to have the confidence to speak up during class discussions or for members of majority groups to develop the empathetic aspects of Paul's "strong critical thinking" described earlier.

Second language proficiency also may affect the acquisition and deployment of critical thinking skills. Thinking in a non-native language increases cognitive load. As a result, second-language learners may have less cognitive capacity available in working memory to engage in higher-order thinking skills (Lun, Fischer, & Ward, 2010; Paas, van Gog, & Sweller, 2010). Although the IB now offers its full curriculum in Arabic, DAS is a dual-language English-Arabic school and the new IB external assessments will occur in English. However, virtually all DAS students are native Arabic speakers. Therefore, students will experience DAS's new critical

thinking curriculum in a second language, increasing cognitive load and potentially interfering with learning (*extraneous cognitive load*) or making it more difficult (*intrinsic cognitive load*).

Cultural norms may also affect the efficacy of critical thinking instruction.

In Asia and Africa, governments have declared critical thinking skills to be a major educational priority to increase global economic competitiveness (Hallinger, 1998; Mahyuddin et al., 2004). For example, in 1996 the Malaysian Ministry of Education recommended that critical thinking pedagogy be incorporated in all teacher training programs because so many teachers were “not fully capable” of incorporating critical thinking instruction into their classes (Mahyuddin et al., 2004, p. 24). Despite some improvement, concern remains that critical thinking instruction in Malaysia is implicit and teaching for transfer is not emphasized. Other Asian countries face similar issues. Many schools and education systems have not translated government priorities into a revision of traditional curricula and pedagogies; for example, teacher-centered instruction emphasizing rote memorization remains common in the Chinese, Japanese, and Korean education systems (Atkinson, 1997; Hallinger, 1998; McGuire, 2007). In African countries, critical thinking has become an educational priority to promote economic, political and cultural independence from the legacies of colonialism (Grosser & Lombard, 2008; Ijaiya et al., 2010; Lombard & Grosser, 2004). For example, the South African government in 1997 stated that students should no longer be viewed as “empty vessels. . . to be filled with knowledge” (South African Qualifications Authority, 1997, p. 30, as cited in Grosser & Lombard, 2008, p. 1365). Similarly, Nigeria’s national education policy has prioritized critical thinking skills so that citizens can “acquire an objective view of the local and external environment as well as become useful members of the society” (FRN, 2004, as cited in Ijaiya et al., 2010, p. 380). Worldwide, educated citizens are viewed as productive human capital. Yet



change has occurred slowly, if at all. Pre-service teachers continue to perform poorly on standardized assessments of critical thinking and exhibit low levels of critical thinking disposition due to an emphasis on factual recall over more advanced cognitive skills like synthesis and evaluation (Grosser & Lombard, 2008; Ijaiya et al., 2010; Temel, 2014).

### **Challenges in Teaching Critical Thinking in the Middle East**

In the Middle East, the extent to which critical thinking instruction has permeated the education system is debatable (Alazzi, 2008; Bataineh & Alazzi, 2009; Innabi & El Sheikh, 2007; Semmar & Fakhro, 2009). For example, most Jordanian secondary school social studies teachers remain unfamiliar with critical thinking concepts and teaching strategies despite a comprehensive national reform effort that began in 1987 (Alazzi, 2008; Bataineh & Alazzi, 2009). Jordanian textbook teacher manuals and written instructional guides still pay little attention to critical thinking; instead, they focus almost exclusively on subject-area content. Nor do Jordanian Ministry of Education guidelines require explicit instruction in critical thinking (Alazzi, 2008). As a result, according to Alazzi and Chiodo (2004), when surveyed, nearly 80% of Jordanian middle and high school students claimed that they were not taught critical thinking in social studies classes. Alazzi (2005) contends that Jordanian culture is part of the problem: “the Arabic culture in Jordan strives for harmony and security. Questioning is viewed as opposing the accepted ways of doing things; thus, it is not promoted by the educational system” (p. 8). Moreover, the lifetime job security of Jordanian public-school teachers may promote a mindset that does not seek out intellectual experimentation (Alazzi, 2008).

Many Jordanian teachers do support the teaching of critical thinking (Alazzi, 2008; Innabi & El Sheikh, 2007). However, they do not possess the knowledge required to understand and cultivate critical thinking in the classroom, or as Alazzi (2008) labels it, “a difference

between intention and outcome” (p. 246). The teachers in Alazzi’s qualitative study listed several reasons why they found teaching critical thinking to be so difficult. These included the lack of student interest, limited instructional time, large class sizes, a fear of discussing controversial topics, a preoccupation with state exams emphasizing rote memorization and extensive content coverage, an unsupportive school culture, inadequate school facilities and equipment, and a lack of training in either pre-service teacher education programs or in-service professional development (2008). Research documented similar results for teachers in Turkey and Iran (Aliakbari & Sadeghdaghighi, 2013; Özkan-Akan, 2003). Teachers valued critical thinking but listed numerous constraints on their ability to teach it.

Most studies on critical thinking instruction in the Middle East have focused on public schools; research on private schools is rare. Because DAS is a private school, one research study conducted in Qatar is notable (Semmar & Fakhro, 2009). The study quantitatively measured how often Qatari private school elementary teachers engaged in critical thinking activities during instructional time compared to their government school counterparts. Qatar first established private schools in 2004, following a 2001 comprehensive education reform initiative sponsored by the government. Using Bloom’s taxonomy scale, Semmar and Fakhro (2009) found that private school teachers adopt student-centered practices designed to promote critical thinking at the higher levels of Bloom’s taxonomy more frequently and consistently than government teachers. By contrast, government schools remain heavily teacher-centered and reliant on rote learning. The study’s authors explain this disparity by noting the different opportunities and requirements for professional development available to each group of teachers. The Qatari government sets high standards for private schools. Because of rigorous government curriculum benchmarks, private school teachers “might have felt compelled” to develop their teaching

practice through professional training that focuses on “the latest curriculum practices and standards in those subjects, which, in turn, might have resulted in the adoption and integration of critical thinking activities into their pedagogical practices” (Semmar & Fakhro, 2009, p. 20).

Teaching critical thinking in non-Western countries across the Middle East, Asia, and Africa presents an extra set of challenges beyond those found in Western educational contexts. These challenges include teacher training and acculturation, language barriers, and insufficient resources. In some respects, however, the issues and obstacles are similar, among them the preponderance of testing for memorization, a perceived lack of instructional time, and inadequate professional development.

**Challenges in teaching critical thinking in Saudi Arabia.** As in other Arab Muslim countries, critical thinking instruction has been prioritized in Saudi government education standards as a competency that will help citizens prosper in a globalized world (Allamnakhrah, 2013; Alwehaibi, 2012; Courington & Zuabi, 2011). This comprehensive reform effort, begun in 2008 and known as *Tatweer*, aims to create a “distinctive and innovative education that builds high-quality students for the knowledge economy,” according to the Saudi Ministry of Education (as cited in Courington & Zuabi, 2011, p. 142). Critical thinking proficiency is one goal promoted by *Tatweer*. However, the effectiveness of this reform has been mixed in Saudi elementary schools through universities, as found in a robust literature studying critical thinking instruction (Al-Degether, 2009; Algarfi, 2010; Al Ghamdi & Deraney, 2013; Allamnakhrah, 2013; Aloqaili, 2001; Al-Qahtani, 1995; Al-Qatani, 1998; Alsalem, 2015; Alwehaibi, 2012). The most common criticism is that Saudi education still relies too heavily on memorization (Alajlan, 2015; Algarfi, 2010; Al Ghamdi & Deraney, 2013; Cameron, 2011). For example, in a mixed-method study of female Saudi Islamic studies elementary school teachers, Alwadai (2014)

concludes that teachers do not teach critical thinking skills due to their own lack of knowledge regarding theory and pedagogy. Islamic studies teachers rely heavily on rote memorization and textbooks that do not challenge students' critical thinking skills, findings echoed in another study by Algarfi (2010). Teachers cited a lack of student ability, classroom structure, and resources (including planning time), the Islamic studies curriculum, and Saudi society and the school community as factors. Student ability and teaching methods ranked first and second as factors, respectively, with the mean for both approximately 4.3 on a five-point Likert scale (Alwadai, 2014). Another impediment is the content and organization of government-mandated textbooks. Saudi middle school teachers do not perceive textbooks for any academic discipline to be helpful in implementing social constructivist teaching methods to develop critical thinking skills (Al-Abdulkareem & Hentschke, 2014). Weak pre-service teacher preparation programs are yet another factor (Alwadai, 2014).

As in other Middle Eastern countries, Saudi teachers are not necessarily averse to the idea of critical thinking instruction. In research studies, both male and female teachers have expressed support (Alwadai, 2014; Gashan, 2015). However, their knowledge of what critical thinking entails is weak or incomplete. As a result, pre-service teachers often feel uncertain whether they possess the requisite skills to promote critical thinking in their students once they begin their professional careers (Gashan, 2015).

To address this issue, stand-alone courses in critical thinking have emerged at several Saudi universities (Al Ghamdi & Deraney, 2013; Alwehaibi, 2012). Alwehaibi (2012) identified statistically significant gains in students' critical thinking skills after an intentional six-week course at a women's college in Riyadh. These findings were confirmed in a different study by Al Ghamdi and Deraney (2013). After female students took a stand-alone course in critical

thinking, their scores in the areas of argument identification and analysis improved. However, other critical thinking indicators did not show significant gains. According to Al Ghamdi and Deraney (2013), their research “highlights a problematic reality of CT (critical thinking) teaching and teaching in general in Saudi Arabia which is the limited metacognitive/cognitive strategy instruction and consequent use by the students” (p. 186). Study participants could complete exam questions “where evidence was given, connections were more obvious, and inferences easily made, in other words, the information was more explicitly provided” (p. 186). However, cognitive skills ranked as more challenging on Bloom’s taxonomy, such as “monitoring their own thinking, making inferences on implied information, and judging based on critical analysis were simply lacking” (p. 186).

Al Ghamdi and Deraney (2013) suggest that improved outcomes might result if critical thinking is infused in all courses throughout the Saudi national curriculum, beginning in K-12 and progressing through the tertiary level. Consistent attention would be needed to realize substantial gains. One successful example of this infusion method is described by Alsalem (2015), in which an Arabic language arts curriculum based on constructivist and critical theory pedagogy produced gains in critical thinking in tenth-grade girls’ reflective writing, social consciousness, and social engagement. Al-Gahtany (2001) and Al-Shahrani (1995) proposed similar pedagogy changes to promote critical thinking in the study of geography and history, respectively. However, instructional reforms have not been widely or consistently adopted in those disciplines, as an infusion model would require. Critical thinking instruction in the humanities and social sciences in Saudi Arabia, including Islamic studies, history, and geography, therefore remains a work in progress.

### **Effect of Non-Western Cultural Norms on Critical Thinking Instruction**

Problems in teaching critical thinking may occur if students or faculty perceive a discordance between existing cultural norms and practices and new pedagogical or curricular models (Atkinson, 1997; Egege & Kutieleh, 2004; Grosser & Lombard, 2008; Lun et al., 2010; McGuire, 2007; Simpson & Courtney, 2008; Stapleton, 2001; Zhang & Lambert, 2008). Among these norms are religious/ideological and gender constructs. Culture refers to all the beliefs, behavioral patterns, institutions, and knowledge that collectively and normatively regulate the way of life of a people. It is automated, performative, and unconscious (Geertz, 1973). Cultural discordance in education is more prevalent in, but not exclusive to, non-Western contexts.

Many studies about teaching critical thinking in diverse contexts are premised on a “deficit model” in trying to understand how and why students in non-Western societies struggle with critical thinking skills—as defined by Western scholars and educators. However, not all researchers agree with this theoretical paradigm (Atkinson, 1997; Chen, 2017; Jones, 2005; La Grange, 2016; Stapleton, 2001). Recent studies have focused instead on the role that cultural differences and contexts play in the expression of critical thinking dispositions and skills. Beyond noting that ethnicities are not necessarily internally homogeneous, researchers have sought to problematize the value of Western critical thinking models in promoting societal development (Durkin, 2008; McGuire, 2007). Atkinson’s article “A Critical Approach to Critical Thinking in TESOL” (1997), discussed earlier in this chapter, is often cited as a basis for this critique.

For example, McGuire (2007) borrows Atkinson’s framework when he contends that important aspects of Korean culture clash with the core values of Western critical thinking pedagogy. McGuire looks beyond the Korean education system’s obsession with university

entrance examinations and their emphasis on factual recall, though he does not discount their importance in Korean society. Instead, he concentrates on the ways in which Korean students are socialized, arguing that critical thinking pedagogy “is associated with specifically Anglo-American patterns of socialization” that conflict with the patterns of socialization found in many Asian cultures (p. 226). McGuire cites scholarly literature analyzing Koreans’ supposed preference for interdependence, harmony, conformity, and group cohesion (similar, he says, to Chinese and Japanese culture) due to the influence of Confucian ethics, which conflicts with the Anglo-American emphasis on individualism and personal autonomy. According to McGuire, whereas critical thinking pedagogy encourages debate and disagreement, Koreans view criticism of others as impolite. Cultural discordance arises because “CT pedagogy attempts to wean one away from the influence of tradition, hierarchically based authority, especially the authority of teachers, and group-oriented conformity. However, these are the very things that Koreans are socialized to value and respect” (McGuire, 2007, p. 229). Like Korea, Saudi Arabia has been described as a traditional, consensus-based, and hierarchical culture (Alazzi, 2005; Alwadai, 2014).

McGuire (2007) also finds relevant the discordance pointed out in the scholarly literature between Eastern “high context” and Western “low context” linguistic styles of communication. Western societies favor low context communication, which is more explicit, verbal, and information-driven. Eastern societies, by contrast, tend to communicate through more indirect, non-verbal, elliptical, and ambiguous means, where context generates meaning and the emotional nuance of communication is emphasized (Gudykunst, 1997; Hall, 1976). Saudi Arabian society has been described as having a “high context” linguistic style (Feghali, 1997). According to McGuire, the Asian high-context style of communication does “not manifest the clarity,

precision, and logical progression of ideas that are normative ideals in other languages, such as English” (2007, p. 230). This is problematic because such norms are the basis of critical thinking pedagogy. In Western-oriented classrooms, therefore, the Korean style of communication may be misinterpreted as a lack of critical thinking (Durkin, 2008). Similar characterizations have also been made about Chinese and Japanese students (Chen, 2017; Lun et al., 2010; Stapleton, 2001; Tian & Low, 2011; Tweed & Lehman, 2002).

Pratt, Kelly, and Wong (1999) suggest that one reason for this misunderstanding is that culturally, Chinese students view acceptance of authoritative sources of knowledge as the crucial first step on the path to deep learning; memorization progresses to understanding, application, evaluation, and finally questioning and analysis. By contrast, questioning is often encouraged from the *beginning* of the learning process in Western models of critical thinking instruction (Kelly & Wong, 1999), such as the IBL method favored by the IB. Other scholars note that Confucius himself advocated rigorous and open-minded self-reflective thinking (Kim, 2003). By broadening the definition of active (versus passive) learning, both the Socratic and Confucian models may be considered versions of critical thinking (Tweed & Lehman, 2002). Confucian learning requires the construction of knowledge within the self, as does Socratic learning (Tweed & Lehman, 2002). Stapleton (2001) makes a similar argument with respect to Japanese students, namely that participants in his study demonstrated critical thinking and expressed individual voices through their writing; they just did so in a way that does not fit neatly into a paradigm pitting Western notions of individuality versus Eastern collectivist values. As Edward Said (1978) pointed out in his seminal work *Orientalism*, conceiving of Eastern and Western cultures as binary counterpoints is problematic.



In Africa, scholars have also challenged the utility of reliance on Western norms when conceptualizing, and judging competence in, critical thinking. This is due to the legacy of colonialism and the desire to introduce local, culturally authentic constructs into the discourse on critical thinking. In South Africa, the operative cultural construct is Ubuntu, a Bantu word meaning “humanity toward others” (Le Grange, 2016). Ubuntu emphasizes community and commonality. Le Grange (2016) juxtaposes the Western, individualistic “I” of Descartes and other Western thinkers as alien and possibly inferior to the African, interconnected “I” of Ubuntu. On the one hand, scholars like Odora Hoppers (2009a, 2009b) see critical thinking as a foundational building block for a vibrant, secure South Africa. On the other hand, critical thinking is considered an inherently Western idea that conflicts with the power and wisdom of indigenous knowledge, a form of learning celebrated as a corrective to the excesses of Western ideology. Some scholars affiliated with the African Renaissance Movement have even declared the built-in hierarchical power imbalances of traditional teacher-centered pedagogies as a relic of colonialism, or even a form of mental neo-colonialism (La Grange, 2016; Odora Hoppers, 2009a, 2009b).

Both the Asian and African contexts contain potential reference points for Saudi Arabia, since skepticism regarding non-Western norms may influence the views of teachers, students, parents, and other constituencies in the educational landscape. As researchers have demonstrated, people are affected by culturally available schemata (DiMaggio, 1997; Grosser & Lombard, 2008; Nisbett & Norenzayan, 2002; Nisbett, Peng, Choi, & Norenzayan, 2001). Nisbett et al. (2001) contend that cultural differences affect not only beliefs but also cognitive processes. Cultural variation in cognition results from the differing historical trajectories that societies experience. As a result, although identical cognitive processes may theoretically be

available to individuals in different societies, for cultural reasons they are not equally accessed and used. Nisbett et al. conclude that individuals raised in societies valuing personal freedom, choice, criticism, debate, curiosity, and diversity will engage more frequently in critical thought. As Alazzi (2005) and Alwadai (2014) have noted, however, Arab culture emphasizes harmony and security. The inherent intellectual uncertainty that comes with critical questioning, as well as the potential for thinking that challenges the status quo, may be problematic in a patriarchal, hierarchical, homogeneous, and conservative society like Saudi Arabia. Students and teachers alike may find the outcomes of critical thinking an affront to cultural and political norms, even though the Saudi government has made critical thinking instruction a priority to improve economic competitiveness.

**Effect of Saudi cultural norms on critical thinking.** Scholars have explicitly identified Saudi society as a factor inhibiting the improvement of critical thinking in schools (Allamkrah, 2013; Al-Qahtani, 1995; Alwadai, 2014; Alwehaibi, 2012). Allamkrah (2103) argues that Saudi culture is “predominantly one of uncritical submission to authority” (p. 205) where children are taught not to challenge their elders (see also Mullick, 2013). This value is perpetuated in the classroom. If a student questions a teacher, it may lead to failing a course or social and academic ostracism because many teachers believe that children who ask questions are challenging the teachers’ authority. Therefore, to normalize critical thinking among future generations of Saudi citizens, teachers must first improve their own competence in understanding and implementing critical thinking strategies (Allamkrah, 2013).

Beyond the classroom, according to Alwadai (2014), “Saudi culture is a topic not open to critique so that the conservative citizens and politicians deem it off limits to criticism and questioning” (p. 134). As Nolan (2011) demonstrates, the terrorist attacks of 9/11 created a

window for reform-minded business leaders, educators, and government officials to try to renegotiate Saudi society's internal balance of power away from conservatives and religious scholars (*ulema*). Nevertheless, for many Saudis the term "critical thinking" itself still has negative connotations, implying social unrest and political opposition. The turbulence of the Arab Spring protests around the Middle East and North Africa has solidified these associations. Alwadai (2014) argues that Saudi society contains a "subliminal political ceiling that is in place to control citizens' questions and desires" (p. 135). For this reason, critical thinking is considered unwelcome when applied to government policy and reforms, even though the Saudi Ministry of Education promotes it in other areas to develop Saudi Arabia's knowledge economy (Allamnahrah, 2013; Kattan, 2015). Essentially, the Saudi government is engaged in a balancing act; it is attempting to undertake institutional reform without inciting challenges to the regime from either the left or the right (Nolan, 2011).

***Effect of Saudi cultural norms on critical thinking instruction in humanities and social studies.*** Although substantial challenges in teaching critical thinking exist for all Saudi educators, additional issues exist for teachers of humanities and social studies. In Saudi Arabia, humanities and social studies include literature, Islamic studies, history and geography. In 1978, the government of Saudi Arabia issued the following statement regarding education policy:

The purpose of education is to teach Islam in a correct and comprehensive manner, to plant and spread the Islamic creed, to furnish the student with the values, teachings and ideals of Islam, to equip him with various skills and knowledge, to develop his conduct in constructive directions, to develop society economically, socially and culturally, to prepare the individual to become a useful member in the building of his community. (as cited in Al-Jabr, 1990, p. 109)

To that end, Islamic studies (which itself includes religion, literature, history, and geography) occupies much of the national humanities and social studies curriculum in middle and high school, up to 30% of instructional time (Al Nafjan, 2012; Al-Qahtani, 1998a; Doumato, 2003; Prokop, 2003). Limited instruction in sociology, business, and psychology occurs in eleventh and twelfth grades (Al-Qahtani, 1995). Each year, students receive instruction in five compulsory elements of Islamic religion and culture: The Holy Qur'an, *Al-Tafsir* (commentary on the Qur'an), *Al-Tawhid* (issues of belief and practice), *Al-Hadith* (the sayings and teachings of the Prophet Muhammad as a source for character and relationship education), and *Al-Fiqh* (Islamic law and ritual, including economics) (Algarfi, 2010). Anthropology and political science are not included in the curriculum, and prospective teachers who majored in those disciplines are not eligible for employment in Saudi state schools (Al-Qahtani, 1998a). In addition, Saudis who are Shi'a Muslims may not teach religion or serve as principals in state schools. Emphasis is placed on obedience to authority in all forms, including to God, the government, the teacher, and the male head of the family (Prokop, 2003). Moreover, the history curriculum is oriented toward promoting the government's goal of creating a common Saudi identity. Discussion of minority groups such as Shi'a Muslims and the violence that accompanied the military unification of the Arabian Peninsula are omitted (Prokop, 2003). The geography curriculum similarly promotes patriotism and pride in Saudi Arabia's accomplishments; it also connects geography to religion and Saudi Arabia's centrality within the landscape of Islam as the location of the holy cities of Mecca and Medina (Al-Gahtany, 2001).

It should be mentioned that this type of patriotic, nation-building narrative is not exclusive to Saudi Arabia. Tyack and Hansot (1982) have described the school as a community's "museum of virtue," historically guarding a culture's traditions and values (as cited

in Hallinger, 1998, p. 500). Starting in the nineteenth century, European and North American countries began to use the creation of mass public education systems, and particularly humanities and social studies classes such as history and civics, to reproduce and inculcate societal norms. These norms included patriotism, nationalism, socially dominant ideologies and morals, and respect for authority (Albisetti, 1983; Brockliss & Sheldon, 2012; Brooks, 1985; Giroux & Penna, 1997; Nelson, 2001). Since then, other countries around the world, including Saudi Arabia, have also viewed school as a locus for building social cohesion, political loyalty, and cultural stability (Carretero, 2011; Cummings, Gopinathan, & Tomoda, 2014; Hallinger, 1998; Lee & Fouts, 2005; Morris & Morris, 2000; Sim & Print, 2005). The increasing pace of global economic and cultural interconnectedness has at times intensified this process. For example, Hallinger (1998) notes that increased migration throughout the Asia Pacific region has caused “the need for nations to define their cultural identities in the global era” (p. 497). As in the past, it often falls to humanities and social studies classes to build and maintain that cultural cohesion.

In Saudi Arabia, all curriculum and textbooks for Islamic studies and related social studies courses are produced by the Ministry of Education; their use is mandated in all schools, both public and private (Al-Jabr, 1990; Al Nafjan, 2012; Doumato, 2003; Rugh, 2002). According to Prokop (2003), “in order to get the acquiescence and approval of the *ulema* for state policies, the government has made concessions to the religious authorities in the fields of culture, curriculum development and control over the educational apparatus” (p. 78). Textbook content is therefore influenced by Wahhabism, the conservative variant of Sunni Islam supported in Saudi Arabia. Saudi Islamic studies textbooks became the subject of intense international criticism after the terrorist attacks of 9/11, as Western journalists, politicians, and scholars focused attention on the influence of Wahhabism (sometimes called Salafism) on all aspects of

Saudi society, including the education system. Excerpts from these textbooks were published in the United States that many observers deemed intolerant and hostile to non-Muslims (Freedom House, 2006). Although the Saudi Ministry of Education pledged to remove the most inflammatory passages, U.S. State Department reviews of subsequent editions of the textbooks continued to find most of the same ideas represented (Al Nafjan, 2012; The Associated Press, 2010; U.S. Department of State, 2012; Weinberg, 2015).

The textbook controversy reveals internal debates within Saudi society and government between reformers, often Western-educated technocrats, and conservatives, often religious officials, who are skeptical about the influence of global culture (Courington & Zuabi, 2011). As a result, Saudi humanities and social studies textbooks reflect ambivalence about the processes of globalization and Westernization. For example, in 2011 new textbooks were issued for the tenth-grade course studying the *Hadiths*, the Prophet Muhammad's sayings and traditions. In keeping with government priorities to encourage global competencies, topics such as human rights, Westernization, and globalization were addressed. However, in the textbook Westernization was described as a policy:

exerted by the dominant forces by tools such as the Security Council and the United Nations in order to implement Westernization strategies in poor countries, especially Islamic nations, under the slogans of reform, democracy, pluralism, liberalism, and human rights, particularly with regard to minorities. (as cited in Al Nafjan, 2012, p. 104)

This textbook was released during the height of the Arab Spring protests, which threatened autocratic-leaning governments across the Middle East and North Africa. Saudi Arabia had fewer anti-government protests than its neighbors such as Yemen and Bahrain, but the

government was nevertheless wary of the Arab Spring's potential effects on Saudi pro-democracy activism (Courington & Zuabi, 2011; Gelvin, 2015).

Scholars like Doumato (2003) argue that consideration of Saudi textbooks requires a nuanced approach, since “defensiveness in relation to non-Muslims is pervasive, but lessons that could be cited as expressing outright hostility toward non-Muslims are few in number” (Doumato, 2003, p. 231). A small number of scriptural references are used repeatedly across the curriculum, even though the *Hadith* literature is large and the Qur'an itself contains interpretative or contradictory passages lending support to arguments on both sides of many issues. Consequently, according to Doumato (2003), narrow and definitive interpretations of texts predominate, “especially when it comes to gender relations and relations between Muslims and non-Muslims, as though scripture were being employed selectively in order to arrive at predetermined outcomes” (p. 232). The goal is to distill Islam into one form, ignoring the religion's diversity of schools, sects, geographic and cultural variations, and traditions of rational disputation (Doumato, 2003). Another goal is to remind students that Islam as practiced in Saudi Arabia is under threat from other ideologies, including Zionism, pan-Arab nationalism, secularism, existentialism, Islamic modernism (e.g., the Muslim Brotherhood), and socialism (Doumato, 2003). This approach makes critical thinking instruction difficult because it both raises students' and teachers' affective filters and implies that disagreement is disloyal to one's faith and country. As discussed earlier, historically a main purpose of social studies education in many countries has been to promote patriotism and feelings of solidarity with fellow citizens. Sometimes that entails defining the boundaries of identity between “us” and “them.” Such in-group/out-group boundary setting is prominent in Saudi Islamic studies textbooks (Doumato, 2003).

Yet Islam as practiced in Saudi Arabia also has the potential to *promote* critical thinking instructional practices, as some scholars have pointed out (Algarfi, 2010; Alturki, 2016). For example, Algarfi (2010) notes that the emphasis on collectivism in Islamic worship can justify cooperative classroom learning methods, thereby helping to overcome student and teacher reluctance to deemphasize teacher-centered models. Moreover, Alturki (2016) argues that an inquiry-based pedagogy is compatible with Islamic beliefs about learning as revealed in the Qur'an, since many passages encourage people to reflect and think deeply. Al-Shahrani (1995) likewise advocates for an inquiry-based method in teaching history to develop students' critical thinking skills and thereby support the Islamic tenets of the secondary school history curriculum. The Saudi Ministry of Education's goals for social studies education, issued in 1974, include:

Developing the student's ability to think appropriately and reflectively, an ability based on observation, analysis, comparison, articulation, invention, abstraction, and construction. . . Developing the student's ability to use the method of scientific research [in relation to Islamic studies] to evaluate, organize, and discuss the thoughts and information each needs to explore (as cited in Al-Qahtani, 1995, p. 155).

In 1990, the National Council for Social Studies in Saudi Arabia elaborated on the Ministry's goals. These goals included:

[Knowledge of] information about the social, political, and economic institutions of the country. Emphasis on the duties and roles of the individual in serving the society through these institution. . . [thinking skills such as] Abilities to make cause-and-effect connections, to think scientifically, analyzing, comparing, and drawing conclusions based on facts and incidents. . . Effective verbal expression and the development of solutions through group discussion. . . [spiritual values including] Fostering the sense of identity



with Saudi society and the necessity for Saudis to cooperate with each other to solve the nation's problems. .. Developing patriotism and the sense of duty to defend one's country. Promoting a sense of pride in belonging to the Arabic and Islamic community. . . . Developing attitudes of international understanding and cooperation, based on the realization that Saudi Arabia cannot live in isolation. Teaching the necessity of intercommunication with other societies and cultures while maintaining Islamic frameworks and values. (Al-Jabr, 1990, p. 110)

Both of these government frameworks indicate strong support for critical thinking instruction within social studies classrooms.

At the same time, however, government censorship of political dissent, state enforcement of behavioral norms, religiously-based jurisprudence, and prescribed roles and rights for women and minorities all affect humanities and social studies curriculum and instruction. Restrictions exist regarding the discussion of certain issues that might emerge in a social studies or humanities course; the Ministry of Education often justifies those restrictions through recourse to religion or culture. Alternatively, students and teachers may practice self-censorship (Rugh, 2002). As a result, recommended critical thinking instructional methods such as dealing with real-world problems, examining the logical underpinnings of ideas, considering alternate points of view, and encouraging open-ended discussions may not occur (Miri et al., 2007), even when teachers self-report that they are engaging in these methods. Researchers in Saudi Arabia have noted a disconnect between social studies teachers' perceptions of their use of critical thinking pedagogies and the results of classroom observations (Algarfi, 2010; Al-Qahtani, 1995; Jamjoom, 2010). For example, teachers did not encourage students to ask questions, and teachers themselves mostly asked confirmatory questions, checking that the student could repeat

what the teacher had said. In addition, teachers would cut off students who seemed to be giving different answers than the ones the teachers had predetermined were correct (Al-Qahtani, 1995; Jamjoom, 2010). This type of pedagogical practice leads to student passivity in the classroom, which only in turn heightens teachers' beliefs that students are not capable of critical thinking. Moreover, Al-Qahtani (1995) notes that students' affective filter (anxiety) was heightened when they were asked to answer more open-ended questions or ones requiring higher-order cognitive skills: "Puzzlement, the ground spring of reflective knowledge, seemed to be perceived by the students. . . as a badge of shame, not a signpost to achievement" (p. 159).

The importance of this issue is growing for humanities and social studies teachers. As Saudi society continues to modernize and absorb new influences from media, the Internet, and other cultures, debates about religion and other sensitive topics are becoming more common, and thus are entering the classroom as well (Mullick, 2013; Jamjoom, 2010). Because they are bound by the Ministry of Education's curriculum, Islamic studies teachers are required to convince students about the correctness of the religious beliefs being taught, what Mahmood calls the "pedagogy of persuasion" (as cited in Jamjoom, 2010, p. 548). The societal and religious responsibility that this entails weighs heavily on many Islamic studies teachers. Even female teachers who are inclined toward reformist beliefs feel a responsibility to embody an ideal version of a Saudi Muslim female and to transmit traditional cultural identity to students (Jamjoom, 2010). The issue of identity is also fraught for many Saudi English language teachers, according to research conducted by Elyas and Picard (2012). Foreign language and literature instruction in Saudi Arabia is sometimes viewed as a vehicle for inculcating foreign ideologies (Mullick, 2013). English as a foreign language (EFL) teachers feel torn between the desire to expose students to other cultures, their moral values as developed within the context of

a religious and conservative society, and their perceived duty as educators to promote Saudi nationalism. Thus, EFL teachers are challenged to reconcile “global” and “national” identities for themselves and their students. This challenge affects the teachers’ instructional practices, classroom behavior and motivation (Elyas & Picard, 2012). As DAS adopts its new IB humanities and social studies curriculum, it will need to remain sensitive to teachers’ concerns in this area.

Saudi history and geography teachers also must balance the “global” and “national.” The government’s *Tatweer* reform agenda seeks to improve educational outcomes to promote global competitiveness. Therefore, social studies teachers must find ways to promote patriotism and pride in Islamic, and specifically Saudi, achievements while educating students about other cultures (including their political and economic systems) and incorporating new instructional methods that promote critical inquiry. Such inquiry, premised on logical evaluation and the consideration of multiple points of view, might raise uncomfortable questions for teachers and students; challenges might arise to pre-existing world views or officially approved content appearing in the textbooks. Yet, as the Saudi government recognizes, critical thinking instruction also offers the potential to develop thoughtful, engaged citizens who can contribute to Saudi Arabia’s knowledge economy and help to alleviate the country’s social ills.

Because of the philosophical purposes of history and geography as academic disciplines, teachers of these subjects are especially likely to be caught in this ideological quandary. The study of history is premised on the idea that the historical narrative is contested and that historians must consider and analyze multiple voices. They must also evaluate the relevance and veracity of facts in support of any narrative. Moreover, historians must be aware of what may be left out of a narrative, since the very act of creating a narrative guides the audience towards a

specific interpretation, legitimizing some actions while delegitimizing others (Hobsbawm & Ranger, 1983). Geography, in its modern academic form, also promotes critical thought. Geography education focuses on the spatial relationship of humans to each other and to the environment. Problem-solving and conceptualization are core cognitive skills necessary for success in the discipline (National Geographic Society, 2017).

In sum, humanities and social studies classes can be a logical place in the Saudi school curriculum to develop global competence and critical thinking. However, topics related to globalization, international affairs, foreign cultures, and current events may arise in discussion, requiring students and teachers to be prepared and willing to adopt a more critical, technocratic, and globally oriented outlook while remaining respectful of traditional Saudi values and social norms.

### **The IB Program and Globally Minded Critical Thinking Instruction**

As discussed earlier, the emphasis on developing global competency through education has fueled the growth of internationally recognized programs like the IB. Between 2012 and 2017 alone, the number of IB programs offered worldwide rose by 39.3%. As of May 2018, more than one million students are now participating in some form of IB program in 146 countries (IBO, 2018a). The IB began in 1968 to serve the needs of students moving between international schools by providing a portable, internationally accepted curriculum and credential. However, it soon pivoted toward the creation of an integrated academic program that emphasized a core set of principles and values that include global awareness and critical thinking (Bunnell, 2008; Hill, 2002, 2007; Tarc, 2009). As early as 1969, Robert Leach, one of the IB's founders, conceived of the role of critical inquiry in the IB as:

a process where students should question accepted views, should not expect reassurance for holding conventional opinions, should dissect and weigh the issues in whatever universal scales the teacher may find immediately useful, and should be prepared to retreat from entrenched positions in the face of compelling argument and reflection. (as cited in Hill, 2007, p. 27)

The link the IB makes between critical thinking and global mindedness is a compelling feature for many schools, including DAS. This link is promoted through the IB Learner Profile, a statement of 10 attributes valued by the IB and around which its curriculum is built (IBO, 2013). (See Appendix A.)

As described earlier in this chapter, the IB promotes IBL as its preferred instructional method and intentionally teaches critical thinking through its stand-alone TOK course in the DP for eleventh and twelfth graders. Almost every curricular objective listed in the TOK subject brief (IBO, 2014) aligns with at least one of Facione's (1990a) six cognitive skills of critical thinking (interpretation, analysis, evaluation, inference, explanation, and self-regulation). In addition, global issues requiring critical systems thinking (such as population-related challenges like migration, ethnic conflict, and refugee crises; water shortages; terrorism; and economic injustice) and intercultural understanding within and between nations are priority topics for social studies classes (Hill, 2007). These topics are part of the IB curriculum stream entitled "Individuals and Societies" which begins in the PYP and which includes business management, economics, geography, global politics, history, information technology in a global society, philosophy, psychology, social and cultural anthropology, and world religions (IBO, 2017b). In 2006, in response to criticism, the IB began to require subject-area teachers in the DP to communicate with TOK teachers to find ways to help students make purposeful links between

the different disciplines and topics they are studying. However, the extent of the IB's effectiveness in improving critical thinking and global mindedness outcomes has been difficult for researchers to quantify (Kyburg, Hertberg-Davis, & Callahan, 2007; Mayer, 2008; Tarc, 2009; Taylor & Porath, 2006; Zemplén, 2006).

### **Issues and Challenges for Countries in Adopting the IB Curriculum**

Many administrators, educators, and parents appreciate the IB's high standardized expectations for student learning and achievement, combined with flexibility in adapting to local norms and conditions (Resnik, 2012). This aspect of the IB was specifically highlighted by DAS school leaders as a reason for adopting the program. Peterson (2003) argues that the IB program leaves room for coexistence with national curricula, since "the IB programs do not seek to supplant or over-ride national systems; national (government and private) and international schools choose to do them or not" (p. 97). Moreover, in its 2008 standards revision, the IBO claimed that its curriculum, in addition to promoting universal skills and values, encouraged students to "develop a strong sense of their own identity and culture" (as cited in Poonosamy, 2010, p. 20). The 2008 standards also permitted the implementation of school-based syllabi in the DP to suit local needs; this policy later expanded to the PYP and MYP. Opening the curriculum to meet local content standards has been crucial to the IB's continued expansion. For example, Brazil created a Brazilian studies program to meet national history requirements (Resnik, 2012).

On the ground, however, determining how to interpret the IB's core concepts and expectations in the context of individual countries and cultures can be problematic. As discussed earlier, the IB—with its emphasis on critical thinking—privileges a certain way of knowing and a certain type of mental construct associated with the West (Bunnell, 2009; Doherty, 2009;

Doherty & Shield, 2012; Hayden & Wong, 1997; Hertberg-Davis & Callahan, 2008; Hughes, 2009; Resnik, 2012). In addition, research by Hayden and Wong (1997) found that students enrolled in the IB felt some cultures were promoted in the curriculum more than others, leading to concerns about a hierarchy of implied value among cultures. For example, almost no Mauritian texts are used in the world literature course in schools in Mauritius teaching the IB curriculum, but not because of any prohibition against doing so. Instead, local teachers and students “have not developed the mindset to acknowledge the rights and privileges that they can do so” (Poonoosamy, 2010, p. 23).

The fundamental barrier to the IB’s broader acceptance in Saudi Arabia and elsewhere is its association with processes of globalization. From its inception, the IB’s founders hoped that an international curriculum would break down barriers to international understanding by reducing ignorance and lack of cross-cultural contact (Hayden & Wong, 1997). However, critics on the left and right have sometimes characterized globalization as a form of neo-imperialism or hegemony because neoliberal values and practices such as the promotion of free trade, individualism, democracy and human rights are mostly Western, even if presented as universal (Paris, 2003). The cosmopolitan variant of globally minded critical thinking embedded in the IB program, with its normative aspects, has been criticized for this reason. In the United States, for example, the IB curriculum has been criticized for challenging American notions of exceptionalism (Bunnell, 2008, 2009). In Saudi Arabia, some people see globalization as a form of unhealthy Western influence that weakens traditional Saudi culture. Social conservatives view with skepticism globalization’s association with democracy, free markets, and cultural exchange and hybridization. Moreover, globalization has not benefited all societal groups and all countries equally, leading to political unrest around the globe. Therefore, schools adopting

the IB curriculum in places where the effects of globalization may not be altogether welcome or may conflict with societal norms, such as in Saudi Arabia, need to be cognizant of the challenges that might arise. Furthermore, schools adopting the IB should be aware of disagreements regarding the purpose and function of humanities and social studies education in society, as some constituencies' views and expectations might clash with efforts to diversify the curriculum or teach for global competence.

### **Teacher Knowledge, Motivation, and Organizational Needs for Implementing Globally Minded Critical Thinking in the IB Secondary School Humanities and Social Studies Curriculum**

#### **Knowledge and Skills**

In 2001, Anderson and Krathwohl published a revision to Dr. Benjamin Bloom's hierarchical taxonomy of cognitive skills that re-conceptualized the location of knowledge within the taxonomy. Now knowledge is the noun with which other thinking processes (verbs such as applying or synthesizing) interact. The revised taxonomy identifies four sub-categories of knowledge: factual, conceptual, procedural, and metacognitive.

**Factual knowledge.** Factual knowledge refers to the basic information that a person must know to solve a problem. Factual knowledge includes standard terminology used in a field or discipline. To teach critical thinking in the humanities and social studies, DAS teachers must know the relevant curricular content. They must also know the basic terminology relating to critical thinking instruction. Adoption of the IB curriculum further requires factual knowledge of IB requirements. The IBO requires that faculty members demonstrate understanding of its rules and requirements before granting a school authorization to offer its programs. Finally, teachers also need to know the Saudi Education Ministry policies and standards regarding humanities and social studies instruction and curriculum to ensure that they are complying with all applicable



rules. If they do not comply, they personally could risk adverse consequences and the school could lose its operating license from the Ministry of Education.

**Conceptual knowledge.** Conceptual knowledge is defined as the underlying principles, structures, categories, and theories within a field (Anderson & Krathwohl, 2001). To teach critical thinking effectively, DAS teachers must be able to identify and articulate the main principles of critical thinking instruction as well as understand the concepts underlying the most commonly recommended teaching methods. Going further, humanities and social studies teachers also need to understand the relationship between critical thinking and academic achievement in their disciplines. One key to doing so is to be able to identify and explain the ways they already incorporate critical thinking skills into the existing humanities and social studies curriculum.

The IBO publishes its goals and standards for the PYP, MYP, and DP programs in a general format that requires schools and teachers to translate those goals and standards into the local context. Among those goals is critical thinking. Thus, DAS teachers need to be able to conceptualize how and where critical thinking appears in the IB standards, and then how it applies to their school. They must also understand how IB standards might correspond to, and mesh with, the school's existing subject-area content standards.

**Procedural knowledge.** Anderson and Krathwohl (2001) refer to the skills, techniques, and methods required to complete a task as procedural knowledge. To implement a new critical thinking curriculum in the humanities and social sciences, DAS teachers need to know how to revise existing lesson plans and design new ones. Teachers also must be able to combine IB curriculum standards and critical thinking instructional methods. Critical thinking instruction is a complex and multifaceted process. Therefore, procedural knowledge relating to pedagogy and

curriculum design will contribute in large part to the success or failure of DAS' curricular revisions.

**Metacognitive knowledge.** The knowledge gleaned from the ability to reflect on one's own thinking processes, behavior, skills, and understanding is known as metacognitive knowledge. As discussed earlier in this chapter, metacognition is considered by many researchers to be an aspect of critical thinking, or at a minimum a related attribute. Designing, refining, and implementing a new curriculum is by its nature an iterative process. Therefore, DAS teachers need to know how to reflect on the progress they are making to incorporate critical thinking skills into the humanities and social studies curriculum. They also need to be able to apply their own understanding of Saudi cultural norms to decide what types of class lesson content would be acceptable in teaching critical thinking skills. This point is important if the school's curriculum is to remain aligned with the policies and standards of the Saudi Ministry of Education. If teachers can intentionally review their own work on the new curriculum with an eye to ensuring that it respects Saudi norms, then it may broaden support for the initiative within the school community.

### **Motivation**

Motivational theories are concerned with why individuals decide to act, or what Pintrich (2003) calls the "energization and direction of behavior" (p. 669). Motivation may be intrinsic or extrinsic, and conscious or unconscious. Intrinsic motivation derives from personal interest, satisfaction, or pleasure, while extrinsic motivation comes from external reinforcement. Behaviorist theories tend to emphasize extrinsic motivation, while social-cognitive theories focus on intrinsic motivation. Social-cognitive models of motivation also view motivation as contextual. In other words, the same person's motivation is not a stable trait and may vary

depending on the situation (Linnenbrink & Pintrich, 2002b). Psychologists consider intrinsic motivation to be more effective in creating positive learning outcomes (Pintrich, 2003). The study of motivation is important for educators because it provides insights into the reasons why individuals choose to pursue and persist toward the achievement of their goals. As discussed earlier, both Halpern (1998) and Paul (1992) maintain that effort and perseverance are key aspects of the disposition toward critical thinking. In the case of teachers, motivational theory may provide insight into the reasons that curriculum and pedagogy reform efforts succeed or fail. In terms of intrinsic motivation, DAS teachers need to value the promotion of global mindedness as an important goal of the IB program in humanities and social studies education. Teachers also need to think that the IB curriculum in the humanities and social studies is worthwhile to adopt. Three specific theories of motivation relevant to this issue are self-efficacy, expectancy-value, and affect or mood.

**Self-efficacy theory.** Self-efficacy theory is associated with the work of Albert Bandura. Bandura's social-cognitive research demonstrates that motivation, learning, and performance improve when individuals expect positive outcomes (Bandura, 1993, 1997). In education, students and teachers with comparable skills and knowledge may behave differently depending on whether they expect to succeed at a task. Moreover, self-efficacy may affect how a person approaches a goal and the extent of challenge he or she is willing to undertake.

**Teacher self-efficacy.** According to Bandura (1993), student learning is affected by teachers' beliefs in their personal efficacy to motivate students and promote learning. Teacher self-efficacy can affect the quality of the learning environment, thereby promoting or hindering students' academic progress. For example, research by Gibson and Dembo (1984) demonstrates that teachers with a high sense of instructional self-efficacy are more likely to spend classroom

time on productive academic tasks, assist students in difficulty, and praise student accomplishment. Teachers with low self-efficacy, by contrast, tend to spend time on non-academic activities and criticize or give up on students who do not meet academic expectations. Bandura (1997) argues that weak commitment to goals or goal avoidance are indicators of low self-efficacy. Therefore, if DAS teachers do not feel confident in their ability to improve students' critical thinking skills or develop new curriculum that fulfills school and government expectations, their performance may be compromised. Feelings of self-efficacy also may affect the character of the learning environment that teachers create in their classrooms. In addition, teachers at DAS need to have confidence that they can apply IB curriculum standards and instructional methods in the creation of new curriculum.

**Expectancy-value theory.** A related social-cognitive construct is expectancy-value theory, which is associated with the work of Atkinson (1964) and Eccles and Wigfield (2000, 2002). Whereas self-efficacy theory focuses on an individual's feelings of competency, expectancy-value theory deals with an individual's beliefs regarding the likelihood of success in completing a task. Expectancy of outcome is externally oriented; it does not depend upon an individual's self-judgments regarding capability. Instead, the locus of control is believed to reside outside the individual. Therefore, in expectancy-value theory, the degree of effort and persistence an individual expends on a given task, and whether an individual decides to engage in a task at all, depends upon whether the individual expects a positive outcome due to external factors such as the actions or biases of other people or institutions (Eccles & Wigfield, 2002).

**Teacher expectancy-value.** Tsui (2001) has demonstrated that even teachers who value critical thinking will avoid teaching it unless they are confident that their students are ready for, and interested in, engaging with coursework that requires higher-order thinking skills. At DAS,

teachers need to believe that their students are capable of the critical thinking skills needed for academic success in the IB humanities and social studies program. Otherwise, they may be disinclined to expend effort or persist in reaching the goal of designing and implementing the new curriculum.

**Affect/mood.** An individual's mood, emotion, or affective state can have positive or negative effects on learning, motivation, and performance. Ford (1992) has described emotions as "an empowering source of information about how to influence motivational patterns" (p. 145). Atkinson (1964) also addressed the influence of anxiety on motivation, linking it to fear of failure. Moreover, affect may influence cognition, and vice versa. For example, affect may contribute to the way information is processed into and retrieved from long-term memory (Linnenbrink, 2006; Parrott & Spackman, 2000). Mood can also affect how a person attributes the causation of events and situations (Sutton & Wheatley, 2003). For example, an individual in an angry mood may attribute his or her misfortunes to other people. This attribution may in turn influence the individual's consequent behavior. Moreover, affect interacts with the other motivational theories discussed previously. Positive mood enhances perceived self-efficacy and expectancy-value (Kavanaugh & Bower, 1985). It is also associated with a mastery rather than performance orientation (Linnenbrink & Pintrich, 2002a).

**Teachers' affect/mood.** Mood might affect teachers' motivations in several ways. For example, citing Locke and Latham's goal setting-theory, Sutton and Wheatley (2003) argue that a more positive mood will result in teachers choosing more ambitious goals for themselves and their students. Alternatively, a negative affect such as anxiety may result in avoidance or a lack of persistence regarding challenging tasks. DAS teachers may feel more ambitious in their design and implementation of new curriculum if they are not anxious or frustrated. Therefore,

teachers need to feel positive about applying IB curriculum standards and instructional methods in the creation of new curriculum. They also need to feel comfortable that the IB curriculum as implemented at the school does not undermine traditional Saudi values and cultural norms.

Furthermore, teachers' moods can influence the causes to which they attribute their own behavior and the behavior of their students. A negative mood may lead teachers to view their own efforts as inefficacious or to assume that students will be unable to perform up to their standards.

### **Organizational Influences**

**General theory.** According to Gallimore and Goldenberg (2001), an organization's culture can be analyzed based on the cultural settings and cultural models that exist in it. Cultural models refer to the cultural practices and shared mental schema (values, beliefs and attitudes) within an organization (Gallimore & Goldenberg, 2001). Cultural models develop gradually over time, making them resilient, and are usually invisible and automated. Cultural settings are the visible and concrete manifestations of cultural models. Cultural settings include the employees, their tasks, how and why tasks are completed, and the social context in which their work is performed (Gallimore & Goldenberg, 2001). Because cultural models are often embedded and invisible, organizations can only work to change cultural settings.

**Cultural models and settings affecting teachers.** A school is an ecosystem that itself operates within the larger ecosystem of its community's local and national cultures. Applying Gallimore and Goldenberg's (2001) model, a school environment may be considered a cultural setting; that setting in turn is influenced by the cultural model or models located there. Teachers work within the cultural setting of the school and are therefore both part of the setting and affected by it. In the case of DAS, one relevant and important cultural model is Islam as

practiced by the members of the DAS community and as supported by the Saudi Arabian government. The Wahhabi variant of Sunni Islam is the official religion endorsed by the government; teaching Islamic studies is mandatory in all Saudi schools. However other variants of Islam exist, and may be present in the DAS community. Other cultural models that may affect the school's cultural setting are attitudes regarding gender, patriotism, and the value of critical thinking. Each of these models may affect DAS teachers as they seek to meet the performance goal of creating and incorporating globally minded critical thinking instructional models and curriculum that meet IB standards into humanities and social studies classes, while remaining respectful of existing Saudi Arabian cultural norms. DAS teachers need to be part of a school culture that recognizes their concerns regarding any potential conflicts between Saudi cultural norms and IB principles and practices, including globally minded critical thinking skills, and helps them navigate those conflicts. Teachers also need to be part of a school culture that values their contributions to building the new IB curriculum in the humanities and social studies and holds them accountable for doing so. Finally, teachers need the school administration to model consistent enthusiasm for the changes in the humanities and social studies curriculum.

### **Conclusion**

The literature reviewed in this Chapter Two has provided historical background and a conceptual framework for examining DAS' knowledge, motivation, and organizational assets and ongoing needs to integrate globally minded critical thinking skills into its humanities and social studies curriculum through adoption of the IB curriculum. This chapter discussed the principal theories of critical thinking and models of critical thinking instruction, as well as the reasons why teaching critical thinking has been prioritized in education systems around the world. It also analyzed significant issues affecting effective implementation of critical thinking

instruction in different contexts, including in Saudi Arabia and through the IB program. This chapter concluded with a survey of the knowledge, motivation, and organizational factors that may serve as assets for teachers as they design and operationalize the new IB curriculum at DAS. Chapter Three will discuss the methodological approach employed in this modified promising practice study.



## CHAPTER THREE: METHODOLOGY

### **Purpose of the Project and Questions**

The purpose of this study is to analyze teacher assets in the areas of knowledge, skill, motivation and organizational resources so that all DAS students will be able to demonstrate globally minded critical thinking skills in humanities and social studies courses in accordance with IB requirements. This study examines the assets of humanities and social studies teachers during the early phase of IB MYP implementation; therefore, it represents a “window in time” into the process of large-scale organizational change. The analysis first generated a list of possible or presumed assets and then examined those assets in a systematic fashion to confirm actual or validated assets.

As such, the questions that guided this study were the following:

1. What knowledge and motivation assets do DAS faculty members possess in terms of creating and incorporating globally minded critical thinking instructional models and curriculum into humanities and social studies classes, including through the IB program, while remaining respectful of existing Saudi Arabian cultural norms?
2. What is the interaction between organizational culture and context and teacher knowledge and motivation?
3. What practices relating to the areas of knowledge, motivation and organizational resources are transferable to other organizations?
4. What are the recommended knowledge, motivation and organizational solutions to address ongoing needs?

### **Stakeholders of Focus**

While a complete promising practice analysis would focus on all stakeholders, to narrow the scope of this study, the focus of this study was literature, Islamic studies and social studies (history and geography) teachers at DAS for grades 6 to 12. Although teachers for grades 6 to 10 are the stakeholders most immediately affected by MYP implementation, teachers for grades 11 and 12 are also included in this study because they will be responsible for continuing critical thinking instruction in the school's humanities and social studies classes through graduation, particularly if the school adopts the DP. In addition, they are receiving IB training at the same time as teachers of grades 6 to 10 and are participating in the same department-wide PLCs. All teachers have direct involvement in and responsibility for the successful development, refinement, and implementation of the new IB curriculum. To do so, they need to learn the IB curricular requirements. Additionally, they need to understand and feel confident in implementing the pedagogical models and testing paradigms used by the IB program. Moreover, parent, student, and other DAS stakeholder support for the new program depends in part upon teachers demonstrating and communicating enthusiasm for, and commitment to, the goals and methods of the new IB program.

Literature, Islamic studies, and social studies teachers at DAS are diverse in terms of nationality, gender, years of teaching experience, and familiarity with international educational standards and practices. Their capacity and willingness to learn, understand, and assimilate the requirements of the IB program through targeted professional development is vital. In addition, since approximately one-third of the teaching faculty are Saudi citizens, it is important to consider their input when adapting the critical thinking requirements of the globally focused IB program into curricular materials relevant to, and respectful of, the local Saudi Arabian

context. Therefore, DAS literature, Islamic studies, and social studies teachers for grades 6 to 12 served as the principal stakeholder group for this study.

### **Methodological Framework**

This promising practice study uses a conceptual framework derived and adapted from the gap analysis model developed by Clark and Estes (2008). Gap analysis provides a systematic method to delineate an organization's goals and then to determine any gaps between an organization's current performance level and its desired performance level when the goals are achieved. Although originally developed to address performance deficits in business organizations, gap analysis has also been applied to educational contexts (Rueda, 2011). Clark and Estes (2008) argue that performance gaps in organizations often stem from a misunderstanding of the root causes of problems in organizational behavior. That behavior in turn derives from the actions and attitudes of the organization's principal stakeholders. According to Clark and Estes (2008), it is first important to validate the assumed causes of performance problems before acting to propose solutions. By systematically identifying, analyzing and verifying the knowledge, motivation and organizational culture factors (KMOs) affecting an organization's principal stakeholders, it is possible to determine how and why an organization is not meeting its goal or solving a problem. Thus, gap analysis provides a systematic framework to ascertain whether an organization's goals align with the behavior and needs of its stakeholders to better match any proposed solutions to problems with verified causes.

With respect to promising practice studies, because the organization under study has already made substantial progress toward its goal, the gap analysis framework may be used to validate the effects of the knowledge, motivation, and organizational assets on organizational

performance. In other words, it analyzes the efficacy of the performance assets the organization and its stakeholders have deployed to realize the goal the organization sets for itself.

The first step in a promising practice study is to clarify the organization's goal. That goal must be tangible and measurable. Next, because attainment of the organization's performance goal depends on the actions of its stakeholders, all stakeholders are identified and performance goals for each determined. Those performance goals must align with the overarching organizational goal. For purposes of this case study, only one principal stakeholder, secondary school humanities and social studies teachers, was selected. In a full promising practice analysis, however, all stakeholders' goals would be examined. Third, a list is generated of the principal stakeholder's assumed assets to reach its stated performance goal. According to Clark and Estes (2008), this list should be based upon the knowledge, motivation, and organizational capabilities that successful organizations possess to meet their performance goals. These assumed knowledge, motivation, and organizational culture factors are then validated through data collection. Assumed assets that are partially validated or not validated remain ongoing performance needs for the organization; solutions are proposed to address each performance need. In addition, validated assets are analyzed to determine whether they might be transferable to other organizations. As a recursive process, another asset analysis may be conducted after implementation of the proposed solutions, to validate if the solutions successfully addressed stakeholders' remaining needs, and why.

As discussed in Chapter Two, to successfully create and implement an organizational change, all stakeholders must be able to deploy the knowledge, motivation, and organizational assets supporting the attainment of their stakeholder performance goals. First, stakeholders must possess the requisite knowledge. According to Krathwohl (2002), the main forms of knowledge

consist of factual, conceptual, procedural and metacognitive. Stakeholders must know what to do and how to do it. However, knowledge is not the only factor affecting stakeholder performance. According to Clark and Estes (2008), even more important in many organizations, but often more challenging to assess and remedy, is stakeholder motivation. Motivation factors may include whether a stakeholder chooses to work toward achieving a goal (value), is able to continue working toward the goal (self-efficacy), or is expending the proper mental effort to achieve the goal. Third, organizational assets must be analyzed, such as whether and how an institution’s culture supports the stakeholder in achieving its performance goals. Clark and Estes (2008) argue that successful organizational solutions are culturally context-specific (p. 111). Other organizational factors include provision of the necessary resources and effective policies, processes and procedures.

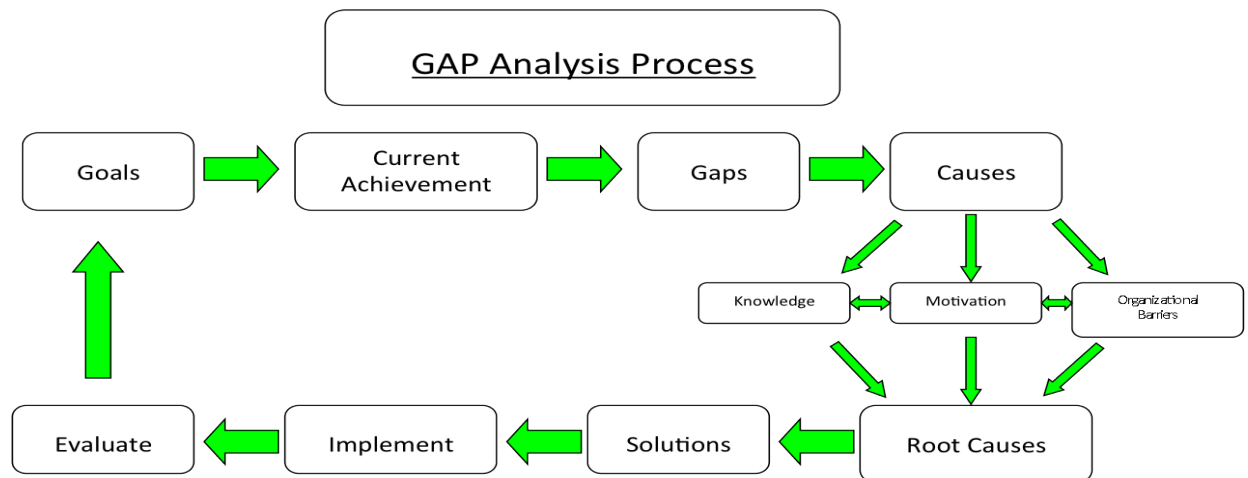


Figure 1. Gap analysis process. This figure illustrates the recursive nature of the process used in gap analysis.

**Assumed Assets**

Organization decision makers often assume that they know and understand the reasons behind their organization’s performance (Rueda, 2011). However, without research and analysis

to validate the needs and assets related to that performance, accurate diagnosis of the organization's real needs and assets may not occur. Moreover, appropriate, relevant solutions may not be identified or implemented (Clark & Estes, 2008). A thorough, research-based investigation of DAS' organizational performance assets and ongoing needs as it works to improve globally minded critical thinking instruction through design and introduction of the new IB humanities and social studies curriculum therefore should include three components:

(a) preliminary observations and informal (scanning) interviews with participating stakeholders; (b) an examination of learning, motivation, and organization/culture theory; and (c) a review of the related literature on critical thinking pedagogy and curriculum design, especially as they pertain to the IB program. The related literature, together with relevant concepts from the literature on learning, motivation, and organization/culture theory, were discussed previously in Chapter Two. The assets identified from that literature and theory are summarized in Table 1 in this Chapter Three, in conjunction with a discussion of the assumed knowledge, motivation, and organization/culture assets from scanning data that DAS should consider as it creates and implements the new IB program in its humanities and social studies classes.

Taken together, the assumed assets generated from preliminary observations and scanning interviews, theory, and related literature fall into five main categories: (a) teacher expertise, (b) values alignment, (c) positive, adaptive teacher attitudes and behaviors, (d) organizational expectations and accountability mechanisms, and (e) organizational support for teachers. First, teacher expertise involves the knowledge, skills, and capabilities that teachers can utilize in support of the school's performance goals. Teacher expertise is classified as a knowledge asset. Second, values alignment refers to the beliefs and other mental constructs shared by teachers and other key stakeholders such as school administrators, parents, and the

Ministry of Education. Third, positive, adaptive teacher attitudes and behaviors includes teachers' actions and beliefs that promote a constructive, proactive organizational culture and encourage contribution to the success of the school's performance goals. Both values alignment and positive, adaptive teacher attitudes and behaviors are considered motivation assets. Fourth, organizational expectations and accountability mechanisms refers to the school's policies, processes and procedures, along with both explicit and implicit cultural expectations regarding teacher behavior. It also refers to the means by which the school encourages or discourages teacher behavior by holding teachers accountable for meeting the school's performance goals. Lastly, organizational support for teachers includes the resources, professional training, and recognition provided to assist teachers in meeting the school's performance expectations. Both organizational expectations and accountability mechanisms and organizational support for teachers can be classified as organizational assets. The remainder of this study uses these five assumed asset categories to frame the discussion of teachers' knowledge, motivation, and organizational assets and ongoing needs related to DAS' performance goal of improving students' globally minded critical thinking skills in humanities and social studies while remaining respectful of Saudi cultural norms, including those relating to religion and gender.

### **Preliminary Scanning Data and Critical Observations**

**Knowledge and skills.** Informal interviews with senior administrators at DAS and a brief review of DAS' curriculum map and website suggested that secondary school literature, Islamic studies, and social studies faculty members have varying degrees of factual and conceptual knowledge regarding the IB program and critical thinking pedagogy, along with varying levels of competency in the procedural knowledge and skills needed to design and introduce new humanities and social studies curriculum based on these two criteria. Some

current faculty members participated in the most recent revision of DAS' curriculum, which was implemented in 2009-2010 and created the dual-track system. The international track grants its graduates an accredited American high school diploma, while the Saudi track grants its graduates the Muqararat diploma authorized by the Saudi Ministry of Education. The Muqararat option will continue to be offered in addition to the IB. The 2009-2010 curriculum revision also moved DAS from being an exclusively Arabic-language medium school to a dual English-Arabic one. Although all students currently study academic subjects in both English and Arabic up through graduation, many teachers who work in the Saudi diploma track have less experience with international curricular norms and testing methodologies. Moreover, the Saudi national humanities curriculum, which is based on Islamic history, literature, and theology, tends to prioritize rote learning over critical thinking. Finally, although DAS senior administrators have explained to faculty the rationale for why the school has decided to move to the IB program, it was unclear whether all faculty understood these reasons. These knowledge factors may affect teachers' performance when designing and implementing a new IB curriculum that emphasizes globally minded critical thinking skills.

**Motivation.** DAS is a well-resourced educational institution that is respected by attending families, the larger Dammam community, and Saudi ARAMCO. Faculty have opportunities for ongoing professional development, and both Saudi national and expatriate teachers typically receive compensation packages that are competitive with peer schools in the region. Nevertheless, preliminary scanning data suggested that certain motivation needs seemed to exist. For example, it was unclear to what extent all literature, Islamic studies, and social studies teachers concurred with the school administration that moving to the IB program was the right course of action or valued critical thinking skills to the same degree. Not all faculty



members seemed to feel equally confident in their ability to design and implement a new curriculum, or in their likelihood of success, especially in terms of the inclusion of critical thinking pedagogy. Concerns regarding expectations about potential outcomes and self-efficacy may affect not only teachers' feelings toward the project but also their likelihood to persist until the project is complete.

**Organization.** The motto of DAS is “Every year we will be better than we were the year before.” The school has implemented a philosophy of continuous improvement, which it tries to make tangible for faculty by “living the principles of a professional learning community” (DAS, n.d.). Preliminary scanning data indicated that DAS promotes an inclusive, supportive, and goal-oriented culture with opportunities for faculty input into the school’s decision-making processes and resources allocated for professional development. However, it was unclear whether school administrators had set aside enough work time and other resources for humanities and social studies teachers to be able to perform the following tasks necessary for the successful implementation of the new curriculum: identifying and understanding the curricular and external assessment requirements of the IB programs; researching and evaluating best practices in critical thinking skills instruction; and designing and implementing the new curriculum. Moreover, school administrators may not have been fully aware of potential faculty concerns about whether and to what extent the new curricular changes might not correspond to existing Saudi Education Ministry policies or traditional Saudi cultural norms. Each of these organizational/cultural factors may affect teachers’ performance, and therefore DAS’ progress toward meeting its goal.

Table 1

*Summary of Sources From Which Assumed Assets Were Derived*

<b>Assumed Assets</b>	<b>Preliminary Observations and Scanning</b>	<b>Theory</b>	<b>Related Literature</b>
<b><i>Knowledge Assets: Teacher Expertise</i></b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers know the Saudi Education Ministry policies and standards regarding literature, Islamic studies, and social studies instruction and curriculum. <i>(Factual)</i>	X	X	
Teachers can apply their own understanding of Saudi cultural norms to decide what types of class lesson content would be acceptable in teaching critical thinking skills. <i>(Conceptual and Metacognitive)</i>		X	
Teachers understand what critical thinking is, and the relationship between critical thinking and academic achievement in literature, Islamic studies, and social studies disciplines. <i>(Conceptual)</i>	X	X	X
Teachers are knowledgeable about best practices in teaching critical thinking skills and can identify whether and how they are already incorporating critical thinking skills into the existing literature, Islamic studies, and social studies curriculum. <i>(Conceptual and Metacognitive)</i>	X	X	X
Teachers are knowledgeable about best practices in teaching for critical thinking transfer across academic subjects and grade levels. <i>(Conceptual and Metacognitive)</i>			X

Table 1, continued

Assumed Assets	Preliminary Observations and Scanning	Theory	Related Literature
<b><i>Knowledge Assets: Teacher Expertise</i></b>	X	X	X
Teachers understand how critical thinking is reflected in the goals and standards of the IB program. ( <i>Conceptual</i> )	X	X	
Teachers know how to <i>revise existing lesson plans</i> and <i>create new curricular units</i> to meet IB critical thinking curriculum and instructional standards for the literature, Islamic studies, and social studies curriculum. ( <i>Conceptual and Procedural</i> )	X	X	
<b><i>Motivation Assets: Values Alignment</i></b>	X	X	X
Teachers value the development of students' critical thinking skills. ( <i>Intrinsic Task Value</i> )	X	X	X
Teachers consider the IB curriculum in literature, Islamic studies, and social studies worthwhile to adopt. ( <i>Intrinsic Task Value</i> )	X	X	
Teachers value the IB's emphasis on global mindedness as it relates to literature, Islamic studies, and social studies education. ( <i>Intrinsic Task Value</i> )		X	
Teachers feel comfortable that the IB program as implemented at DAS, including global mindedness, does not conflict with traditional Saudi values and cultural norms. ( <i>Mood</i> )		X	X

Table 1, continued

<b>Assumed Assets</b>	<b>Preliminary Observations and Scanning</b>	<b>Theory</b>	<b>Related Literature</b>
<b><i>Motivation Assets: Values Alignment</i></b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers feel positive about, and comfortable with, applying IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills. ( <i>Intrinsic Task Value and Mood</i> )	X	X	X
<b><i>Motivation Assets: Positive, Adaptive Behaviors &amp; Attitudes</i></b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers confidence that they can apply IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills. ( <i>Self-Efficacy</i> )	X	X	
Teachers believe that DAS students are capable of the critical thinking skills needed for academic success in the IB program. ( <i>Expectancy Outcome</i> )		X	X
<b><i>Organizational/Cultural Assets: Organizational Expectations &amp; Accountability Mechanisms</i></b>	<b>X</b>	<b>X</b>	
Teachers belong to a school culture that expects teachers to develop students' critical thinking skills in accordance with IB program requirements. ( <i>Culture</i> )	X	X	
<b><i>Organizational/Cultural Assets: Organizational Support</i></b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers work in an environment that supports their continued learning, including the provision of professional development related to critical thinking and the IB. ( <i>Resources and Culture</i> )	X	X	X

Table 1, continued

Assumed Assets	Preliminary Observations and Scanning	Theory	Related Literature
<b><i>Organizational/Cultural Assets: Organizational Support</i></b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers have work time set aside to develop the new literature, Islamic studies, and social studies curriculum. ( <i>Resources</i> )	X		X
Teachers have an organized, structured process for how to participate in creating the new IB curriculum and for providing input. ( <i>Policies, Processes and Procedures</i> )	X		
Teachers are part of a school culture that recognizes any concerns regarding potential conflicts between Saudi cultural norms and IB principles and practices, including critical thinking skills, and helps teachers navigate those conflicts. ( <i>Culture</i> )	X	X	
Teachers are part of a school culture that values their contributions to building the new IB curriculum. ( <i>Culture</i> )		X	
Teachers have a school administration that models consistent enthusiasm for the curricular changes related to adoption of the IB. ( <i>Culture</i> )		X	
Teachers have heard and understand why the leadership of DAS decided to adopt the IB program. ( <i>Culture</i> )	X		

The assumed assets identified in Table 1 were used to generate the content of questions asked to members of the study population on a survey and during interviews. The characteristics of that study population are described in the next section. These assumed assets also guided the review of relevant documents and observation of classes and faculty PLC meetings.

### **Study Population**

The population identified for this study is all secondary school literature, Islamic studies, and social studies teachers at DAS in Dammam, Kingdom of Saudi Arabia. Secondary school includes grades 6 to 12. The DAS administration has tasked these teachers with designing and implementing the school's new humanities and social studies curriculum for middle and high school students, with the goal of improving instruction in globally minded critical thinking skills. This curriculum is based on standards and practices of the IB MYP; the school has not yet decided whether to adopt the DP. As the stakeholders most directly responsible for the creation of the new curriculum, and with the potential to positively or negatively influence student outcomes and community perceptions, teachers are critical to the success of the program. Although the organizational goal for DAS is that by June 2020, all enrolled students will demonstrate globally minded critical thinking skills in the school's humanities and social studies curriculum for grades 6 to 10, as noted earlier, teachers for grades 11 and 12 are also included in the study's population because eventually they will be responsible for continuing critical thinking instruction in the school's humanities and social studies classes through graduation, particularly if the school adopts the DP, which includes the TOK course.

DAS employs both Saudi and expatriate teachers. Both Saudi and expatriate teachers are involved in teaching the new IB program. The school is segregated by gender in middle and high school, with teachers working in either the boys' school or girls' school. Teachers from both divisions, and of both genders, were included in the population for this study. The total population pool of primary stakeholders for this study was 78 humanities and social studies teachers for grades 6 to 12. In addition, two other groups of academic personnel were also included in the study population: six academic supervisors and 15 teachers of grades 3 to 5.

Upper primary teachers were included because these teachers had already gone through the experience of IB PYP implementation. The responses from PYP teachers were used for comparison with secondary teachers who had just begun IB implementation during the year the data for this study was collected. Academic supervisors for grades 3 to 12 were likewise included for comparison purposes and because they work directly with the teachers tasked with designing and implementing the new IB curriculum. Therefore, 99 teachers and academic supervisors served as the total population for purposes of this study.

### **Data Collection**

Validation of the assumed knowledge, motivation and organizational assets affecting the successful design and implementation of the new humanities and social studies curriculum at DAS was undertaken through a qualitative case study that also made limited use of descriptive quantitative methods. This case study involved four principal means of data collection: classroom and faculty meeting observations, interviews, document analysis, and surveys. Each is described in greater detail in the following sections. Use of all four data collection methods ensured triangulation of data to cross-check the reliability of the results.

All survey and interview protocols were reviewed and approved by the Internal Review Board of the University of Southern California prior to being administered. They were also reviewed by senior DAS administrators to ensure that all wording was sensitive to differences in cultural or linguistic interpretation between the United States and Saudi Arabia. To preserve confidentiality, all data collected has been stored on a password-protected computer in a secure location and is backed up on a cloud-based server. Surveys were conducted anonymously, and no identifying information from interviews or classroom observations beyond gender, nationality, teaching subject, and years of teaching experience were included in the study. All

data, including interview transcripts and coding, survey responses, and classroom observation notes, will be stored for five years after completion of this study and then destroyed.

### **Surveys**

A written survey instrument was developed in English, translated into Arabic, and distributed to all DAS literature, Islamic studies, and social studies teachers and academic supervisors working in grades 3-12 in November 2017. The survey was sent to 99 potential respondents; of those respondents, six were academic supervisors and 93 were teachers. Among those 93 teachers, 78 teachers of grades 6 to 12 received the survey, and the remaining 15 teachers worked in grades 3 to 5. A total of 49 respondents completed the survey, for an overall response rate of 49.5%. Of those 49 respondents, 37 taught grades 6 to 12 (a response rate of 47.4%), and seven taught grades 3 to 5 (a response rate of 46.6%). Five out of six academic supervisors for grades 3 to 12 completed the survey, for a response rate of 83%. Table 2 contains a demographic summary of survey respondents. Teachers and supervisors completed the survey online, with responses collected and aggregated anonymously. No individual identifying demographic information was collected, although respondents were asked their gender (male, female, prefer not to state), nationality (Saudi or non-Saudi), subject area taught (literature, Islamic studies, social studies, other), teaching language (English or Arabic), native speaker of Arabic (yes or no), location of teacher education (in Saudi Arabia or outside), years of teaching experience (less than 1 year, 1-5 years, 6-10 years, 11-15 years, and more than 15 years), and grade level(s) currently taught. Inclusion of gender categories on a survey in Saudi Arabia beyond binary “male-female” would likely be considered inappropriate, given prevailing cultural norms. Computer IP addresses of respondents were not collected to ensure confidentiality. School administrators encouraged but did not require participation by asking all



literature, Islamic studies, and social studies faculty members teaching in grades 6-12, as well as primary school teachers in grades 3-5, to complete the survey. However, the investigator sent the online survey link directly to participants, so that school administrators did not have access to responses and could not track who had completed the survey.

Table 2

*Demographic Summary of Survey Respondents*

	<i>Teachers</i>		<i>Academic Supervisors</i>	
	Male	Female	Male	Female
Total	29	14	2	3
Saudi Citizen	0	4	0	2
Non-Saudi Citizen	29	10	2	1
Native Arabic Speaker	21	9	1	2
Non-Native Arabic Speaker	8	5	1	1
Educated in Saudi Arabia	0	5	0	1
Not Educated in Saudi Arabia	29	9	2	2
Arabic-Medium Instruction	7	7	N/A	N/A
English-Medium Instruction	22	7	N/A	N/A

*Note.* One respondent did not specify gender. Not all respondents answered every question.

The survey consisted of 78 total items and included both Likert-scale and open-ended response questions. Five general demographic questions were answered by both academic supervisors and teachers. The remainder of the questions were posed based on the respondent's school role, with academic supervisors answering a total of 31 additional questions and teachers answering an additional 42. Seven questions requested additional demographic data from academic supervisors and six questions requested additional demographic data from teachers. The remainder of the survey consisted of 24 questions for academic supervisors and 36 questions for teachers. The survey was designed to be completed in approximately 20 minutes, although there was no stated time limit. The survey instrument was written by the investigator to validate the assumed knowledge, motivation, and organization/culture assets and identify ongoing needs of DAS teachers, and was based on the theoretical and methodological contributions of Clark

and Estes (2008), Gallimore and Goldenberg (2001), Krathwohl (2002), Mayer (2011) Pintrich (2003), Rueda (2011), and Schein (2010) to ensure reliability and internal validity. Survey responses also were compared for consistency with interview responses, as shown in Table 3 of this Chapter Three. The survey instrument may be found in Appendix C.

### **Interviews**

Selected DAS teachers and academic supervisors from the sample population were interviewed concurrently with and after administration of the survey using a semi-structured interview protocol. (See Appendix D.) In total, 17 teachers and six academic supervisors were interviewed. Of the teachers, 16 taught in DAS' secondary school literature, Islamic studies, and social studies program (in both the Saudi national curriculum and the international program). They included at least one male and one female teacher from every academic discipline in grades 6 to 12. In addition, one teacher for grades 3 to 5 was interviewed. Beyond these criteria, a convenience sample of interview subjects was chosen based on availability during the period of data collection. DAS school administrators compiled the interview schedule and encouraged, but did not require, participation. Interviews took place on the DAS campus in a private meeting area or classroom during each teacher's free period or before or after school.

The interview instrument, which was written by the investigator, consisted of 22 specific and open-ended questions. Translators participated in interviews with faculty members who did not wish to be interviewed in English. The translators, a male for interviews with faculty from the boys' school and a female for interviews with faculty from the girls' school, work in DAS' research unit. These individuals were chosen to preserve the confidentiality of the interviews, because although both translators are DAS employees, they are not part of the academic staff of the school and do not report to the academic school leadership. Each interview lasted

approximately 45 minutes to one hour. Time for follow-up, probing questions was built into each interview. Prior written permission to record the interview for later transcription and coding was obtained from each participant. Member checks were conducted after the first two interviews to confirm that the investigator's interpretation was accurate.

### **Observations**

Sixteen informal classroom observations were conducted during November 2017 to provide a general context for the interpretation of survey responses and to inform the content of teacher interviews. No specific classroom observation protocol was used. Observations focused on the ways in which critical thinking skills are currently being cultivated and deployed in classroom activities and on identifying any knowledge, motivation, and organization/culture factors that might affect future implementation of the new IB curriculum. The number and length of classroom observations depended on teachers' schedules and willingness to be observed. At least two Saudi national and two expatriate teachers were observed. Moreover, at least two observations occurred in classes taught by interview participants, so that the interviews could include follow-up questions asking respondents to reflect on their observed teaching practices. In-person classroom visits only occurred in the girls' school due to Saudi gender restrictions and segregation in educational institutions. Observations of classes in the boys' school were conducted remotely through the use of mobile communications technology, including an iPad camera mounted on a robot. A translator accompanied the investigator for classes conducted in Arabic.

In addition, the investigator observed five professional development sessions for faculty. Three were PLC meetings, one was a training on Precision Teaching, and one was a workshop on creativity and tinkering.

**Document Analysis**

Prior to and after the collection of data through surveys, interviews, and classroom and meeting observations, an analysis of documents related to the assumed teachers' knowledge, motivation, and organization/culture assets and needs in the creation and implementation of the new IB curriculum was conducted. Documents reviewed consisted of the school's existing middle and high school literature, Islamic studies, and social studies curriculum maps and lesson plans. They also included professional development materials related to critical thinking instruction, as well as any official communications between senior administrators and teachers on this topic. Materials produced by the IBO regarding recommended methods for teaching critical thinking skills within the MYP and DP were also examined. Preliminary findings were then validated through interviews with senior school administrators to see whether the conclusions drawn from the initial document review supported those assumptions, since those assumptions formed the original rationale for this case study. Findings from the document review were also used to inform the content of interviews and classroom observations and to triangulate the reliability and validity of data gathered through other methods.

**Validation of Assumed Performance Assets**

The remainder of this chapter describes the methods that were used to validate the assumed stakeholder knowledge, motivation, and organization/culture assets and determine ongoing needs described in Chapter Two and elsewhere in this Chapter Three. These assumed assets, together with the relevant validation methods, are summarized in Table 3. Assumed assets were grouped into five main categories: (1a) teacher expertise, (b) values alignment, (c) positive, adaptive teacher attitudes and behaviors, (d) organizational expectations and accountability mechanisms, and (e) organizational support for teachers. Methodologically, this

study employed a qualitative case study approach to test the assumptions that were generated from both academic literature review and scanning interviews and observations. Doing so revealed which assumed assets were validated and which assumed assets were not in fact operative in the contextual parameters of this study. This method also identified ongoing needs that require proposed solutions. Validation occurred through analysis of descriptive data collected through surveys, interviews, observations, and document review. The relevance and validity of each assumed asset were triangulated through analysis of data collected through at least two methods, if possible. For the survey, an asset was considered validated if at least 75% of respondents chose “agree” or “strongly agree” on the questions pertaining to that asset.

Table 3

*Summary of Assumed Assets and Validation Methods*

<b>Assumed Assets</b>	<b>Survey</b>	<b>Interviews</b>	<b>Observations</b>	<b>Document Review</b>
<b><i>Knowledge Assets: Teacher Expertise</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	
Teachers know the Saudi Education Ministry policies and standards regarding literature, Islamic studies, and social studies instruction and curriculum. <i>(Factual)</i>	X	X		
Teachers can apply their own understanding of Saudi cultural norms to decide what types of class lesson content would be acceptable in teaching critical thinking skills. <i>(Conceptual and Metacognitive)</i>	X	X		

Table 3, continued

<b>Assumed Assets</b>	<b>Survey</b>	<b>Interviews</b>	<b>Observations</b>	<b>Document Review</b>
<b><i>Knowledge Assets: Teacher Expertise</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	
Teachers understand what critical thinking is, and the relationship between critical thinking and academic achievement in literature, Islamic studies, and social studies disciplines. <i>(Conceptual)</i>	X	X	X	
Teachers are knowledgeable about best practices in teaching critical thinking skills and can identify whether and how they are already incorporating critical thinking skills into the existing literature, Islamic studies, and social studies curriculum. <i>(Conceptual and Metacognitive)</i>	X	X		
Teachers are knowledgeable about best practices in teaching for critical thinking transfer across academic subjects and grade levels. <i>(Conceptual and Metacognitive)</i>	X	X		
Teachers understand how critical thinking is reflected in the goals and standards of the IB program. <i>(Conceptual)</i>	X	X		
Teachers know how to <i>revise existing lesson plans</i> and <i>create new curricular units</i> to meet IB critical thinking curriculum and instructional standards for the literature, Islamic studies, and social studies curriculum. <i>(Conceptual and Procedural)</i>				X

Table 3, continued

<b>Assumed Assets</b>	<b>Survey</b>	<b>Interviews</b>	<b>Observations</b>	<b>Document Review</b>
<b><i>Motivation Assets: Values Alignment</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	
Teachers value the development of students' critical thinking skills. ( <i>Intrinsic Task Value</i> )	X	X	X	
Teachers consider the IB curriculum in literature, Islamic studies, and social studies worthwhile to adopt. ( <i>Intrinsic Task Value</i> )	X	X		
Teachers value the IB's emphasis on global mindedness as it relates to literature, Islamic studies, and social studies education. ( <i>Intrinsic Task Value</i> )	X	X		
Teachers feel comfortable that the IB program as implemented at DAS, including global mindedness, does not conflict with traditional Saudi values and cultural norms. ( <i>Mood</i> )	X	X		
Teachers feel positive about, and comfortable with, applying IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills. ( <i>Intrinsic Task Value and Mood</i> )	X	X		
<b><i>Motivation Assets: Positive, Adaptive Behaviors &amp; Attitudes</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	
Teachers have confidence that they can apply IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills. ( <i>Self-Efficacy</i> )	X	X	X	

Table 3, continued

<b>Assumed Assets</b>	<b>Survey</b>	<b>Interviews</b>	<b>Observations</b>	<b>Document Review</b>
<b><i>Motivation Assets:</i></b>				
<b><i>Positive, Adaptive Behaviors &amp; Attitudes</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	
Teachers believe that DAS students are capable of the critical thinking skills needed for academic success in the IB program. ( <i>Expectancy Outcome</i> )		<b>X</b>	<b>X</b>	
<b><i>Organizational/Cultural Assets:</i></b>				
<b><i>Organizational Expectations &amp; Accountability Mechanisms</i></b>	<b>X</b>	<b>X</b>		<b>X</b>
Teachers belong to a school culture that expects teachers to develop students' critical thinking skills in accordance with IB program requirements. ( <i>Culture</i> )	<b>X</b>	<b>X</b>		<b>X</b>
<b><i>Organizational/Cultural Assets:</i></b>				
<b><i>Organizational Support</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers work in an environment that supports their continued learning, including the provision of professional development related to critical thinking and the IB. ( <i>Resources and Culture</i> )	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers have work time set aside to develop the new literature, Islamic studies and social studies curriculum. ( <i>Resources</i> )	<b>X</b>	<b>X</b>	<b>X</b>	
Teachers have an organized, structured process for how to participate in creating the new IB curriculum and for providing input. ( <i>Policies, Processes and Procedures</i> )		<b>X</b>	<b>X</b>	



Table 3, continued

<b>Assumed Assets</b>	<b>Survey</b>	<b>Interviews</b>	<b>Observations</b>	<b>Document Review</b>
<b><i>Organizational/Cultural Assets: Organizational Support</i></b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
Teachers are part of a school culture that recognizes any concerns regarding potential conflicts between Saudi cultural norms and IB principles and practices, including critical thinking skills, and helps teachers navigate those conflicts. <i>(Culture)</i>	X	X		
Teachers are part of a school culture that values their contributions to building the new IB curriculum. <i>(Culture)</i>	X	X		
Teachers have a school administration that models consistent enthusiasm for the curricular changes related to adoption of the IB. <i>(Culture)</i>	X	X	X	
Teachers have heard and understand why the leadership of DAS decided to adopt the IB program. <i>(Culture)</i>	X	X		

### **Trustworthiness of Data**

The trustworthiness of the data collected for this study was ensured in several ways. First, as indicated previously, data from the survey, interviews, classroom and meeting observations, and document analysis were triangulated, so that each main observation drawn from the data was confirmed via multiple sources (Merriam, 2009). Second, survey and interview items were based on accepted methods and theoretical constructs. Third, anonymity and confidentiality has been protected at all stages of the data collection and analysis process for every DAS teacher and academic supervisor who was a survey respondent, interviewee or classroom or meeting observation subject (Merriam, 2009). Fourth, member checks occurred

after the first two interviews to evaluate the accuracy of survey and interview protocol interpretations.

### **Role of Investigator**

As the principal investigator in this case study, my role was to conduct an asset analysis and problem-solving investigation to assist DAS literature, Islamic studies, and social studies teachers as well as DAS administrators in designing and implementing a new secondary school curriculum that meets the school's goal of increasing students' competency in globally minded critical thinking skills. I have no past or current affiliation with DAS, either formally or informally, beyond a one-day visit to the school in November 2007.

Senior administrators at DAS informed teachers and academic supervisors about the purpose of this study and introduced me to the faculty who served as the stakeholders of focus for this case study. School administrators encouraged faculty members to participate in surveys, interviews, and classroom observations, but did not require them to do so and made clear that participation was voluntary; no adverse repercussions will result from declining to participate. No school administrators sat in on any survey administrations or interviews. I assured all sample group members both verbally and in writing that no individual identifiers were collected to ensure confidentiality, and that all information obtained is being used exclusively for purposes of validating assumed assets and ongoing needs. It is also being used to develop recommendations to improve the organization's performance and to help stakeholders successfully meet the goal of designing and implementing the new literature, Islamic studies, and social studies curriculum in accordance with the school's stated objectives and priorities. Stakeholders have been notified that the school's founder will receive a copy of the completed case study and may decide how to

use its findings. However, school administrators do not and will not have access to any of the raw data either during or after the study.

Prior to beginning any document analysis, permission was obtained from senior administrators at DAS to review and quote from any unpublished data, correspondence, lesson plans, curriculum materials, or other documents produced for different institutional purposes. During preliminary document review and final preparation of the survey and interview instruments, senior DAS administrators also were consulted to provide clarification and feedback.

### **Data Analysis**

For this case study, survey and interview data collected at DAS were analyzed using both qualitative and quantitative methods. First, survey data was tabulated in the Qualtrics online survey program, and interviews were transcribed, translated from Arabic into English when necessary, and then coded thematically based upon the knowledge, motivation, and organization/culture factors identified earlier in the research process. Since the total sample population was relatively small, report frequencies were the principal mode of statistical analysis to determine the percentage of survey respondents who “strongly agreed” or “agreed” versus the percentage who “strongly disagreed” or “disagreed.” Descriptive data from interviews and classroom observations were used to triangulate the survey results.

Document review began in November 2017. DAS teachers completed the survey during the week of November 18, 2017. That week interviews and classroom and meeting observations also took place. Between January 1, 2018 and April 15, 2018 frequency data analysis of survey and interview responses occurred. All survey data and calculations were crosschecked for consistency and accuracy.

### **Limitations and Delimitations**

Several limitations may affect the trustworthiness of the findings of this case study. Most importantly, the total stakeholder population, and thus total sample population, is small. This small size may affect the statistical reliability and validity of the results, particularly if any potential respondents did not choose to participate or skipped answering any questions. In addition, survey and interview responses may reflect bias since they are self-reported. Self-reported information about the respondents' past actions and events may be subject to errors in selective memory, telescoping, and exaggeration. Furthermore, when surveys and interviews were administered in English to participants for whom English is not the native language, there is a possibility that questions and answers may not have been understood or interpreted as intended. Moreover, because the questions and responses for some surveys and interviews were translated from Arabic to English, there is similarly a possibility that some questions and answers may not have been understood or interpreted as intended. Some participants may also have felt obliged to respond to questions in a manner that they deemed to be socially expected or desired by the interviewer or DAS administrators. Respondents may possibly have been wary of criticizing their colleagues, their work supervisors, or Saudi culture.

The principal delimitation of this promising practice case study is that it is context-specific to DAS. DAS is a singular institution with its own mission, goals, challenges, and characteristics. Therefore, the findings developed in this promising practice analysis are specific to DAS and cannot be generalized. However, other organizations wishing to study how to plan and implement a major institutional change may find this study useful in its application of the Clark and Estes (2008) model. In addition, other schools who are considering how to improve

instruction in globally minded critical thinking, including through adoption of the IB program, may find aspects of this study helpful.

This study does not attempt to rank the relative importance of validated assets or try to ascertain which foundational assets made any other assets possible. Nor does it seek to determine the relative importance of teachers' contributions versus those of other stakeholders (such as senior administrators) to successful implementation of the IB program. Fundamental as these questions are, the data collected do not support such analytical judgments and they fall outside the scope of this study. A full promising practice analysis would evaluate the contributions of *all* stakeholders to the school's success in implementing the IB program to improve students' globally minded critical thinking skills. This case study examined just one principal stakeholder group, secondary school literature, Islamic studies, and social studies teachers at DAS. Teachers' knowledge, motivation, and organizational assets and ongoing needs, or their views and prior experiences, may not reflect those of other stakeholder groups. Though critical for a complete promising practice analysis, the assumed assets and ongoing needs of other stakeholders fell outside the scope of this project.

## CHAPTER FOUR: RESULTS AND FINDINGS

Using a modified gap analysis framework (Clark & Estes, 2008), this chapter evaluates the knowledge, motivation, and organizational assets and ongoing needs of teachers at DAS as the organization seeks to fulfill its goal of improving students' globally minded critical thinking skills through implementation of the IB program in the humanities and social studies curriculum while remaining respectful of existing Saudi cultural norms. Data were collected through interviews, surveys, classroom and meeting observations, and document review. Forty-nine respondents in total completed the survey; five were academic supervisors for grades 3 to 12, seven were teachers in grades 3 to 5, and 37 were teachers in grades 6 to 12. Seventeen teachers and six academic supervisors were interviewed. Findings from analysis of that data were then compared against the assumed assets listed in Chapter Three to ascertain which ones were validated, partially validated or invalidated. Several additional assets also emerged in the course of data analysis; they are discussed as well. As discussed in Chapter Three, assets may be grouped into five main categories: (a) teacher expertise (*knowledge*); (b) values alignment (*motivation*); (c) positive, adaptive teacher attitudes and behaviors (*motivation*); (d) organizational expectations and accountability mechanisms (*organization/culture*); and (e) organizational support for teachers (*organization/culture*). Assumed assets that were partially validated or invalidated are revisited in Chapter Five as continuing needs for DAS to address to fully meet its organizational performance goal.

The following questions guiding the study are examined in this chapter:

1. What knowledge and motivation assets do DAS faculty members possess in terms of creating and incorporating globally minded critical thinking instructional models and

curriculum into humanities and social studies classes, including through the IB program, while remaining respectful of existing Saudi Arabian cultural norms?

2. What is the interaction between organizational culture and context and teacher knowledge and motivation?

Based on the findings described in this chapter, the third and fourth guiding questions for this study will be addressed in Chapter Five. Those questions are “What practices relating to the areas of knowledge, motivation, and organizational resources are transferable to other organizations?” and “What are the recommended knowledge, motivation, and organizational solutions to address ongoing needs?”

### **Teacher Expertise: Knowledge Findings**

Anderson and Krathwohl (2001) identify four dimensions of knowledge: factual, procedural, conceptual and metacognitive. Factual and conceptual knowledge include the vocabulary, ideas, principles, and structures of a given field. Procedural knowledge entails knowing how to perform a task, as well as being able to identify the steps needed complete a task successfully. Metacognitive knowledge requires a person to be able to reflect on and evaluate his or her thoughts and actions. It was assumed that humanities and social studies teachers at DAS (defined as literature, Islamic studies, and social studies instructors for grades 6-12), possess a range of factual, conceptual, procedural, and metacognitive knowledge in order to provide effective instruction in critical thinking and to adapt to the new IB curricular framework. Relevant data from surveys, interviews, observations, and document review were then analyzed to determine whether DAS teachers possess the requisite types of knowledge and whether those knowledge types are validated as existing assets at the school during implementation of the IB MYP program. Those assumed knowledge assets and their validation are summarized in

Table 4. When applicable, data are broken down by gender, language instruction, country of citizenship, and other demographic factors.

As DAS transitions to the MYP in order to further integrate globally minded critical thinking instruction into its curriculum, it must recognize and leverage the school's existing assets related to critical thinking instruction, including teachers' knowledge. This knowledge, which falls under the asset category of teacher expertise, may be further subdivided into three types. First, teachers must be able to evaluate their teaching methods and curricular choices in light of Saudi government policies and cultural values. Second, teachers need to understand the role of critical thinking in the school's existing curriculum and be familiar with best practices in critical thinking pedagogy. Third, teachers should know how, and when, to rework the school's existing humanities and social studies curriculum to meet the IB program's goals and standards.

Table 4

*Teacher Expertise: Knowledge Assumed Assets and Validation Methods*

Category	Assumed Asset	Validation Method	Validated
Saudi Policies and Norms <i>(Factual Knowledge)</i>	Teachers know the Saudi Education Ministry policies and standards regarding literature, Islamic studies, and social studies instruction and curriculum.	Survey, Interview	Partially Validated
Saudi Policies and Norms <i>(Conceptual and Metacognitive Knowledge)</i>	Teachers can apply their own understanding of Saudi cultural norms to decide what types of class lesson content would be acceptable in teaching critical thinking skills.	Survey, Interview	Validated



Table 4, continued

Category	Assumed Asset	Validation Method	Validated
Critical Thinking Best Practices ( <i>Conceptual Knowledge</i> )	Teachers understand what critical thinking is, and the relationship between critical thinking and academic achievement in literature, Islamic studies, and social studies disciplines.	Survey, Interview, Class Observation	Validated
Critical Thinking Best Practices ( <i>Conceptual and Metacognitive Knowledge</i> )	Teachers are knowledgeable about best practices in teaching critical thinking skills and can identify whether and how they are already incorporating critical thinking skills into the existing literature, Islamic studies, and social studies curriculum.	Survey, Interview, Class Observation, Document Review	Partially Validated
Critical Thinking Best Practices ( <i>Conceptual and Metacognitive Knowledge</i> )	Teachers are knowledgeable about best practices in teaching for critical thinking transfer across academic subjects and grade levels.	Interview, Class Observation	Not Validated
IB Standards ( <i>Factual and Conceptual Knowledge</i> )	Teachers understand how critical thinking is reflected in the goals and standards of the IB program.	Survey, Interview	Validated
IB Standards ( <i>Conceptual and Procedural Knowledge</i> )	Teachers know how to <i>revise existing lesson plans</i> and <i>create new curricular units</i> to meet IB critical thinking curriculum and instructional standards for the literature, Islamic studies, and social studies curriculum.	Survey, Meeting Observation, Document Review	Partially Validated
IB Standards ( <i>Procedural Knowledge</i> )	PYP teachers possess experiential knowledge about IB implementation that can be shared with MYP teachers.	Interview	Newly Discovered Asset

**Factual Knowledge: Saudi Ministry of Education Policies**

Compliance with all applicable rules, policies, standards and procedures mandated by the Saudi Ministry of Education is a requirement for DAS retaining its accreditation. Because the school primarily educates Saudi nationals, it must adhere to all guidelines established by government authorities, including with regard to curriculum and instruction in literature, Islamic studies, and social studies. In particular, DAS teachers must ensure that students enrolled in the Arabic-language Muqararat diploma program are prepared to take the national exams administered by the Ministry. Failure to do so may jeopardize the school's legal status and harm students' post-secondary academic opportunities.

DAS teachers also must be knowledgeable about and compliant with Ministry policies and standards for another reason. DAS senior administrators want the school to serve as a laboratory for best educational practices in Saudi Arabia, including with regard to globally minded critical thinking instruction. Therefore, teachers must demonstrate that they can still fulfill Ministry expectations while experimenting with new curriculum and pedagogy. Knowing those policies, and understanding how they apply in each teacher's work, are preconditions for following them.

Survey and interview data indicate that on the whole, DAS teachers feel knowledgeable about Saudi Ministry of Education policies and procedures relating to their academic disciplines. On the survey, approximately 81% of teachers responded affirmatively to the statement "I am knowledgeable about the Saudi Ministry of Education policies and standards for the subject(s) I teach," with 39.53% answering "strongly agree" and 41.86% answering "agree." Responses were consistent across demographic categories, including length of tenure at DAS, gender, subject taught, citizenship (Saudi/non-Saudi), and native language (Arabic/non-Arabic).

Interviews confirmed these results and added additional context. First, several teachers described feeling comfortable with being observed by Ministry personnel while teaching, which might not have been true had they been unsure of how to meet Ministry expectations. One Arabic language teacher stated that Ministry officials “want to see what we are doing” and are curious about DAS teaching strategies. She added, “They understand that we are teaching the IB program and they are OK with it.” In terms of curriculum, teachers reported being aware of, and abiding by, government content restrictions regarding religion, politics and sexuality. When in doubt, teachers indicated that they consulted their academic supervisors to obtain any needed guidance regarding Saudi Ministry policies. For example, one social studies teacher stated, “I’m not 100% totally aware of the policies, so some things I have to clear with my supervisor to make sure it’s OK to cover.”

However, academic supervisors were less consistently positive regarding the factual knowledge they thought faculty possessed regarding Ministry policies, with the four survey responses to this question evenly divided between “agree” and “disagree” for the statement, “The teachers I supervise are knowledgeable about the Saudi Ministry of Education policies and standards for the subject(s) they teach.” (One supervisor did not answer the question.) During an interview, one supervisor speculated that this discrepancy in perception between teachers and their supervisors may stem from the fact that academic supervisors interact more directly with senior DAS administrators who are the principal points of contact with Ministry officials. Therefore, the assumed asset that teachers at DAS are knowledgeable about Saudi Ministry of Education policies and standards for the subjects they teach was partially validated.

**Conceptual and Metacognitive Knowledge: Saudi Cultural Norms**

Beyond retaining accreditation from the Saudi Ministry of Education, there are other reasons why DAS personnel must be sensitive to Saudi cultural norms and community expectations regarding curricular content and teaching methods. DAS' principal revenue stream comes from tuition, so the school needs to cultivate broad parental support. In addition, DAS must retain a positive working relationship with Saudi ARAMCO, from which it leases its facilities. Finally, because DAS seeks to influence educational practices elsewhere in Saudi Arabia, it needs to maintain a respectable public image. Otherwise, other Saudi educators and Ministry of Education officials may be wary of advocating for or adopting curriculum or pedagogy associated with DAS. Therefore, teachers at DAS must know how to respectfully navigate the specific political and cultural setting of Saudi Arabia. More specifically, teachers must possess the metacognitive awareness to apply their own conceptual understanding of Saudi cultural norms when determining what types of class lesson content would be acceptable in teaching critical thinking skills, including in the IB program.

Critical thinking requires students to inquire, evaluate and analyze, as well as to seek connections between topics. DAS seeks to build students' globally minded critical thinking skills through engagement with challenging and relevant curricular content and pedagogy, including content that directly connects to students' lives. In doing so, DAS hopes to develop and model best practices in critical thinking instruction for other schools in Saudi Arabia. However, despite the rapidly changing socio-political climate in Saudi Arabia, significant constraints remain regarding acceptable topics for discussion. It is therefore important that DAS teachers possess the conceptual and metacognitive knowledge to be able to understand what

types of class content, and what types of discussions regarding that content, will not jeopardize the school's reputation with parents, the public, or government authorities.

Survey data from DAS teachers and academic supervisors suggest that overall teachers believe they can, and do, successfully apply their own understanding of Saudi cultural norms in deciding what to teach and how to do so. Only one teacher for grades 6-12 out of 37 respondents indicated that he did not know how to apply an understanding of Saudi cultural norms. Moreover, all supervisors indicated that they believed the teachers they supervise possess this conceptual and metacognitive knowledge. These findings were consistent across categories of gender (male/female), language of instruction (English/Arabic), nationality (Saudi/non-Saudi), and native language (Arabic/non-Arabic).

Interview data confirmed these results, because all teachers could describe what types of class content would be acceptable in the Saudi context, and why, as well as the strategies they used to ensure that students developed their critical thinking skills without crossing the boundaries into culturally inappropriate content. One supervisor attributed teachers' cultural sensitivity to the fact that many DAS teachers have either lived in Saudi Arabia for a long time or hail from another Arab country, adding, "They are aware of the cultural issues that they might face. They came from similar cultures also." For example, teachers and academic supervisors mentioned certain topics that are considered off limits, or methods they employ to direct students away from "hot button topics" without dampening a desire to learn. Discussion of the Saudi royal family and other topics related to the legitimacy of the Saudi government was described as a "taboo" by a number of teachers. One social studies teacher even noted that teaching about the French Revolution was discouraged after the Arab Spring due to its connection to popular

discontent with absolute monarchy. Supervisors and teachers added that human rights, “equal opportunities,” and different religions also required careful handling.

However, avoiding controversial topics altogether is sometimes infeasible. When the development of students’ critical thinking skills requires that humanities and social studies classes tackle politically or culturally sensitive content and concepts, several DAS teachers mentioned that a successful teaching strategy was to first introduce a potentially controversial topic such as women’s rights or human rights in a different country and then to set the stage, implicitly, for the students to draw comparisons to their own society. For example, one social studies teacher described the “very careful” approach he took when discussing the Enlightenment and revolutionary challenges to monarchical authority. The lesson required students to analyze how people fight for their political rights. Although the teacher excluded Saudi Arabia from the list of non-democratic governments to be discussed, he brought in “very close examples, like Bolivia and Egypt” and then encouraged students to do their own research. However, when students began to make direct comparisons with their own country’s political system, the teacher “tried to keep it as brief as possible and then move on” because he knew it was necessary to avoid “a debate where students are loyalists to their countries compared to patriots who would like democracy.”

Another technique that DAS teachers employ is to edit out select passages from texts that might be considered offensive or culturally or developmentally inappropriate. For example, in the girls’ division, one English teacher described preemptively tearing out several pages of a memoir, *The Glass Castle*, before assigning it. The book contains, in the teacher’s words, “some questionable content,” including incest, “and we don’t want our kids exposed to that. . . at least not in grade 10, for sure.” Yet teachers of twelfth graders decided that the play *Romeo and Juliet*

was developmentally suitable without any edits, “including the kissing scene,” because, as one English teacher stated, “we find [students] quite mature to understand certain concepts.”

Nevertheless, she chose not to show the kissing scene from the film version due to cultural sensitivities. Male English teachers indicated that similar editing procedures occur on the boys’ side of the school, because although the texts assigned to male and female students often differ, they nevertheless touch on the same general themes.

Thus, DAS teachers demonstrated that they possess the metacognitive and conceptual knowledge to know when and how to walk a fine line regarding culturally acceptable content, even as they also feel an educational imperative to encourage students to research, question, make analytical comparisons, and develop plans for action. This knowledge asset was therefore validated.

### **Conceptual Knowledge: Critical Thinking and its Relationship to Academic Achievement**

In order to develop their students’ critical thinking capabilities, humanities and social studies faculty at DAS need to understand the relationship between critical thinking and academic achievement in the specific literature, Islamic studies, and social studies disciplines they teach. Although it is important for teachers to understand the importance of critical thinking in the abstract, they must also connect critical thinking to students’ intellectual growth in their specific academic subjects. Such conceptual knowledge is the foundation upon which the particular curriculum and pedagogy that teachers choose to employ is based. Without this foundation, teachers may be unable to determine whether and how their students are improving as critical thinkers.

Data from survey questions, interviews, and class observations indicate that DAS humanities and social studies teachers believe they are knowledgeable about the relationship

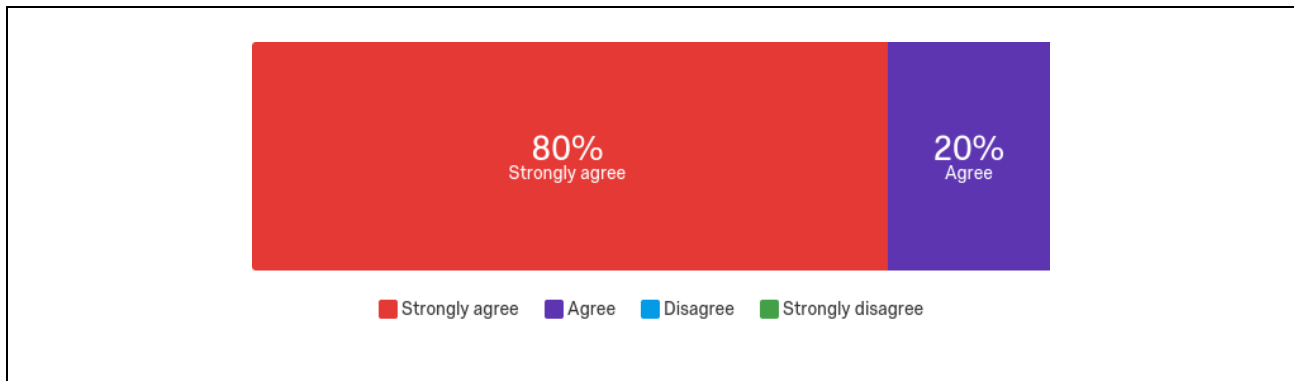




In interviews, teachers often tied critical thinking to other higher-order mental processes such as reflection. For example, one female teacher mentioned that critical thinking requires the application of several levels in Bloom's taxonomy, including reflection "as a final or vital step that cannot be bypassed." Seven other teachers drew a link between creativity and critical thinking. For example, one male teacher stated that "when a student learns to probe and test ideas, in an innate, unconscious way he will invent new ideas." Similarly, a female teacher said that critical thinking leads to "creating new knowledge from the information being processed." Thinking "outside the box" was sometimes used as a synonym for creative thinking, such as when a male teacher defined critical thinking as "an open-ended thinking process that enables the students to think outside the box and make real-life connections."

Another notable element of several teachers' responses was the inclusion, whether consciously or not, of connections between critical thinking and the language and philosophy of the IB program. Making learning relevant to real life is a goal of the IB program. Moreover, one teacher of Arabic social studies explicitly related critical thinking to the IB's goal of having an "international mindset open to the world." Other teachers, while not mentioning the IB, identified open-minded examination of biases, prejudices, and assumptions as part of the critical thinking process. Finally, four teachers described "inquiry" as part of critical thinking; the IB frames its pedagogical philosophy in terms of inquiry, and curriculum units are likewise called "units of inquiry."

Moreover, all DAS humanities and social studies teachers surveyed consider critical thinking skills to be vital for academic success (see Figure 3).



*Figure 3.* Teacher responses to survey statement Q5.10 – Critical thinking skills are vital for students’ academic success.

Interviews suggest that this point holds true for all grade levels. An upper primary school teacher described a situation in class when students employed critical thinking skills to solve problems and make connections, which the teacher identified as important aspects of critical thinking. Students were involved in a transdisciplinary unit on forces of motion. Small groups of students participated in different activities, including reading, research, and experimentation. They then came together as a class to share their findings. The teacher noted how students “had to make the logical connection between things” and then “construct an argument with each other.” The teacher related the students’ learning process to the IB inquiry model: “They get to discover the knowledge, it’s not just given to them, so they are finding it from the different resources and we are just facilitating the whole process.” The teacher went on to explain that this process has led to good academic outcomes on assessments, especially because “they are able to criticize more, to judge more,” since these skills are prioritized in IB guidelines for performance tasks. Similarly, when describing an Arab League simulation project, an upper school instructor linked students’ skills in evaluating sources, differentiating fact from opinion, and supporting their arguments with logical, relevant evidence to academic success.

Male and female Islamic studies teachers at DAS both made a strong connection between critical thinking and academic success in their discipline. Rejecting stereotypes about the

prioritization of rote memorization of scriptures in religion classes, one Islamic studies teacher argued that Islamic studies at DAS requires students to reflect upon and apply the ideas and principles from the Qur'an, the Sunnah, and the Hadiths to try to solve problems in their own lives and in the broader world. She described a unit in sixth grade in which students study the ethical requirement to take care of those who serve you. Many Saudi families employ cooks, maids, drivers and other forms of domestic help from countries like Pakistan, the Philippines, Indonesia and Malaysia. These workers often experience prejudice and even abuse. At the beginning of the unit, students read and discuss the specific Qur'anic verses related to this topic. They also research the global issue of labor exploitation, including in the Arab world, and reflect on how they themselves treat the domestic laborers with whom they interact on a daily basis. Next, the scope of the inquiry is broadened to consider the consequences for individuals, communities and societies when people do not treat others with respect, culminating with a public awareness campaign created by the students to help people in the community understand the relationship, and more often the disconnect, between professed religious beliefs and actual behavior. This unit requires students to think in an interdisciplinary fashion, using skills from various academic disciplines including social studies, Arabic language (textual analysis and persuasive writing), and mathematics.

Islamic studies teachers at DAS may prioritize the teaching of critical thinking skills in a holistic fashion because of the influence of one of the school's longest serving faculty members. This woman, now in her 70s, has served in a variety of teaching and supervisory positions at the school; she now serves as the performance coach for academic supervisors. She has also been involved in developing and leading internal professional development programs for DAS teachers. During interviews, other faculty members, academic supervisors and senior

administrators all credited her with introducing an integrated, problem-based learning approach to Islamic studies at DAS several decades ago. At first, this approach was employed only in the girls' school; however, as male and female administrators, supervisors, and teachers have begun to work together to coordinate and align curriculum and teaching methods, Islamic studies pedagogy and lesson planning are becoming more consistent. While this methodology has not been fully adopted by all Islamic studies teachers at the school, particularly those in grades 11 and 12 who are still preparing students for the Saudi national Muqararat examination, senior administrators expressed the expectation in interviews that this holistic approach will eventually be reflected in all Islamic studies classes.

In summary, teachers at DAS demonstrated that they possess a solid conceptual understanding of what critical thinking is and the role it plays in academic achievement in their subject areas. Therefore, this asset is validated.

### **Conceptual and Metacognitive Knowledge: Critical Thinking Instruction Best Practices and Incorporation of Critical Thinking Skills in the Existing Curriculum**

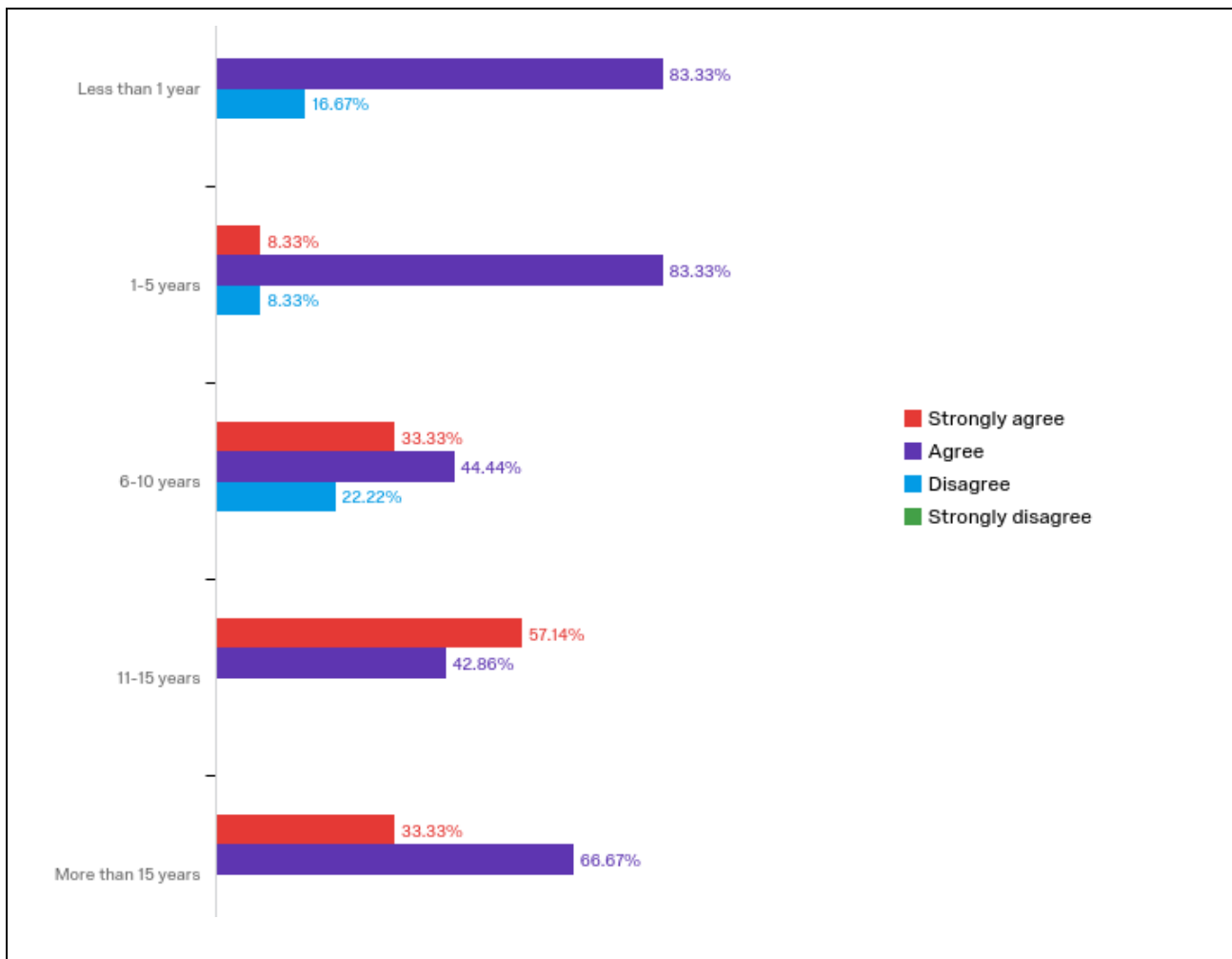
To meet the school's longstanding goal of graduating students who are proficient critical thinkers, teachers at DAS must themselves be knowledgeable about best practices in teaching critical thinking skills. They also should be able to identify whether and how they are already developing students' critical thinking skills in the existing literature, Islamic studies, and social studies curriculum in order to determine whether and where room for improvement in critical thinking instruction may exist. This point is important because the IBO does not expect schools to jettison their existing curriculum. Instead, schools may continue to use old lesson plans and curricular units as long as they can be modified to fit into IB units of inquiry and are taught using pedagogy that emphasizes critical thinking. Without awareness of what they are already doing correctly with respect to critical thinking instruction, teachers may end up either "reinventing the

wheel” or abandoning effective teaching methods and curriculum—a waste of teachers’ intellectual capital and other resources. In addition, if teachers are metacognitively aware of when, where, and how they are teaching critical thinking skills, they might share that expertise with colleagues, thus expanding the school’s reservoir of institutional knowledge and potentially promoting faculty collaboration and professional development.

Survey responses indicate that, on the whole, humanities and social studies teachers at DAS believe they are knowledgeable about best practices in teaching critical thinking skills. More than 63% of respondents stated that they “agreed” with the statement, “I am knowledgeable about best practices in critical thinking skills” while 25% “strongly agreed;” just 11.5% “disagreed.” Academic supervisors confirmed teachers’ perceptions, although one commented, “I feel that among my staff not everyone has the same idea what critical thinking skills might entail or what practices would promote critical thinking in their classrooms.” Teachers’ self-perceptions were consistent regardless of gender, language of instruction, and academic discipline, except for the fact that only Islamic studies had no teachers who answered “disagree.” This finding supports the observation in the prior section regarding the positive role of a particular veteran teacher in promoting critical thinking instruction in Islamic studies.

However, teachers who possess Saudi citizenship or were educated in Saudi Arabia did not feel as knowledgeable. Approximately 40% of all respondents who chose “disagree” were Saudi citizens or were educated in Saudi Arabia. The number of years teaching at DAS is another factor. Teachers who agreed most strongly had been at the school for more than five years, as indicated in Figure 4. These teachers have all participated in the school’s mandatory PCPL described in Chapter One, which includes required courses in collaborative learning and Precision Teaching, both of which emphasize critical thinking pedagogy. Overall, 51% of

teachers reported that they had already received professional development in how to teach critical thinking. A smaller percentage of women than men (46.15% vs. 66.67%) indicated that they had received training. However, the validity of this finding may hinge on variations in teachers' understanding of what constitutes training in critical thinking instruction.



*Figure 4.* Teacher responses, by number of years teaching at DAS, to survey statement Q5.2 – I am knowledgeable about best practices in teaching critical thinking skills.

Beyond stating in the survey that they felt generally knowledgeable about best practices in critical thinking instruction, during interviews many humanities and social studies teachers identified the specific strategies they employed in class lessons to develop students' critical thinking skills. The most common strategies included textual analysis, predicting outcomes and

consequences, connecting local and global contexts, analyzing applicability between contexts, evaluation of authors' biases, and exploration of diverse perspectives on a topic. In doing so, teachers sometimes demonstrated substantial creativity in lesson planning. For example, one male teacher turned the challenge of his students' outdated geography textbook into a learning opportunity; he had students conduct research to update the book's data and then asked students to evaluate whether and why progress had been made in the intervening years. During a tenth-grade lesson on the novel *Things Fall Apart* by Chinua Achebe, a teacher asked students to select a scene from the book that best illustrated a given character's personality. Then students had to rewrite the scene from that character's point of view, integrating appropriate African figures of speech and at least one African proverb that had been studied in a previous lesson. Afterwards, the teacher reflected that this task was more difficult for students than a traditional character analysis because it engaged several aspects of higher-order thinking. She confirmed that with regard to the proverb, students had to understand the meaning of the proverb, apply it in the proper context, and evaluate whether the message and syntax of the proverb aligned with the traits of the character elsewhere in the novel.

In order to prepare her students to complete this assignment, the teacher had modeled the necessary skills in prior classes and scaffolded student practice toward more independent work, which she described as vital aspects of critical thinking pedagogy. Indeed, teachers were observed intentionally modeling and scaffolding critical thinking skills during several classroom visits. Teachers also highlighted their use of modeling in interviews. For example, a social studies teacher explained how he prepared students studying the European Renaissance for a project analyzing the evolution of an invention or idea from that era up to the present. The teacher wanted the students to focus on the broader significance and impact of the invention or

idea on society, both positive and negative. After modeling an analysis of the evolution of the printing press to the Internet, he directed the students' conversation in class toward issues of freedom of expression versus the societal effect of inaccurate information spread through media, prodding students to see the connections back to the effects of the printing press on early modern European society.

Both male and female teachers identified the school's emphasis on IBL as an important factor in determining which teaching strategies to employ. According to the social studies teacher mentioned in the prior paragraph, DAS wants "to see us posing questions, not just group work and graphic organizers of the content, because that's not critical thinking." Another teacher stated that the first time he ever heard the term "critical thinking" was his first year at DAS, 15 years ago; now he includes it in lessons whenever he can. All 16 classes observed for this study, regardless of discipline and including language grammar lessons, contained some version of the "think-pair-share" method to encourage active learning, questioning, and participation by all students.

Interviews also suggest that many teachers believe they employ best practices to evaluate whether students are making progress as critical thinkers. Several teachers mentioned using grading rubrics that explicitly assess elements of critical thinking. Students receive the rubrics beforehand. "I simply look at the students' work and assess it in terms of those expectations that I have in the rubric," one teacher stated. She continued,

If I see students' ability to make inferences, for example, or to draw conclusions. . . or students' ability to analyze a text, to go beyond the surface level of a text beyond the literal comprehension, then this expectation is met. If not, it's easy to know, and we probably should plan ahead for the future.



Another teacher described how she used systems analysis and probing questions to ascertain her students' proficiency in globally minded critical thinking. For one assignment, students had to identify a global issue, justify its characterization as a global issue according to five criteria, and then research and articulate a sustainable solution addressing the three areas of economy, society, and the environment. To assess the students' work, the teacher interviewed each student, pressing her to defend her choices. Several teachers also mentioned using data from the school's robust analytics program, the MAP Assessment Suite, to measure critical thinking development. An academic supervisor confirmed that student performance is the school's main tool to assess learning, adding that this is also the best way to determine whether teachers are successfully teaching critical thinking.

Classroom observations further revealed that, while not universal, some teachers made it a point to highlight for students when critical thinking skills were being addressed. For example, after a student in an English class connected the thread of discussion to the concept of *karma*, the teacher complimented her by saying, "Critical thinking—this is where we are using critical thinking." The teacher then encouraged students to consider the topic under discussion from several perspectives, playing devil's advocate to challenge them. She pushed students to create alternatives and then asked them to describe the consequences of following each alternative.

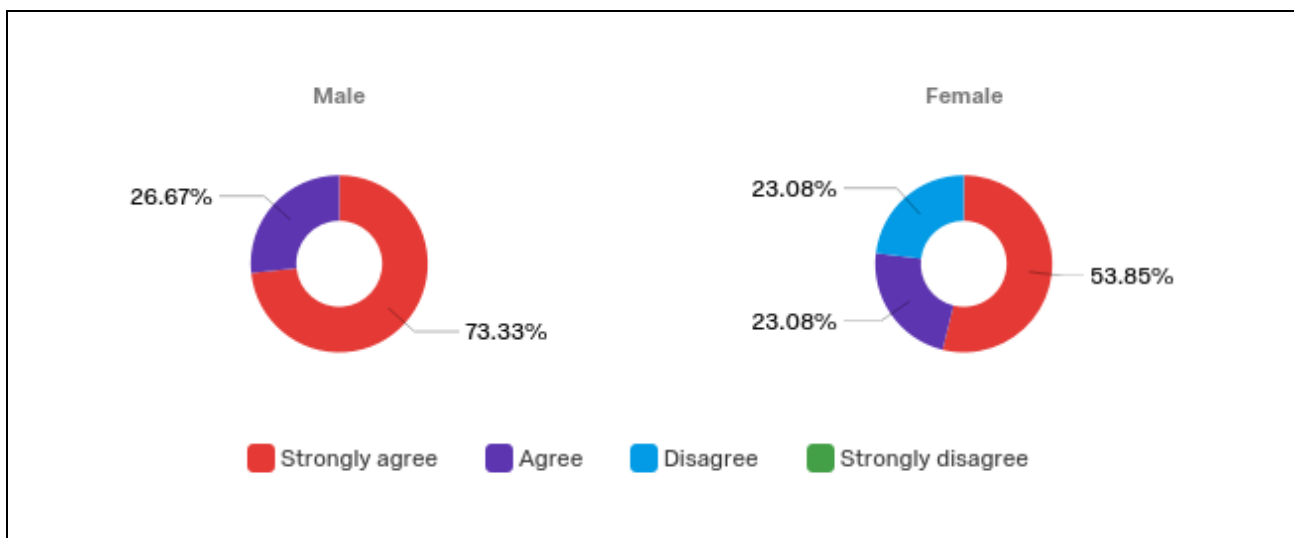
However, despite many instances of thoughtful and intentional critical thinking pedagogy, classroom observations, interviews, and document review of lesson plans also revealed substantial variation in the sophistication and creativity of methods employed in teaching critical thinking as well as teachers' expectations regarding students' performance as critical thinkers. Language of instruction, gender, or other demographic categories did not seem to be relevant to the style and content of teachers' lessons. Instead, this variation may be due to

individual teacher knowledge of critical thinking pedagogy or other factors such as intrinsic motivation. Academic supervisors confirmed that areas for improvement exist in terms of consistency, depth, and thoroughness in critical thinking instruction.

Inconsistency in teachers' understanding of what qualifies as critical thinking instruction also may reflect growing pains arising from the school's increased emphasis on IBL (Although inquiry is not the only method to teach critical thinking, it is the one stipulated by the IB). Not all DAS teachers and academic supervisors share the same understanding of what "inquiry" means. Interviews and class observations revealed that for some, IBL means teachers asking thoughtful, incisive questions to prompt students to think more deeply or to consider multiple points of view; others described it as a pedagogical method in which students lead their own learning by posing and then answering questions that they are curious about; and others saw it as a philosophical approach that prioritized real-life connections to learning. DAS teachers need to have a consistent and clear understanding of how the school defines "inquiry-based learning" because the IB's educational philosophy and curriculum is premised on it, with each curricular unit designed around a guiding "statement of inquiry." Primary grade teachers at DAS already seem to better understand inquiry in the context of the IB because they began designing and implementing the PYP in 2015. Therefore, improving consistency in teachers' understanding of IBL and application of critical thinking pedagogy has been identified as an ongoing need for DAS as it transitions to the IB curriculum.

Regardless of their proficiency in teaching critical thinking, most social studies and humanities teachers are eager to receive additional professional development in best practices in critical thinking pedagogy and curriculum design during the transition to the IB program. Slightly more faculty indicated a preference for professional development in critical thinking

pedagogy (97.73% of respondents) over curriculum design (93.18% of respondents), as measured by survey responses of “strongly agree” or “agree.” Women expressed somewhat less desire for additional professional development in curriculum design than men, as shown in Figure 5. This finding was confirmed through open-ended survey answers in response to the question, “Describe any specific types of professional development that you think would be helpful to you in designing curriculum or teaching in the new IB program.” Only men mentioned the need for training in curriculum design. However, it also should be noted that fewer women than men overall completed the survey.



*Figure 5.* Teacher responses by gender, to Q5.20 – I would like to receive additional professional development training in critical thinking curriculum design.

In summary, data from the survey, interviews, and classroom observations suggest that most humanities and social studies teachers at DAS believe they are knowledgeable about, and proficient in, best practices in critical thinking instruction and can identify how and when they are already incorporating critical thinking pedagogy into their lesson plans. However, some faculty would like to receive even more training in critical thinking pedagogy as the school transitions to the IB. Moreover, substantial variation exists with regard to teachers’

understanding of IBL and how to implement in the classroom. As this remains an ongoing need, the asset is partially validated.

### **Conceptual and Metacognitive Knowledge: Teaching for Critical Thinking Transfer**

For critical thinking skills to be internalized by students, teachers should be knowledgeable about how to intentionally teach for critical thinking transfer, both across academic subjects and between grade levels. As discussed in Chapter Two, teachers need to understand that certain principles and practices of critical thinking are not domain specific. In other words, some aspects of critical thinking instruction that promote academic achievement in one academic subject might also transfer across academic subjects. Teachers who possess this conceptual knowledge are more likely to be able to help students recognize the generalizability of critical thinking skills as well as how such skills can apply across different academic subjects.

Data from interviews and class observations suggest that aside from Islamic studies and the service learning program, many DAS humanities and social studies teachers for grades 6-12 possess gaps in knowledge about how to intentionally teach for critical thinking transfer. Over the course of 16 visits to humanities and social studies classes, just two teachers were observed directly connecting the academic content of their courses to that of another discipline. However, neither teacher linked that academic content to any specific critical thinking skill, such as analysis of an argument or evaluation of evidence, that would also be important in the other discipline. Moreover, the only faculty members who mentioned knowledge of horizontal curriculum alignment during interviews were primary grade teachers who had already begun PYP implementation. Secondary school teachers reported being unaware of the curriculum in other disciplines. For example, when discussing potential connections with social studies, one English teacher stated,

I'm not familiar with their syllabus or their curriculum at this point. I know they touch on a few things but I'm not sure how much or how far. They also do World War One. I tied this up with a poem, William Butler Yeats, so that might be a potential opportunity. . .

I'm thinking that if it becomes a transdisciplinary unit, then it will be more beneficial and meaningful.

One explanation may be that interdisciplinary learning was not prioritized at DAS before the school's decision to adopt the IB program. Without knowledge of where natural points of concurrence might exist in the school's curriculum, it is difficult for faculty to help students apply critical thinking skills across disciplines or even between grades within the same subject. In part to address this need, academic supervisors for the MYP grades stated that they are currently working on horizontal and vertical curriculum maps but have not yet distributed them to the faculty.

Knowledge of how to intentionally teach for transfer in order to reinforce students' critical thinking skills remains an area of need for many DAS humanities and social studies teachers, especially as the school transitions to the IB program. This asset is not validated.

### **Factual and Conceptual Knowledge: Critical Thinking Skills in IB Goals and Standards**

Because DAS chose to transition to the IB in large part to expand students' globally minded critical thinking skills, it is imperative that teachers tasked with implementing the IB understand the role of critical thinking in the program's goals and standards. Humanities and social studies teachers consider themselves knowledgeable about the curriculum requirements of the IB program, and more specifically how critical thinking skills are reflected in the IB's goals and standards for their subject areas. Approximately 77% of teachers reported that they had received explicit professional development training on the requirements of the IB curriculum in

the subject they teach, and approximately 93% answered positively that they knew the IB curriculum requirements for their subject. Native speakers of Arabic in particular expressed strong confidence in their knowledge of IB curricular requirements. On a four-point Likert scale, the mean for native Arabic speakers was 1.84 while for non-native speakers it was 2.17, with 1 being “strongly agree.” However, a teacher’s language of instruction (English or Arabic) did not seem to correlate to knowledge of IB curricular requirements.

Academic supervisors and teachers both see critical thinking embedded throughout the IB curriculum continuum beginning in the PYP and appreciate how critical thinking skills help to structure the MYP curricular framework. Elements frequently mentioned in interviews included the IB unit planners, guiding statements of inquiry, global perspective requirements, and the IB Learner Profile (see Appendix A). According to a supervisor, critical thinking is “reflected in the inquiry questions—the actual debatable, not necessarily factual, but the debatable and conceptual questions that are in the unit planner.” Moreover, critical thinking should be integral to the summative assessment for each unit, “where there’s no right or wrong answer, but just a series of depthful answers or projects that are completed.” Other teachers and supervisors noted the IB’s emphasis on conceptual and contextual learning. A supervisor stated that she values the IB model of key concepts and related concepts for each unit because it creates “the wheel to help work with critical thinking skills.” She continued, “They actually give you the verbs that they want the students to be doing. . . [that] helps take you towards the inquiry statement, the main concepts, related concepts and to put it in a meaningful situation, which is the context.” An Arabic language teacher added that the IB model expects critical thinking outcomes even in language classes. She said, “Before it was only questions and answers, but now they [students] do research, and they are put in a situation, problem solving. It’s really different.” In her view,

the high degree of self-directed research expected in the IB program also supports critical thinking. Moreover, the MYP requires frequent oral participation, presentations and debates, which the teacher thought would improve students' critical thinking skills as well as verbal fluency. A social studies teacher summed up the link between critical thinking and the IB this way:

The IB brought the things we were thinking about before but didn't know how to get. So, when the IB came, we said, 'Aha, this is what we need.' It has an organized four-stage framework for learning: goals, evaluation, skills and reflection. . . The IB makes you think outside of the box. . . It's more into understanding rather than just memorizing and repeating. And thinking all the time.

Several teachers also connected critical thinking to the IB's emphasis on intercultural awareness and self-reflection. According to an Arabic teacher, meeting the terms of the IB Learner Profile means that a "student can differentiate between his culture and the other, and he accepts others even if he does not agree with them. And he knows his [own] culture." Another teacher described a Google Hangouts video chat project he organized that connected DAS students with students in India. The video chat sessions prompted students to reflect on their own culture and identity while learning about the culture of others, which the teacher identified as critical thinking. The teacher received positive feedback from administrators who told him that the project really "work[ed] within the same stream of the IB teaching style."

Nevertheless, 98% of teachers surveyed indicated the desire for additional training on the curriculum requirements of the IB program for their subject area, a finding confirmed through interviews. Two teachers mentioned that they felt the need to conduct online research in order to supplement the school's workshops. One said, "I have IB stuff open on my laptop constantly."

In addition, almost all teachers said that they wanted to see more examples of unit planners, lesson plans and summative assessments specific to their academic subject.

Survey and interview data confirm that DAS humanities and social studies teachers understand how critical thinking skills are reflected in the IB's goals and standards for their subject areas. They also consider themselves knowledgeable about the curriculum requirements of the IB program. The school's substantial investment of time and resources in professional development prior to and during IB implementation may help to explain this finding. This asset is validated. However, virtually all teachers also indicated that they would like to receive additional training on the IB curriculum requirements for the subject they teach.

### **Conceptual and Procedural Knowledge: Revising Existing Lesson Plans and Creating New Curriculum Based on IB Goals and Standards**

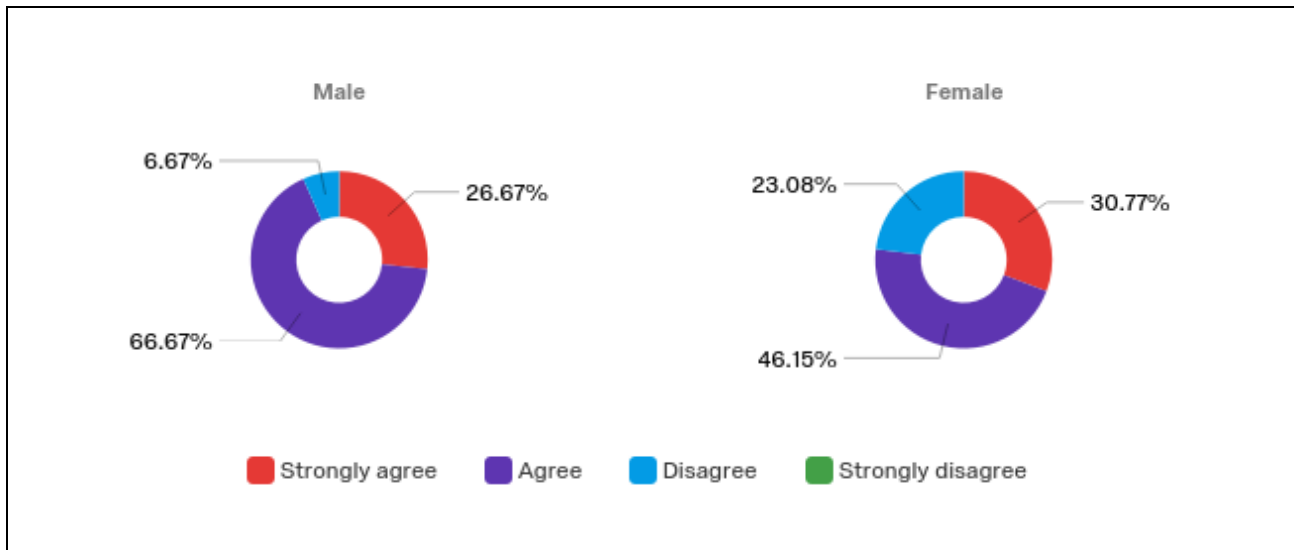
During the transition to the MYP, humanities and social studies teachers at DAS have been, and will continue to be, engaged in the revision and creation of curriculum. Teachers therefore must understand the procedural steps to evaluate, revise, and build lesson plans based on the IB's goals and standards. Teachers also must be conceptually aware of how the IB-compliant materials they produce support the development of students' critical thinking skills. As discussed in Chapter Two, the IBO does not mandate or provide a complete, ready-made curriculum for schools to implement. It promotes flexibility in curricular content planning in part so that IB schools can also continue to meet local or national standards. Instead, the IBO requires all IB-authorized schools to demonstrate that they are meeting certain criteria found in its Programme Standards and Practices (IBO, 2016). Although schools do not need to fulfill every standard before receiving authorization, they must show substantial progress toward doing so. DAS senior administrators, and the IBO, expect all faculty to participate in developing or refining curriculum for their academic departments. Therefore, humanities and social studies



teachers need to know how to revise existing curriculum and create new curriculum to align with IB standards, including those related to globally minded critical thinking.

Data from surveys, interviews and PLC meeting observations suggest that teachers at DAS consider themselves somewhat more knowledgeable about revising existing lesson plans than creating new curriculum from scratch. Nevertheless, they viewed their knowledge base positively overall in both areas. On the survey, 88.64% of respondents “strongly agreed” or “agreed” with the statement, “I am knowledgeable about how *to revise existing lesson plans* to incorporate critical thinking skills in the subject area I teach;” 81.4% of respondents “strongly agreed” or “agreed” with the statement, “I am knowledgeable about how *to create new curriculum* that incorporates critical thinking skills in the subject area I teach.”

In terms of academic discipline, Islamic studies faculty were the only teachers who answered 100% positively, perhaps due to the strong influence of the veteran Islamic studies teacher and administrator mentioned earlier in this chapter, and who continues to work closely with these faculty. One striking finding was that nearly a quarter of women indicated they do not feel knowledgeable about revising existing curriculum to incorporate critical thinking skills (see Figure 6). Additional research would be needed to explain the reason for this finding.

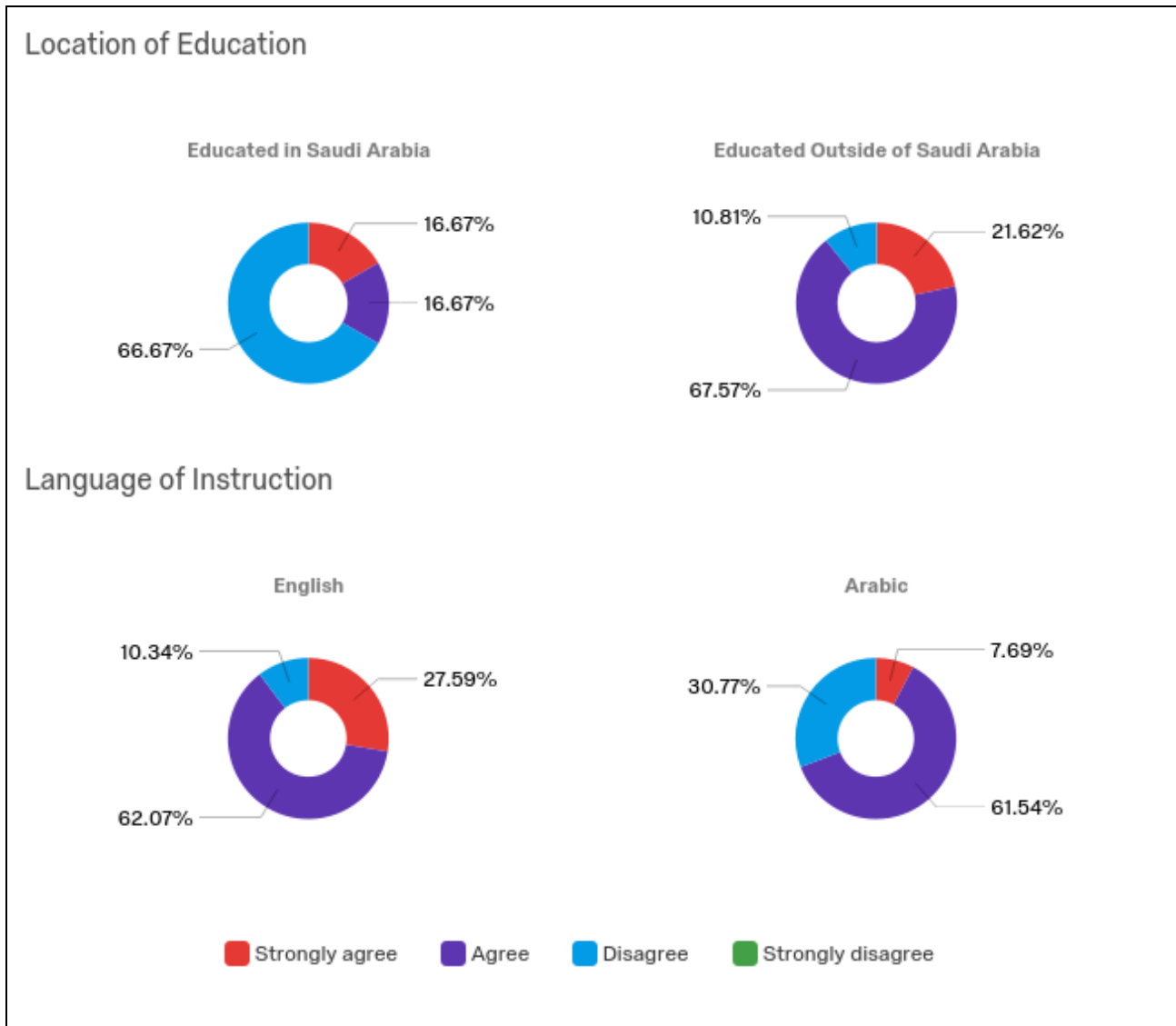


*Figure 6.* Teacher responses, by gender, to survey statement Q5.5 – I am knowledgeable about how to revise existing lesson plans to incorporate critical thinking skills in the subject area I teach.

During interviews, several teachers explained their process for revising existing lessons in order to promote even deeper critical thinking among their students. For example, a social studies teacher said that she planned to add an additional component to an assignment on demography that her class had just completed. Students analyzed the reasons why different countries had population pyramids with varying shapes. Next year she intends to ask students to suggest policies that each country might enact in order to address the challenges arising from that country’s demographic trends. In addition, she hopes to collaborate with an Arabic language teacher to create an interdisciplinary summative assessment such as a play or presentation. The teacher remarked that she knew this type of interdisciplinary summative assessment would require a lot of planning. An English teacher similarly described the process of reviewing and revising her prior lesson plans “from the MYP lens”: “The gap I find is between the summative assessment and the concept. . . Instead of saying, “write a character analysis on Atticus Finch,” how do I make a connection with the statement of inquiry?” However, other teachers did not think their lessons needed much revision. This finding may partly reflect the school’s

longstanding emphasis on critical thinking instruction. Critical thinking was a key attribute in the school's own Learner Profile long before adoption of the IB. As a result, teachers may think their existing lessons already meet IB critical thinking standards, even if they do not.

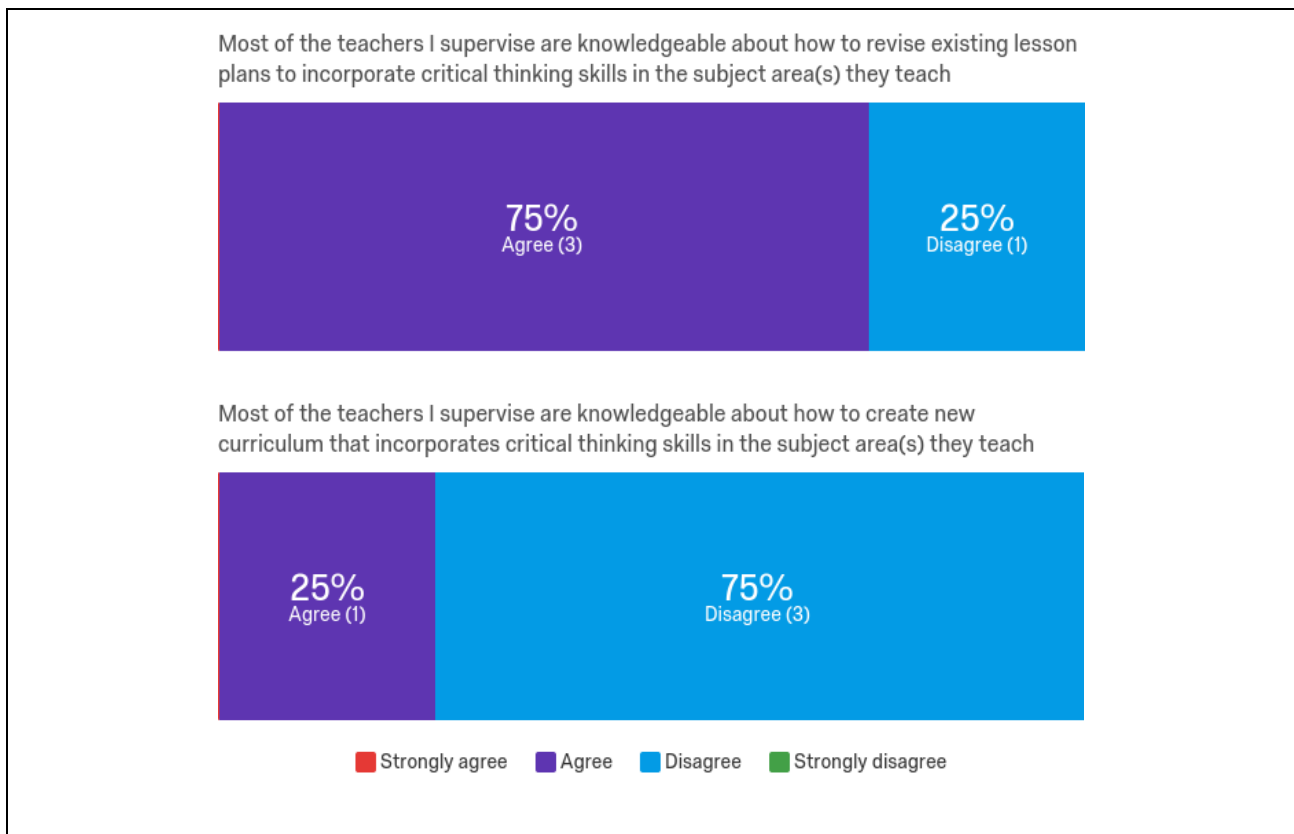
As mentioned earlier, most humanities and social studies teachers consider themselves knowledgeable about how to create new curriculum in line with IB standards. However, survey data also indicates that certain types of teachers felt somewhat less certain about their proficiency in this area. As with curriculum revision, women were more likely than men to “disagree” with the statement, “I am knowledgeable about how to create new curriculum that incorporates critical thinking skills in the subject area I teach,” although the difference was not large (25% of women vs. 16.67% of men). In addition, teachers who received their education in Saudi Arabia were more likely to answer “disagree,” as were teachers whose language of instruction is Arabic (see Figure 7). Results were mostly consistent across subject area taught, with approximately 25% of teachers in all academic disciplines besides language/literature (English and Arabic) selecting “disagree;” for language teachers, the percentage who disagreed was about 9%. Results were also relatively consistent across years of experience at DAS, with the most experienced teachers feeling somewhat more knowledgeable than their newer colleagues about creating new curriculum. According to one supervisor, seniority was not as significant as a teacher's ability and willingness to modify his or her practice, a characteristic related not to tenure, but rather to personality.



*Figure 7.* Teacher responses, by education received in Saudi Arabia and by language of instruction, to survey statement Q5.6 – I am knowledgeable about how to create new curriculum that incorporates critical thinking skills in the subject area I teach.

Academic supervisors confirmed teachers' perceptions. Three out of four supervisors consider their teachers to have more knowledge about how to revise existing lesson plans than how to create new ones (see Figure 8). Because academic supervisors, on the whole, have received more professional training in the requirements of the IB than teachers, they may be more aware of gaps in teachers' knowledge base and possess a more holistic view of their

department's level of expertise. Academic supervisors at DAS review all teachers' unit plans, including daily lessons and assessments.



*Figure 8.* Academic supervisor responses to survey statements regarding teacher knowledge about creating and revising curriculum.

As noted by both supervisors and teachers during interviews, the biggest challenge they face in both revising and building new curriculum is figuring out how to mesh the new IB standards with the school's existing subject area content standards such as AERO and Common Core. PYP teachers have already begun this process, which the school terms "unwrapping the standards." The first step in developing every IB unit is to draft a statement of inquiry. The statement of inquiry must include a main concept, a related concept, and global context. Every statement of inquiry should then be investigated using the relevant content standards. As an administrator explained, "You are inquiring about the statement of inquiry using content, and you're teaching your content while inquiring about the statement of inquiry." Standards remain

fixed—"you can't play with the standards, these are Common Core or whatever"—but each statement of inquiry can be designed to fit the content teachers wish to teach. Despite this theoretical flexibility, however, interviews revealed that many teachers still found the process daunting and wanted specific professional development training for IB and content standards curriculum alignment for their academic disciplines. For example, two teachers requested detailed training in rubric making and "IB-compliant summative tasks" that also met Common Core content standards. As one academic supervisor noted, "If we dedicate time in unwrapping our standards or discussing what core concepts and skills the standards entail, then the teachers would better understand what these objectives will look like in practice." She added that teachers would then need even more professional development on "how to bring this curriculum to life" inside their classroom.

In summary, most humanities and social studies teachers at DAS believe that they know how to revise existing lesson plans and create new curriculum for the MYP that strengthens students' critical thinking skills. However, teachers and academic supervisors also indicated that developing new curriculum from scratch was more challenging than revising existing lessons. Many teachers would like to receive additional professional development and support, especially with regard to curriculum alignment between the IB and existing content standards; this remains an ongoing need for DAS. Therefore, this asset is partially validated.

### **Procedural Knowledge: IB Implementation Knowledge Gained From PYP**

One newly discovered asset that emerged through interviews was the reservoir of experiential knowledge about successful IB implementation held by teachers in the upper primary grades (grades 3 to 5) as well as teachers in grade 6 who moved from the PYP to the MYP in 2017. These faculty have already been teaching in the PYP for a few years and were

part of the process leading to the school's official authorization for the PYP. Data from interviews with a PYP teacher and two academic supervisors indicated that PYP faculty are farther along in terms of conceptualizing the entirety of their curricular scope and sequence. They are also more cognizant of the potential pitfalls when aligning the school's existing academic content standards with IB expectations. Moreover, the entire focus of the PYP program is "transdisciplinary," meaning that every unit of inquiry must address more than one academic discipline. Hearing about PYP teachers' experience with designing integrated curriculum could be beneficial to MYP faculty who must design and implement at least one interdisciplinary unit per year.

### **Summary and Synthesis of Knowledge Findings**

Taken together, data from the survey, interviews, document review, and class and meeting observations suggest that humanities and social studies teachers at DAS possess several knowledge assets related to expertise in critical thinking instruction. However, most teachers would like additional professional development training on the creation of new curricular units meeting IB guidelines for their specific academic subjects. Teachers also want more guidance as to how to mesh the new IB curricular standards with DAS' existing subject area content standards; this area remains a challenge for many faculty.

Another area of ongoing need for teachers is knowledge of how to teach for critical thinking transfer. This issue will be important to address once the school begins to build the interdisciplinary units required in the MYP. MYP teachers might make use of the expertise of their colleagues teaching in the PYP who have already undergone full IB implementation. Another ongoing need is better standardization of critical thinking instructional methods. Not all

teachers have a uniform understanding of what inquiry entails or how to foster IBL, especially in the context of the IB program.

### **Values Alignment and Positive, Adaptive Teacher Attitudes and Behaviors: Motivation Findings**

Successful implementation of the IB MYP at DAS and improvement of students' globally minded critical thinking skills will depend, in part, on teachers' motivation to support and build out the new curriculum. Motivation can influence individual performance and learning within an organization, and that in turn can affect the organization's capacity to reach its goals (Clark & Estes, 2008). It was assumed that humanities and social studies teachers at DAS possess a range of motivational assets necessary to provide effective instruction in globally minded critical thinking and to adapt to the new IB curricular framework. Relevant data from surveys, interviews and observations were analyzed to confirm the validity of those assumed assets during implementation of the MYP. When applicable, data were broken down by gender, language instruction, country of citizenship, and other demographic factors.

According to Eccles and Wigfield (2002), motivation factors may be classified into expectancies and subjective task values. Expectancy refers to a person's belief that he or she will succeed or fail at a given task. Expectancy itself may be subdivided into two factors: expectancy outcome and self-efficacy. Expectancy outcome refers to a person's belief that an outcome will occur irrespective of his or her actions or influence. The locus of control is externally focused. Self-efficacy, on the other hand, refers to a person's feeling of competency and confidence that his or her own actions will contribute to the success of a task. Expectancy may influence a person's choice to begin, persist at, or expend the mental effort required to complete a task. At DAS humanities and social studies teachers must believe that improvement in students' critical thinking is possible, and that they are capable of influencing that



improvement. Expectancy and self-efficacy both pertain to this study's asset category of positive, adaptive teacher attitudes and behaviors.

Values alignment, by contrast, pertains to task value, or the importance that a person mentally assigns to a task. Intrinsic task value is considered more effective than extrinsic (Pintrich, 2003). Teachers must believe that adoption of the IB is worthwhile and will help students become better critical thinkers. An additional motivation factor is mood/affect. A person's emotional state may influence how he or she attributes the causation of events (Sutton & Wheatley, 2003) and the degree to which the person has a mastery versus performance orientation (Linnenbrink & Pintrich, 2002a). As such, mood may positively or negatively affect feelings of self-efficacy or expectancy outcome. Teachers must feel comfortable with the IB's standards and practices, not only in theory but also within the specific context of Saudi Arabia. Teachers' comfort with IB standards and practices thus relates to the asset category of values alignment as well.

Table 5 summarizes the assumed motivation assets of DAS humanities and social studies teachers related to values alignment and positive, adaptive teacher attitudes and behaviors. These assumed assets may be subdivided into three thematic categories: (a) teachers' attitudes toward critical thinking and the IB program as a vehicle for the improvement of students' global minded critical thinking skills; (b) teachers' views regarding the educational values embedded in the IB and their relationship to local cultural norms; and (c) teachers' feelings about the process of aligning the school's curriculum and instructional methods with IB practices and standards. A fourth category, teachers' attitudes toward learning, emerged from interviews.

Table 5

*Values Alignment and Positive, Adaptive Teacher Attitudes and Behaviors: Motivation Assumed Assets and Validation Methods*

Category	Assumed Asset	Validation Method	Validated
<i>Values Alignment</i>			
Attitudes Toward Critical Thinking and IB ( <i>Intrinsic Task Value</i> )	Teachers value the development of students' critical thinking skills.	Survey, Interview	Validated
Attitudes Toward Critical Thinking and IB ( <i>Intrinsic Task Value</i> )	Teachers consider the IB curriculum in literature, Islamic studies, and social studies worthwhile to adopt.	Survey, Interview	Validated
IB and Cultural Norms ( <i>Intrinsic Task Value</i> )	Teachers value the IB's emphasis on global mindedness as it relates to literature, Islamic studies, and social studies education.	Survey, Interview	Validated
IB and Cultural Norms ( <i>Mood</i> )	Teachers feel comfortable that the IB program as implemented at DAS, including global mindedness, does not conflict with traditional Saudi values and cultural norms.	Survey, Interview	Partially Validated
IB Standards and Practices ( <i>Intrinsic Task Value and Mood</i> )	Teachers feel positive about, and comfortable with, applying IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills.	Survey, Interview, Meeting Observation	Validated

Table 5, continued

Category	Assumed Asset	Validation Method	Validated
<i>Positive, Adaptive Teacher Attitudes and Behaviors</i>			
IB Standards and Practices ( <i>Self-Efficacy</i> )	Teachers have confidence that they can apply IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills.	Survey, Interview, Meeting Observation	Validated
Attitudes Toward Critical Thinking and IB ( <i>Expectancy Outcome</i> )	Teachers believe that DAS students are capable of the critical thinking skills needed for academic success in the IB program.	Interview, Class Observation	Partially Validated
Attitudes Toward Learning ( <i>Intrinsic Task Value / Mastery Orientation</i> )	Teachers value learning and seek out opportunities for professional development about best practices in teaching and learning beyond what DAS requires.	Interview	Newly Discovered Asset

### **Intrinsic Task Value: Importance of Critical Thinking Skills**

Survey and interview data clearly indicate that humanities and social studies teachers at DAS value critical thinking skills in their academic subjects. A full 100% of survey respondents agreed with the statement that “critical thinking skills are vital to student success,” with 80% answering that they “strongly agree.” In interviews, both language and social studies teachers pinpointed critical thinking skills as the foundation of learning in their disciplines. For example, one English teacher commented, “That's the beauty of critical thinking questions. When you give them questions to evaluate, justify and analyze a situation, that's when they come up with beautiful connections with real life. And if they're not connecting English or literature to real life, then there's no point in teaching it.” Similarly, a social studies teacher explained that critical

thinking skills are necessary for students to be able to tackle challenging, “crucial and controversial topics” such as geopolitics and theories of political geography:

The kids have to understand how to use the heartland theory to control the world, or the sea power theory to do that. They have to investigate and look for information and see what's good and bad and how that specific theory contributes to the geopolitics stream in the area and outside of the area.

Without the application of analytical critical thinking skills, it would be impossible for his students to meet the course requirements. This asset is validated.

### **Intrinsic Task Value: Transition to the IB is Worthwhile for Subject Area**

If teachers think that the IB curriculum is worthwhile, they may be more likely to expend the mental effort required to implement it successfully. Humanities and social studies teachers consistently indicated that they believe that the IB curriculum has value for their academic subject areas. More than 95% responded affirmatively to the survey statement, “It is a good idea for DAS to adopt the IB curriculum in my subject area,” with half answering “strongly agree” and half answering “agree.” Only two faculty members disagreed.

During interviews many faculty members expressed some variant of one teacher’s view that “students would learn better under the umbrella of the IB because it encourages them to think critically, to think globally and to understand other cultures.” A male social studies and language teacher noted that the global mindedness of the IB was important for DAS students because many of them study abroad and “have connections with people from different backgrounds.” Another male teacher commented that he hopes the IB “will create not only Saudi students, but it will create a worldwide student. . . I think that this will be something good.”

Teachers also indicated that they liked the IB because they had already begun to see a positive change in their students' engagement, empowerment, independence, and quality of thought. According to one faculty member, "You just feel that [students] are the center of the learning. . . it's more fun, it's more engaging to them rather than just lecturing them or just giving them what they need." Several teachers echoed the idea that the IB's student-centered approach, which deemphasizes lecturing, makes learning more fun for both students and the teacher. One teacher even mentioned that his students were less likely to fall asleep in class, both literally and figuratively: "I think it really awakens them, and the IB is very much based on critical thinking and trying to solve problems." He added that the IB's emphasis on collaboration is important because "that is something which is very prevalent in the world at work or out of school." Indeed, many teachers indicated that they thought the IB's methods would prepare students for the new demands of the twenty-first century. Critical thinking was often mentioned as a key skill for success in a rapidly changing and competitive work environment. Independence and self-direction were also mentioned as traits the IB could help students cultivate in DAS' continuing effort to "move ownership from teachers to students."

Several teachers commented that although instructional methods like inquiry-based and cooperative learning were not new to DAS, the IB "frame" gave those methods additional coherence, clarity, and systemization. Moreover, teachers mentioned the value they saw in the clarity of the IB's standards and grading rubrics. One teacher compared the IB favorably to the Delaware standards the school had used in the past, saying that the IB's standards are "focused, clear and straightforward." The IB's task-based rubrics, he added, will make it clearer for both students and teachers what is expected on assessments in terms of critical thinking as well as maximize the effective use of instructional time. For these reasons, some teachers think the IB

will promote better assessment outcomes. One sixth-grade teacher (who had already experienced the PYP before transitioning to the MYP) commented that students “are able to criticize more, to judge more the different ideas when they have a performance task. . . the new way that we have assessments now gives them more room for creativity, for imposing their thoughts.”

Also mentioned was the IB’s promotion of action orientation in students. Teachers liked the IB’s emphasis on connecting academic concepts to real-world experiences and problems in every unit of inquiry, comparing this approach to the “plan, do, study, act” model they already knew. One teacher shared an anecdote about receiving a telephone call from a mother who told the school that her daughter was admonishing her family to switch off the tap, relating the household’s water waste to her geography lesson. While the mother may not have been happy, the teacher was delighted.

Furthermore, teachers saw in the IB a way to encourage interdisciplinary thinking, an area with which most teachers had little prior experience. This point is important because interdisciplinary teaching can promote critical thinking transfer which was identified earlier in this chapter as an ongoing knowledge need for teachers. A sixth-grade teacher described why she and her English department colleagues organized a scientific innovation project for an IB unit of inquiry on technology: “You want the students to think how English could be used in all subject areas, even in science or math. This is how IB might help us be better.” Other teachers seconded the desire for more interdisciplinary learning opportunities, which they did not believe were occurring yet in the higher grades. A high school teacher said, “This could make the child’s life so much easier and also bring in the idea that all subjects are connected. So far, we have not been able to make those connections at all.” Interviews revealed that positive feedback from

DAS teachers working in the PYP seems to have affected the views of colleagues working in the upper grades.

Finally, some teachers shared that the IB inquiry method is helping them improve as educators. According to one teacher, the inquiry method means that each time she teaches a topic, “something new emerges, and I’ve got to be ready for that and open for that. It’s exciting for me, because it never goes the way I think it’s going to go. It’s like teaching the course every year for the first time.” In another case, a teacher was able to resolve his classroom management problems by adopting inquiry-based methods. He reflected that “I’m spending a lot of effort and time in preparing for my classes, but this is incomparable to the effort I used to put inside the classroom to make them listen to me.” The IB has also provided entry into an exciting global network of teacher-learners. Some DAS teachers are participating in Facebook groups for IB pedagogy or sharing reflections and lesson plans online through organizations like Common Sense Media.

On the other hand, a few teachers were skeptical about the value of the IB, viewing it as redundant. They pointed out the similarities between the IB Learner Profile (see Appendix A) and DAS’s earlier Targeted Characteristics (see Appendix F) and preexisting practices. One said, “I am just convinced that if we train teachers in these basic good teaching practices, this is what the outcomes will be for our students, the critical thinking, and the analytical thinking, and the global perspective.” Other teachers expressed concern that students’ standardized test scores might initially drop due to the IB’s emphasis on concepts rather than specific content standards. An academic supervisor indicated that this outcome already had occurred, as measured by a slight decline on MAP assessments. However, he also stated, “I’m sure that it will improve the quality of learning and the students will have much better product later in standardizing testing

like in secondary when they take SAT, because those tests are more on critical thinking than content.” According to another academic supervisor, the MYP’s rigor ought to help DAS prepare students academically for honors-level work in high school and college. Yet, this increased rigor could be double edged; some teachers worried about the stress that the transition to the IB was placing on students, even if the intellectual demands of the IB program would ultimately benefit them.

Despite a few concerns, a sizeable majority of teachers expressed their support for the school’s decision to adopt the IB. Teachers found value in the IB’s promotion of critical thinking skills and expressed hope that the IB would expand and solidify their students’ growth as critical thinkers. Teachers also valued the IB’s clear, comprehensive framework. Finally, many noted the similarities between the IB and DAS’ existing values and methods, which made it easier for them to accept the new program. This asset is validated.

### **Intrinsic Task Value: Emphasis on Global Mindedness in IB is Valuable**

To ensure that DAS’ educational priorities align with those of the IB, teachers need to value the IB’s promotion of global mindedness and consider global mindedness to be consistent with DAS’ mission. Survey and interview data suggest that humanities and social studies teachers strongly value global mindedness in their academic disciplines and the emphasis placed upon it in the IB’s curricular philosophy as a whole. No faculty members disagreed with the survey statement, “Promoting global mindedness is an important goal of education in my subject area;” instead, 63.64% “strongly agreed” and 36.36% “agreed.” Moreover, teachers noted during interviews that Saudi Arabia’s changing society made the IB’s focus on global mindedness especially important and timely. Many teachers liked how the IB’s global focus connected to other aspects of the IB Learner Profile, including critical thinking, open-



mindedness, inquiry, and interdisciplinary thinking. Moreover, teachers were aware that global mindedness had been a vital part of DAS' educational philosophy long before the decision to adopt the IB. Therefore, they saw no conflict between them. One academic supervisor even called global mindedness the school's "passion."

Nearly all teachers interviewed underscored the intrinsic value they place on global mindedness and its importance for students' futures. One teacher summed it up this way: "The world is a small place now. . . we cannot keep our students locked and isolated from what's happening around them." He went on to emphasize that the interdependence of all countries means that everyone is now a member of the global community. Therefore, students "have to develop that mentality of global mindedness. They have to understand that there are different people, and 'I have to accept them. And they have to accept me as well.'" The teacher pinpointed the global mindedness frame of the IB as being particularly helpful in preparing students to interact with other cultures and to encourage them to "get involved in diverse communities when they join universities" or travel with their families outside of Saudi Arabia. Even if students remain in Saudi Arabia, he argued, they will know how to communicate with people from other countries and "will be able to understand the nature and the mentality of these people."

Other teachers emphasized the link between global mindedness and empathy. An English teacher explained that when studying the novel *Things fall Apart* by the Nigerian writer Chinua Achebe, he assigned students to rewrite scenes from different characters' perspectives because "they have to put themselves in the shoes of others, and in order for them to do that, they need to speak as if they are the people who are suffering from that issue or that problem or are in that situation." Another teacher built on this idea, linking it to the three types of connections in

language arts: text to text, text to world, and text to self. In his view, global mindedness encourages students to connect their learning to the outside world and also to engage in self-reflection; both develop empathy.

Several teachers praised the IB's balance between global mindedness and cultural tolerance on the one hand, and encouragement to remain true to one's own values on the other. In learning about other societies, one teacher said, students "show their [Muslim] culture at their best" by emphasizing Islam's tolerance of other religions and other cultures. The IB is valuable, according to another teacher, because it encourages students "to look at other cultures and they should respect and understand, but [students] have their own culture too." Another teacher added, "global thinking may be how students will understand themselves, their culture, in a worldwide context." This view is important in terms of alleviating concerns that the IB might seek to erase national culture or identity.

An important aspect of global mindedness in the IB is the connection between local and global contexts and issues. Some teachers expressed concern that the school's relative socio-economic and ethnic homogeneity made certain aspects of global mindedness education difficult. Students could identify problems in faraway countries but often had been sheltered from disparities and discrimination in their own society. To address this issue, even before the IB, DAS students studied illiteracy and its relationship to poverty and economic independence. DAS' community outreach program also sent students to a local Saudi government school to teach English to the children there. That experience in turn led students to decide to tutor the facilities workers at DAS after they noticed that many were illiterate. Several faculty members commented that the individual and group projects mandated by the MYP were likely to

strengthen this existing ethic of community service, and in turn would strengthen students' global mindedness by continuing to connect local and global contexts.

Taken altogether, survey and interview data suggest that humanities and social studies teachers at DAS value global mindedness. They also appreciate the way global mindedness is integrated into the IB's philosophy and curriculum. Teachers believe inculcating global mindedness in students is important because it will prepare them for the increasingly interconnected world they inhabit. It also promotes positive character traits like open-mindedness and empathy. Intentionally educating for these traits was perceived to be particularly important given the socio-economic composition of the DAS student body. Therefore, this asset is validated.

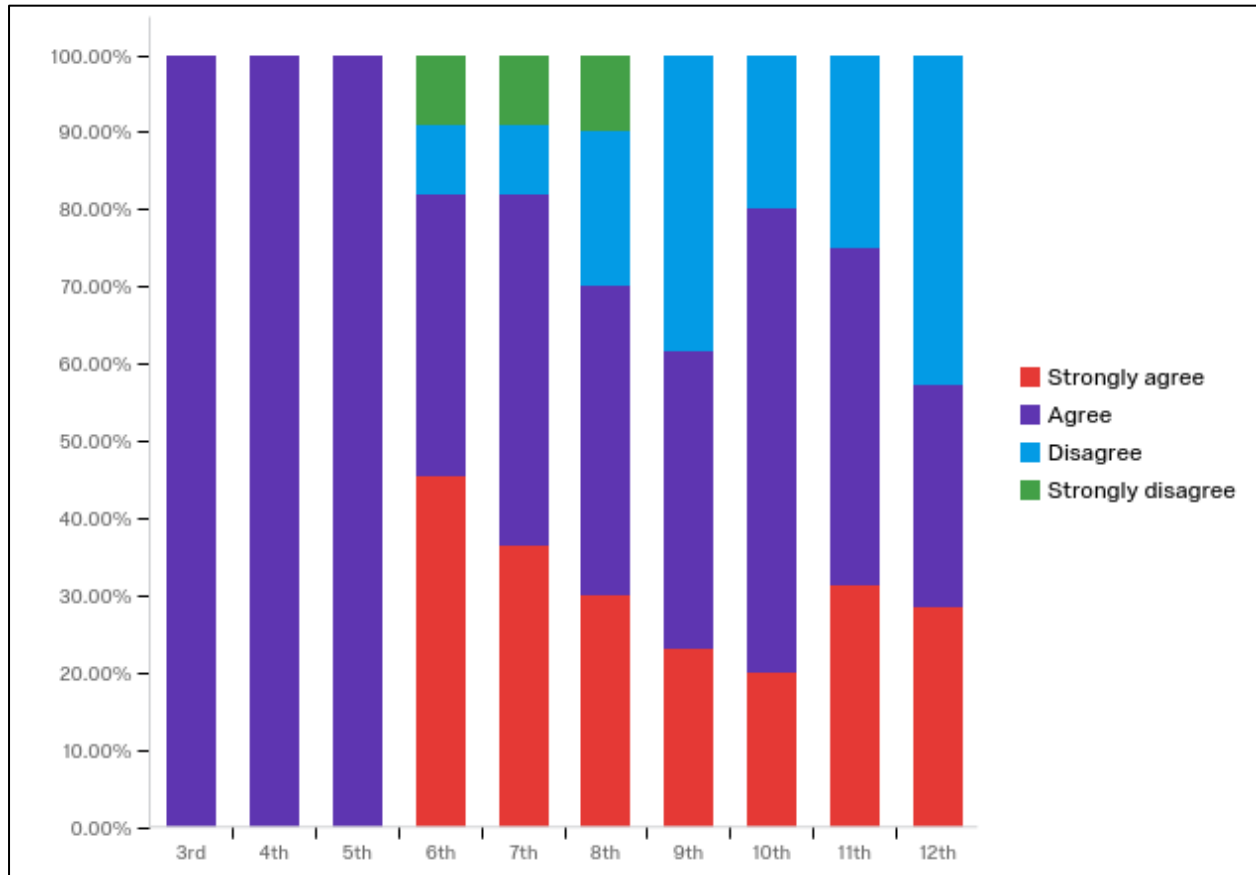
#### **Mood/Affect: Comfort that IB Standards and Practices Do Not Conflict with Saudi Culture**

Negative emotions reduce motivation and performance. For this reason, if teachers worry that curricular content might undermine existing societal norms, they may be less motivated to teach that curriculum. They may also communicate their fears to colleagues or students, creating less support from other school constituencies. Therefore, humanities and social studies teachers at DAS need to feel comfortable that IB standards and practices, including global mindedness, do not conflict with Saudi values or cultural norms. Survey and interview data indicated that while the majority of teachers expressed little concern about the IB with regard to Saudi culture, a sizeable minority in certain demographic groups did have reservations.

On the survey, teachers expressed a variety of comfort levels with the IB in terms of existing Saudi cultural norms and values. Nearly a quarter of teachers overall responded that they "disagreed" or "strongly disagreed" with the statement, "I feel comfortable that implementing the new IB curriculum will not conflict with Saudi values." However, an

important finding was that non-native speakers of Arabic were significantly more likely to disagree (41.67%) than native speakers (16.13%). Not a single non-native speaker chose “strongly agree.” Similarly, a quarter of teachers educated outside of Saudi Arabia also disagreed. Both of these findings may reflect outsider perceptions of Saudi culture as conservative and sometimes intolerant. On the other hand, teachers with more familiarity with Saudi society and Arab culture expressed less concern.

In keeping with these findings, teachers in older grades expressed more concern than teachers in younger grades, most notably upper primary teachers (grades 3 to 5) who began PYP implementation in 2015. PYP teachers may have learned from personal experience that it is possible to teach the IB in a way that does not conflict with Saudi values, whereas other teachers who are either in the first stages of implementation (MYP, grades 6-10) or have not begun implementation (grades 11-12) may be nervous about what they have not yet experienced (see Figure 9).



*Figure 9.* Teacher responses, by grade level(s) taught, to survey statement Q5.15 – I feel comfortable that implementing the new IB curriculum will not conflict with Saudi values. Note. Some teachers for grades 6-12 teach more than one grade level, so their responses may appear in more than one column.

By academic discipline, the only subject in which teachers did not express *any* discomfort was Islamic studies, perhaps due to the influence of the veteran Islamic studies teacher described earlier in this chapter. By contrast, 18.18% of language teachers and 31.25% of social studies teachers disagreed with the statement, “I feel comfortable that implementing the new IB curriculum will not conflict with Saudi values.” In terms of language of instruction, slightly more English-medium teachers disagreed than Arabic-medium (26.66% compared to 16.67%).

Another significant finding was that teachers who have worked at DAS for a long time were generally less concerned about potential conflicts between Saudi culture and the IB. Approximately 50% of teachers with a tenure of five years or less disagreed with the statement,

“I feel comfortable that implementing the new IB curriculum will not conflict with Saudi values,” compared to less than 10% of teachers at the school for six years or longer. This finding likely reflects the veteran teachers’ knowledge of the school’s Targeted Characteristics for Learners (see Appendix F), which predated yet substantially mirrors the IB Learner Profile (see Appendix A), as well as teachers’ prior experience at DAS, where they already taught curriculum aligned in many respects with IB standards and practices.

During interviews, several teachers stated that the IB standards and practices left room for both global awareness and local Saudi values. According to one Arabic-medium teacher, the IB “does not contradict [students’] own culture or their identity.” Another Arabic-medium teacher argued that “[curriculum] should be aligned with our culture and respect religion.” At the same time, she said, the IB’s global minded orientation is important because “we know that God created everybody different and we accept that.”

Indeed, certain aspects of critical thinking instruction at DAS were described as consonant with Saudi culture even before the IB. For example, one Islamic studies teacher likened the school’s emphasis on inquiry to Islam’s history of theological analysis and disputation. For many DAS teachers, the Ministry of Education represents the arbiter of broader Saudi society and values. Therefore, knowing that over the years several DAS faculty members had been asked to share their expertise in teaching critical thinking skills with government schools and Ministry officials was comforting. According to one supervisor, some government officials were open to DAS’ critical thinking instructional methods like simulations, debates, and Socratic seminars in Islamic studies classes. Other teachers reiterated the freedom they generally felt to choose readings, textbooks and other resources that met their students’ needs.

In both social studies and literature classes, teachers made sure to keep Saudi culture in mind when choosing texts and to contextualize those readings for students. For example, a male teacher affirmed,

Sometimes you might find things that you cannot really avoid, but you try your best to explain to the students that this does not contradict with culture, with religion. It's just a text to develop our skills on how to read it critically, how to deconstruct it.

Teachers and academic supervisors mentioned human rights, religion, equal opportunity, sexuality, and politics as topics that should be avoided when possible, or else treated cautiously, when setting the central idea for each unit of inquiry or planning for certain learning outcomes. At times, this curricular selectivity has left gaps in student knowledge required for international assessments like Advanced Placement exams. For example, English teachers mentioned that students often did not recognize allusions to Greek gods and myths such as Sisyphus, Antigone, and Oedipus. Therefore, parents are asked to sign a waiver when sensitive content must be taught to meet international course standards.

Teaching Saudi history through the lens of critical thinking was described as particularly challenging because, as one academic supervisor stated, “it’s not easy to look at [it] from different perspectives or criticize things.” Arabic social studies and Islamic studies in the upper grades must use government textbooks to prepare for the Muqararat exams. According to the supervisor, these texts present “one story, not two stories, not three stories. It’s a story of the government that is our history.” Of course, Saudi Arabia is not the only country where teachers must be aware of the political sensitivities inherent in framing their nation’s historical narrative for students. This issue exists in most countries around the world.

However, for some teachers, preemptive self-censorship went against the critical thinking standards and principles of the IB. One teacher asked, “How is this going to be a truly IB situation if we cannot push those areas that right now are very closed for us?” The teacher expressed hope that as Saudi society itself evolved, so would the school, although the effect would probably occur slowly. Other teachers worried that Saudi cultural limitations such as girls not being allowed to visit the same places as boys made joint course planning difficult and the “one school” model required by the IB more difficult to achieve.

Interview data also suggests that teacher motivation may be affected by other cultural factors unrelated to course content. For faculty used to traditional classrooms where the instructor is the authority, the ambiguity inherent in the inquiry method may be disconcerting. For other teachers, however, such ambiguity may be intellectually rewarding. Teachers and academic supervisors described Saudi educational culture as teacher-centered and focused on memorization and factual recall. Although DAS has worked for decades to move away from a teacher-centered model, many teachers, regardless of their country of origin, were educated in a traditional style. For this reason, as described in Chapter One, DAS made a concerted effort to train its teachers in house according to its own educational philosophy and standards even before the decision to adopt the IB. During interviews and classroom observations, a few teachers demonstrated that they were not afraid to admit when they did not have all the answers; moreover, they turned these moments into critical thinking learning opportunities for students. Nevertheless, the prevailing culture outside DAS still affects teacher, student and parental expectations. According to one academic supervisor, “I think as a culture we’re just not used to thinking on our own, making sure that we don’t show what our mistakes are, you know?” The supervisor added that showing “vulnerability” in front of students was difficult for many



teachers, for some because of cultural expectations, for others because of personality. However, such teacher discomfort might adversely affect student learning if teachers are unwilling or unable to model inquiry thinking routines or embrace ambiguity in the classroom. Another academic supervisor observed that unless teachers fully understand how to apply inquiry-based instruction, “they're going to continue to teach in the way that they've taught, that they're comfortable in, and the students are going to be receiving information that they're comfortable receiving, and it won't change.” Evidence suggests that DAS students, like most students around the world, find the open-ended nature of inquiry challenging. Therefore, teachers must be ready and willing to help students deal with ambiguity in order to grow as critical thinkers.

In summary, humanities and social studies teachers have somewhat mixed feelings regarding the compatibility of the IB with Saudi culture and values. Teachers did not find the global mindedness aspect of the IB philosophy in the Saudi context to be problematic. In fact, some teachers thought that global mindedness actually helped students to better understand and appreciate their own country. On the other hand, some teachers were anxious about the prospect of discussing challenging topics or presenting multiple perspectives on politically or culturally sensitive issues. Some teachers expressed hope that it would become easier to teach about such topics in the future. One important finding from this study is that, when disaggregated by demographic groups, teachers who are familiar with Saudi culture and values are, on the whole, the most comfortable with the IB's standards and practices, as indicated by their survey responses. These groups include native Arabic speakers, teachers who received their education in Saudi Arabia, and veteran teachers at the school. Teachers with PYP experience (including those who transitioned to the MYP for grade 6) also feel more comfortable, perhaps reflecting the fact that they are two years farther along with IB implementation. As a result, addressing

teachers' discomfort may be more an issue of educating those constituencies, rather than an existential threat to the viability of the IB at DAS or in Saudi Arabia more generally. This asset is partially validated.

### **Intrinsic Task Value and Mood/Affect: Positive Views Toward and Comfort with Revising and Creating Curriculum for IB**

Implementing the IB program at DAS requires school personnel to review, revise, and create new academic curriculum in line with IB practices and standards. School leaders have mandated that all teachers participate in the design and implementation of the new curriculum for the grade levels they teach. If teachers do not view the process of reviewing, revising, and creating new curriculum for the IB as worthwhile, they may be less likely to put forth the requisite mental effort. In addition, teachers must feel comfortable applying IB curriculum standards and instructional methods when revising and creating curriculum to improve students' globally minded critical thinking skills. Insecurity raises an individual's affective filter, making it more likely that the individual will avoid or not persist at challenging tasks. Alternatively, positive mood may influence teachers to feel more ambitious and self-efficacious in their design and implementation of new curriculum.

In survey responses, all DAS humanities and social studies teachers responded positively that they are "looking forward to emphasizing critical thinking skills in the new IB curriculum," with roughly equal percentages choosing "strongly agree" and "agree." One finding of note is that men answered "strongly agree" more frequently than women (60% versus 23.08%). Native speakers of Arabic also expressed more enthusiasm than non-native speakers, with 53.13% answering "strongly agree" compared to 33.33% for non-native speakers. However, teachers' answers disaggregated by Saudi citizenship and education in Saudi Arabia did not reveal

significant differences. Nor did teaching subject, language of instruction, or length of tenure at the school.

Most DAS humanities and social studies teachers did not experience an academic curriculum like the IB when they were students themselves. More than 86% of teachers responded affirmatively to the statement, “The IB curriculum for the subject area I teach is very different from the curriculum I studied as a secondary school student,” with roughly equal numbers selecting “strongly agree” and “agree.” These results were similar across all demographic categories surveyed, except for the finding that Islamic studies teachers and language/literature teachers considered their high school curriculum to be more similar to the IB than teachers from other departments.

Nor did most teachers experience teaching methods like IB’s inquiry model when they were students. Over 90% of teachers affirmed that “The teaching methods used in the IB program for the subject area I teach are very different from the teaching methods I experienced as a secondary school student,” with roughly even numbers answering “agree” and “strongly agree.” Native speakers of Arabic were much more likely to agree (96.87% versus 75% for non-native speakers). Moreover, two-thirds of teachers educated in Saudi Arabia and three-fourths of Saudi citizens chose “strongly agree.” In terms of academic subjects, the highest percentage of teachers to “strongly agree” (56.25%) were social studies teachers. At the same time, teachers with five years or less of experience at DAS were the only ones who answered “disagree,” perhaps because many are younger than the average DAS teacher and were exposed to more modern instructional methods as students.

Survey results revealed that 93% of teachers liked the IB curriculum in their subject area better than the curriculum they studied in secondary school, while nearly 89% reported that they

preferred the IB's model of inquiry-based pedagogy over the instructional methods they had experienced as students. One important finding is that *all* of the Saudi citizens taking the survey "strongly agreed" that they preferred the IB's curriculum and pedagogy over the one they experienced as students. Moreover, native speakers of Arabic also indicated a significant preference for the IB model in curriculum and pedagogy, with just 6.25% of respondents disagreeing in each case. Other demographic characteristics were not important variables.

During interviews, most humanities and social studies teachers expressed enthusiasm for the task of designing new IB curriculum, including the complex work of combining new IB units with preexisting content standards. One teacher said, "It's a good kind of challenge, minus the paperwork. You see teachers excited. You see teachers thinking. They're looking forward to it." Teachers also expressed a willingness to reflect on and revise lesson plans for the next year based on IB instructional methods. For example, one teacher said that he would like to work on increasing student participation in the lesson he had just taught and also encourage more peer interaction. In terms of critical thinking, he indicated, "when it comes to the type of questions and maybe the skill of inquiry, I need to give more time to inquiry, and I need to make critical thinking questions more structured, and more maybe student-friendly." By student-friendly, the teacher clarified that he meant closer to the students' personal lives so that "students will be more involved" and "their critical thinking skills will be ignited."

Indeed, those teachers who expressed the most comfort with the demands of the IB as well as the uncertainty that goes along with trying a new educational model were also the ones who realized that they, as teachers, were *themselves* undergoing a process of inquiry in experimenting with the IB. Those teachers were self-reflective enough to recognize where

uncertainty existed, and to view that ambiguity as an opportunity. This factor was also recognized by academic supervisors. As one said,

What I'm trying to do is connect the dots to critical thinking and how the teachers are able to do enough self-reflection. Because really, this is an inquiry process for them too and as much as we want them to teach it, they are having to go through the experience and it's more comfortable for some than for others.

An important reason why many teachers expressed comfort with the process of curriculum development and revision was the support they felt from academic administrators and supervisors. One teacher, who admitted to initially feeling “concerned” about the IB, mentioned that the academic leaders of the school “make them feel that they are also with them and everybody is learning together.” Teachers felt that that the school’s expectations of them were reasonable, even if at times they still felt overwhelmed. Several teachers mentioned that they appreciated the “baby steps” metaphor that academic directors used to describe the process of adopting the IB. According to one teacher, “[the director] gives us time to understand things. We don’t understand certain things, and she’s okay with it if we don’t use it then and there.” This point is discussed in more detail in the Organizational Findings section of this chapter.

Several teachers also indicated that adapting to the IB was less difficult because of the school’s existing ethos of continuous change and improvement. As one teacher stated, “At this school I can safely say change is the name of the game.” Moreover, many of the IB’s principles and practices mirrored those already embraced by DAS. Academic supervisors have therefore framed curricular and pedagogical changes as evolutionary instead of wholly new. As one observed, “I think we just didn't label it 'inquiry.' We talked all about student-centered classrooms and less teacher talk [i.e. lecturing]. . . this is another way to remind them not to do

that.” The supervisor continued, “Even though a lot of the people training us were saying, ‘It’s gonna be so different’ and ‘Oh, buckle up. It’s gonna be a hard year,’ we haven’t found that to be the issue.” In sum, because most teachers expressed positive emotions about revising and creating new curriculum for the IB, including comfort and intrinsic interest, this asset is validated.

### **Self-Efficacy: Confidence in Ability to Revise and Create Curriculum for IB**

As Bandura (1993) argued, teacher self-efficacy can be critical to student success. Teachers must feel competent and confident that their actions will contribute to student learning. Otherwise, teachers may be less likely to persist or expend the requisite mental effort demanded by a task. This point is especially important for tasks requiring complex cognitive skills and knowledge such as critical thinking instruction and curriculum development. Therefore, DAS humanities and social studies teachers need to have confidence that they can revise and create curriculum for the MYP to emphasize globally minded critical thinking.

Survey results suggest that DAS teachers feel competent with respect to *revision of existing class lessons* to improve critical thinking. Over 95% of teachers agreed with the statement, “I am confident that I can revise my existing lesson plans to emphasize critical thinking skills.” Approximately 37% strongly agreed, approximately 58% agreed, and approximately 4.5% disagreed, with no major differences by demographic category.

Teachers expressed similar confidence in their general ability to *create new curriculum* to teach critical thinking skills. Approximately 35% answered “strongly agree” and approximately 60.5% answered “agree,” with just 4.5% choosing “disagree” in response to the statement, “I am confident that I can design new lesson plans to teach critical thinking skills.” These percentages

are essentially the same as for confidence in revising existing curriculum. Responses did not differ by demographic category.

Thus, on the whole humanities and social studies teachers expressed feelings of self-efficacy regarding their *generic* abilities to revise and create curriculum to improve students' critical thinking skills. This sense of self-efficacy has translated into teacher enthusiasm to share the results of their work with others, including colleagues and outside observers. As one academic supervisor commented, "So many are excited. They're compiling the materials and saying, 'Come see what I did, come see what I'm sharing. You have to come visit me!'" Such enthusiasm and confidence are positive indicators of self-efficacy.

However, not as many teachers expressed a high degree of confidence that they could apply *specific IB standards* to design new curriculum. Approximately 34% of respondents chose "strongly agree," 54.55% chose "agree," and 11.36% chose "disagree" in response to the statement, "I am confident that I will be able to apply IB standards in the creation of new curriculum." One important demographic variation was by gender. Four out of the five teachers who answered "disagree" were women. When normalized to percentages, the degree of difference by gender becomes more apparent (see Figure 10).

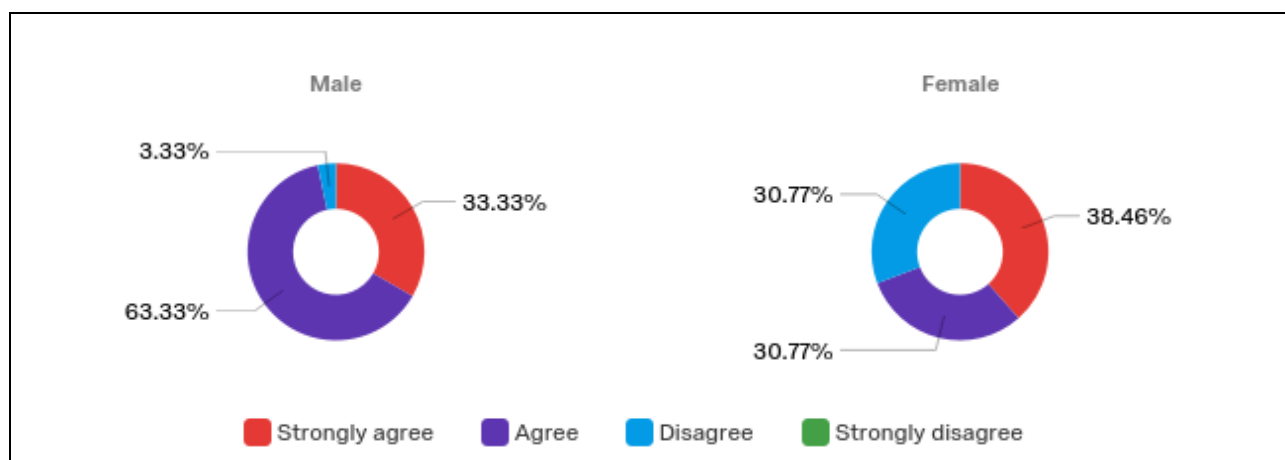


Figure 10. Teacher responses, by gender, to survey statement Q5.13 – I am confident that I will be able to apply IB standards in the creation of new curriculum.

During interviews, several female teachers across academic disciplines expressed nervousness about the “new experience” of the IB, although they also mentioned feeling more confident due to the support and training they received from school supervisors. According to one female teacher, “Each week we're trying our best to be better and better at lesson planning and teaching and integrating things in our lesson plans.” Another female teacher gauged her confidence as “right now maybe 50/50, and this is not a good feeling for me as a teacher, because usually I'm 150% confident in what I'm able to do in a classroom and deliver to my students.” The teacher went on to say that she thought her confidence would improve as she obtained more training.

Social studies teachers in particular, both male and female, worried that their textbooks did not align with the IB; this issue made course planning more challenging. Moreover, although language of instruction was not a significant variable, both teachers and academic supervisors noted that the dearth of existing Arabic-medium curricular materials across subject areas added an additional challenge for teachers in that language.

Years of teaching experience at DAS was relevant in the sense that only teachers with less than one year or more than 15 years expressed no disagreement in response to the statement, “I am confident that I will be able to apply IB standards in the creation of new curriculum.” For teachers with less than one year at DAS, this finding may reflect the brevity of their exposure to the requirements of IB implementation and DAS’ comprehensive standards and methods for curriculum design. Even for teachers in this demographic group with prior IB experience, not undergoing the full IB training at DAS may mean that their perspective on this issue is different from that of their colleagues who know how DAS approaches curriculum design and its high expectations for teacher performance. This interpretation is consistent with the fact that DAS



teachers with more than 15 years of experience at the school were also highly confident in their ability to apply IB standards in the creation of new curriculum. These teachers have participated in several prior curricular revisions at the school.

Another important factor affecting the implementation of the IB curriculum at DAS is teachers' feelings of self-efficacy about combining the school's *existing content standards with the new IB requirements*. As described in Chapter One, for more than a decade before its decision to adopt the IB program, DAS had a robust, multilayered model for curriculum design that combined elements of ASCD's Understanding by Design method of course planning (emphasizing conceptual learning through "enduring understandings" and "essential questions") with academic content standards drawn from organizations like AERO and Common Core, depending on the subject area. Therefore, adding a third layer of IB curriculum and pedagogy expectations might be daunting for some teachers. At the same time, DAS teachers also may have more experience with this type of complex course planning process than other teachers because of the school's past practices.

Survey results suggest that humanities and social studies teachers at DAS are generally confident in their ability to combine existing content standards with the new IB requirements. Just 6.67% answered "disagree" to the statement, "I feel confident that I can combine the existing content standards for my subject(s) with the new IB curriculum requirements." The only "disagree" responses came from women who were not native speakers of Arabic. Academic supervisors seconded these findings, with half answering "strongly agree" and the other half answering "agree," with one supervisor adding, "they just need more training and modeling." A small degree of divergence among demographic groups existed with regard to subject area, with teachers of Islamic studies feeling the most confident and teachers of social

studies the least confident; teachers educated in Saudi Arabia and Arabic-language-medium teachers also felt somewhat less confident than their counterparts.

Yet, while many teachers expressed confidence in their ability to combine existing content standards with IB requirements, they also considered the IB guidelines and training materials to be overly broad and not tailored enough to suit individual subject areas. They therefore wanted more discipline-specific professional training in curricular alignment. This issue will be addressed more fully in the Organizational Findings section of this chapter. In sum, although humanities and social studies teachers would like additional discipline-specific training, they feel confident in their ability to revise and create curriculum in line with IB requirements. This asset is validated.

### **Expectancy Outcome: Students Are Capable of Critical Thinking Required for IB**

Because of the demanding nature of the IB program, teachers must believe that their students are mentally capable of meeting its standards, including with regard to critical thinking. If teachers do not believe their students can think critically, then they may be less willing to expend the mental effort to enact any curricular and pedagogical changes necessary to implement the IB successfully.

Data from interviews and PLC meeting observations suggests that many DAS humanities and social studies teachers think their students either already possess or can develop the critical thinking skills necessary for success in the IB. For example, a first-year teacher said, “I noticed that the critical thinking level of the students at DAS is quite high. . . I think teachers [already] focused on critical thinking without the IB in place. So, they have a lot of skill diversity.” In PLC meetings teachers of both genders also made comments and proposed lesson materials indicating a belief that DAS students were capable of meeting the critical thinking expectations

of the IB. During interviews, several teachers identified specific moments that affirmed their positive view of students' critical thinking skills. One teacher described his satisfaction and excitement while witnessing his students improve in making analytical connections: "It started a bit hard, but with time when I see that my students are progressing, I like it more and more. . . I like [critical thinking], and I want to teach it. I want to make my students acquire it." Concrete evidence of student success inside the classroom or after graduation supported teachers' perceptions regarding student aptitude. In a way, a positive feedback loop seems to be created, with student progress reinforcing teachers' intrinsic valuing of and motivation to teach critical thinking skills.

Despite positive feelings toward their students overall, teachers also pointed out barriers that they thought were currently hindering DAS students from reaching their full potential as critical thinkers. One issue was student inertia and dislike of change. As one teacher explained, students "have been trained a certain way for years, and all of a sudden we're telling them, 'Let's change. Let's do this concept teaching, let's do concept learning.' So it's difficult for them. . . They want to stick to their ways." According to the teacher, students are complaining, "Why do we have to change now? We're already used to what we're doing, and now they're making it more difficult for us." Other teachers attributed this issue to inconsistency in teaching styles at the school, with some teachers employing traditional pedagogy while others were more progressive. For this reason, according to another teacher, not all students are accustomed to the higher levels of Bloom's taxonomy, so "when you ask them [questions requiring] critical thinking skills, they need time to answer. Maybe they do not answer. Sometimes they cannot answer right."

More pointedly, another teacher described her students as “the most magnificent memorizers I’ve ever seen in my life.” In her view, a pedagogical emphasis on memorization means that students have not had sufficient preparation or practice as critical thinkers: “They can go home and memorize pages and pages and pages of information and spit it back out on the test the next day; but, to analyze it, dissect it, critically apply it, is a huge challenge.”

Other teachers noted that students found it difficult to let go of the idea of “the right answer.” As at many schools around the world, students at DAS want to hear from the teacher exactly what they should know. Teachers attributed this mindset partly to the pressure students feel from their parents as early as third grade: “Some families are very heavy on not making a mistake. ‘Don’t make a mistake, you’re going to lose a mark, you know? It’s going to show on your report card.’” Unfortunately, this approach may prevent students from realizing that, in the teacher’s eyes, the best answer will require deeper thinking and elaboration. Moreover, the IB model of continuous assessment and its related grading scale can add to anxiety. The scale of one to seven used in the MYP is designed to reflect students’ learning outcomes and permit teachers to adjust teaching strategies to support individual learners. However, the MYP grading scale does not directly translate to DAS’ existing report card structure. A score of five on the MYP scale indicates grade-level proficiency; yet when translated into a numerical percentage, the grade seems low. One supervisor concluded that the school will need to work to change the culture and mindset around grades in order for the IB system to be fully accepted.

Finally, teachers mentioned students’ language skills as inhibiting their growth in critical thinking. Although the school’s dual-language curriculum was considered an asset overall, including in terms of supporting the school’s global minded mission, some teachers nevertheless worried that students in the younger grades were lagging behind their peers at single-language

schools in vocabulary acquisition, syntax complexity, and reading comprehension. As a result, students struggled with critical thinking tasks that require sophisticated expression of thought or the deployment of precise, specialized vocabulary. Weak vocabulary also affected students' conceptual understanding. This concern was expressed by teachers from grade 3 up through grade 12. Although test results indicate that DAS students do catch up and even surpass students in single-language programs in academic achievement by about grade 8, it is an issue that some faculty would like to see addressed more intentionally through additional curricular emphasis on language training in both English and Arabic.

In summary, most humanities and social studies teachers at DAS believe their students have the capacity for the critical thinking required by the IB. However, they also identified barriers that students and teachers must overcome, including student mindset, past pedagogical practices, and delayed language acquisition. It is important to note that none of these barriers were deemed insurmountable by the teachers interviewed. Therefore, this asset is partially validated.

### **Intrinsic Task Value / Mastery Orientation: Teachers Want to Learn and Seek Professional Development Beyond What DAS Requires**

According to Wigfield and Eccles (1992, 2000), people are motivated to perform a task if they gain satisfaction from the process of performing the task. That satisfaction results from intrinsic interest in the content of the task itself, rather than from the outcome of the task. At DAS, a number of humanities and social studies teachers indicated during interviews that they enjoy learning and have proactively sought out opportunities to learn and grow in their profession, as well as to share their newfound knowledge with colleagues. That desire to think and share about best practices in teaching and learning contributes to a school environment that prioritizes professional growth and encourages enthusiasm for learning more generally, including

with regard to the IB program. Such enthusiasm may then translate into increased motivation among all teachers.

Teachers and academic supervisors mentioned a variety of teacher-initiated professional development activities at DAS, including the use of social media to discuss and disseminate information about best practices. These faculty-initiated activities suggest that the teachers intrinsically value learning about how to improve their instructional practices and grow as professionals in their field. For example, teachers have created or joined Facebook groups to discuss methods of teaching inquiry skills and to share videos of successful lessons. They have also built WhatsApp chat groups within departments. Other teachers have found and attended online courses from Harvard's Project Zero on visible thinking and Common Sense Media on technology use. Still other teachers indicated that they had signed up for IB training courses on their own time in order to supplement the school's own training.

Several academic supervisors commented positively on the effect that enthusiasm for outside professional development was having on the faculty in terms of IB implementation. For example, younger faculty were helping older faculty by introducing them to new technology tools and online professional development forums. As a result, "some of the old people who started out resisting are identifying themselves as expert professionals in [the IB], rather than just teachers, which I couldn't imagine at the very beginning." Moreover, during interviews and meeting observations, DAS teachers revealed themselves to be curious about the educational approaches used by their peers in Saudi Arabia and abroad. Teachers frequently asked this investigator about pedagogy and curriculum best practices in the United States.

Active pursuit of professional development beyond work requirements may also reflect a teacher's mastery orientation. Individuals with a mastery orientation want to learn and are

unafraid of new or challenging experiences. They tend to persist more successfully at difficult tasks and to exhibit adaptive behavior in overcoming challenges, such as viewing “failure” as a learning experience. Mastery orientation is therefore related to a growth mindset (Dweck, 2006). During interviews, several teachers at DAS exhibited characteristics indicative of a mastery orientation when describing their actions and attitudes, including with regard to the implementation of the new IB curriculum. These teachers often framed the transition from the prior curriculum to the IB as a learning opportunity. One teacher said that “we are struggling, definitely, but because we are still starting it [balancing the standards with inquiry], the more we practice how we integrate the elements together, the more we will master it.” Another teacher echoed this point, saying,

Right now I'm on shaky ground, and I tell my students that, too. I'm learning. We're learning together. We're transitioning together. I'm honest with them and let them know that this is a new experience for everybody. We're on this journey together.

All of the teachers emphasized the gradual, self-reflective nature of the learning process. For example, one social studies teacher stated that he was trying to learn more about new pedagogy, “to move bit by bit towards interactive teaching,” in order to model the IB learning style for his students, while an English teacher described “reading lots and lots of material and watching lots of video tape about how to support an English classroom.” Another teacher summed up the teachers’ growth mindset this way: “We are still crawling. We walk and then we run, Inshallah.” However, it should be noted that only some DAS teachers exhibited an obvious mastery orientation during interviews.

Thus, interview data suggests that a number of humanities and social studies teachers at DAS are intrinsically motivated to learn and pursue professional development beyond the

school's requirements. Several teachers also exhibited behavior consistent with a growth mindset, although not all. Because of the high number of teachers who expressed enthusiasm for learning and a desire to continue to grow as professionals, this new asset is validated.

### **Summary and Synthesis of Motivation Assets**

Survey, interview, and observation data suggest that humanities and social studies teachers at DAS possess a number of motivation assets that can support successful implementation of the MYP. Teachers value the development of students' critical thinking skills and seek opportunities to learn how to develop critical thinking in their students. Most teachers believe that DAS students possess the capability to think critically, although barriers exist that hinder students from reaching their full potential as critical thinkers.

Moreover, teachers view the school's decision to adopt the IB positively in part because of the IB's emphasis on critical thinking and global mindedness. In fact, teachers expressed great enthusiasm for the opportunity to further emphasize critical thinking skills throughout the curriculum, including in their specific academic disciplines. They also felt confident in their ability to apply IB curriculum and pedagogy standards to revise and develop new curriculum, with the caveat that additional targeted professional development was desired. Teachers recognized that the IB's curriculum and instructional practices have benefits over more traditional educational methods. However, about a quarter of teachers voiced concern that the new IB curriculum might conflict with traditional Saudi values and cultural norms.

### **Expectations, Accountability Mechanisms, and Support for Teachers: Organizational Findings**

Just as knowledge and motivation factors can affect the success of an initiative, so can organizational factors. Organizational factors relate to the setting in which a program or initiative exists and include both environmental and personnel needs. This study identified



organizational assets pertaining to the expectations and accountability mechanisms put in place by the school, as well as other types of institutional support provided to teachers, so that teachers can improve students' globally minded critical thinking skills through the IB program. These organizational factors fall into three subcategories: resources; policies, processes and procedures; and culture. Resources refer to the environmental elements at DAS that help humanities and social studies teachers promote critical thinking skills through the IB. Policies, processes and procedures include the systems that DAS has put into place to support teachers in their work and to hold them accountable. Organizational culture consists of three layers: artifacts and behaviors, espoused values, and assumptions (Schein, 2004). Assumptions, which are at the core of an organization's culture and the most difficult to modify, consist of the invisible mental schema held by people in the organization (Gallimore & Goldenberg, 2001). The two outer layers (values, artifacts, and behaviors) serve as the visible manifestations of these assumptions. At DAS, teachers must feel that they are part of a broader school culture that supports the transition to the IB curriculum; more concretely, that support must be visible through the physical environment, behaviors, and values promoted by the school's administration. Table 6 summarizes the assumed organizational assets supporting DAS humanities and social studies teachers. Additional assets that were discovered in the course of this study and were not initially identified as assumed assets based on the literature, theory, or preliminary scanning are also included in this table.

Table 6

*Organizational Expectations, Accountability Mechanisms, and Teacher Support: Assumed Assets and Validation Methods*

Category	Assumed Asset	Validation Method	Validated
<i>Organizational Expectations and Accountability Mechanisms</i>			
Culture	Teachers belong to a school culture that expects teachers to develop students' critical thinking skills in accordance with IB program requirements.	Survey, Interview, Document Review	Validated
Policies, Processes, and Procedures	Teachers have a system of structured, consistent professional evaluation that supports critical thinking teaching methods and curriculum design.	Interview, Document Review	Newly Identified Asset
<i>Organizational Support for Teachers</i>			
Resources / Culture	Teachers work in an environment that supports their continued learning, including the provision of professional development related to critical thinking and the IB.	Survey, Interview, Meeting, Observation, Document Analysis	Validated
Resources	Teachers have work time set aside to develop the new literature, Islamic studies, and social studies curriculum.	Survey, Interview, Meeting, Observation	Partially Validated
Policies, Processes, and Procedures	Teachers have an organized, structured process for how to participate in creating the new IB curriculum and for providing input.	Meeting, Observation, Interview	Validated
Culture	Teachers are part of a school culture that recognizes any concerns regarding potential conflicts between Saudi cultural norms and IB principles and practices, including critical thinking skills, and helps teachers navigate those conflicts.	Survey, Interview	Partially Validated

Table 6, continued

Category	Assumed Asset	Validation Method	Validated
<i>Organizational Support for Teachers</i>			
Culture	Teachers are part of a school culture that values their contributions to building the new IB curriculum.	Survey, Interview	Validated
Culture	Teachers have a school administration that models consistent enthusiasm for the curricular changes related to adoption of the IB.	Survey, Interview, Meeting Observation	Validated
Culture	Teachers have heard and understand why the leadership of DAS decided to adopt the IB program.	Survey, Interview	Validated
Culture	Teachers have heard and understand how the IB program relates to the school's prior models and methods of teaching.	Interview, Document Review	Newly Identified Asset
Resources	Teachers have a school environment that visually reinforces the tenets of the IB relating to global mindedness and critical thinking.	Observation of School Facilities	Newly Identified Asset
Policies, Processes, and Procedures / Culture	Male and female teachers have a structured system for collaboration to develop and implement the IB curriculum as one school.	Interview, Meeting Observation	Newly Identified Asset

### **Culture: Organizational Expectations Regarding Teacher Accountability**

Teachers must believe that they will be held accountable for adhering to school policies and requirements, or the school's culture may suffer. This point holds true across different types of organizational cultures and in different sociocultural contexts (Gelfand, Lim, & Raver, 2004). For example, teachers may grow cynical regarding the efficacy of the school's administration. In addition, teachers may resist the implementation of challenging or controversial new initiatives

like the IB, making organizational change more difficult (Stanley, Meyer, & Topolnytsky, 2005). More than 90% of humanities and social studies teachers at DAS answered “agree” or “strongly agree” to the statement, “I believe the DAS administration holds teachers accountable for implementing its directives regarding curriculum and instruction.” One academic supervisor noted that even if teachers are nervous or less enthusiastic about working on the new IB curriculum, they understand that the school expects them to do so.

Moreover, accountability measures are built into the structure of the school’s PCPL evaluation and professional development system. Teachers must show tangible progress toward meeting the school’s standards within a specified period of time or they will be fired. In addition, supervisors are supposed to observe their teachers’ classes frequently, provide constructive feedback, and help teachers set demonstrable goals for improvement. One of the principal reasons that academic supervisors do not teach classes is to free up time to work one-on-one with teachers. Although senior administrators at DAS admitted that some inconsistencies exist with regard to the degree of oversight exercised by academic supervisors, the school has intentionally designed an organizational structure to promote accountability. The school’s founder revealed that this was necessary because, over the years, DAS has hired many teachers with little prior teaching experience or with skills and habits that did not conform to the school’s student-centered methods. This asset is validated.

### **Policies, Processes, and Procedures: Structured System of Professional Evaluation Supporting Critical Thinking Instruction**

As described in Chapter One, DAS has a longstanding institutional commitment to the professional growth of its employees, as reflected in its PCPL. The PCPL links three elements: professional growth, assessment and evaluation of employee performance, and compensation. Consistent and proactive evaluation of employee performance is considered integral to the

program's success. That evaluation is coupled with frequent, constructive feedback (Hattie & Timperley, 2007).

Critical thinking instruction is one area that the school has prioritized in recent iterations of the PCPL. As a result, teachers must demonstrate that they have made tangible progress in teaching critical thinking in order to receive positive performance evaluations and a step up in compensation. DAS' teaching standards (modified from the California Standards for the Teaching Profession) include the statement that teachers should "engage students in problem solving, critical and creative thinking and other activities that make subject matter meaningful" and "promote self-directed, reflective learning of all students" (DAS PCPL, 2014, p. 19). How the school interprets teacher progress toward meeting those standards is also provided in the document (see Figure 11).

<b>Standard 1: Engaging and Supporting All Students in Learning</b>			
Teachers build on students' prior knowledge, life experiences, and interests to engage all students. Teachers encourage and value all students' voices and perspectives. Teachers use a variety of instructional strategies and resources that respond to diverse needs of students			
Does Not Meet Standard	Meets Standard Developing	Proficient	Distinguished
<b>Element 1.4: Engage students in problem solving, critical thinking, and other activities that make subject matter meaningful-</b> The teacher provides limited opportunities for students to engage in problem solving, analysis, or investigation within subject matter areas.	The teacher provides opportunities for students to ask questions and solve problems within a subject matter area, but little support is given to develop skills needed to do so effectively. Most student questions are lower order, fact-based.	The teacher regularly provides opportunities and support for students to engage in problem solving, and to explore diverse perspectives of concepts within a subject matter area. At least half of student questions are higher order.	The teacher frequently engages students in problem solving and higher-order question posing, and the investigation and critical analysis of diverse perspective of concepts within a subject area.
<b>Element 1.5: Promote self-directed, reflective learning of all students-</b> The teacher provides few or no opportunities for students to initiate, make decisions about, or reflect upon their own learning.	The teacher usually directs the learning activities and provides some choices for student learning. S/he monitors student learning and provides some opportunities for students to reflect individually on their learning.	The teacher supports students in developing the skills needed to monitor their own learning and make decisions during activities. Students use DAS Standards and other criteria to assess their learning and discuss it with peers.	The teacher creates opportunities for all students to initiate their own learning and to monitor and describe their learning process and progress. Students use DAS Standards and other criteria to assess their own and their peers' learning, and to set new learning and improvement goals.

<b>Standard 3: Understanding and Organizing Subject Matter Knowledge</b>			
Teachers exhibit deep and current subject knowledge and organize the Core Curriculum to facilitate students' understanding of key concepts, central themes, essential skills, and vocabulary and DAS Content and Performance Standards.			
Does Not Meet Standard	Meets Standard Developing	Proficient	Distinguished
<b>Element 3.1: Demonstrate knowledge of subject matter and its vocabulary</b> The teacher's lack of knowledge of subject matter or appropriate vocabulary is frequently evident. Student learning outcomes are not evident, or not linked to subject knowledge.	The teacher demonstrates a clear, basic knowledge of subject matter, and understands which skills and key concepts to teach. The teacher sometimes makes direct connections between subject knowledge and expected student outcomes.	The teacher's knowledge of subject matter and vocabulary has breadth and depth and incorporates key concepts and different perspectives. Teacher consistently and directly connects subject knowledge to student learning outcomes.	Teacher knowledge of content and its vocabulary has depth, is current and consistently incorporates key concepts, themes, connections, and student learning outcomes. Teacher actively has students address a variety of perspectives in demonstrating depth of knowledge.
<b>Element 3.2: Organize curriculum to support student understanding of subject matter and its vocabulary based on DAS Content and Performance Standards-</b> The "curriculum maps and unit plans" are not clearly organized and does not consistently incorporate key concepts, themes or skills. Does not ensure learning of appropriate vocabulary. Curriculum maps and unit plans are not directly connected to Content and Performance Standards	The curriculum maps and unit plans are sequentially organized or theme-based, and designed to result in demonstrated understanding of key concepts and vocabulary by students. The curriculum maps and unit plans are aligned with the DAS Core Curriculum, and incorporate relevant DAS Content and Performance Standards.	The curriculum maps and unit plans are clearly organized and sequenced to coordinate Core Curriculum and DAS Content and Performance Standards. The design of the curriculum maps and unit plans clearly focuses on key themes and concepts and vocabulary and facilitates Standards achievement by all students.	The curriculum maps and unit plans build developmentally and demonstrate depth of subject matter and its vocabulary, and the relationships among various concepts and themes. The Content and Performance Standards and Core Curriculum are used to plan and adapt instruction, focusing on specifically identified outcomes for all students.
<b>Element 3.3: Interrelate ideas and information within and across subject matter areas-</b> The teacher presents curriculum without identifying or integrating key concepts and information. She does not relate content to previous learning to enhance understanding.	The teacher identifies and connects the key concepts within the Core Curriculum being taught. She frequently relates content to previous learning, other subject areas, students' experiences.	The teacher identifies and integrates for students the key concepts and information within the Core Curriculum, makes connections to other subjects and relates content to students' lives, previous and future learning.	The teacher uses strategies and activities that integrate concepts and information within and across subject areas and Standards, and challenge students to make their own connections, and extend and apply knowledge.
<b>Element 3.4: Develop student understanding through instructional strategies that are appropriate to the subject-</b> Instructional strategies are not appropriately matched to subject matter content or concepts and may not encourage students to think critically.	The teacher uses more than one appropriate instructional strategy to make the content accessible to students. S/he encourages students to think critically and to extend their knowledge of the subject matter.	The teacher uses a variety of appropriate instructional strategies to make content accessible to students. S/he challenges and supports students to think critically and to extend their knowledge of subject matter.	The teacher selects from a variety of appropriate instructional strategies to address individual learning styles and needs. The teacher challenges and supports students to construct their own knowledge, think critically, and see relationships.

Figure 11. Excerpt from Standards of Good Teaching at Dhahran Ahliyya Schools, 2014, directly related to critical thinking instruction.

Moreover, the PCPL states that its entire philosophy is premised upon several principles related to critical thinking, including the idea that “knowledge is constructed, not transferred, for all ages and all fields” (p. 9) and that continuous inquiry is a key to ongoing school improvement. Finally, the PCPL process itself encourages the development of teachers’ own metacognitive reflection, and thus critical thinking, about their professional practice. In doing so, the school expects teachers “to contribute to the critical analysis of systems and factors in the school that influence learning.” It continues:

Individual, team and organizational development proceed simultaneously in spiral fashion, each supporting the other through continuous cycles in which they plan, then implement their plans, then study their results, and then agree on new actions. (p. 33)

DAS calls this process the Plan-Do-Study-Act cycle. It is employed both in professional school planning and in the classroom. In sum, the structure of the PCPL promotes and supports teachers' own growth as critical thinkers as well as effective instructors of critical thinking in the classroom. This newly discovered asset is validated.

### **Resources and Culture: School Environment That Supports Teachers' Continuous Professional Learning**

As best practices in education evolve, teachers must continue to learn and adapt to serve their students' needs (Day, 1999). They must assimilate new curriculum and pedagogy such as innovations in critical thinking instruction (Coolahan, 2002; Skilbeck, 1992). Therefore, teachers need a school environment that supports their efforts to be lifelong learners (Lieberman & Pointer Mace, 2008). School leaders may promote faculty learning in tangible ways such as financial support for professional training. They may also cultivate an ethos of professional development in the school. Transitioning to the IB program entails adaptation at all levels of a school regardless of how closely aligned its prior philosophy and practices might have been. Therefore, in order for humanities and social studies teachers at DAS to effectively teach globally minded critical thinking skills to students through the IB, they must have institutional support to continue learning and growing as professionals.

Survey data, document analysis, and interviews all suggest that as an institution, DAS provides teachers with an environment that promotes their professional growth. The school invests heavily in teacher training and requires evidence of sustained improvement by faculty members for retention and promotion through its PCPL. Moreover, DAS senior administrators

have reworked the academic schedule to provide more time for professional development during the school day. During the transition to the IB, most training sessions have focused on IB principles and practices. Nevertheless, both survey and interview data indicate that humanities and social studies teachers would like even more training in certain areas of the IB. They also want additional training in critical thinking pedagogy. The fact that teachers are eager for such training indicates that the school has substantially succeeded in its intent to create an ethos of lifelong faculty learning.

Professional development related to the IB and critical thinking instruction occurs at DAS in several ways. First, the school began offering workshops about the IB for PYP teachers and other interested teachers in 2011. Teachers in grades 6-12 were required to attend IB overview training beginning in 2016. These trainings have included all faculty regardless of academic subject area. One full month of IB training for the MYP occurred in the summer of 2017. Academic discipline-specific training has occurred primarily in departmental PLCs. As described in Chapter One, teachers meet at least once per week in their PLCs for training and course planning, along with additional meeting time as needed with their grade-level teams. In addition, in 2017 the school adjusted its schedule to provide for early dismissal on Tuesdays to accommodate faculty professional development sessions every Tuesday afternoon. Faculty sometimes also meet during the weekend for seminars and other professional training. This investigator observed one such weekend training on Precision Teaching, which is a higher-level professional competency course within the school's mandatory and ongoing PCPL. Critical thinking is integral to the Precision Teaching method (Johnson & Street, 2013), which emphasizes conceptual learning over memorization of facts (Binder & Watkins, 1990). In 2010 DAS brought in a Precision Teaching trainer to work with faculty. The school translated the



Precision Teaching manual prepared by the trainer, along with related materials, into Arabic so that both English and Arabic speaking teachers could receive equivalent training.

Many teachers are grateful for the investment that the school has made in professional development and for its culture of lifelong learning. One teacher said, “We are learning every day. We are developing every day, I feel.” Teachers also recognize that their professional growth is, in part, due to the school. According to one teacher, “Every moment I go back and reflect, what this school gives me, what it has made me, is fabulous.”

Most DAS humanities and social studies teachers (77%) stated in the survey that they have received professional development about the requirements of the IB in the subject area they teach. Faculty who are native Arabic speakers reported receiving professional development in the IB at a much higher rate than non-native speakers (see Figure 12). These percentages may reflect the higher employee turnover in English-speaking teachers, many of whom are expatriates.

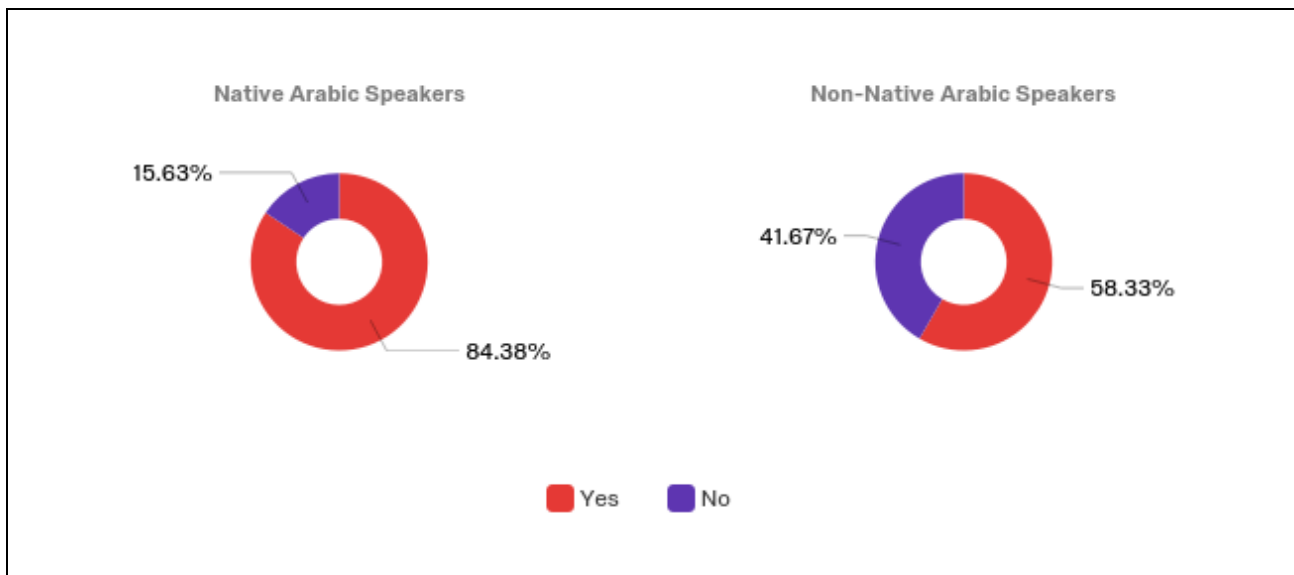


Figure 12. Teacher responses, by native language, to survey statement Q5.18 – I have already received professional development training about the requirements of the IB curriculum in the subject I teach.

Because the school has not yet decided whether to offer the DP for grades 11 and 12, teachers of those grades had the lowest reported rates of IB professional training for their subject area (grade 12 teachers were just 50%), while PYP teachers for grades 3 to 5 had the highest rates, at 100%.

Despite the relatively high number of teachers who indicated that they had already received professional training on the requirements of the IB program in their subject area, 97% of teachers stated that they would like additional training, with over 70% choosing “strongly agree,” in response to the survey statement, “I would like to receive additional professional development training on the requirements of the IB program for the subject area I teach.” During interviews, teachers frequently mentioned the need for more training on *discipline-specific* professional development, such as how to create assessments and rubrics aligned with IB policies and practices. As one academic supervisor put it,

The IB has expectations in regards to scope and sequence, which is very clear. But I don't think they give you a how-to. They have trainings on concept-based teaching, inquiry-based learning, stuff like that. . . they give you knowledge, but they don't show you how. Another teacher likened the process to climbing Mt. Everest, because “the learning curve is so steep that it's almost unattainable.”

Beyond assessment training, teachers indicated during interviews that they wanted more professional development in *curriculum standards alignment* to feel wholly confident in the process. For example, two teachers noted that while little difference exists between IB and Common Core standards, reconciling them was nevertheless challenging. As one asserted, “There's analysis, there's language, there's critical thinking. . . [but] the framework and the way it is structured is probably different. We still need some kind of professional development at this

level.” Teachers also expressed a desire for more specific examples of IB-aligned materials for their specific subject area. According to one social studies teacher, “One time they got us an example of a geography exam. And then we talked about it, we looked through it. .. what's good, bad about it. That was helpful.”

A palpable desire for more professional training was likewise evident regarding critical thinking instructional methods and curriculum design more generally. On the survey all but one teacher chose “strongly agree” or “agree” in response to the statement, “I would like to receive additional professional development training in teaching critical thinking methods.” Similarly, more than 93% answered “strongly agree” or “agree” in response to the statement, “I would like to receive additional professional development training in critical thinking curriculum design.” Just 59% of DAS teachers reported already having received professional development training in how to teach critical thinking. Length of tenure at DAS was not a factor, with 67% of teachers who had worked at the school for less than one year answering affirmatively. This finding is somewhat surprising, given that senior administrators suggested during interviews that most teachers come to DAS with little formal teacher training. New teachers may view the quality of their prior training differently than their supervisors. One important finding was teachers educated in Saudi Arabia or holding Saudi citizenship were much less likely to say that they had received training in critical thinking instruction than their counterparts, with only 25% of Saudi citizens responding affirmatively.

Interviews revealed that many teachers want DAS to provide professional development training by *outside* content-area IB experts and/or current IB teachers from other schools to work with faculty in their particular subject areas. This finding is significant because the majority of

professional development at DAS occurs in house and is provided by DAS personnel. One teacher stated,

I personally believe that teachers should be given opportunities to attend PD in other schools, cities, regions, etc. to learn from teachers that are experienced with IB curriculum and teaching. These teachers can bring that information back to DAS and do peer training and peer coaching. It would be far more beneficial for teachers to learn from one another, as they have direct classroom experience.

Several teachers noted that they found IB training by DAS supervisory personnel to be less helpful because it was second hand. At DAS, academic directors and supervisors conduct workshops and are responsible for leading PLC meetings. Supervisors sometimes attend IB trainings off site and then recreate that training in house for teachers. Thus, academic supervisors have played a key role in teachers' transition to the IB.

In sum, DAS provides its humanities and social studies teachers with an environment that prioritizes lifelong learning and professional growth. Teachers are required to participate in the school's robust, structured program of professional development covering topics from effective classroom management to Precision Teaching methods. This program contributes to a culture of constant learning. Although most faculty members report having received professional development in the requirements of the IB curriculum in the subjects they teach, they are eager for even more training in critical thinking curriculum design and pedagogy as well as in effective fulfillment of the requirements of the IB program in their subject areas. Provision of additional training to meet teacher demand remains an ongoing need, even as it also confirms the culture of learning found at the school. This asset is validated.

**Resources: Time to Work on New IB Curriculum**

Creating and implementing new curriculum is a time-intensive endeavor. Giving teachers enough time in their schedules to work on curriculum design may increase the quality of the teaching materials they produce, especially with respect to IBL, and create more teacher enthusiasm for the new curriculum (Darling-Hammond & McLaughlin, 1995; Penuel, Fishman, Yamaguchi, & Gallagher, 2007). DAS administrators have prioritized planning and collaboration time for faculty as the school transitions to the IB. As noted earlier, the school added one afternoon per week for PLC meetings and other professional development training. In addition, teachers meet with their departments each week.

However, survey data suggests that even though the school has allocated substantial time for teachers to work on the new IB curriculum, many do not feel that time is sufficient. Roughly 25% of humanities and social studies teachers do not think DAS sets aside sufficient time for faculty to work on developing new curriculum in general, and more than 50% personally do not feel that they have enough time in their current schedules to work on developing the IB curriculum for the subject area they teach (see Figure 13). These percentages were consistent across all demographic categories. As one teacher observed, “I know the school asks a lot of us, a lot. So it's not only overwhelming for the students, but for the teachers as well.” The teacher continued, “To properly prepare for IB lessons, it takes too much work, and the time we have in school is not enough. So if they want this to succeed, they have to change other things as well.”

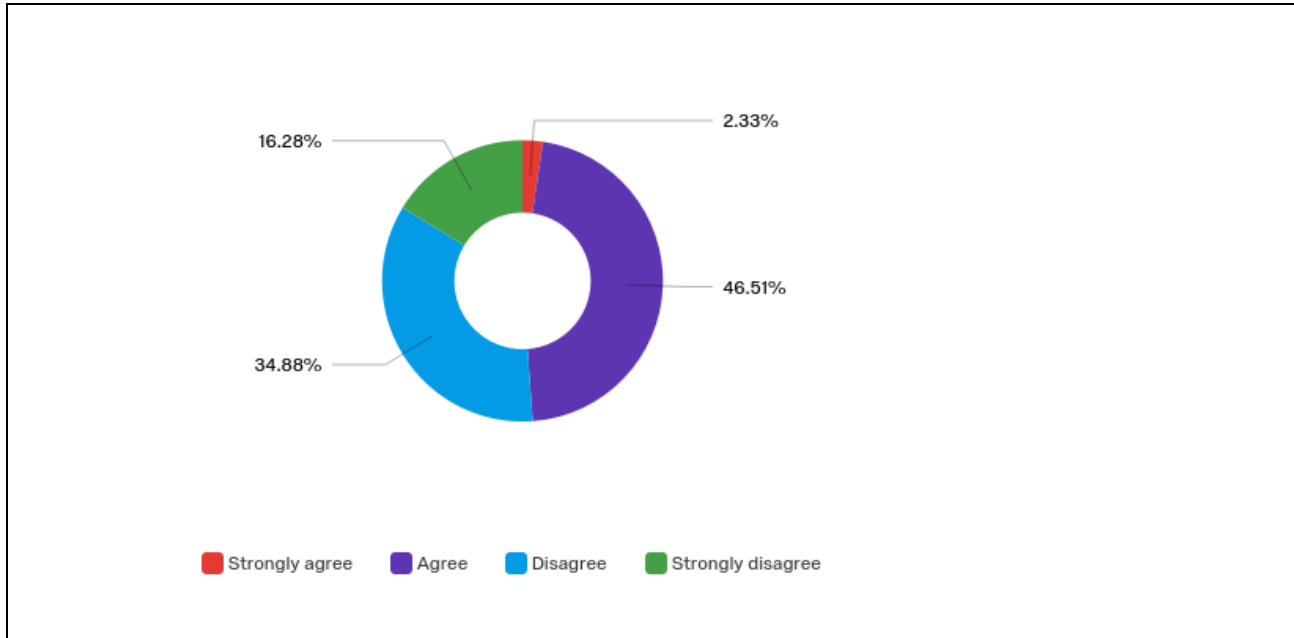


Figure 13. Teacher responses to survey statement Q.23 – I personally have enough time in my current schedule to work on developing the new IB curriculum in the subject I teach.

Although both native and non-native Arabic speakers indicated the same degree of dissatisfaction with the amount of time they *personally* had to develop the IB curriculum, non-native Arabic speakers expressed much greater dissatisfaction with the amount of time the school sets aside for curricular planning as a whole, with 50% of non-native Arabic speakers expressing dissatisfaction compared with 18.75% of native Arabic speakers. Teachers with less than one year of teaching experience at DAS and teachers with 11-15 years at DAS disagreed the most with the statement, “the school sets aside sufficient time for faculty to work on developing new curriculum.” Further research would be needed to explain these discrepancies.

Teachers and supervisors felt that time constraints limited their ability to self-reflect, be innovative and go in depth with curriculum design. Many wanted even longer periods of time during PLC meetings and Tuesday professional development sessions because of the challenges they face in discussing and planning critical thinking instructional strategies. According to one teacher, “We hardly get time to reflect with each other, what works well, what does not work

well, and again, plan and replan. So we need to sit and talk about it.” Time for metacognitive reflection aligns with the critical thinking expectations that DAS teachers have for their students, and that the IB promotes.

Academic supervisors voiced similar concerns regarding the effects of insufficient planning time. One stated, “I don’t think the teachers will be able to think freely when they’re constantly thinking over documents they need to finish or an analysis that they need to do. You don’t get time for creative planning.” Another supervisor added that “the school would see even greater improvements in terms of their mission and goals for students” if teachers had more planning time. Ironically, teachers’ perceptions that they lack sufficient time to think about IB curriculum planning leads them in some cases to repeat the same cognitive behaviors they are trying to minimize in their students, notably the desire to “be told the correct answer” rather than to struggle through the difficult yet creative mental work of figuring it out for themselves—in other words, inquiry.

During interviews, some teachers proposed that departmental meeting time be used for instructional planning. One teacher said, “I would rather have the time [for] going through the documentation of the MYP. Making sense of it myself, achieving something,” instead of attending PLC meetings. However, academic supervisors countered that although meetings might seem mundane, they were necessary for team building and conflict resolution in order to set the stage for effective collaboration on curriculum design and implementation within and across divisions. This asset is partially validated; although DAS administrators have already set aside additional time in the school schedule for curricular planning and professional development, many teachers and academic supervisors still view it as insufficient.

**Policies, Processes and Procedures: Structure for Participation to Work on New IB Curriculum**

In order to create buy-in and feelings of responsibility for the new IB curriculum, teachers need an organized, structured process for how to participate in its creation (Carl, 2009; Ho, 2010). So that no one feels left out of the process on the one hand, and no one feels unfairly burdened on the other, it is important that *all* teachers are required to participate. Moreover, it is a requirement for IB authorization that all faculty participate in the creation of the school's academic program. Interviews with academic supervisors and senior administrators, as well as visits to faculty curriculum planning sessions, indicated that DAS does have an organized process through which all humanities and social studies faculty participate in IB curriculum design and implementation.

All teachers at DAS are members of an academic department (for grades 6-12) or a grade-level team (for primary grades). Teachers meet at least once per week with the other teachers in their grade-level and subject area to plan units, lessons and assessments. Units of inquiry, skills, and assessments must be equivalent across divisions and within grades, although the actual lessons themselves, including the texts taught, may differ somewhat according to teacher and gender preference. Teachers also have periods for individual planning and meetings with their academic supervisors to review unit and lesson plans. Academic supervisors monitor faculty progress in curriculum development. From the top down, policy decisions regarding curriculum are made by the school's two academic directors in consultation with the academic supervisors. In fall 2017, academic supervisors for the MYP grades worked to create vertical and horizontal curriculum maps to be shared with all teachers after being finalized. PYP academic supervisors completed their first curricular map in 2015; it has continued to be revised in subsequent years.



With regard to the IB, teachers are involved at the granular level in writing each unit's statement of inquiry, choosing the main concepts and related concepts, and correlating IB standards and practices with the academic content standards used by each subject such as AERO or Common Core. Teachers engage in a process called "unwrapping the standards" in which each content standard is aligned with an IB learning outcome. As one supervisor stated, "we are keeping the standards, except that we're saying, 'we're teaching these standards the MYP way.'" Class lessons and summative and formative assessments are then created based upon those content standards and learning objectives.

Many teachers find the process of course planning exciting but also time consuming. One concern that consistently arose during interviews was the amount of paperwork and documentation that such an intensive process of planning entails. As one academic supervisor commented, "One standard can have so many layers, so unwrapping it is a challenge right now. And then how do we align it to the new practices, central idea, and things like that?" Teachers and supervisors both noted that the school's preexisting culture of intensive planning and standards alignment made participation in planning for the IB less daunting. Nevertheless, supervisors worried that the amount of paperwork required would burn teachers out: "We have a lot of paperwork that is demanded from us as a school. Like the four documents for a lesson plan? That's a lot. When two documents can serve the same purpose, why do so many?" In sum, supervisors and teachers both indicated that they appreciate DAS' organized structure for participating in the creation of the new IB curriculum, but they would prefer that the documentation requirements be streamlined. This asset is validated.

**Culture: Assistance with Concerns About Potential Conflicts Between IB and Saudi Culture**

Given the sensitive nature of topics that may arise in humanities and social studies classes at DAS, teachers must feel that they work within a school culture that helps them navigate any concerns regarding potential conflicts between Saudi cultural norms and IB principles and practices, including critical thinking skills. Day to day, this means that school administrators must themselves be cognizant of any potential concerns and also behave proactively to support teachers should any conflicts arise with parents, other teachers, or the Saudi authorities. Most school administrators at DAS have extensive experience in educational settings in the Middle East, even if not all in Saudi Arabia. In addition, all are practicing Muslims. Therefore, they are likely to be aware of the general types of issues that are might arise in the cultural context in which DAS operates.

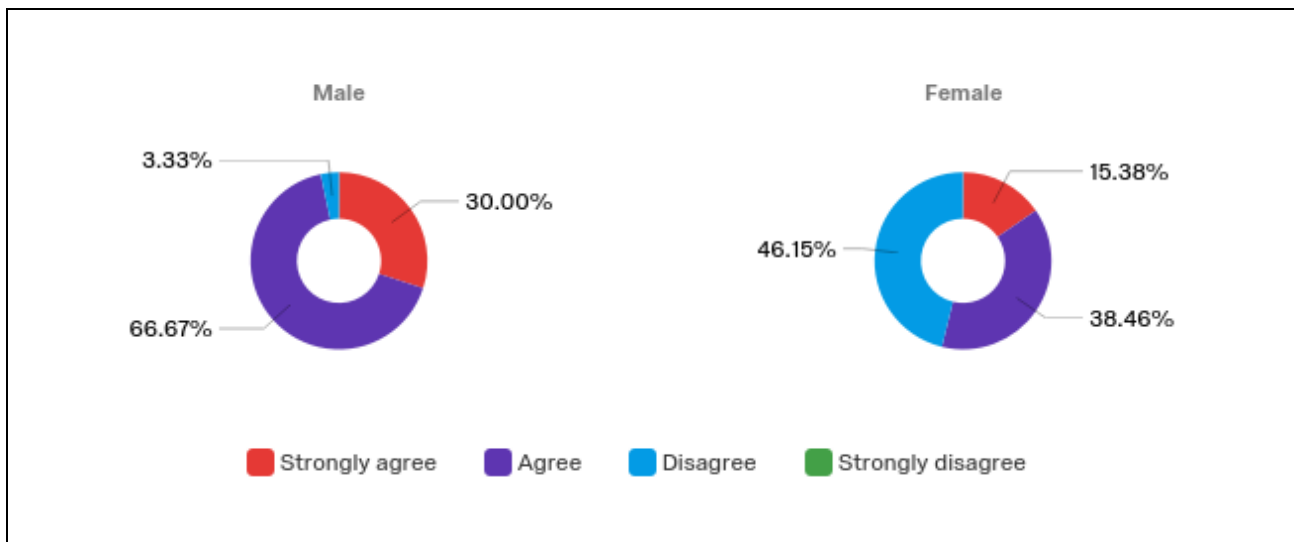
Survey responses indicate that a majority of teachers feel comfortable expressing any concerns they have about the new IB curriculum to school administrators, although a significant minority (about one-third) do not. Members of certain demographic groups answered “disagree” or “strongly disagree” more frequently to the statement, “I feel comfortable expressing any concerns I have about new curriculum to school administrators.” Women and teachers educated outside of Saudi Arabia all were more likely to disagree. For example, 50% of women answered “disagree” or “strongly disagree,” compared to just 23% of men. These findings are consistent with other survey results. Women in general expressed less confidence in their answers, and teachers from outside the Arab world felt less comfortable navigating the nuances of Saudi societal constraints. In addition, fully half of faculty members who teach their classes in Arabic answered “disagree” (although none answered “strongly disagree”). Finally, teachers with the longest tenure (more than 15 years) were the most likely group to disagree. More research

would be needed to explain these findings. This assumed asset was not addressed through an interview question given the potentially sensitive nature of asking teachers to comment on their relationships with their supervisors. This asset is partially validated because although most teachers felt comfortable expressing concerns about potential conflicts between Saudi cultural norms and IB principles and practices to administrators, a significant minority, and especially women, did not.

### **Culture: Valuing of Teacher Contributions to New Curriculum**

Human motivation is affected by both intrinsic and extrinsic factors (Ryan & Deci, 2000). Extrinsicly, in general, people enjoy being recognized for their work and are more likely to persist at tasks if they feel their contributions are appreciated (Amabile, 1993; Brown & Leigh, 1996; Deci & Ryan, 1985), although some research suggests that this factor may be declining in importance compared to other motivational factors over time (Wiley, 1997). When authority figures in an organization demonstrate appreciation, they reinforce the organization's priorities and values to other stakeholders in the organization. On the whole, humanities and social studies teachers at DAS believe that school administrators value their contributions in building the new IB curriculum. More than 80% answered affirmatively to the statement, "I believe that the school will value my contributions to building the new IB curriculum." No teachers selected "strongly disagree." However, a significant difference emerged in answers disaggregated by gender. Women were more likely to disagree than men (see Figure 14). Only 3.33% of men answered "disagree", but 46.15% of women did. An explanation for this finding might be explored further through additional research. Other demographic factors were less relevant, except for years of experience at DAS. Teachers at the school for less than one year all answered "agree" or "strongly agree." Teachers at the school for more than 15 years were the

most divided demographic category, with 44.44% choosing “strongly agree,” 22.22% choosing “agree” and 33.33% choosing “disagree.” No explanation for this survey finding is apparent, except that teachers with more seniority may have different expectations of academic supervisors and directors, most of whom are relatively new to the school.



*Figure 14.* Teacher responses, by gender, to survey statement Q5.24 – I believe that the school will value my contributions to building the new IB curriculum.

In interviews, teachers described several ways that the school recognizes their contributions to building the new IB curriculum. One teacher commented that she believed her efforts would show up in a salary increase at the end of the year. Another said that it would be discussed in each teacher’s yearly evaluation as well as in the more regular feedback provided by supervisors after class observations. Other teachers mentioned “thank you” events like meals and trips to the beach for employees, although these were not explicitly linked to teachers’ work in building the IB curriculum. Several teachers also complimented the school’s academic directors for acknowledging during faculty meetings that they understood how challenging it can be for a school to move to the IB and for not expecting wholesale implementation of the new curriculum overnight. However, a number of teachers also said that school administrators could do more to recognize teachers’ contributions and make their appreciation more overt. Some

faculty provided suggestions for how school administrators could make teachers feel more valued, such as writing appreciation letters to go in teachers' evaluation files. One teacher said this idea would mean a lot to her "because sometimes you do things inside the classroom and they just go unnoticed, like you just do them for the sake of the students, but you can't keep track of them." Other teachers wanted administrators to visit their classes more frequently so that they could showcase the results of their work. Finally, a few teachers stated that if the school allocated even more planning time in the school day, teachers would interpret this gesture as recognition of the effort needed to design and implement the new curriculum in a manner that would meet DAS' high educational standards. Even taking into account these suggestions, however, most teachers do believe the school values their contributions toward building the new IB curriculum; this asset is validated.

### **Culture: Administrators' Modeling of Enthusiasm for IB**

Leadership often sets the tone for organizational culture (Schein, 2004). It is therefore important that DAS administrators publicly model their enthusiastic commitment to the new IB program in order to create a culture of buy-in among teachers. Survey responses reveal that teachers view school administrators to be "enthusiastic and committed to any curricular changes needed to transition to the IB program," with 29.55% answering "strongly agree" and 56.82% answering "agree." Saudi citizens and teachers who received their education in Saudi Arabia were more likely to answer "strongly agree" than were their peers, perhaps because of greater familiarity with the Saudi cultural setting, including any ways that adoption of the IB program might be challenging for DAS administrators. This asset is validated.

**Culture: Explanation and Understanding of Reasons for Adopting IB**

Support for new initiatives is more likely to occur if an organization's leaders have ensured that stakeholders understand the reasons why change needs to occur and how it aligns with the organization's values (Gill, 2002). At DAS, senior administrators have publicly explained their rationale for the transition to the IB program, situating it within a broader vision for the school's future as a leader in Saudi education. Interview data reveals that the school has succeeded in communicating these ideas to humanities and social studies teachers. Most teachers stated that they had heard both the rationale and the vision behind the adoption of the IB. Moreover, they agreed with the school's explanation and could articulate it consistently across divisions and departments.

Among the reasons that teachers gave for the school's transition to the IB, several themes emerged. First, teachers highlighted the need to prepare students for the future by improving their critical thinking skills, and the IB program's emphasis on critical thinking through concept-based learning and the inquiry method of teaching. For example, one male teacher stated that students "need to be able to inquire, they need to be able to reach out to the information, they need to be the center of learning, so that was basically what led [the school] to move to this step." Second, teachers pointed to the IB's emphasis on global mindedness as being aligned with the school's desire to make students more curious and accepting of other cultures. Third, teachers mentioned the school's desire to stimulate students to be more creative, independent and interdisciplinary learners, moving ownership of learning from teachers to students. Then, in the words of one teacher, "perhaps if you teach them the concept, perhaps they could inquire for themselves." Another teacher said, "I believe the school wants to move away from the old style of teaching because we're living in a time where it's not just about receiving, it's also about

giving and applying whatever the students are learning.” Several teachers mentioned being impressed by IB videos that school administrators showed during in-service training since those videos confirmed for them the IB’s potential for curricular and pedagogical creativity in action. Finally, many teachers commented that school leaders had frequently emphasized the close alignment between the IB’s standards and practices and DAS’ preexisting pedagogical philosophy and methods. This message seemed to resonate with teachers, comforting them that the transition to the IB was both necessary and achievable. This asset is validated.

**Resources: School Environment That Visually Reinforces IB Tenets of Critical Thinking and Global Mindedness**

While most IB schools display visual reminders of the IB’s core standards and practices, especially the IB Learner Profile, DAS has made its commitment to the IB especially clear. The school posts handmade visual representations of the units of inquiry for each grade along every hallway and in every classroom, along with images corresponding to the IB Learner Profile and other desired student behaviors and outcomes (see Appendix E). Besides creating a colorful and stimulating learning environment, these visual reminders reinforce the school community’s commitment to the IB program. They also convey the message to teachers and students that they must always keep IB tenets in mind when planning, implementing, and participating in class lessons.

Although IB-branded posters and other materials are present at DAS, most visual displays are created by the teachers and students themselves. The displays personalize the learner attributes and learning goals within the DAS context, translating abstract ideas into concrete messages that students can understand and internalize. Creating the displays requires students and teachers to digest the IB’s standards and practices before visually representing them. Doing so is, in itself, a form of the higher-order thinking prioritized by the IB. School

administrators noted that, at first, the prospect of having to decorate their classrooms to depict IB learner attributes and units of inquiry intimidated some teachers. Administrators had to gently prod those teachers to tap into their own creativity. Administrators also encouraged teachers to visit colleagues' classrooms within and across divisions to gain inspiration. In the early stages, administrators never criticized teachers' efforts outright. Instead, they complimented the teachers' progress while making small suggestions for improvement.

At this point, many DAS teachers are proud of the physical environment they have created. During this investigator's visit to the school, several teachers stopped me in the hallways to proudly explain their wall displays. During classroom lesson observations, teachers also frequently pointed to their visual representations of learner attributes, statements of inquiry, thinking routines, and other IB elements when emphasizing curricular connections. This newly discovered asset is validated.

### **Culture: Relationship of IB to Prior School Instructional Models and Methods**

One significant advantage that DAS humanities and social studies teachers have in adapting to the IB is that the IB's philosophical underpinnings are not alien to them. Much congruence exists between how the IBO and DAS have approached pedagogy, curriculum design, and ideal learner attributes/habits of mind. Therefore, DAS teachers may build upon their existing knowledge to understand and incorporate the IB's concepts and methods. In addition, teachers may be less resistant to adjusting their instructional techniques to align with those of the IB.

Interviews, meeting observations and document review all support the finding that DAS' transition to the IB has been facilitated by its pre-existing educational philosophy and practices. The IB Learner Profile (see Appendix A) is very similar to the old DAS Targeted Characteristics



for students, which was first adopted several decades ago and then updated periodically (see Appendix F). The last DAS Targeted Characteristics document (renamed the DAS Learner Profile) was modeled on the IB Learner Profile except that it contained two additional attributes (faithful and collaborative) not found in the IB. The “faithful” attribute refers to DAS’ identity as a Muslim school.

In addition, DAS’ prior emphases on inquiry- and concept-based learning have also facilitated teachers’ transition to the IB. During interviews, many teachers commented that they were already incorporating inquiry-based activities and cooperative learning in their lessons even before IB training began. As one teacher reflected,

The professional development that we have received—not today, not yesterday—but 10 years ago also, it was fabulous. I was just at the MYP training. . . and the trainer is in awe of what we know. She thinks that there could be something that she might add to it, but we said, “We’ve already used it 10 years ago.” And I tell myself, “Great thanks to Dr. Sally and the team, for keeping us updated.”

New for DAS teachers is the expectation that they will consistently apply inquiry throughout the curriculum and plan each unit around it. As one teacher put it, inquiry is “now the structure, the frame.”

Also facilitating the shift to the IB is the school’s ethos of continuous improvement. Most teachers understand that change and experimentation in pursuit of educational best practices are part of the school’s organizational culture. Therefore, DAS administrators have been able to justify moving to the IB as the next logical chapter in the school’s evolution. The chief danger of this model is that people sometimes find it difficult, and exhausting, to continuously synthesize older practices with new ones, particularly if they do not have time to

fully assimilate each new practice before another is added. In the words of one academic director, “you can’t have everything. It’s too much to have everything. Every single best practice is a lot. What do we take and what do we give?” During interviews several DAS teachers echoed this concern, even though they welcomed the school’s transition to the IB as a whole. This newly discovered asset is validated.

### **Policies, Processes and Procedures/Culture: Structured System for Teachers to Develop and Implement the IB Curriculum as One School**

Although in most circumstances legal barriers in Saudi Arabia do not preclude men and women from working together, traditionally they do not share certain public spaces. At DAS, the boys’ and girls’ divisions are physically separate and faculty members work in only one division. Over the years educational disparities have emerged between the boys’ and girls’ schools, with the girls’ school generally achieving better results. However, because DAS has applied for IB authorization as one school, the boys’ and girls’ divisions must demonstrate that they provide an equivalent educational experience for all students, including with regard to curriculum. In addition, DAS senior leadership believes that a unified curriculum is necessary to ensure that every student receives the same quality of learning opportunity regardless of gender.

To achieve this goal, in summer 2013 the school began facilitating opportunities for teachers to collaborate on curriculum. Collaboration is now an expectation for continued employment. According to the PCPL, teachers are required to work with their colleagues by grade level to design units and assessments that they will use at similar times in the school year. Teachers must review the results of those assessments as a grade-level team in order to make improvements. School administrators believe that consistent enforcement of this policy is already yielding positive results, although it remains a work in progress. They also credit the IB program itself for promoting a culture of collaboration. As one supervisor said, “I think what’s

making us common is the MYP. It's the thinking of the MYP, it's the planning of the MYP.”

An added benefit of the policy, according to a number of teachers, is that they feel a greater sense of school community and empathy for their colleagues. Several teachers also indicated that they had personally benefited as educators from hearing more diverse points of view and new lesson planning ideas, including ideas for technology integration.

Supervisors revealed that a number of teachers initially resisted the school's requirement that they communicate and collaborate with teachers in the other division. According to an academic supervisor, “It was not very easy at the beginning. It's true we are one school, but we were completely segregated, you know? There was no communication at all.” As a result, academic supervisors sometimes had to force teachers to share their thoughts with each other. On occasion they also had to mediate disagreements. According to interviews, one issue common to both the PYP and the MYP was that female teachers thought male teachers were not shouldering their fair share of the course planning work. The women expressed that the men were often unprepared for planning sessions and did not contribute enough creative ideas. Developmental differences between boys and girls also emerged as an issue. One female teacher stated that she refuses to lower her academic standards to “accommodate the level of the boys' side. How is that going to impact critical thinking?” Teachers also initially felt competitive about their students' academic achievement. Both teachers and supervisors believe that having two academic supervisors for each academic subject, one male and one female, has helped to smooth over conflicts. Moreover, when both supervisors provide a consistent message to their teachers, that message is more likely to be heard; teachers have no excuse to discount its validity due to cultural beliefs about the authority of the messenger.

Advances in communications technology, including e-mail and teleconferencing, have made DAS' "one school" policy possible. The school has even invested in a robot, named T-Walker, that can travel between divisions and transmit audio via an integrated iPad. Once a year, departments also share their SMART goal projects with each other in a gala celebration. However, challenges still remain. Teachers and supervisors cannot visit each other's classes. The system therefore relies on teachers' willingness to honestly reflect with colleagues about their experiences in implementing the new curriculum. That prospect may be intimidating or culturally disorienting for some people, particularly in a high-context linguistic cultural environment, as described in Chapter Two. Nevertheless, DAS has made significant progress toward its goal of unifying its curriculum as one school. This newly discovered asset is validated.

### **Summary and Synthesis of Organizational Assets**

Organizational culture, systems, and resources may affect stakeholder progress towards attainment of a goal (Rueda, 2011). For humanities and social studies teachers at DAS, organizational factors have generally contributed to an environment supportive of teachers' needs in transitioning to the new IB curriculum and improving globally minded critical thinking instruction. Most assumed organizational assets were validated, and several new assets were also discovered. Teachers are part of an organizational culture that values their professional contributions to building the new IB curriculum and holds them accountable for participating in that process. The school provides a comprehensive, structured system of professional development and evaluation through the PCPL in which critical thinking pedagogy is prioritized. Moreover, the school has modified its academic schedule to provide more planning and professional development hours.

Beyond allocating financial resources, the academic leadership of DAS has played a significant role in creating an environment conducive to teachers' success. Although the focus of this study is not on school administrators, their role in promoting a climate of enthusiasm for, and comfort with, the new curricular changes is important. Senior administrators communicated the projected benefits of the IB program in a manner that was convincing and reassuring to most faculty members. They also helped teachers understand how the IB program relates to the school's prior instructional models and methods. Finally, DAS leaders committed to the 'one school' philosophy by requiring male and female teachers to communicate and collaborate.

While grateful for the opportunities the school has already provided, many DAS teachers would like additional opportunities for professional development and more planning and collaboration time. In a way, these requests reflect an organizational culture of lifelong learning and desire to serve students' needs. However, the school will also need to be careful that the added workload from the IB does not lead to faculty burnout.

### **Knowledge, Motivation and Organization Findings Summary and Synthesis**

Table 7 summarizes this study's overall findings regarding teachers' knowledge, motivation and organization assets supporting the development of students' globally minded critical thinking skills during the transition to the IB MYP.

Table 7

*Summary of the Total Numbers of Knowledge, Motivation, and Organization Assets*

Category of Asset	Validated	Partially Validated	Newly Discovered	Not Validated
<i>Knowledge</i>				
Teacher Expertise	3	3	1	1
<i>Motivation</i>				
Values Alignment	4	1		
Positive, Adaptive Behaviors and Attitudes	1	1	1	
<i>Organization</i>				
Expectations and Accountability Mechanisms	1		1	
Support for Teachers	5	2	3	

Research findings indicate that DAS has created an organizational culture that supports teachers as they transition to the new IB curriculum. The school provides resources to promote teacher learning, including both training and planning time for collaboration with colleagues. School administrators have also instituted a structured and mandatory process for teachers to participate in building the new IB curriculum. In turn, humanities and social studies teachers exhibit key types of knowledge, behaviors, and attitudes likely to contribute to successful implementation of the IB at DAS. Many of these knowledge, motivation, and organizational assets seem to be mutually reinforcing.

Senior leaders at DAS decided to adopt the IB in large part because of its sustained emphases on critical thinking and global mindedness. In terms of motivation assets, teachers heard and accepted the school's rationale for moving to the IB; they also value the development of students' critical thinking skills. They feel comfortable with the IB's focus on critical thinking and global mindedness because these elements were *already* a part of DAS culture, embedded in school expectations and policies. Teachers also feel comfortable due to the intensive training and support provided by the school, although most teachers want even more

training. A majority of teachers believe that they can teach critical thinking and global mindedness without challenging Saudi cultural norms, although some teachers consider their own pre-emptive self-censorship to be antithetical to the IB's critical thinking values.

In terms of knowledge assets, most humanities and social studies teachers consider themselves proficient in critical thinking instruction. They also believe they understand how critical thinking is reflected in the IB standards and practices for their subject areas. However, in terms of critical thinking pedagogy, teachers' confidence sometimes outweighed their competence. Substantial variation exists in the sophistication and creativity of critical thinking instructional methods as well as teachers' expectations regarding student performance in critical thinking. Nor do all teachers have a uniform understanding of what IBL entails. In particular, male teachers expressed more confidence than women in their knowledge of critical thinking instruction but demonstrated less consistency in the diversity and depth of the inquiry-based pedagogy they employed. Teachers generally thought that they could revise existing lesson plans to meet IB critical thinking curriculum and instructional standards, although fewer teachers felt knowledgeable about creating new curriculum units from scratch. In particular, both academic supervisors and teachers found the process of integrating IB standards with the school's existing subject area content standards to be challenging. Additionally, teachers knew little about how to intentionally teach for critical thinking transfer across academic subjects, which is a key element of the IB's educational philosophy.

On the whole, findings from this study strongly suggest that despite some fears, humanities and social studies teachers at DAS are looking forward to the school's transition to the IB and are motivated to emphasize globally minded critical thinking in the new curriculum. Notably, native Arabic speakers expressed even more enthusiasm for the IB's curriculum

standards and instructional methods than non-Arabic speakers. In addition, most teachers are eager to pursue additional professional development about best practices in teaching and learning. They want the school to provide more training in IB implementation, especially regarding units of inquiry and assessment design for their specific subject areas. In this regard, teachers' motivations varied. Some teachers possess a growth mindset, valuing ambiguity and learning from mistakes. These teachers understood that creating a new curriculum is often messy, difficult and time intensive, and they relished the intellectual challenge this opportunity provided. For them, additional IB training was a way to continue learning and growing as educators. However, other teachers viewed IB professional development more instrumentally. They wanted DAS to provide concrete, specific strategies for successful IB implementation, including curriculum exemplars from other schools, so that they could "get it right" the first time. Put another way, these teachers felt discomfort with uncertainty in their professional roles, and they did not conceptualize the process of IB curriculum implementation metacognitively as their own version of IBL. However, the IB is no longer a "one size fits all" model. Even though the IBO promotes academic uniformity in certain ways, it recommends that the IB program can, and should, be interpreted by each school according to that school's particular circumstances, including curriculum relevant and appropriate to the local context. Addressing this issue remains an ongoing need for the school.

Based upon the findings presented in this Chapter Four, Chapter Five will analyze which knowledge, motivation, and organization assets might be transferable to other institutional contexts to improve globally minded critical thinking instruction in humanities and social studies. Chapter Five will also propose solutions to address the ongoing needs identified in this chapter that DAS teachers have as they transition to the IB program.



## CHAPTER FIVE: TRANSFERABLE PRACTICES AND PROPOSED SOLUTIONS TO ONGOING NEEDS

This chapter presents evidence-based recommendations about how schools in Saudi Arabia and similar educational cultures might build capacity for globally minded critical thinking in humanities and social studies curriculum. Because this dissertation utilizes a modified promising practice model and because DAS seeks to share its best practices with other Saudi schools, it is necessary to determine whether the knowledge, motivation and organizational assets validated in this study are unique to DAS or whether they might translate to other academic contexts. Put another way, this chapter seeks to answer the third and fourth guiding questions of this study:

3. What practices relating to the areas of knowledge, motivation, and organizational resources are transferable to other organizations?
4. What are the recommended knowledge, motivation, and organizational solutions to address ongoing needs?

First, this chapter summarizes key validated assets described in Chapter Four that make DAS' approach to globally minded critical thinking instruction and IB implementation helpful to explore as a promising practice. These key assets are divided into ones that might be transferable to other contexts and ones specific to DAS' organizational character and experience. Embedded throughout is a discussion of issues that other schools should consider before deciding to adopt DAS' model as a promising practice.

The second section of this chapter revisits several key assumed assets that were not fully validated in Chapter Four. These remain ongoing knowledge, motivation, and organizational needs for DAS teachers as the school continues to develop and implement the IB MYP program.

Potential solutions are recommended to address each of these ongoing needs, along with an implementation plan for each solution including a timeline, description of necessary resources, and organizational constraints. An evaluation plan based on a four-level model by Kirkpatrick and Kirkpatrick (2007) is also provided to assess the efficacy and impact of the proposed solutions. The Kirkpatrick model was originally developed to evaluate corporate training programs, but it also has value for other educational settings.

The chapter concludes with a discussion of possible areas for future research and some thoughts on the value of the study for other educational institutions seeking to improve globally minded critical thinking instruction, including through adoption of the IB program.

### **Summary of Key Validated Assets**

This study focused on the knowledge, motivation and organizational (KMO) assets of humanities and social studies teachers at DAS pertaining to successful globally minded critical thinking instruction and IB program implementation. Key validated assets are summarized at the end of Chapter Four and in Table 8. Some validated assets were assumed assets based on a review of relevant literature, theory, and preliminary scanning, and were then verified through data collection. Other validated assets were discovered through the process of data collection and analysis. As discussed in Chapter Four, the key validated assets may be grouped into five main categories: (a) organizational expectations and accountability mechanisms, (b) organizational support for teachers, (c) values alignment, (d) teacher expertise, and (e) positive, adaptive teacher attitudes and behaviors.

Table 8 shows that two key assets were validated in the category of organizational expectations and accountability mechanisms; eight key assets were validated in the category of organizational support for teachers; four key assets were validated in the category of values

alignment; two key assets were validated in the category of positive, adaptive teacher attitudes and behaviors; and five key assets were validated in the category of teacher expertise. While these assets were differentiated and categorized for the sake of this study, it should be noted that many assets are related and mutually reinforcing. Indeed, the interconnectedness of these key assets is one reason that DAS' model might serve as a promising practice for other institutions.

Table 8

*Summary of Key Validated Assets*

Category	Validated Asset
<i>Organization/Culture: Organizational Expectations and Accountability Mechanisms</i>	
Culture	Teachers belong to a school culture that expects teachers to develop students' critical thinking skills in accordance with IB program requirements.
Policies, Processes, and Procedures	Teachers have a system of structured, consistent professional evaluation that supports critical thinking teaching methods and curriculum design.
<i>Organization/Culture: Organizational Support for Teachers</i>	
Resources / Culture	Teachers work in an environment that supports their continued learning, including the provision of professional development related to critical thinking and the IB.
Policies, Processes, and Procedures	Teachers have an organized, structured process for how to participate in creating the new IB curriculum and for providing input.
Culture	Teachers are part of a school culture that values their contributions to building the new IB curriculum.
Culture	Teachers have a school administration that models consistent enthusiasm for curricular changes related to adoption of the IB.
Culture	Teachers have heard and understand why the leadership of DAS decided to adopt the IB program.
Culture	Teachers have heard and understand how the IB program relates to the school's prior models and methods of teaching.

Table 8, continued

Category	Validated Asset
<i>Organization/Culture: Organizational Support for Teachers</i>	
Resources	Teachers have a school environment that visually reinforces the tenets of the IB relating to global mindedness and critical thinking.
Policies, Processes, and Procedures / Culture	Male and female teachers have a structured system for collaboration to develop and implement the IB curriculum as one school.
<i>Motivation: Values Alignment</i>	
Intrinsic Task Value	Teachers value the development of students' critical thinking skills.
Intrinsic Task Value	Teachers consider the IB curriculum in literature, Islamic studies, and social studies worthwhile to adopt.
Intrinsic Task Value	Teachers value the IB's emphasis on global mindedness as it relates to literature, Islamic studies, and social studies education.
Intrinsic Task Value and Mood	Teachers feel positive about, and comfortable with, applying IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills.
<i>Motivation: Positive, Adaptive Teacher Attitudes and Behaviors</i>	
Self-Efficacy	Teachers have confidence that they can apply IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills.
Intrinsic Task Value / Mastery Orientation	Teachers value learning and seek out opportunities for professional development about best practices in teaching and learning beyond what DAS requires.
<i>Knowledge: Teacher Expertise</i>	
Factual Knowledge	Teachers know the Saudi Education Ministry policies and standards regarding literature, Islamic studies, and social studies instruction and curriculum.
Conceptual and Metacognitive Knowledge	Teachers can apply their own understanding of Saudi cultural norms to decide what types of class lesson content would be acceptable in teaching critical thinking skills.
Conceptual Knowledge	Teachers understand what critical thinking is, and the relationship between critical thinking and academic achievement in literature, Islamic studies, and social studies disciplines.
Factual and Conceptual Knowledge	Teachers understand how critical thinking is reflected in the goals and standards of the IB program.
Procedural Knowledge	PYP teachers possess experiential knowledge about IB implementation that can be shared with MYP teachers.

### **Potential for Transferability of Validated Assets**

This section of Chapter Five addresses which teacher- and organization-related assets related to globally minded critical thinking instruction and adoption of the IB curriculum may be transferable to other school contexts in Saudi Arabia and elsewhere. The IB program requires teachers to embrace a student-centered learning model that deemphasizes the teacher's authority as the source of knowledge in the classroom. Philosophically the IB program is built on inquiry (IBO, 2016). Inquiry-based learning prioritizes the development of students' critical thinking skills over memorization and factual recall (Hmelo-Silver, Duncan, & Chinn, 2007). Based in constructivist educational principles (Savery, 2006), inquiry challenges students to discover knowledge for themselves and to make connections across events, ideas, concepts, and disciplines. This model is still relatively uncommon in Saudi Arabia (Hamdan Alghamdi, 2014). As a result, DAS and its teachers are at the forefront of introducing IBL to Saudi students and parents. DAS views itself as a laboratory where best practices in education can be developed. In fact, the school's founder stated that she intentionally considered transferability when designing and implementing many of the school's policies and practices (personal communication, April 2018). This section therefore provides some suggestions as to which teacher and organization assets at DAS might be transferable and which are likely to be context-specific.

### **Criteria for Transferability**

Transferability refers to the applicability of research results from one situation to others. Transferability is usually discussed in relation to qualitative research (Jensen, 2008). Readers of any research study should evaluate the similarities between human populations and environmental contexts to gauge the transferability of a study's results (Barnes et al., 2012). When considering whether and how feasible it might be to transfer DAS' teacher and

organization assets, including what management scholars term “best practices,” Wellstein and Kieser (2011) suggest viewing organizational practices as “bundles of rules and routines that can be interpreted theoretically in a meaningful way”; it is therefore “essential to identify the *basic* mechanisms underlying those practices” (p. 709). Management theorists recommend that any organization seeking to recreate another organization’s “best practices” carefully consider the cultural context of each organization, particularly if they are located in different parts of the world or have different economic profiles (Argote & Ingram, 2000; Jensen & Szulanski, 2004; Wellstein & Kieser, 2011). Scholars in other fields such as international relations interested in the mechanisms of effective policy transfer echo this view (Ottoson, 2009; Stone, 1999).

For schools in Saudi Arabia that wish to adopt DAS’ model, national culture should not be considered a barrier to transferability. However, schools should take note of socio-economic differences as well as regional cultural differences even within the Arab world. Moreover, as Argote and Ingram (2000) demonstrate, a significant portion of an organization’s knowledge, especially tacit knowledge, is “embedded in individual members” (p. 154) who are part of a distinctive organizational culture. While this can be a competitive advantage for organizations, it can also impede transfer of practices, policies and knowledge. For purposes of this study, in order for a validated asset to be considered transferable from DAS to another organization, it must not be dependent on any particular individual or group of individuals at DAS.

Nor must it be cost prohibitive in terms of resources. Resources may include short- and long-term commitments of time, money, human capital, equipment, materials, and facilities. Nevertheless, some degree of financial outlay is likely because the IB program is expensive in terms of time, money, and labor. Any organization seeking to adopt the IB must be willing to

bear the overhead and direct costs associated with the program, including extensive mandatory professional development.

Additional factors to consider are the time horizon and preconditions necessary to recreate the key validated assets from this study in another context. Time horizon refers to the relative speed with which an organization could theoretically implement policies, processes and procedures, allocate resources, or realign organizational culture to transfer this study's key validated assets. "Short" indicates that action could be taken immediately to promote transferability. "Medium" means that transferability of an asset is possible but likely to take some time because it may involve a realignment of organizational cultural settings or require that other preconditions be met first. "Long" means that an organization would need to address deep-seated cultural models; transferability would be difficult or unlikely because of substantial differences in organizational culture and context. Adapting Gallimore and Goldenberg's (2001) classifications, recreation of most "long" time horizon assets in another organization may require changes in that organization's operant *cultural models*; "short" and "medium" time horizon assets are more likely to address an organization's *cultural settings*. Transferable assets related to the cultural setting of a school's expectations, accountability mechanisms, and support for teachers may provide the foundation upon which to cultivate additional assets related to teachers' attitudes, behaviors and expertise; these may in turn signal a shift in the school's cultural models. Therefore, the validated assets requiring a longer time horizon identified in this study are less likely to be transferable to other academic institutions unless the requisite organizational expectations, accountability mechanisms, and support for teachers are put into place.

### Potentially Transferable Assets

As summarized in Table 9, validated assets that are potentially transferable to other academic institutions exist in several categories: organizational expectations and accountability mechanisms; organizational support; values alignment; teacher expertise; and positive, adaptive teacher attitudes and behaviors. A discussion of each category of validated assets follows Table 9, along with suggestions as to how these validated assets might be transferred to other contexts.

According to the criteria listed earlier in this chapter, one of the validated assets related organizational expectations and accountability mechanisms, seven of the validated assets related to organizational support for teachers, and one of the validated assets related to teacher expertise have the potential to be directly transferable on a short time horizon. Interview data from DAS suggest that the remaining potentially transferable validated assets listed in Table 9 which would require medium or long time horizons emerged in part from the school's organizational policies, processes and procedures, resource allocation, and cultural setting. As a result, they may be less immediately transferable to other school contexts unless developed from other transferable assets.

Table 9

#### *Potentially Transferable Key Validated Assets*

Category	Validated Asset	Time Horizon
<i>Organization/Culture: Organizational Expectations and Accountability Mechanisms</i>		
Culture	Teachers belong to a school culture that expects teachers to develop students' critical thinking skills in accordance with IB program requirements.	Medium
Policies, Processes, and Procedures	Teachers have a system of structured, consistent professional evaluation that supports critical thinking teaching methods and curriculum design.	Short



Table 9, continued

Category	Validated Asset	Time Horizon
<i>Organization/Culture: Organizational Support for Teachers</i>		
Resources / Culture	Teachers work in an environment that supports their continued learning, including the provision of professional development related to critical thinking and the IB.	Short
Policies, Processes, and Procedures	Teachers have an organized, structured process for how to participate in creating the new IB curriculum and for providing input.	Short
Culture	Teachers have heard and understand why the leadership of DAS decided to adopt the IB program.	Short
Culture	Teachers have heard and understand how the IB program relates to the school's prior models and methods of teaching.	Short
Resources	Teachers have a school environment that visually reinforces the tenets of the IB relating to global mindedness and critical thinking.	Short
Policies, Processes, and Procedures / Culture	Male and female teachers have a structured system for collaboration to develop and implement the IB curriculum as one school.	Short
<i>Motivation: Values Alignment</i>		
Intrinsic Task Value	Teachers value the development of students' critical thinking skills.	Medium
Intrinsic Task Value	Teachers consider the IB curriculum in literature, Islamic studies, and social studies worthwhile to adopt.	Medium
Intrinsic Task Value	Teachers value the IB's emphasis on global mindedness as it relates to literature, Islamic studies, and social studies education.	Medium
Intrinsic Task Value and Mood	Teachers feel positive about, and comfortable with, applying IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills.	Medium

Table 9, continued

Category	Validated Asset	Time Horizon
<i>Motivation: Values Alignment</i>		
Self-Efficacy	Teachers have confidence that they can apply IB curriculum standards and instructional methods in the revision and creation of curriculum to improve students' critical thinking skills.	Medium
Intrinsic Task Value / Mastery Orientation	Teachers value learning and seek out opportunities for professional development about best practices in teaching and learning beyond what DAS requires.	Long
<i>Knowledge: Teacher Expertise</i>		
Factual Knowledge	Teachers know the Saudi Education Ministry policies and standards regarding literature, Islamic studies, and social studies instruction and curriculum.	Medium
Conceptual and Metacognitive Knowledge	Teachers can apply their own understanding of Saudi cultural norms to decide what types of class lesson content would be acceptable in teaching critical thinking skills.	Medium / Long
Conceptual Knowledge	Teachers understand what critical thinking is, and the relationship between critical thinking and academic achievement in literature, Islamic studies, and social studies disciplines.	Medium
Factual and Conceptual Knowledge	Teachers understand how critical thinking is reflected in the goals and standards of the IB program.	Medium
Procedural Knowledge	PYP teachers possess experiential knowledge about IB implementation that can be shared with MYP teachers.	Short

**Organizational expectations and accountability mechanisms.** At DAS, school administrators have designed and implemented a set of policies, procedures, and processes that work in concert to provide teachers with a clear set of expectations regarding their behavior as employees and education professionals. Those expectations are aligned with and reinforced through articulated and enforced accountability measures. Doing so promotes an organizational

culture “in which individuals’ work is shaped by collective expectations, values, and commitments” (Elmore, 2005, p. 136). DAS’ foundational document in this regard is the PCPL. The PCPL contains a set of articulated criteria for teaching excellence, as well as guidelines for how teachers must demonstrate progress toward meeting those criteria. These criteria include proficiency in inquiry-based and other types of critical thinking instruction, and consistent participation in professional development. The PCPL holds teachers accountable by linking compensation to meeting year-on-year benchmarks. Because the PCPL is a complete package, the initial time horizon for transfer to another school could be short; however, more time would be needed to acclimate all faculty to the system and achieve buy-in. In addition, any schools considering adopting DAS’ model would need to review the specific teaching standards and professional development programs embedded in the PCPL to determine whether they meet the schools’ organizational needs. It is worth noting that DAS enacted the PCPL before its decision to adopt the IB program; therefore, the PCPL model might also be adapted by schools in Saudi Arabia who are not interested in moving to the IB. The value of the PCPL, according to DAS senior leaders, is that it seeks to remedy two significant challenges for schools in Saudi Arabia and the Arab world more generally: (a) a deficit of qualified teachers who are knowledgeable about current best practices in teaching and learning, and (b) minimal cultural expectations for professional accountability.

As DAS’ experience indicates, firm and explicit expectations for teacher behavior, with consequences for non-compliance, are important when trying to modify faculty behavior and the school’s cultural setting, particularly in educational settings like Saudi Arabia where responsibility and accountability have not been synonymous (Alnahdi, 2014). The implementation of a school’s own version of DAS’ PCPL, along with the expectation that all

teachers participate and collaborate in the creation of new curriculum, should promote a school culture that expects teachers to develop students' globally minded critical thinking skills, including in accordance with IB curriculum and inquiry-based pedagogy requirements.

**Organizational support.** DAS' school culture expects teachers to participate in developing the new IB curriculum and to collaborate with their colleagues across divisions, with organizational support from administrators to make it happen. Depending on a school's preexisting culture, these policies might be met with some initial resistance. In particular, leaders at Saudi schools with boys' and girls' divisions who want to apply for IB authorization as one school should weigh the significant benefits of faculty communication and collaboration against the pushback they may experience from the community.

Cognizant of these concerns, DAS complements its high expectations for faculty with robust support measures designed to help teachers acclimate to its policies and standards, including the new curricular requirements of the IB program and those related to critical thinking. Financially, DAS allocates a significant portion of its budget to professional development. When preparation for the IB began, the school transferred some of its existing professional development programming hours to the IB; it also allocated additional money and faculty meeting/planning time for professional development hours in the school's revised academic schedule through expansion of the school's PLCs. Although some DAS teachers stated during interviews that they did not believe the school's PLCs were achieving their full potential yet, PLCs have yielded positive results in a variety of school settings (McLaughlin & Talbert, 2006; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006; Stoll & Louis, 2007). PLCs are based on the principle that learning is inherently social as well as individual (Lieberman & Pointer Mace, 2008). Assuming sufficient resources, other schools could implement these

actions in a short time horizon. However, DAS' commitment of additional time and money may not be feasible for all schools considering a move to the IB program, given the substantial expenses already inherent in application for IB authorization. Nevertheless, DAS' strong organizational support for teachers' professional growth has been key in smoothing the school's transition to the IB. Such support also visibly underscores the school's commitment to promoting an organizational culture of continuous learning (Sessa & London, 2006). While teachers know they will be held accountable for improving students' critical thinking skills, they also know that the school will provide professional training in how to do it. Teachers' confidence in the school's institutional support system has therefore helped assuage fears about the transition to the IB.

DAS teachers also benefit from a school environment in which they are able to participate in the development of the new IB curriculum and to provide feedback. This key asset relates to, and supports, the asset of a cultural setting that values teachers' contributions to building the new curriculum, and in which teachers feel their contributions are recognized. These assets may be transferable to other school contexts if administrators enact policies, processes, and procedures that permit teachers to provide input into, and thereby gain a sense of ownership over, the curriculum they are tasked with teaching (Carl, 2009). Creating the organizational structures within a school to include faculty in curriculum development may occur in a short time horizon. However, teachers may view the chance to work on new curriculum as a burden rather than an opportunity if administrators do not express appreciation for teachers' contributions through concrete actions. School leaders must therefore build a cultural setting within the school where teachers believe that they are recognized, well prepared, and trusted as professionals (i.e. the teachers' cultural models) (Tschannen-Moran, 2009). Schools considering

the applicability of the DAS model to their own contexts should be prepared to address this medium time-horizon aspect of organizational culture as well.

**Values alignment.** Although the process of aligning institutional and stakeholder values can be difficult and lengthy, there are steps that schools can take to either begin or accelerate that alignment (Branson, 2008; Burnes & Jackson, 2011). Most importantly, as DAS's experience suggests, school leaders must clearly explain the rationale for making change. Teachers at DAS have heard and can articulate why DAS is moving to the IB, including the benefits for students' critical thinking and global mindedness. In addition, the intrinsic value that DAS teachers place on critical thinking instruction also extends to those aspects of the IB program that support critical thinking. Most teachers understand how the prior teaching models and methods used at the school relate to those in the IB program. While some awareness may have resulted from teachers' own reflective thinking, school leaders at DAS have also made the effort to address these topics directly with faculty. Effective communication has improved teachers' understanding and assimilation of the school's messaging regarding the alignment of its preexisting values with those of the IB. Those values are reinforced at different levels through all-school professional development sessions in the summer and throughout the academic year, weekly PLC meetings, and individual meetings between teachers and academic supervisors. They are also visible in school documents such as DAS' mission statement and targeted learner characteristics, which are posted throughout the campus and in official materials like the PCPL.

In order to transfer these assets to a new organization, school leaders should work to instill those values through professional development training and intentional communication with teachers about the benefits of the IB program. School leaders should develop a comprehensive communications plan to explain the benefits of the IB program to that particular

school's population. The communications plan could be implemented along a short time horizon. Leaders should also find ways to communicate any points of concordance between the school's existing curriculum and pedagogy and those of the IB. As the DAS experience demonstrates, while doing so does not guarantee that teachers will be receptive or see value in the new program, it may increase the likelihood.

**Teacher expertise.** As described elsewhere in this study, school leaders at DAS decided to phase in implementation of the IB program sequentially according to grade levels. This model is directly transferable to other schools wishing to adopt more than one IB program. Instead of trying to adopt the PYP, MYP, and DP all at once, DAS began with the PYP program and then followed with the MYP several years later. This policy not only avoided overwhelming the teachers and staff, but it also created a reservoir of experiential knowledge among PYP teachers as to best practices and pitfalls in IB implementation, especially with regard to inquiry-based pedagogy. Although not all PYP teaching practices and curriculum design elements are applicable to the MYP (Hallinger, Lee, & Walker, 2011), many are. Other schools should consider borrowing DAS' IB implementation schedule on a short time horizon, thereby developing teachers in one IB program who can serve as resources for other teachers with little additional cost beyond the expenses already borne by the school to obtain IB authorization.

The key to creating shared teacher expertise in critical thinking instruction is extensive professional training coupled with accountability measures to incentivize teacher learning. If a school does not already have faculty members who are knowledgeable about best practices in critical thinking instruction, this should be embedded in the school's PCPL. Such training is likely to require several years and a substantial financial outlay. For expatriate teachers in Saudi schools, the transferability of cultural awareness regarding Saudi cultural norms as they pertain

to critical thinking instruction is also challenging, though not impossible (Alghamdi, 2014). In this case, school administrators would need to assess every teacher's comfort with, and knowledge of, the school's particular cultural context. Administrators would then have to provide cultural awareness training and personal support. However, implementing this kind of training risks offending other school stakeholders as well as the teachers themselves if done poorly. At DAS, most teachers reported that they achieved an understanding of Saudi cultural norms through time and lived experience. Successful transfer of this asset requires that teachers develop subtle forms of conceptual and metacognitive understanding, necessitating a longer time horizon to achieve.

**Positive, adaptive teacher attitudes and behaviors.** DAS teachers possess several positive motivation assets that relate to the professional training, organizational values, and working conditions they have experienced at DAS. These assets include the desire for continuous professional development training and feelings of comfort and self-efficacy regarding curriculum development for the IB. These assets potentially could be transferred between school contexts to the extent that DAS' model of professional training, organizational values, and working conditions were also transferable to that school. However, teachers' positive attitudes and behaviors could also reflect other factors intrinsic to the teachers themselves or to the school culture at DAS. Determining the root cause of such positive teacher attitudes and behaviors at DAS lies outside the scope of this study.

### **Ongoing Needs at DAS and Proposed Solutions to Address Ongoing Needs**

This chapter has already enumerated a number of potentially transferable assets related to the ways in which DAS has laid the foundations for successful implementation of the IB curriculum in the MYP, specifically with regard to the development of students' globally minded



critical thinking skills in humanities and social studies classes. However, IB implementation at DAS is still a work in progress. There remain several continuing needs, as discussed in Chapter Four, that if given additional attention should improve the depth and consistency with which humanities and social studies teachers develop students' globally minded critical thinking skills through the new IB program while remaining respectful of existing Saudi cultural norms. Table 10 summarizes the most significant continuing needs for DAS, which were determined based upon assumed assets that were not validated or only partially validated. This section of Chapter Five also proposes several actions, or "solutions," that DAS might take to address the identified ongoing needs. Resolution of ongoing needs would convert needs to assets—assets that might then be potentially transferable to other contexts.

Three main solutions are outlined that together address all of the identified ongoing needs. All recommended solutions are grounded in relevant scholarly literature. These solutions include (a) continued and enhanced teacher communication and collaboration across divisions and grade levels; (b) more intensive academic discipline-specific professional development in critical thinking pedagogy and curriculum design for the IB; and (3) intentional professional training in teaching for critical thinking transfer. Table 10 links each proposed solution to the ongoing needs (and non-validated or partially validated assets) it addresses. Discussion of each proposed solution also includes an action plan to implement that solution. Following the three solutions is an evaluation plan to guide school administrators in assessing the solutions' efficacy and impact.

Table 10

*Ongoing Needs and Recommended Solutions*

Ongoing Need	Non-Validated/Partially Validated Asset(s) Related to Ongoing Need	Recommended Solution to Address Ongoing Need
Administrators have increased the amount of time scheduled for faculty planning and collaboration, but many teachers still do not find it sufficient.	Teachers have work time set aside to develop the new literature, Islamic studies and social studies curriculum. ( <i>Resources</i> )	Continued and Enhanced Teacher Collaboration
One-quarter of teachers believe that the new IB curriculum will conflict with Saudi values.	Teachers feel comfortable that the IB program as implemented at DAS, including global mindedness, does not conflict with traditional Saudi values and cultural norms. ( <i>Mood</i> )	Continued and Enhanced Teacher Collaboration
Some teachers are uncomfortable with the open-endedness, ambiguity, vulnerability, and “loss of teacher control” potentially inherent in the inquiry method, seeing it as atypical for Saudi culture.	Teachers feel comfortable that the IB program as implemented at DAS, including global mindedness, does not conflict with traditional Saudi values and cultural norms. ( <i>Mood</i> )	Continued and Enhanced Teacher Collaboration
A substantial minority of teachers pointed out barriers hindering DAS students from reaching their full potential as critical thinkers, including student inertia, fear of change, and desire for the “right answer.”	Teachers believe that DAS students are capable of the critical thinking skills needed for academic success in the IB program. ( <i>Expectancy Outcome</i> )	Continued and Enhanced Teacher Collaboration

Table 10, continued

Ongoing Need	Non-Validated/Partially Validated Asset(s) Related to Ongoing Need	Recommended Solution to Address Ongoing Need
Not all teachers have a consistent understanding of what “inquiry” entails for their academic discipline.	Teachers are knowledgeable about best practices in teaching critical thinking skills and can identify whether and how they are already incorporating critical thinking skills into the existing literature, Islamic studies, and social studies curriculum. ( <i>Conceptual and Metacognitive Knowledge</i> )	Continued and Enhanced Teacher Collaboration; Academic Discipline-Specific Professional Development Training
Academic supervisors and teachers find it difficult to mesh IB standards with DAS’ existing subject-area content standards in revising and building new curriculum.	Teachers know how to revise existing lesson plans and create new curricular units to meet IB critical thinking curriculum and instructional standards for the literature, Islamic studies, and social studies curriculum. ( <i>Conceptual and Procedural Knowledge</i> )	Academic Discipline-Specific Professional Development Training
Most teachers would like additional professional development in how to create new discipline-specific curricular units for the IB.	Teachers know how to revise existing lesson plans and create new curricular units to meet IB critical thinking curriculum and instructional standards for the literature, Islamic studies, and social studies curriculum. ( <i>Conceptual and Procedural Knowledge</i> )	Academic Discipline-Specific Professional Development Training
Teachers view analysis, connection and application of concepts across units and between academic disciplines as particularly challenging for DAS students.	Teachers can identify current weaknesses in students’ critical thinking skills. ( <i>Conceptual Knowledge</i> )	Training to Teach for Critical Thinking Transfer

Table 10, continued

Ongoing Need	Non-Validated/Partially Validated Asset(s) Related to Ongoing Need	Recommended Solution to Address Ongoing Need
Teachers lack knowledge about how to intentionally teach for critical thinking transfer across subjects beyond their own.	Teachers are knowledgeable about best practices in teaching critical thinking skills and can identify whether and how they are already incorporating critical thinking skills into the existing literature, Islamic studies, and social studies curriculum. ( <i>Conceptual and Metacognitive Knowledge</i> )	Training to Teach for Critical Thinking Transfer

### **Solution 1: Continued and Enhanced Teacher Collaboration**

#### **Rationale**

Because DAS has applied for IB accreditation as one school, the school's program must be consistent and equivalent across the boys' and girls' divisions. Active communication and collaboration among faculty colleagues is necessary for the school to achieve this goal. As noted earlier, in part because of gender segregation, divergences had emerged between the academic programs in the boys' and girls' sides in terms of teaching methods, course expectations and academic outcomes. Although interviews and classroom observations revealed sustained attention to critical thinking in both boys' and girls' classrooms, inconsistencies nevertheless existed even among teachers who had officially attained the same proficiency level in the school's PCPL.

Despite some initial resistance from teachers, in 2016 DAS leaders began requiring all faculty members, male and female, to communicate with each other to plan curriculum and to participate in schoolwide professional development. Teachers are members of departmental PLCs as well as grade-level teaching teams. As discussed earlier in this chapter, on the whole

this policy has been successful. However, barriers to effective communication and collaboration continue to exist. One factor is gender stereotyping regarding personal attributes such as communication style, work ethic, and risk aversion. Another factor is the difference in teaching environment between divisions, such as inconsistent scheduling and class size. Classes in the boys' division are larger than in the girls' division, and the number of class meetings per semester is not always the same. According to several DAS teachers, this makes coordination and standardization of assignments and assessments difficult. A third factor is the amount of time set aside in the school schedule for collaboration and course planning. According to Lohman (2000), time constraints often inhibit teachers from engaging in the type of informal learning that professional collaboration fosters. Despite the additional planning time that school administrators included in the schedule for IB implementation, surveys, interviews, and observations of professional development meetings revealed that teachers want even more joint planning time and opportunities to learn from their colleagues. A fourth factor is logistical; in a mostly gender-segregated society, obstacles exist in Saudi Arabia to the kinds of routine, day-to-day teacher interactions that characterize non-gender-segregated work environments. Those interactions can lead to informal collaboration and learning (Lohman, 2006). Therefore, opportunities at DAS for communication, coordination, and sharing of best practices between colleagues must be intentional, planned, and monitored.

The need for greater consistency among teachers also extends to other areas of teaching practice related to Saudi culture. For example, despite general enthusiasm for the new IB curriculum and its emphasis on inquiry-based pedagogy, a quarter of humanities and social studies teachers at DAS worried that the new IB curriculum might challenge traditional Saudi values. As discussed in Chapter Four, teachers with more experience living and working in

Saudi Arabia were also generally the ones who felt the most comfortable with the cultural orientation of the IB; therefore, opportunities for teachers to share their expertise in navigating cultural concerns among DAS' multinational faculty should be more intentionally and consistently leveraged.

Similarly, a number of teachers expressed discomfort, in the context of Saudi culture, with the ambiguity and “messiness” of inquiry as a method to teach critical thinking skills. Other teachers questioned whether DAS students could reach their full potential as critical thinkers due to issues in Saudi society such as student inertia, fear of change, and desire for the “right answer.” This is analogous to the desire for “good grades” that other research has determined may inhibit student learning (Delasandro, 2016) and the concerns expressed by instructional leaders at some IB schools in East Asia about a lack of congruence between the IB's philosophy and local cultural norms (Lee, Hallinger, & Walker, 2012b). While these DAS teachers represent a minority within the faculty as a whole, their opinions and actions nevertheless have the potential to affect the school's IB implementation and the efficacy of critical thinking instruction. At the same time, interviews revealed that a cohort exists at DAS of humanities and social teachers with a positive, “growth mindset” (Dweck, 2006) who are eager to experiment with and share best practices in IBL with their colleagues; these teachers are more comfortable with the “messiness” of inquiry in the context of Saudi teaching culture. A study of PYP adoption at an international school in Turkey found that open-mindedness, enthusiasm, flexibility, and eagerness to learn were characteristics displayed by teachers who most fully embraced inquiry-based teaching. Such teachers in turn helped to foster a “culture of inquiry” among their colleagues to enhance the professional community (Twigg, 2010). At DAS, “growth mindset” teachers might also serve as a resource in terms of professional ideas and

moral support for their less confident or optimistic departmental colleagues. Teacher mindset affects not just student performance but also teacher learning and desire to engage in professional development and instructional coaching (Abboud, 2017; Gero, 2013; Stenzel, 2015; Ugol, 2015). Shifts in mindset may also affect deep-seated cultural perceptions regarding the characteristics attributed to groups of people, not just to individuals, including in Middle Eastern contexts (Halperin, Russell, Trzesniewski, Gross, & Dweck, 2011).

### **Implementation Plan**

**Strategy and action steps.** To address these concerns, DAS should increase the existing opportunities for male and female teachers to communicate for course planning and professional development. As male and female teachers become more used to working together, some of the issues identified by teachers as impeding productive collaboration, such as communication style, work ethic, and risk aversion, may start to be viewed as individual attributes that can be addressed through conversation rather than fixed, stereotypical gender characteristics. Moreover, additional time for professional development and collaboration would permit teachers to share best practices with and across divisions regarding critical thinking instruction and cultivate a more consistent growth mindset. This method, where teacher learning occurs constantly throughout the day through collaboration and experimentation, shares similarities with Ball and Cohen's "pedagogy of professional development" (1999). Teachers would also have more time to informally but intentionally discuss issues of school and national culture that might affect perceptions and practices in the classroom.

Finally, additional time for course planning and collaboration should provide teachers with more space in their schedules to conceptualize entire units, from learning objectives through summative and formative assessments, using consistent teaching methods, resources, and

allocated time. According to Stobie (2007), implementation of the IB program requires considerable “teacher creative professionalism” that is best cultivated in a school environment that “allows teachers time to plan and develop the curriculum individually and collectively” (p. 149). While there is not, and will not be, an expectation that teachers use exactly the same texts in the boys’ and girls’ sides, the teachers can agree upon the main IB themes and learning objectives to emphasize in each unit and the types of assessments they will use in order to prepare students to meet external IB standards. Teachers should also make use of technology like the school’s T-Walker robot to remotely listen to classes in the other division.

Academic supervisors from the boys’ and girls’ sides for social studies, English, Arabic, and Islamic studies would need to decide how best to allocate the additional time and follow up with their faculty to ensure that collaboration is occurring and is productive. The male and female supervisors from the same academic discipline would also need to monitor communications and serve as mediators, should conflicts arise. They will need to remain in contact to ensure that the curriculum and teaching plans created by their respective teaching staffs are aligned and consistent.

**Resource requirements.** DAS has already reconfigured its daily schedule to include more time for faculty planning and professional development. Teachers currently participate in weekly grade-level and department meetings. They also attend professional development sessions one afternoon per week. Nevertheless, even more time is needed, particularly with regard to the development and refinement of new IB curriculum modules. This study recommends a minimum of one additional hour per week dedicated to collaboration, which might require lengthening the school day or hiring additional faculty.



**Timeline (1-3 years).** DAS should begin to require additional meeting times once every two weeks for the first semester of academic year 2018-2019, and once per week during the second semester. At the end of the year, the school's academic leadership team should evaluate the degree to which the extra planning time was used effectively by faculty and whether additional planning time should be allocated during the next academic year.

**Constraints and challenges.** The principal constraints affecting implementation of this proposal include resistance from teachers and the financial burden it may impose on the school. Interview and survey data suggest that some humanities and social studies teachers at DAS feel overwhelmed by the pace of change in the school's programs. While the school's ethos of continuous improvement and strong expectations regarding professional development have helped faculty members to transition to the new IB program, some teachers are concerned that they cannot keep up. Moreover, asking teachers to spend more time at work may be an unpopular decision. Financially, although DAS is a well-resourced school, it relies on tuition to fund operations and is currently prohibited by the Saudi government from raising tuition fees. The school will not be able to revisit its tuition costs without government permission. Even then, parents might be unwilling to pay a substantial increase in tuition should the school decide it needs to hire more teachers or lengthen the school day. Otherwise, any fiscal impact from this proposal would need to be offset by cuts to existing programs.

The most important challenge to male-female collaboration at DAS, the social taboo regarding gender interaction, is evolving due to policy changes occurring at the Saudi national government level. In late 2017—early 2018, King Abdullah and Crown Prince Mohammad Bin Salman began to relax enforcement of some gender-based rules regarding behavior and personal autonomy. These rules included prohibitions on women driving, attending sporting events,

traveling, and working without the approval of a male guardian. As women and men mix more frequently in the public sphere in Saudi Arabia, DAS teacher and administrator concerns about male-female collaboration may diminish over time. However, at this point school administrators must remain sensitive to societal norms when considering how they promote teacher collaboration.

### **Solution 2: Academic Discipline-Specific Professional Development Training**

#### **Rationale**

DAS has already provided extensive professional development on the general requirements of the IB program, and survey and interview results confirm that most teachers understand how the IB and DAS' philosophies align. However, both teachers and academic supervisors identified the need for additional discipline-specific IB training, particularly with respect to curriculum design to emphasize IBL and critical thinking skills. Consistency and coherency in curriculum requires not just philosophical alignment between general aims and objectives, but also systematically implemented syllabi and learning activities that reflect and reinforce those aims and objectives (Stobie, 2007). This study found that some teachers are unsure about how to translate the general principles of the IB program into concrete lesson plans and assessments in their subject area. Moreover, sample lessons provided to teachers mostly came from science or English classes, omitting Arabic, social studies, and Islamic studies. This problem is exacerbated by the lack of published pedagogy and lesson planning materials in Arabic. In particular, teachers stated that they needed help with strategies to teach critical thinking through texts in both English and Arabic.

While increased teacher collaboration should provide additional opportunities for faculty members to learn from each other and share their existing expertise (see Solution 1), more

discipline-specific professional development training is also needed so that theory and practice are integrated. According to Timperley (2008), such integration “allows teachers to use their theoretical understandings as the basis for making ongoing, principled decisions about practice” (p. 11). Moreover, teachers, like students, need repeated opportunities to absorb, use and revisit new information before it is fully absorbed into their practice. To improve student outcomes in areas as complex and substantive as critical thinking, teachers typically need one to two years “to understand how existing beliefs and practices are different from those being promoted, to build the required pedagogical content knowledge, and to change practice” (Timperley, 2008, p. 15).

### **Implementation Plan**

**Strategy and action steps.** This study recommends that DAS provide academic supervisors and teachers with the resources to research, acquire, and/or develop additional IB training materials and lesson plans germane to their subject areas, with an emphasis on critical thinking and IBL. These materials could then be used to train other teachers, providing guidance as to how to prepare class content that would be culturally appropriate, academically rigorous, and consistent with IB goals and methods. A strong focus should be on how to align general IB curricular standards with the school’s preexisting subject-area content standards (i.e. Common Core, AERO) because teachers find it difficult to do so when revising and building new curriculum. Although many PYP teachers and academic supervisors at DAS have found the process of “unwrapping the standards” to be helpful, it is time consuming and not all teachers believe it is the best use of PLC meeting time. Unfortunately, most national standards alignment projects have focused on the DP, not the MYP (Conley & Ward, 2009; Faas & Friesenhahn, 2014). Therefore, the school may want to consider hiring an outside curriculum development consultant to assist with this process for MYP implementation.

Supervisors and teachers should also visit additional IB schools in the Middle East/North Africa Region to observe classes and meet with their counterparts specifically to discuss best practices in their subject areas. This strategy is particularly important for Islamic studies teachers because the IBO does not publish curriculum guides for religious studies. Finally, teachers should have the opportunity to attend international IB conferences and regional trainings. Alternatively, teacher trainers from specific academic disciplines should provide workshops and small-group trainings for academic department members. Interview data suggested that many teachers disliked receiving training “second hand” from DAS academic supervisors and senior administrators. Any teachers who attend outside conferences or trainings sessions should be required to present what they learned to their departmental colleagues. Electronic conferencing technology also should be used so that both men and women may benefit from their colleagues’ newfound expertise. This point is important because some families in Saudi Arabia may be more reluctant to allow females to travel away from home to attend professional development sessions. Finally, Dar al-Kitab, DAS’ in-house publishing arm, should prioritize the translation of IB discipline-specific materials from English into Arabic. The school might also consider developing teacher training materials directly in Arabic rather than translating other works, because of concerns expressed by some teachers that all translations might not be complete or accurate.

**Resource requirements.** This plan requires that DAS expend substantial time and financial resources. Travel costs for teachers and academic supervisors need to be budgeted for, as well as the cost of substitute teachers. In addition, it is time consuming for faculty to develop new discipline-specific curriculum. Purchasing published IB materials is relatively expensive and much of it is not available in Arabic. Therefore, the school would need to allocate resources

to pay for the services of its in-house translator. DAS may instead wish to have its in-house publishing wing translate and disseminate these materials. It may also choose to pay for a curriculum consultant to help with standards alignment between the IB and the school's existing content standards.

**Timeline (3 years).** The timeline for the development and implementation of the new IB curriculum in the MYP (grades 6-10) is three years. DAS began transitioning to the IB MYP curriculum in 2017-2018; full implementation is expected in 2018-2019, with refinements occurring in 2019-2020. The school expects to receive authorization from IB for the MYP in 2019-2020. Given the timetable for IB implementation, DAS administrators should concentrate professional development efforts regarding critical thinking on MYP teachers first. Should the school decide to implement the DP (grades 11-12), preliminary implementation would likely begin in 2019-2020, with full implementation and authorization in 2021. Thus, discipline-specific training for faculty should begin immediately and continue throughout the initial implementation and refinement process.

**Constraints and challenges.** The principal constraints affecting this proposed solution are financial. DAS has already spent a great deal of money and invested a large amount of faculty time on IB-related professional development. It would need to budget for additional time and money in order to send faculty to training programs or to bring in subject-area trainers, and to provide teachers with time to work on subject-specific training and classroom materials for their colleagues. At present, the school is prohibited from raising tuition by the Saudi government. This proposal may also meet with skepticism by some senior academic leaders at the school, who are sensitive regarding recent complaints by a few faculty members about the usefulness of prior IB trainings. It would be necessary to achieve buy-in from them first.

### Solution 3: Training to Teach for Critical Thinking Transfer

#### Rationale

Many humanities and social studies teachers at DAS consider themselves knowledgeable about the general meaning of critical thinking. They also understand how the development of students' critical thinking skills ought to improve learning outcomes in their own classes. However, teachers are less knowledgeable about how they might increase students' ability to translate general critical thinking strategies and tactics *between* academic disciplines and *within* the scope and sequence of their own academic subject (e.g. between grade levels and between IB programs). Understanding how to intentionally teach for transfer is important both to strengthen students' critical thinking and metacognitive skills and to improve the likelihood that the interdisciplinary units required in the MYP will be successfully implemented. One purpose of the MYP's interdisciplinary unit of inquiry is to help students connect their learning across disciplines, not just in terms of concepts but also in terms of cognitive skills (Daly, Brown, & McGowan, 2012).

Many researchers posit that the key to transferability lies in whether students are consciously and intentionally taught how to transfer critical thinking skills, not whether students are simply afforded multiple opportunities in different classes to practice the same thinking skills (Halpern, 1998). According to Perkins (1987), there are three stages of critical thinking development: acquisition, automaticity, and transfer. Acquisition occurs within subject area instruction. However, automaticity and transfer only develop when a "frame" is *intentionally* introduced from one learning context to another, or else when students discover a similarity between old and new phenomena and then figure out how apply the "frame" to make meaning. Perkins (1987) therefore sees *intentional* instruction in critical thinking transfer as necessary to

achieve automaticity and transfer across domains. Even in IBL, direct teacher intervention is usually necessary to help students make connections.

Those connections must then be intentionally reinforced from year to year. One challenge to teaching for critical thinking transfer at DAS is a lack of congruence and teacher communication between IB programs. Continuity between IB programs has been identified as a challenge for schools around the globe offering more than one IB program and may negatively affect students' ability to transfer critical thinking skills (Hallinger, Lee, & Walker, 2011; Lee, Hallinger, & Walker, 2012b). In fact, many school leaders in the Asia Pacific region have called for additional published resources from the IBO to address issues of curricular coherence and consistency (Lee et al., 2012b). Partly in response to such criticism, as well as to clarify and promote the MYP's focus on interdisciplinary, conceptual, and global minded learning, the IBO revised and issued a new curricular framework in 2014 (Harrison, 2015).

### **Implementation Plan**

**Strategy and action steps.** It is recommended that DAS' senior leadership provide additional professional development training for teachers in how to intentionally teach for critical thinking transfer. Academic supervisors may also benefit from this training. DAS should investigate resources that are available through the IBO network. They may also wish to offer a non-domain specific critical thinking skills assessment to faculty, such as the Cornell Critical Thinking Test, so that teachers can personally experience and reflect on the types of critical thinking challenges that students face when cognitive tasks are not embedded in a particular academic subject area. As discussed in Chapter Two, many researchers recommend an "infusion" method in which critical thinking skills are consciously taught within a subject course, or a "mixed" approach in which infusion is paired with additional generalized critical thinking

instruction. Researchers also recommend real-life application of learning to promote transferability (Kennedy et al., 1991/2013), which is an important aspect of the MYP's criteria for every interdisciplinary unit of inquiry.

DAS should make use of its in-house publishing arm, Dar al-Kitab, to translate articles and other resources on teaching for critical thinking transfer into Arabic so that they can be shared with teachers. Senior academic directors also should work with academic supervisors to create training materials for the school's weekly professional development time on Tuesday afternoons. Special sessions might also occur during the school's month of professional development in summer. Although meetings of academic supervisors across academic subjects occur at DAS, structured planning time for interdisciplinary collaboration among MYP teachers should be prioritized and implemented.

In addition, academic supervisors should arrange joint meetings between PYP and MYP teachers so that PYP teachers, having already gone through the process of curriculum development, can share their experiences. Every unit in the PYP must be intentionally "transdisciplinary" according to IB principles and practices. Moreover, such meetings might promote better continuity in curricular alignment between the PYP and MYP programs, which Stobie (2007) defines as consistency and coherence between age-specific levels of a school's curriculum. Lee, Hallinger and Walker (2012a) recommend backward curricular mapping to address articulation issues between IB programs. They also recommend cross-program activities (such as co-teaching and other forms of professional cooperation) to engage faculty in learning more about the full IB continuum and to improve distributive instructional leadership across the school.



**Resource requirements.** As with the other solutions proposed in this chapter, the principal resources needed are money and time. DAS will need to dedicate professional development hours for faculty and work time for academic administrators and supervisors. It will also need to pay to translate training materials into Arabic, and if necessary, acquire publishing rights.

**Timeline (3 years).** During the first year of implementation (2018-2019), senior academic leaders should research best practices in teaching for critical thinking transfer and train academic supervisors. MYP and PYP teachers should meet to discuss transition issues between programs in order to determine points of congruence and places where more intentional curricular connections could be made to promote critical thinking transfer. During the second year of implementation (2019-2020), academic supervisors and academic directors should train teachers during faculty professional development workshops in the summer pre-service sessions and during weekly professional development meetings over the course of the school year. Dar al-Kitab should translate materials into Arabic. Faculty members who have been selected to develop the first MYP interdisciplinary units of inquiry for each grade level should receive early training and create pilot lessons to be used as training materials for their colleagues. During the third year of implementation (2020-2021), faculty grade-level teams in the MYP would be required to collaborate to design and implement at least one interdisciplinary unit of inquiry. Teachers for grades 11 and 12 also should be encouraged to create sample lessons incorporating instructional methods to intentionally teach for critical thinking transfer.

**Constraints and challenges.** As with the other recommendations for professional development in this chapter, the chief constraints are financial. Moreover, secondary school teachers who see themselves as academic subject area specialists may be skeptical about the need

to promote curricular interdisciplinarity and critical thinking transfer. They may also lack confidence in this area.

### **Evaluation Plan**

This section outlines an evaluation plan to assess the efficacy of the three solutions proposed for DAS' ongoing needs. The evaluation plan is based on a model created by Kirkpatrick and Kirkpatrick (2007) and consists of four levels of evaluation: reaction, learning, behavior, and results (or impact). The *reaction* level gauges how participants (in this case, teachers) felt about the solution (e.g. intervention or training). Were they satisfied and engaged? The *learning* level measures the extent to which learning took place around a proposed solution, such as whether participants changed their attitudes or level of commitment, became more confident, gained knowledge, or improved their skills. These two levels may be assessed during the period of implementation. The next two levels, behavior and results, are typically assessed after the intervention is complete. The *behavior* level refers the extent to which learning leads to changes in behavior or practices – in other words, whether participants have changed their behavior or can apply their learning after the initial training. According to Kirkpatrick and Kirkpatrick (2007), organizations must create a climate conducive to behavioral change for it to occur. Otherwise, even well-designed interventions will not accomplish their objectives because participants will not persist in applying their new learning or attitudes. Finally, the fourth level, *results*, assesses the impact of the proposed solution, including the extent to which any outcomes were derived specifically from participation in the proposed solution and whether the outcomes aligned with the solution's originally stated goals.

Table 11 summarizes the evaluation plan steps for the three proposed solutions discussed earlier in this chapter. Each level is then described in more detail.

Table 11

*Evaluation Plan for Proposed Solutions*

Level	Solution 1: Continued and Enhanced Teacher Collaboration	Solution 2: Academic Discipline-Specific Professional Development	Solution 3: Training to Teach for Critical Thinking Transfer
<i>Reaction (Level 1)</i>	Monthly “smile sheets” about teachers’ experience with PLCs	Teacher survey to determine what kinds of discipline-specific IB training they need  “Smile sheet” questionnaires after every discipline-specific IB training	“Smile sheet” questionnaires after every PLC training on critical thinking transfer
<i>Learning (Level 2)</i>	Pre- and post-intervention surveys of faculty  Inclusion in the annual PCPL self-evaluation of teachers’ self-reflection about participation in creating the IB curriculum, collaborating, and assimilating feedback	Pre- and post-intervention teacher interviews  Written teacher feedback on sample unit materials from outside sources	Pre- and post-intervention teacher surveys  Teacher interviews about knowledge of best practices in teaching for transfer
<i>Behavior (Level 3)</i>	Class observations  Academic supervisor meetings with teachers to debrief lessons  Document review of completed units of inquiry  Faculty focus group meetings to discuss collaboration issues  Academic leadership meetings discuss areas and personnel of concern	Departmental focus groups to debrief and reflect on IB subject-area training  Grade-level teams create sample unit plans based on content from training, which are critiqued in department meetings  Online teacher survey about usefulness of subject-specific exemplars and training	Teacher focus groups to discuss best practices in teaching for critical thinking transfer  Teacher volunteers create model lesson plans based on content from training, which are critiqued in department meetings  Academic supervisors and directors review draft MYP interdisciplinary units

Table 11, continued

Level	Solution 1: Continued and Enhanced Teacher Collaboration	Solution 2: Academic Discipline-Specific Professional Development	Solution 3: Training to Teach for Critical Thinking Transfer
<i>Behavior (Level 3)</i>	Recognition of grade-level teams and academic departments		
<i>Impact (Level Four)</i>	<p>Consistency in application of critical thinking instructional methods, including inquiry, across divisions and academic departments</p> <p>Documentation of completed and implemented units of inquiry for MYP</p> <p>Visibly improved collegiality and trust within academic departments</p>	<p>Improved teacher confidence and competence in IB curricular unit design</p> <p>Documentary evidence that new IB curricular units also meet the school's existing subject area content standards</p>	<p>Improved teacher confidence and competence in principles of teaching for transfer and in designing curriculum to promote critical thinking transfer</p> <p>Documentary evidence that new IB interdisciplinary units also meet the school's existing subject area content standards</p>

### Reaction (Level 1)

**Solution 1: Continued and enhanced teacher collaboration.** In order to gauge teachers' satisfaction and engagement with the process of cross-divisional collaboration, academic supervisors should administer short monthly anonymous "smile sheet" questionnaires on paper to assess teachers' feelings about their PLCs. Questions might include: Did you find the PLCs useful this month? Do you think anything was accomplished? Was the PLC time used productively? Academic supervisors should use these questionnaires to guide planning for next month's PLCs.

**Solution 2: Academic discipline-specific professional development training.** DAS administrators should create, and the on-staff data researchers should administer, a survey of teachers to determine what kinds of discipline-specific IB training they think they need most. Academic supervisors should also be surveyed to determine whether they notice any discipline-specific gaps in teacher preparation, especially ones of which teachers may be unaware. Then, after each discipline-specific IB training, teachers should fill out a short questionnaire (smile sheet) to gauge teachers' immediate impressions of the training.

**Solution 3: Training to teach for critical thinking transfer.** To gain instant feedback regarding teachers' satisfaction and engagement with their professional training on critical thinking transfer, administrators should distribute "smile sheet" questionnaires after each PLC meeting.

### **Learning (Level 2)**

**Solution 1: Continued and enhanced teacher collaboration.** To determine teachers' feelings of commitment and confidence regarding collaboration and to ascertain any concerns, the school's in-house data researchers should administer an online survey of faculty. The survey should be administered before and after the intervention (i.e. when the additional PLC meetings are introduced and one year later). It should contain both Likert-scale and free-response items. In addition, teachers should be required, as part of their annual PCPL self-evaluation, to reflect on their participation in creating and implementing the IB curriculum, including their effort and effectiveness in collaborating with their colleagues and in assimilating feedback from their academic supervisors. Doing so will provide teachers with the opportunity to examine what they have learned about collaboration and communication over the course of the year.

**Solution 2: Academic discipline-specific professional development training.**

Administrators should conduct informal interviews with teachers before and after the discipline-specific IB training to learn whether teachers' confidence in their knowledge has increased as a result of the training. In addition, academic supervisors and academic directors should solicit and review teachers' feedback on sample unit materials that the school obtains. Supervisors should use the feedback to judge whether any growth is occurring in teachers' metacognitive and conceptual understanding of best practices in critical thinking pedagogy and curriculum design for their academic subjects.

**Solution 3: Training to teach for critical thinking transfer.** The school's data researchers should administer a survey of faculty and academic supervisors to gauge their confidence in teaching for critical thinking transfer. The survey would be filled out twice, before and after the professional development training. Academic directors should supplement the survey by interviewing teachers and academic supervisors regarding their level of understanding of best practices in teaching for transfer.

**Behavior (Level 3)**

**Solution 1: Continued and enhanced teacher collaboration.** To assess whether any behavioral changes have occurred and whether teachers are able to apply their learning, academic supervisors and academic directors from each division should observe classes. They should look for evidence of consistency in lesson planning and execution. The school's T-Walker robot should be utilized so that male supervisors and teachers can remotely "attend" classes in the girls' division and vice versa. Academic supervisors should then meet with individual teachers to debrief the lessons that were observed and provide constructive feedback.

In addition, the academic directors should review all completed units of inquiry created by the grade-level teaching teams.

Teachers should meet in focus groups to discuss issues relating to collaboration, which should then be brought to the attention of academic supervisors. Academic supervisors and senior administrators should also continue to meet frequently to discuss areas and personnel of concern. In addition, administrators should recognize and reward grade-level teams for effective, collegial collaboration. This recognition might occur during the annual SMART goal presentations. The departmental SMART goal presentations themselves should also be judged, in part, according to evidence of the department's positive teamwork while creating the presentation, not just on the presentation itself. Doing so would reinforce the value the school places on the process of collaboration.

**Solution 2: Academic discipline-specific professional development training.**

Academic departments should convene focus groups to debrief and reflect on how they might apply what they learned in their subject-specific training in the classroom, with aggregated feedback reported to the academic directors. Every grade-level team in each academic department should also demonstrate understanding by designing a sample unit of inquiry plan incorporating the specific content learned through the training. The sample units would then be critiqued in department meetings, with other grade-level teams offering suggestions for improvement. Finally, after teachers have had the opportunity to reflect on and work with the ideas and materials from the training, DAS data researchers should administer an online concluding survey asking teachers to comment on the usefulness of the curricular planning examples and training they received.

**Solution 3: Training to teach for critical thinking transfer.** To assess whether any behavioral changes have occurred, teachers should meet in focus groups to share their ideas for best practices in teaching for critical thinking transfer. In addition, a pilot group of teachers in each department should create a model lesson plan that is designed to intentionally promote critical thinking transfer. The remaining teachers in the department would then constructively evaluate the lesson to demonstrate their own understanding as well as to help their colleagues improve. Finally, academic supervisors and will directors review the draft MYP interdisciplinary units before they are implemented to check whether they incorporate best instructional practices for critical thinking transfer.

#### **Impact (Level 4)**

**Solution 1: Continued and enhanced teacher collaboration.** If the implementation plan is successful, there should be evidence of improved consistency in the application of critical thinking instructional methods, including inquiry, across divisions and academic departments. In addition, teachers should have produced documentation of completed and implemented units of inquiry, including lesson and assessment plans, for all MYP grades. Those units of inquiry should reflect input from faculty in both divisions. Finally, improved collegiality and trust within academic departments should be palpable to both teachers and administrators.

**Solution 2: Academic discipline-specific professional development training.** DAS leaders will know whether additional discipline-specific training for the IB has been effective in two ways. First, there will be evidence, documented by academic supervisors, of improved teacher confidence and competence in IB curricular unit design for each academic subject area. Second, each department will have new IB curricular units in place that also meet the school's existing subject area content standards.



**Solution 3: Training to teach for critical thinking transfer.** Impact will be measured by whether there is evidence of improved teacher confidence and competence in IB curricular unit design that promotes critical thinking transfer. There should also be evidence of greater teacher knowledge about the principles of teaching for transfer. In addition, all new IB interdisciplinary units created for the MYP will meet the school's existing subject area content standards as well as promote critical thinking transfer.

### **Areas for Future Research**

Potential avenues for future research related to this study fall into two categories: (a) those specific to DAS itself, and (b) those related to the broader topics of globally minded critical thinking instruction and IB implementation.

This study has examined the knowledge, motivation, and organizational assets and ongoing needs of humanities and social studies teachers at DAS with respect to globally minded critical thinking instruction and the school's transition to the IB program. However, other DAS stakeholders also affect the development of students' critical thinking skills; a full promising practice and modified gap analysis study would examine the needs and assets of *all* stakeholders. While teachers play a significant role in student learning, they are not the only factor. In particular, researchers should seek to understand the benefits and drawbacks of the IB at DAS from the students' perspective, as well as their experience with, and understanding of, critical thinking and global mindedness within the IB program. This qualitative information also could be useful for other schools in Saudi Arabia that might be interested in improving critical thinking instruction and/or adopting the IB program but are concerned about cultural "fit" and academic outcomes. In addition, more research needs to be done at DAS to define and analyze students' strengths and weaknesses as critical thinkers, especially with regard to inquiry. This study found

that a number of teachers differentiated the caliber of students' critical thinking skills between written and verbal tasks. They also observed that DAS students had more difficulty posing deep questions than answering them. Some teachers described the barriers they believe hinder DAS students from reaching their full potential as critical thinkers, including student inertia, fear of change, and desire for the "right answer." Other teachers pointed to the dual-language program at DAS as delaying students' critical thinking development. Further research might examine the validity of these anecdotal observations and determine which methods might work best to address these issues. As a baseline, the school might make use of its existing MAP software assessment suite or administer an outside test of critical thinking such as the Watson-Glaser Critical Thinking Appraisal (Watson & Glaser, 1980), Cornell Critical Thinking Test (Ennis & Millman, 1985), the CCTST (Facione, 1990b), or the California Critical Thinking Disposition Inventory (Facione, Facione, & Giancarlo, 1996).

More generally beyond the specific context of DAS, additional research is needed to explore the evolving meaning and role of globally minded critical thinking in the IB as more and more schools around the world adopt the program. As discussed in Chapter Two, since the IB's founding, the program has changed and continues to change in response to shifts in the global educational landscape. Thus, while critical thinking and global mindedness have remained pillars of the IB philosophy, consistency has not always existed in how these concepts have been interpreted and applied. As countries look to the IB program to modernize their K-12 education systems to meet the demands of the twenty-first century, they are also confronted with the ideological constructs embedded in the IB's philosophy and practices, some of which may be uncomfortable or alien. Teachers are on the front lines in terms of IB implementation, and therefore understanding their concerns, needs, and experiences is critical if the IB is to be

successfully adopted at any school, district or national level. Additional case studies from other Arab countries, and developing countries more generally, are needed to situate the experience of DAS teachers within the broader international landscape and to compare best practices across educational contexts.

### **Conclusion**

This study has sought to identify and analyze the most significant knowledge, motivation, and organizational assets of humanities and social studies teachers at DAS that are facilitating the school's successful transition to the IB curriculum. In particular, the study has focused on the school's potential to serve as a model for cultivating globally minded critical thinkers in a context where it is challenging to do so. The Saudi government's Vision 2030 deems critical thinking skills to be foundational for Saudi Arabia's future as it seeks to transition toward a knowledge-based economy. However, critical thinking instruction has not historically been valued or prioritized in Saudi education, particularly secondary education. Most prior research on critical thinking instruction in Saudi Arabia has focused on identifying deficits in teacher and student preparation and performance. As DAS' experience shows, inquiry-based humanities and social studies instruction, including in Islamic studies, holds promise as a basis for the educational reform needed to address these deficits.

On its own, the IB program is not a panacea. Instead, DAS' success thus far in using the IB to develop students' critical thinking skills—and its likelihood of continued success in the future—derives in large part from how the school deploys its organizational resources and culture. Faculty have accepted the IB's prioritization of globally minded critical thinking because it aligns with the school's preexisting principles and practices, and because teachers have generally felt the school's support throughout the transition. In addition, DAS' program of

professional development and evaluation reinforces the school's educational goals. Creating the new IB curriculum is an opportunity for teachers to participate in, and experience, critical thinking and IBL, just as they expect of their students. In sum, the school has created a cohesive culture of continuous learning that is respectful of its local context. It seeks to create a culture of inquiry among teachers that will then translate to students and eventually the community beyond the walls of the school. A visible manifestation of that culture in practice is its investment in teachers. Those teachers, in turn, are helping the school to meet its mission and advance the conversation around best educational practices in Saudi Arabia.

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## APPENDIX A

## IB Learner Profile



## IB learner profile

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.

As IB learners we strive to be:

<p><b>INQUIRERS</b> We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others. We learn with enthusiasm and sustain our love of learning throughout life.</p>	<p><b>OPEN-MINDED</b> We critically appreciate our own cultures and personal histories, as well as the values and traditions of others. We seek and evaluate a range of points of view, and we are willing to grow from the experience.</p>
<p><b>KNOWLEDGEABLE</b> We develop and use conceptual understanding, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance.</p>	<p><b>CARING</b> We show empathy, compassion and respect. We have a commitment to service, and we act to make a positive difference in the lives of others and in the world around us.</p>
<p><b>THINKERS</b> We use critical and creative thinking skills to analyse and take responsible action on complex problems. We exercise initiative in making reasoned, ethical decisions.</p>	<p><b>RISK-TAKERS</b> We approach uncertainty with forethought and determination; we work independently and cooperatively to explore new ideas and innovative strategies. We are resourceful and resilient in the face of challenges and change.</p>
<p><b>COMMUNICATORS</b> We express ourselves confidently and creatively in more than one language and in many ways. We collaborate effectively, listening carefully to the perspectives of other individuals and groups.</p>	<p><b>BALANCED</b> We understand the importance of balancing different aspects of our lives—intellectual, physical, and emotional—to achieve well-being for ourselves and others. We recognize our interdependence with other people and with the world in which we live.</p>
<p><b>PRINCIPLED</b> We act with integrity and honesty, with a strong sense of fairness and justice, and with respect for the dignity and rights of people everywhere. We take responsibility for our actions and their consequences.</p>	<p><b>REFLECTIVE</b> 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.</p>

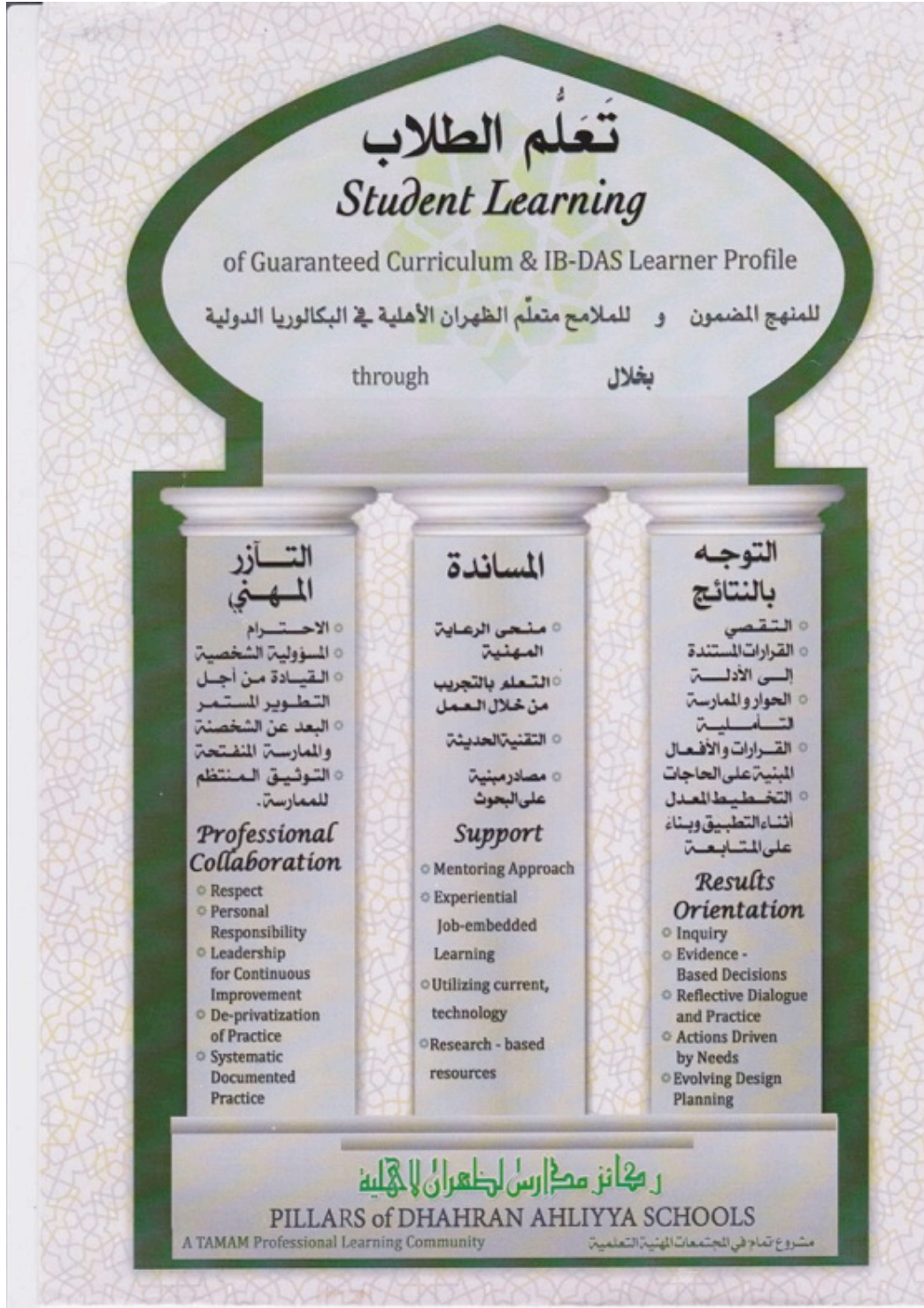
The IB learner profile represents 10 attributes valued by IB World Schools. We believe these attributes, and others like them, can help individuals and groups become responsible members of local, national and global communities.

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## APPENDIX B

## Pillars of Dhahran Ahliyya Schools



## APPENDIX C

## Survey Instrument

**DAS Critical Thinking Survey**

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**Background Information**

## Q1.1

**Survey About Critical Thinking and the International Baccalaureate Program at DAS**

استبانة عن التفكير النقدي وبرنامج البكالوريا الدولية في مدارس الظهران الأهلية  
Q1.1

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## Q1.2

Thank you very much for completing this survey. It is designed to gather information that I will use to study how Dhahran Ahliyya Schools (DAS) can improve students' critical thinking skills. This survey also focuses on the role that the new International Baccalaureate (IB) program may play in helping you teach critical thinking skills to your students at DAS. The results of this survey will appear in my Education Doctorate dissertation for the University of Southern California. I will also use the results to make recommendations about how best to support teachers during DAS' transition to the new IB program.

The survey should take about 20-30 minutes to complete

Your participation in this survey is **completely voluntary**, and your answers will be kept **confidential**. No DAS school administrators or supervisors will have access to your individual answers at any time. All responses will be compiled together and analyzed as a group. No identifying information about you will be disclosed.

*Catherine Atwell*

أشكر لكم مقدّمًا إجاباتكم لهذه الاستبانة. تم تصميم هذه الاستبانة بغرض جمع المعلومات التي سأستخدمها في دراسة كيفية تطوير مدارس الظهران الأهلية لمهارات التفكير النقدي لدى الطلاب والطالبات. تركز هذه الاستبانة أيضًا على دور البرامج في دعم تدريس مهارات التفكير النقدي للطلاب والطالبات في المدارس. ستظهر نتائج (IB) الجديدة لمنظمة البكالوريا الدولية هذه الاستبانة ضمن رسالتي للدكتوراه من جامعة جنوب كاليفورنيا، كما أنني سأستخدم النتائج لكتابة توصيات حول أفضل الطرق لدعم المعلمين أثناء انتقال مدارس الظهران الأهلية إلى برنامج البكالوريا الدولية الجديد. ستحتاج إلى 20-30 دقيقة لاستكمال الإجابة على هذه الاستبانة. إن مشاركتك في هذه الاستبانة تطوعية، وسيتم التعامل مع الإجابات بسرية تامة. إن تتمكن إدارة مدارس الظهران الأهلية أو المشرفين من الاطلاع على إجاباتك في جميع الأحوال. سيتم جمع جميع الإجابات وتحليلها كمجموعة. ولن يتم الإفصاح عن أي معلومة تعرّف عن هويتك. مع جزيل الشكر كثرين أتويل

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**Background Information**

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**Demographic Information**



**Q2.1 Background Information**

## Q2.1 المعلومات الأساسية

## Q2.2 Gender:

- Male (1)
- Female (2)
- Prefer not to say (3)

## Q2.2: الجنس

- ذكر (1)
- أنثى (2)
- لا أفضل ذكر ذلك (3)

## Q2.3 I am a native speaker of Arabic:

- Yes (1)
- No (2)

## Q2.3: لغتي الأم هي اللغة العربية

- نعم (1)
- لا (2)

## Q2.4 I received my education in Saudi Arabia:

- Yes (1)
- No (2)

## Q2.4: تلقيت تعليمي في المملكة العربية السعودية

- نعم (1)
- لا (2)

## Q2.5 I am a Saudi citizen:

- Yes (1)
- No (2)

## Q2.5: أنا مواطن/ة سعودي/ة

- نعم (1)
- لا (2)

Q2.6 School Role:

- Teacher (1)  
 Supervisor (2)

Q2.6 الوصف الوظيفي

- معلم (1)  
 مشرف (2)

### Demographic Information

#### Supervisor Background

Q3.1 Grade level(s) I currently supervise: *(check all that apply)*

- 3-5 (1)  
 6-12 (2)  
 Other (3) \_\_\_\_\_

Q3.1 المراحل الدراسية التي أشرف عليها حالياً: ضع علامة ✓ على جميع المراحل التي تشرف عليها)

(1) 3-5

(2) 6-12

\_\_\_\_\_ (3) أخرى

Q3.2 Subject(s) I currently supervise: *(check all that apply)*

- Language and Literature (1)  
 Islamic Studies (2)  
 Social Studies (History, Geography, Sociology) (3)  
 Other (4) \_\_\_\_\_

Q3.2 المادة /المواد التي تشرف عليها حالياً: ضع علامة ✓ على جميع المواد التي تشرف عليها)

(1) الأدب

(2) الدراسات الإسلامية

(3) الدراسات الاجتماعية (التاريخ، الجغرافيا، علم الاجتماع)

\_\_\_\_\_ (4) أخرى

Q3.3 I currently supervise classes in the following language(s): (*check all that apply*)

English (1)

Arabic (2)

Q3.3 أقوم بالإشراف حالياً على المواد التي تدرس باللغة (ضع علامة ✓ على جميع اللغات التي تنطبق)

الانجليزية (1)

العربية (2)

Q3.4 Years of teaching experience at **DAS** prior to supervisory role:

- Less than 1 year (1)
- 1-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- More than 15 years (5)
- None (6)

Q3.4 : عدد سنوات خبرتك التعليمية في مدارس الظهران الأهلية قبل العمل كمشرف

- أقل من سنة (1)
- من سنة إلى خمس سنوات (2)
- من 6 إلى 10 سنوات (3)
- من 11 إلى 15 سنة (4)
- أكثر من 15 سنة (5)
- لا شيء (6)

Q3.5 Years of supervisory experience at **DAS**:

- Less than 1 year (1)
- 1-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- More than 15 years (5)

Q3.5 : عدد سنوات خبرتك في الإشراف في مدارس الظهران الأهلية

- أقل من سنة (1)
- من سنة إلى خمس سنوات (2)
- من 6 إلى 10 سنوات (3)
- من 11 إلى 15 سنة (4)
- أكثر من 15 سنة (5)

Q3.6 I had experience with the IB program **before** working at DAS:

- Yes (1)
- No (2)

Q3.6 كان لدي خبرة في برنامج البكالوريا الدولية قبل العمل في مدارس الظهران الأهلية

- نعم (1)
- لا (2)

Q3.7 Please briefly describe your prior experience with the IB.

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الرجاء اشرح باختصار خبرتك القبلية في برنامج البكالوريا الدولية

Q3.7

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### Supervisor Background

#### Questions for Supervisors

#### Q6.1 Questions

Q6.1 الأسئلة

Q6.2 Most of the teachers I supervise are **knowledgeable** about best practices in teaching critical thinking skills.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q6.2: لدي المعرفة عن أفضل الممارسات لتدريس مهارات التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.3 Please briefly explain your answer.

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Q6.3 الرجاء اشرح باختصار إجابتك

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Q6.4 The teachers I supervise are **knowledgeable** about the Saudi Ministry of Education policies and standards for the subject(s) they teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

المعلمين /المعلمات الذين أشرف عليهم لديهم المعرفة عن سياسات وزارة التعليم في المملكة العربية السعودية، وعن معايير المادة/المواد التي يقومون بتدريسها

Q6.4

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.5 The teachers I supervise are **knowledgeable** about the curriculum requirements of the International Baccalaureate (IB) program in the subject(s) they teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly Disagree (4)

في المادة التي يقومون (IB) المعلمين /المعلمات الذين أشرف عليهم لديهم المعرفة بمتطلبات منهاج البكالوريا الدولية

Q6.5: بتدريسها

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.6 Most of the teachers I supervise are **knowledgeable** about how to **revise existing** lesson plans to incorporate critical thinking skills in the subject area(s) they teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

معظم المعلمين /المعلمات الذين أشرف عليهم لديهم **المعرفة** عن كيفية مراجعة خطط الدروس الحالية لدمج مهارات Q6.6: التفكير النقدي في مجال المادة التي يقومون بتدريسها

- أوافق بشدة (1)  
 أوافق (2)  
 لا أوافق (3)  
 لا أوافق بشدة (4)

Q6.7 Please briefly explain your answer.

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Q6.7 الرجاء اشرح باختصار إجابتك

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Q6.8 Most of the teachers I supervise are **knowledgeable** about how to **create new curriculum** that incorporates critical thinking skills in the subject area they teach.

- Strongly agree (1)  
 Agree (2)  
 Disagree (3)  
 Strongly disagree (4)

معظم المعلمين /المعلمات الذين أشرف عليهم لديهم **المعرفة** عن كيفية إنشاء منهاج جديد يتضمن مهارات التفكير النقدي Q6.8: في مجال المادة التي يقومون بتدريسها

- أوافق بشدة (1)  
 أوافق (2)  
 لا أوافق (3)  
 لا أوافق بشدة (4)

Q6.9 Please briefly explain your answer.

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Q6.9 الرجاء اشرح باختصار إجابتك

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Q6.10 I feel **confident** that the teachers I supervise can combine the **existing content standards** for my subject(s) with the new IB curriculum requirements.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

أشعر بالارتياح أن المعلمين /المعلمات الذين أشرف عليهم يستطيعون الجمع بين محتوى المعايير الموجودة لدينا سابقاً لمادتي Q6.10 . (موادتي مع الجديد من مناهج برنامج البكالوريا الدولية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.11 Please briefly explain your answer.

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Q6.11 الرجاء اشرح باختصار إجابتك

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Q6.12 The teachers I supervise know how to apply their own understanding of Saudi culture to decide what kinds of class lessons would be acceptable in teaching critical thinking skills.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

المعلمين /المعلمات الذين أشرف عليهم يعرفون كيف يطبقون فهمهم لثقافة المملكة العربية السعودية ليقرروا أي نوع من Q6.12 .الحصص مقبول فيه تعليم مهارات التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.13 Promoting global mindedness is an important goal of education in my subject area(s).

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q6.13 تعزيز العقلية الدولية هدف مهم من أهداف التعليم في مجال مادتي (موادتي)
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.14 I would like to receive additional professional development training in **critical thinking teaching methods**.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q6.14: أرغب في تلقّي دورات تدريبية للتطوير المهني حول أساليب تدريس التفكير النقدي
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.15 I would like to receive additional professional development training in **critical thinking curriculum design**.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q6.15: أرغب في تلقّي دورات تدريبية للتطوير المهني حول تصميم منهاج التفكير النقدي
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.16 I would like to receive additional professional development training on the **specific requirements of the IB program** for the subject area I supervise.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)



أرغب في تلقّي دورات تدريبية إضافية للتطوير المهني حول متطلبات برامج البكالوريا الدولية في المادة التي أقوم بالإشراف  
Q6.16: على بتدريسها

- أوافق بشدة (1)  
 أوافق (2)  
 لا أوافق (3)  
 لا أوافق بشدة (4)

Q6.17 The school sets aside sufficient time for faculty to work on developing new curriculum.

- Strongly agree (1)  
 Agree (2)  
 Disagree (3)  
 Strongly disagree (4)

Q6.17: خصصت المدارس وقتًا كافيًا لهيئة التدريس من أجل العمل على تطوير منهاج جديد

- أوافق بشدة (1)  
 أوافق (2)  
 لا أوافق (3)  
 لا أوافق بشدة (4)

Q6.18 I personally have enough time in my current schedule to work on developing the new IB curriculum in the subject(s) I supervise.

- Strongly agree (1)  
 Agree (2)  
 Disagree (3)  
 Strongly disagree (4)

لديّ وقت في جداولي الحالي للعمل على تطوير منهاج البكالوريا الدولية الجديدة في المادة (المواد) التي أشرف على تدريسها  
Q6.18

- أوافق بشدة (1)  
 أوافق (2)  
 لا أوافق (3)  
 لا أوافق بشدة (4)

Q6.19 I believe that the school will value my contributions to building the new IB curriculum.

- Strongly agree (1)  
 Agree (2)  
 Disagree (3)  
 Strongly disagree (4)

- Q6.19: أعتقد أنّ المدارس تقدر مساهماتي لبناء مناهج البكالوريا الدولية الجديدة
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.20 I feel comfortable expressing any concerns I have about new curriculum to school administrators.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q6.20: أشعر بالارتياح عند التعبير لإدارة المدارس عن مخاوفي حول المنهاج الجديد
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.21 I believe the DAS administration holds teachers accountable for implementing its directives regarding curriculum and instruction.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q6.21: أعتقد أن إدارة مدارس الظهران الأهلية تُحمّل المعلمين/ المعلمات مسؤولية تنفيذ التعليمات المتعلقة بالمناهج والتعليم
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q6.22 All DAS administrators seem enthusiastic and committed to any curricular changes needed to make the transition to the IB program.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

يُظهر جميع أفراد إدارة المدارس حماساً والتزاماً لأي تغييرات لازمة في المنهاج للانتقال إلى برنامج البكالوريا الدولية  
Q6.22

- أوافق بشدة (1)  
 أوافق (2)  
 لا أوافق (3)  
 لا أوافق بشدة (4)

### Questions for Supervisors

#### Open-Ended Responses for Supervisors

#### Q8.1 Open-Ended Responses

Q8.1 أسئلة مفتوحة ليس لها إجابات محددة

Q8.2 How do you define “critical thinking”?

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Q8.2 كيف تُعرّف "التفكير النقدي"؟

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Q8.3 Please use the space below to describe any specific types of professional development that you think would be helpful to you or the teachers you supervise in designing curriculum or teaching in the new IB program.

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الرجاء استخدام المساحة في الأسفل لتصف أي من تدريب التطوير المهني والذي تعتقد بأنه سيدعمك أو يدعم  
Q8.3 المعلمين المعلمات الذين تشرف عليهم في تصميم وتدريب منهاج برامج البكالوريا الدولية

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Q8.4 OPTIONAL: Please use the space below for any additional comments you may have about critical thinking instruction, the IB program and/or its implementation at DAS.

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اختيار: الرجاء استخدام المساحة في الأسفل لأي اقتراحات إضافية من الممكن تريد أن تضيفها عن تعليم التفكير النقدي  
Q8.4. برنامج البكالوريا الدولية و/ أو التطبيق في مدارس الظهران الأهلية

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 Open-Ended Responses for Supervisors
 

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## Teacher Background

Q4.1 Grade level(s) I currently teach: *(check all that apply)*

- 3rd (8)
- 4th (9)
- 5th (10)
- 6th (1)
- 7th (2)
- 8th (3)
- 9th (4)
- 10th (5)
- 11th (6)
- 12th (7)

Q4.1 المراحل الدراسية التي تقوم بتدريسها حالياً: ضع علامة /على جميع المراحل التي تدرّسها)

- (8) 3
- (9) 4
- (10) 5
- (1) الصف السادس
- (2) الأول متوسط
- (3) الثاني متوسط
- (4) الثالث متوسط
- (5) الأول ثانوي
- (6) الثاني ثانوي
- (7) الثالث ثانوي

Q4.2 Subject(s) I currently teach: *(check all that apply)*

- Language and Literature (1)
- Islamic Studies (2)
- Social Studies (History, Geography, Sociology) (3)
- Other (4) \_\_\_\_\_

Q4.2 أقوم حالياً بتدريس: ضع علامة ✓ على جميع المواد التي تدرّسها)

- الأدب (1)
- الدراسات الإسلامية (2)
- الدراسات الاجتماعية (التاريخ، الجغرافيا، علم الاجتماع) (3)
- أخرى (4) \_\_\_\_\_

Q4.3 I currently teach my classes in the following language: *(check all that apply)*

- English (1)
- Arabic (2)

Q4.3 أقوم حالياً بتدريس المواد باللغة: ضع علامة ✓ على جميع اللغات التي تنطبق)

- الانجليزية (1)
- العربية (2)

Q4.4 Years of teaching experience at **DAS**:

- Less than 1 year (1)
- 1-5 years (2)
- 6-10 years (3)
- 11-15 years (4)
- More than 15 years (5)

Q4.4: عدد سنوات خبرتك التعليمية في مدارس الظهران الأهلية

- أقل من سنة (1)
- من سنة إلى خمس سنوات (2)
- من 6 إلى 10 سنوات (3)
- من 11 إلى 15 سنة (4)
- أكثر من 15 سنة (5)

Q4.5 I had experience with the IB program **before** working at DAS:

- Yes (1)
- No (2)

Q4.5 كان لدي خبرة في برنامج البكالوريا الدولية قبل العمل في مدارس الظهران الأهلية

- نعم (1)
- لا (2)

Q4.6 Please briefly describe your prior experience with the IB.

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Q4.6 الرجاء اشرح باختصار خبرتك القبلية في برنامج البكالوريا الدولية

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### Teacher Background

### Teacher Questions

#### Q5.1 Questions

Q5.1 الأسئلة

Q5.2 I am **knowledgeable** about best practices in teaching critical thinking skills.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.2: لدي المعرفة عن أفضل الممارسات لتدريس مهارات التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.3 I am **knowledgeable** about the Saudi Ministry of Education policies and standards for the subject(s) I teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q5.3: لديّ المعرفة عن سياسات وزارة التعليم في المملكة العربية السعودية، وعن معايير المادة/المواد التي أقوم بتدريسها
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.4 I am **knowledgeable** about the curriculum requirements of the International Baccalaureate (IB) program in the subject I teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly Disagree (4)

- Q5.4: في المادة التي أقوم بتدريسها (IB) لديّ المعرفة بمتطلبات منهاج برنامج البكالوريا الدولية
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.5 I am **knowledgeable** about how to **revise existing** lesson plans to incorporate critical thinking skills in the subject area I teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.5: لديّ المعرفة عن كيفية مراجعة خطط الدروس الحالية لدمج مهارات التفكير النقدي في مجال المادة التي أقوم بتدريسها

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.6 I am **knowledgeable** about how to **create new curriculum** that incorporates critical thinking skills in the subject area I teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q5.6: لَدَيّ المعرفة عن كيفية إنشاء منهاج جديد يتضمن مهارات التفكير النقدي في مجال المادة التي أقوم بتدريسها
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.7 I know how to apply my own understanding of Saudi culture to decide what kinds of class lessons would be acceptable in teaching critical thinking skills.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q5.7: أعرف كيف أُطبّق فهمي للثقافة السعودية لتحديد أنواع الدروس المقبولة ثقافيًا عند تدريس مهارات التفكير النقدي
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.8 Promoting global mindedness is an important goal of education in my subject area.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q5.8: تعزيز العقلية الدولية هدف مهم من أهداف التعليم في مجال المادة التي أقوم بتدريسها
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.9 It is a good idea for DAS to adopt the IB curriculum in my subject area.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

- Q5.9: من الجيد أن تتبنى مدارس الظهران الأهلية منهاج البكالوريا الدولية في مجال المادة التي أقوم بتدريسها
- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)



Q5.10 Critical thinking skills are vital for students' academic success.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.10: تعد مهارات التفكير النقدي عنصرًا هامًا لتقدم الطلاب الأكاديمي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.11 I am **confident** that I can revise my **existing** class lesson plans to emphasize critical thinking skills.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.11: أنا **على ثقة** بأنني أستطيع مراجعة خطط الدروس الحالية من أجل التركيز على مهارات التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.12 I am **confident** that I can design **new** lesson plans to teach critical thinking skills.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.12: أنا **على ثقة** بأنني أستطيع تصميم خطط دروس جديدة بغرض تدريس مهارات التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.13 I am **confident** that I will be able to apply **IB standards** in the creation of new curriculum.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.13: أنا على ثقة بأنني أستطيع تطبيق معايير مناهج البكالوريا الدولية في إنشاء المنهاج الجديد

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.14 I feel **confident** that I can combine the **existing content standards** for my subject(s) with the new IB curriculum requirements.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.14 أنا على ثقة بأنني أستطيع أن أجمع بين محتوى المعايير الحالية لمادتي مع المتطلبات لمنهاج البكالوريا الدولية الجديد

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.15 I feel **comfortable** that implementing the new IB curriculum will not conflict with Saudi values.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.15: أشعر بالارتياح أن تطبيق مناهج البكالوريا الدولية الجديد لن تتعارض مع القيم السعودية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.16 I am **looking forward** to emphasizing critical thinking skills in the new IB curriculum.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.16: أتطلع إلى التركيز على مهارات التفكير النقدي في مناهج البكالوريا الدولية الجديدة

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.17 I have already received professional development training in how to teach critical thinking.

- Yes (1)
- No (2)

Q5.17: تلقّيت تدريباً للتطوير المهني حول كيفية تدريس التفكير النقدي

- نعم (1)
- لا (2)

Q5.18 I have already received professional development training about the requirements of the IB curriculum in the subject I teach.

- Yes (1)
- No (2)

Q5.18: تلقّيت تدريباً للتطوير المهني حول متطلبات مناهج البكالوريا الدولية في المادة التي أقوم بتدريسها

- نعم (1)
- لا (2)

Q5.19 I would like to receive additional professional development training in **critical thinking teaching methods**.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.19: أرغب في تلقّي دورات تدريبية للتطوير المهني حول أساليب تدريس التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.20 I would like to receive additional professional development training in **critical thinking curriculum design**.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.20: أرغب في تلقّي دورات تدريبية للتطوير المهني حول تصميم منهاج التفكير النقدي

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.21 I would like to receive additional professional development training on the **requirements of the IB program** for the subject area I teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.21: أرغب في تلقّي دورات تدريبية للتطوير المهني حول متطلبات برامج البكالوريا الدولية في المادة التي أقوم بتدريسها

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.22 The school sets aside sufficient time for faculty to work on developing new curriculum.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.22: خصصت المدارس وقتًا كافيًا لهيئة التدريس من أجل العمل على تطوير منهاج جديد

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.23 I personally have enough time in my current schedule to work on developing the new IB curriculum in the subject I teach.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

أنا شخصياً لديّ وقت كاف في جدولي الحالي للعمل على تطوير مناهج البكالوريا الدولية الجديدة في المادة التي أقوم بتدريسها

Q5.23

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.24 I believe that the school will value my contributions to building the new IB curriculum.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.24: أعتقد أنّ المدارس تقدّر مساهماتي لبناء مناهج البكالوريا الدولية الجديدة

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.25 I feel comfortable expressing any concerns I have about new curriculum to school administrators.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.25: أشعر بالارتياح عند التعبير لإدارة المدارس عن مخوفي حول المنهاج الجديد

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.26 The **IB curriculum** for the subject area I teach is very **different** from the curriculum I studied as a secondary school student.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

المنهاج الجديد لبرنامج البكالوريا الدولية في المادة التي أقوم بتدريسها يختلف كثيراً عن المنهاج الذي درستُه عندما كنت طالب/ة في المرحلة الثانوية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.27 I **prefer** the **IB curriculum** in the subject area I teach compared to the curriculum I studied in secondary school.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

أنا أفضّل المنهاج الجديد لبرنامج البكالوريا الدولية في المادة التي أقوم بتدريسها بالمقارنة مع المنهاج الذي درستُه عندما كنت طالب/ة في المرحلة الثانوية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.28 The **teaching methods** used in the IB program for the subject area I teach are very **different** from the teaching methods I experienced as a secondary school student.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

تختلف أساليب تدريس برامج البكالوريا الدولية اختلافاً كبيراً عن الأساليب التي كانت تُطبَّق عندما كنت طالب/ة في المرحلة الثانوية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.29 I prefer the **teaching methods** used in the IB program in the subject area I teach compared to the teaching methods I experienced in secondary school.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.29: أنا أفضل أساليب تدريس برامج البكالوريا الدولية في المادة التي أقوم بتدريسها بالمقارنة مع الأساليب التي كانت تُطبَّق عندما كنت طالباً/ة في المرحلة الثانوية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.30 I believe the DAS administration holds teachers accountable for implementing its directives regarding curriculum and instruction.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.30: أعتقد أن إدارة مدارس الظهران الأهلية تُحمّل المعلمين/ المعلمات مسؤولية تنفيذ التعليمات المتعلقة بالمناهج والتعليم

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

Q5.31 All DAS administrators seem enthusiastic and committed to any curricular changes needed to make the transition to the IB program.

- Strongly agree (1)
- Agree (2)
- Disagree (3)
- Strongly disagree (4)

Q5.31: يُظهر جميع أفراد إدارة المدارس حماساً والتزاماً لأي تغييرات لازمة في المنهاج للانتقال إلى برنامج البكالوريا الدولية

- أوافق بشدة (1)
- أوافق (2)
- لا أوافق (3)
- لا أوافق بشدة (4)

#### Teacher Questions

#### Open-Ended Responses for Teachers

## Q7.1 Open-Ended Responses

Q7.1 أسئلة مفتوحة ليس لها إجابات محددة

Q7.2 How do you define "critical thinking"?

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Q7.2 كيف تُعرّف "التفكير النقدي"؟

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Q7.3 Have you ever been involved with designing new curriculum, such as lesson plans, at DAS?

- Yes (1)  
 No (2)

Q7.3 هل شاركت مسبقًا في العمل على تصميم منهاجًا جديدًا، كالتخطيط للدروس، في مدارس الظهران الأهلية؟

- نعم (1)  
 لا (2)

Q7.4 Please briefly describe your involvement in designing new curriculum at DAS.

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Q7.4 إذا كانت الإجابة بنعم، الرجاء صِف مشاركتك في التخطيط للمنهاج الجديد في المدارس؟

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Q7.5 What is your understanding of why DAS is moving to the IB curriculum?

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Q7.5 ما هو فهمك عن سبب انتقال مدارس الظهران الأهلية لبرامج البكالوريا الدولية؟

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Q7.6 Please use the space below to describe any specific types of professional development that you think would be helpful to you in designing curriculum or teaching in the new IB program.

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صِف الرجاء استخدم المساحة في الأسفل لكتابة وشرح أي نوع محدد من تدريب التطوير المهني الذي تعتقد أنه سيدعمك  
Q7.6 في تصميم وتدريب منهاج برامج البكالوريا الدولية الجديدة؟

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Q7.7 OPTIONAL: Please use the space below for any additional comments you may have about critical thinking instruction, the IB program and/or its implementation at DAS.

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اختيار: الرجاء استخدم المساحة في الأسفل لأي اقتراحات إضافية من الممكن تريد أن تضيفها عن تعليم التفكير النقدي  
Q7.7. برنامج البكالوريا الدولية و/ أو التطبيق في مدارس الظهران الأهلية

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Open-Ended Responses for Teachers

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## APPENDIX D

## Interview Protocol

**Demographic Information**

Gender:

Grades(s) taught:

Subject Taught:

Diploma Program (if applicable):

Total years of experience teaching:

Years of experience teaching at DAS:

Saudi/Non-Saudi:

Educated in Saudi Arabia?

**Questions** (not all questions will be asked in every interview)

1. What information have you received about why DAS is moving to the International Baccalaureate (IB) program?
2. Do you remember ever discussing how moving to the IB program should affect students' learning outcomes?
  - a. What did you hear?
  - b. Did this explanation make sense to you?
  - c. Did it convince you?
3. Tell me what you think the school's expectations are of you in terms of incorporating more critical thinking skills into your curriculum.
4. Tell me about any training you have received about teaching critical thinking.
5. Tell me about any training you have already received for the IB program in the subject you teach.
6. Based on what you already know about the IB program, tell me how you think critical thinking might be reflected in the goals and standards of the IB program.
7. Can you think of an example or situation where critical thinking skills, versus other academic skills, might help a student achieve academic success?
8. What policies and standards set by the Saudi Education Ministry currently affect your teaching methods? The curriculum you teach?

9. In your view, how does “critical thinking” relate to academic achievement in the subject you teach?
10. Walk me through one of your existing lesson plans:
  - a. How did you go about developing this lesson plan?
  - b. What things did you consider?
  - c. What instructional strategies did you use?
  - d. In this lesson, where do you think critical thinking skills are being developed? How?
  - e. What would you do to revise it to incorporate more critical thinking skills?
11. How do you think you will know when you have made progress in incorporating critical thinking skills into your curriculum?
12. How do you decide what types of class lesson content will be culturally acceptable? Can you imagine any topics or methods in teaching critical thinking skills that might not be culturally appropriate? What might those include?
13. How confident do you feel that you will be able to apply the IB’s curriculum standards to create new curriculum? Why do you feel that way?
14. What concerns do you have about developing new curriculum for the IB program in the subject you teach?
15. How do you feel about your ability to revise your existing curriculum to teach more critical thinking?
16. How do you feel about your ability to design new curriculum to teach critical thinking?
17. How do you feel about the global focus of the IB curriculum? Do you have any concerns in relation to Saudi culture or values?
18. What kind of professional development would be most helpful to you in terms of improving how you teach critical thinking? What kind of professional development would be most helpful for curriculum design?
19. Tell me how you might use any work time that the school sets aside for you to develop the new IB curriculum in the subject you teach.
20. Describe your understanding of the school’s expectations for you in terms of participating in the creation of new lesson plan materials.
21. Tell me about the process/procedures you think the school should put into place to support the implementation of the IB program.
22. How will you know if the school administration values your contributions to building the new IB curriculum?

APPENDIX E

Photographs of International Baccalaureate Themes and Materials Posted on Walls at Dhahran Ahliyya Schools



Photo of IB Learner Profile hallway poster as interpreted by DAS personnel



*Photo of MYP classroom wall depicting IB learner attribute of international mindedness*



*Photo of hallway decoration depicting IB learner attribute of international mindedness*

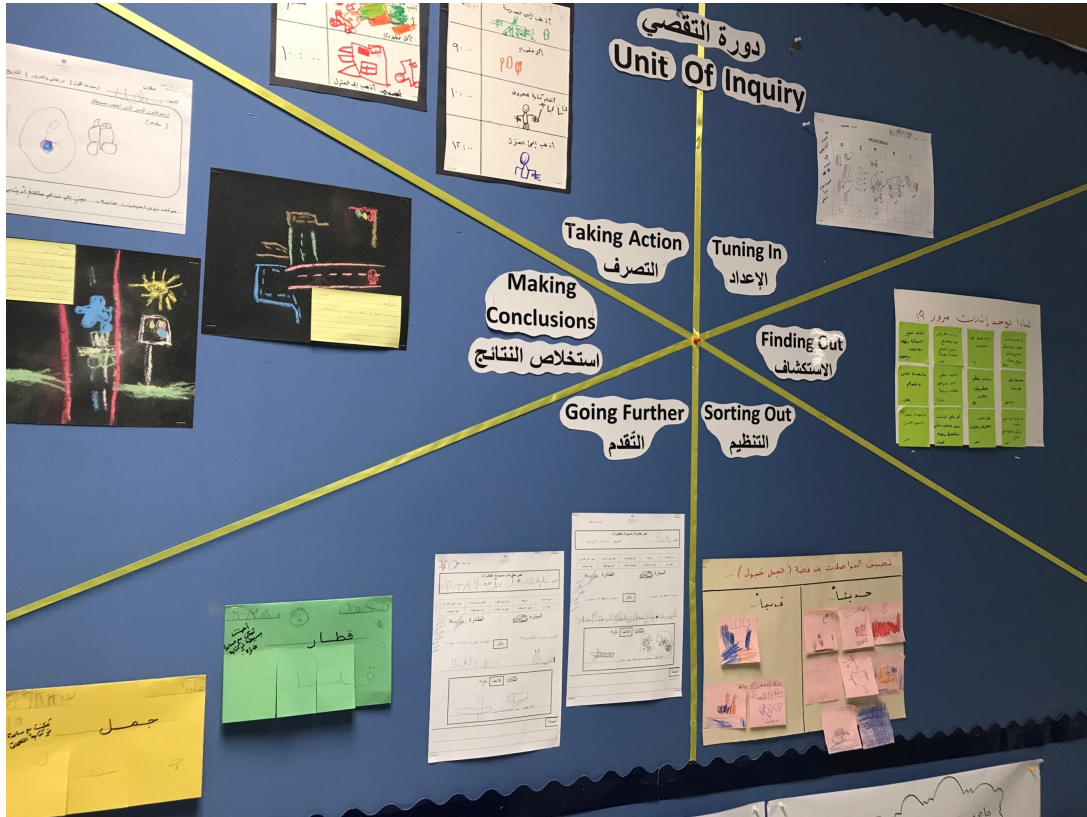


Photo of PYP hallway decoration for unit of inquiry

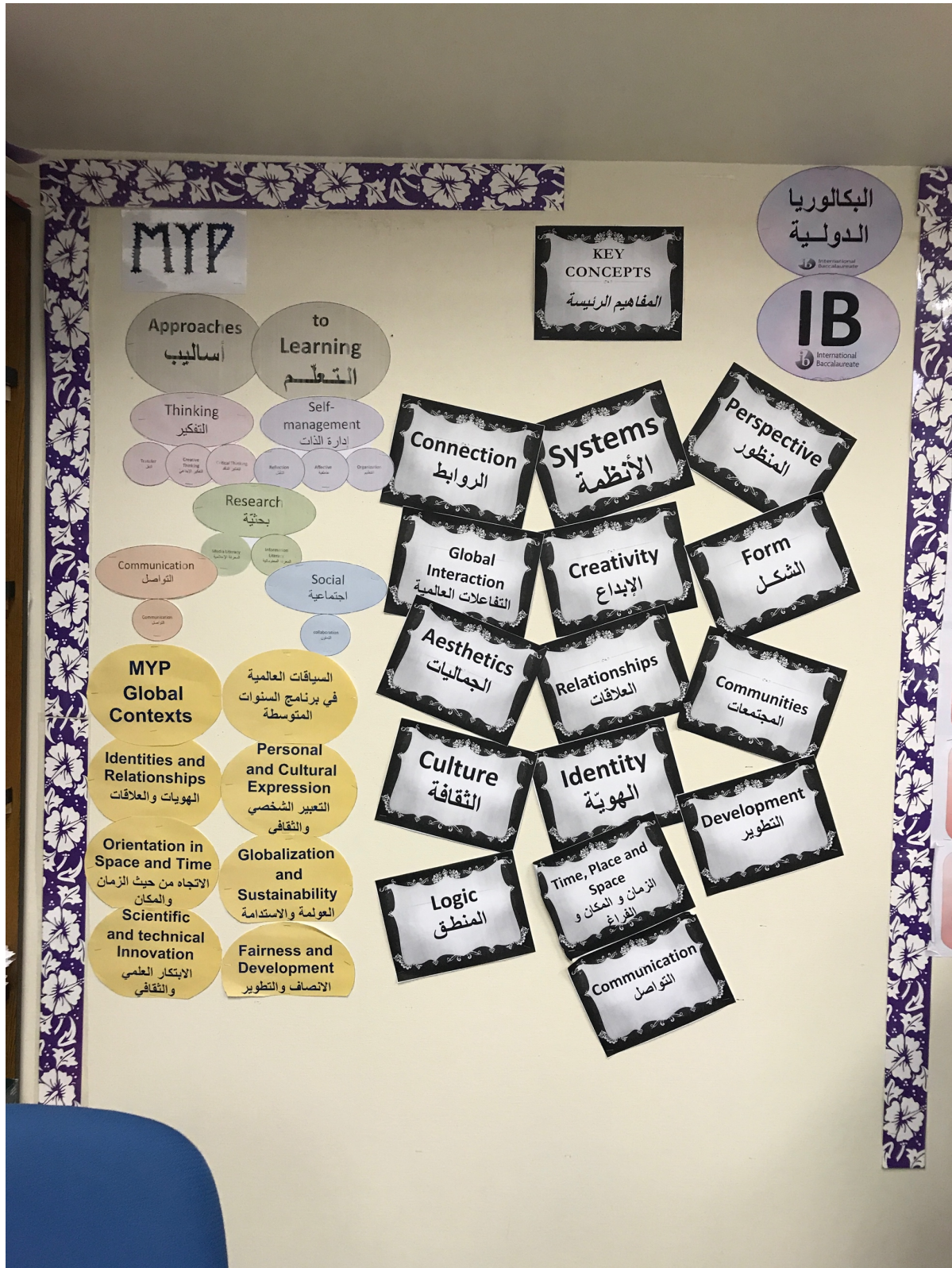


Photo of teacher-generated classroom wall display – MYP English class



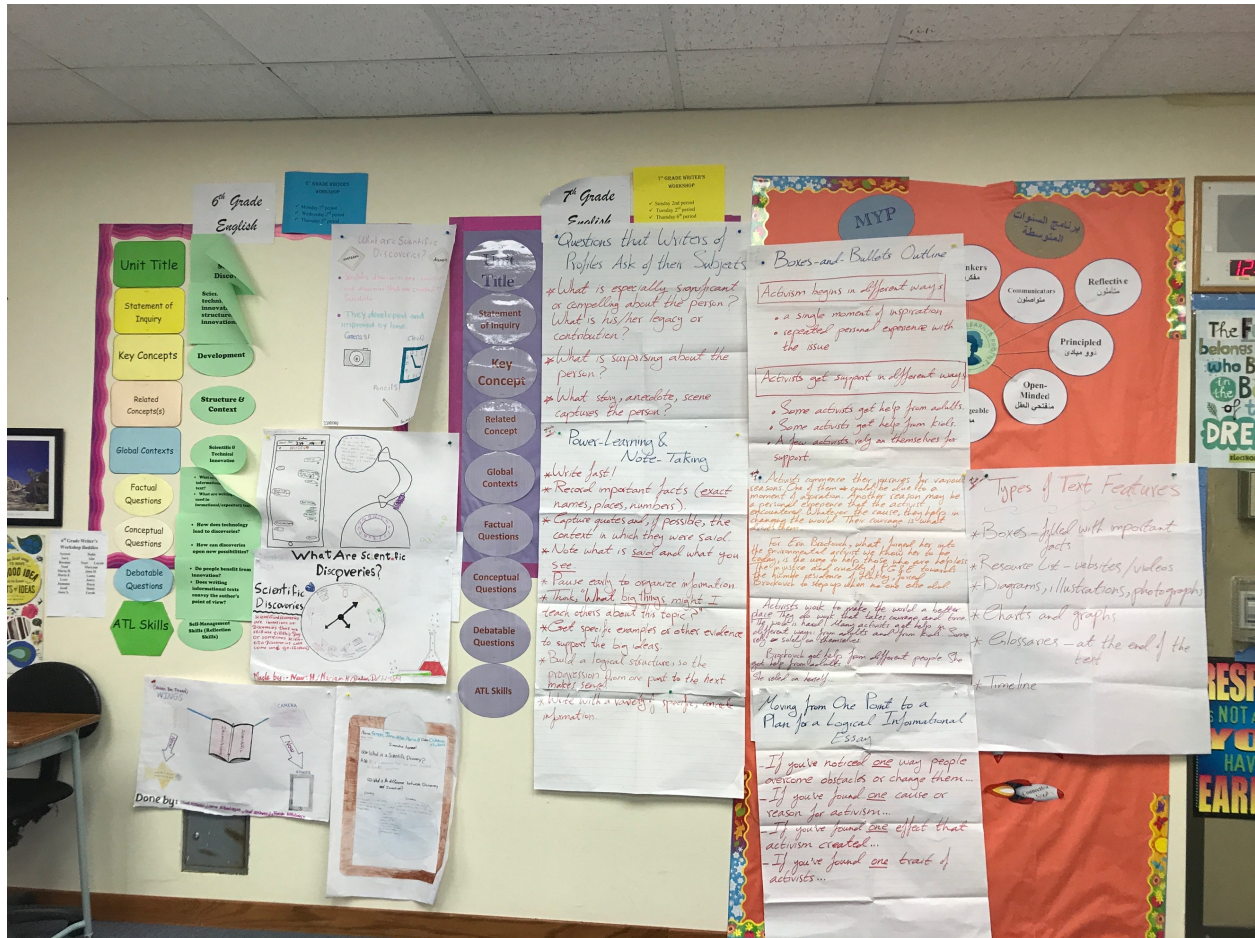


Photo of English classroom wall – grades 6 and 7

## APPENDIX F

## Dhahran Ahliyya Schools Targeted Characteristics

(In use before adoption of the International Baccalaureate Program)



مدارس الظهران الأهلية  
Dhahran Ahliyya Schools

مجتمع تعليمي غير ربحي  
A not-for-profit learning community

## DAS LEARNER PROFILE

### DAS students will learn to become:

#### Faithful:

We possess strong faith in the principles and values of Islam, which are also the values of humanity, and that is reflected in our words and deeds.

#### Inquirers:

We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others. We learn with enthusiasm and sustain our love of learning throughout life.

#### Open-minded:

We critically appreciate our own cultures and personal histories, as well as the values and traditions of others. We seek and evaluate a range of points of view, and we are willing to grow from the experience.

#### Knowledgeable:

We develop and use conceptual understanding, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance.

#### Thinkers:

We use critical and creative thinking skills to analyse and take responsible action on complex problems. We exercise initiative in making reasoned, ethical decisions.

#### Communicators:

We express ourselves confidently and creatively in more than one language and in many ways. We collaborate effectively, listening carefully to the perspectives of other individuals and groups.

#### Caring:

We show empathy, compassion and respect. We have a commitment to service, and we act to make a positive difference in the lives of others and in the world around us.

#### Risk-takers:

We approach uncertainty with forethought and determination; we work independently and cooperatively to explore new ideas and innovative strategies. We are resourceful and resilient in the face of challenges and change.

#### Balanced:

We understand the importance of balancing different aspects of our lives—intellectual, physical, and emotional—to achieve well-being for ourselves and others. We recognize our interdependence with other people and with the world in which we live.

#### Reflective:

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.

#### Principled:

We act with integrity and honesty, with a strong sense of fairness and justice, and with respect for the dignity and rights of people everywhere. We take responsibility for our actions and their consequences.

#### Collaborative:

We take a positive view of matters and of persons and possess the skills and habits of effective teamwork to accomplish joint objectives.