IB Middle Years Programme in the UK: Implementation Practices and Student Outcomes Associated with the Learner Profile Attribute 'Open-Minded'

Final Report

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Executive Summary

This report presents findings and conclusions from the research project *IB Middle Years Programme in the UK: Implementation Practices and Student Outcomes Associated with the Learner Profile Attribute 'Open-Minded'.*

The Learner Profile is a key element of the International Baccalaureate Middle Years Programme and sets out ten attributes that are interwoven in the programme's learning objectives. Developing open-mindedness is one of the attributes within the Learner Profile.

This research has two broad aims. First it seeks to establish the open-mindedness of students in the Middle Years Programme (11-16 years curriculum) of the IB, and second, it seeks to understand how IB schools develop open-mindedness amongst their students. The study adopted a mixed methods approach in which a survey of students was used to address the first objective (looking at student outcomes of open-mindedness) and qualitative data, principally focused on school visits and interviews focused on the second objective (looking at school practices).

A purpose-designed online questionnaire was developed to generate quantitative data in relation to students' open-mindedness. This was completed by 672 students in the relevant age range, across six schools. Five schools offered the IB MYP curriculum, and for comparison purposes one non-IB school was selected to participate. Visits were made to four case-study schools. A range of data was collected from the case-study schools and 88 staff and students participated in interviews.

Throughout the research the concept of open-mindedness emerged as one that is complex, and this presents corresponding challenges for those seeking to develop this attribute amongst young people. Within the IB curriculum open-mindedness has a dual dimension in that it combines both a commitment to international mindedness with the pursuit of open-mindedness as an intellectual virtue. What this research has identified is that within these over-arching dimensions it may be helpful to consider a

more multi-dimensional, or multi-modal, approach in which more finely grained approaches to open-mindedness are developed within the dual dimensions that are captured within the Learner Profile text. Survey data revealed a number of different modes of open-mindedness that fit within the wider goal of developing this attribute amongst young people. For example one aspect of open-mindedness in relation to intercultural awareness and sensitivity was identified as an openness to cultural and religious difference. An example of open-mindedness as an intellectual virtue involved a willingness to critically review accepted sources of knowledge and truth.

This research suggests that developing a more nuanced understanding of open-mindedness amongst teachers may help them to better identify and exploit opportunities to develop open-mindedness amongst students as they present themselves in the curriculum.

This study highlighted that differences across different modes of open-mindedness could be significant, and that students in one school may be more open-minded in relation to some modes, but less so in relation to others, suggesting that the causal relationships behind developing a more or less open-minded orientation within students are complex and varied.

Within the constraints imposed on aspects of this study associated with sample size and a limited number of non-IB schools participating, it is difficult to discern substantial differences in open-mindedness that may or may not be directly the result of schools teaching the IB curriculum. That said, there is evidence of such effects which are noteworthy. In particular, there was a clear and significant relationship between attendance at an IB school and a greater level of open-mindedness among pupils with regard to awareness of cultural differences. For example, pupils attending the non-IB school in our study typically scored 4.5 on a scale of 2-8 measuring how open-minded they are to the possibility of substantial differences between cultures (i.e. they typically scored right in the middle of the range), while pupils attending any IB school typically scored above that middle point, ranging anywhere between 4.7 and 5.2.

There were also several instances in which attendance at a particular IB school led to greater average levels of open-mindedness among pupils than those seen in both the non-IB school and other IB schools (such as being open-minded about cultural primacy, belief open-mindedness, and cultural and religious open-mindedness). For example, attendance at one of the schools studied typically made students significantly more open-minded about the beliefs and practices of other cultures and religions than those at any other school raising their average score (on a 4-16 scale) by more than 3 points compared to those of the non-IB school, even once factors such as gender, age, religious belief and nationality have been accounted for. In another example attendance at one of the case-study schools typically makes pupils more open-minded about their own beliefs, raising their score on a 2-8 scale by almost a full point compared to the non-IB school.

While there is an insufficient range of non-IB schools in this study to be certain that these effects are associated with the IB curriculum, there is nonetheless encouraging evidence that schools teaching an IB curriculum have the potential to raise levels of open-mindedness among their pupils, particularly with regard to awareness of cultural difference and diversity, but also regarding religious and cultural beliefs, and students' own beliefs.

This report also provides clear evidence of good practice within the case-study IB schools with regard to the ways in which teachers identify and exploit opportunities to develop the attribute of open-mindedness amongst young people.

The complexity of open-mindedness as an attribute to be developed in young people ensured it was a correspondingly complex concept for teachers to work with. This research highlighted that teachers, and students, generally have a well developed understanding of the concept of open-mindedness, although this can be quite personal and sometimes it is limited in range. There is not always an understanding of the complex and multi-modal nature of open-mindedness as it emerged from the survey

and making teachers more aware of these differences may help them better exploit opportunities for developing open-mindedness within the curriculum. There was also a clear sense that teachers sometimes choose to 'close down' the possibilities for open-mindedness where they sense this may generate tensions and problematic situations. This was not what they felt they necessarily *wanted* to do, but there was a realisation that open-mindedness necessarily pushes boundaries and sometimes pragmatic caution was preferred to what were seen as more risky ventures into new territories. The research attests to the assertion that genuinely open-minded approaches to teaching can sometimes require acts of courage. Developing teachers' confidence in relation to their understanding of open-mindedness may also have the effect of supporting courageous teaching.

The complexity of open-mindedness as a concept, including its interrelatedness to other Learner Profile attributes, meant that teachers were opposed to trying to evidence and measure the attribute in a more formal form. Time and again we heard that the value of the IB MYP, and in particular the Learner Profile, lies in its flexibility and potential for creative interpretation. Teachers were keen that the pressure to 'measure everything', increasingly common in many systems, is resisted. It was felt that Learner Profile attributes should be 'felt' rather than 'delivered' and that they would be diminished if a more instrumental approach to teaching and learning was adopted. However, this approach does generate something of a paradox within the IB curriculum – which is that its most important element, its mission expressed as learning objectives, can be the aspect of the MYP curriculum that is discussed the least. It is often assumed it is 'happening', and teachers are often confident that they are 'doing it', but several teachers acknowledged that their coverage of Learner Profile attributes generally could be serendipitous. There is therefore not always a clear sense of how effective a school might be in developing the attribute, where good practice is happening and how that practice can be developed.

The paradox described above highlights the need to ensure that the Learner Profile, and its different attributes, are systematically built into the 'professional dialogues' that take place in IB schools. Here we deliberately use the phrase professional dialogues because this is about much more than formal professional development but also includes daily 'teacher talk' whether it be part of formal meetings, or more informal professional conversations. It is important to ensure that teachers are talking more explicitly about the 'big issues' that underpin the curriculum rather than on what can appear as an exclusive focus on what one teacher described as 'the logistics of delivery'. Within the case-study schools there were several examples of how schools sought to generate these dialogues – for example the use of teacher-driven action research projects that focused on teaching and learning, whilst also promoting collaboration between colleagues. If the Learner Profile represents the heart of the IB it needs to be looked after. Teachers need to talk about its well-being, and how to nurture it. Such conversations should not be left to chance.

This research revealed that these discussions are much more likely when the Learner Profile attributes are embedded in the culture of the school. Within this study we have developed the notion of the 'open-minded school' as one in which key elements of the organisational culture and ethos inform the development of the individual student. In the open-minded school the development of open-mindedness as an attribute emerges through a complex relationship between the student, the Learner Profile and a number of organisation factors, including teaching and leadership, all of which reinforce each other. It is the alignment of these factors at an organisational level, in the form of the open-minded school, that we believe is mostly likely to support the development of open-mindedness amongst young people – individually and collectively.

Introduction

This report presents findings and conclusions from the research project *IB Middle Years Programme in the UK: Implementation Practices and Student Outcomes Associated with the Learner Profile Attribute 'Open-Minded'.*

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This research has two broad aims. First it seeks to establish the open-mindedness of students in the Middle Years Programme (11-16 years curriculum) of the IB, and second, it seeks to understand how IB schools seek to develop open-mindedness amongst their students. The study adopted a mixed methods approach in which a survey of students was used to address the first objective (looking at student outcomes of open-mindedness) and qualitative data, principally focused on school visits and interviews focused on the second objective (looking at school practices).

Within the context of the two over-arching aims indicated, the study addresses the following research questions:

1. In what ways do MYP schools interpret and support student attainment of the Learner Profile attribute 'Open Minded'? For example, how has this attribute been integrated in:
   - School policies and structures
   - Curriculum and classroom practices
   - Non-academic activities
   - Daily life of the school

2. How do schools monitor and assess student development of the Learner Profile attribute 'Open Minded'?

3. What outcomes do MYP students obtain in measures of (i) open-mindedness, and (ii) intercultural awareness/sensitivity?

- Do student outcomes vary according to gender?
- Do student outcomes vary for different year levels?
- Do student outcomes vary across type of school?

4. What are students' understandings, experiences and attitudes in relation to the Learner Profile attribute 'Open-Minded'?

5. What similarities and differences exist across the case study sites regarding (i) how schools support student attainment of the Learner Profile attribute 'Open-Minded', (ii) outcomes achieved on measures of open-mindedness and intercultural sensitivity?

6. What do schools that achieve high levels of student open-mindedness and intercultural sensitivity identify as key success practices for supporting student development of the Learner Profile attribute 'Open-minded'?

7. How do MYP student outcomes on measures of open-mindedness and intercultural sensitivity compare to non-IB students?

The report opens with some contextual information about the IB Middle Years Progamme (MYP) and the place of the Learner Profile in the MYP curriculum. There is then a discussion of the concept of open-mindedness as it is operationalised in the project. Open-mindedness is a complex concept that draws on a number of different disciplinary traditions to frame it. These issues are explored in the report.

Following a presentation of the research methods used in the study the main findings are presented and discussed. In the first part of the findings presentation the focus is on the quantitative data and student outcomes. The second part of the findings presentation draws on the qualitative data and explores school practices.

One of the key findings of the research is that open-mindedness cannot be seen narrowly as one element of 'curriculum delivery', but that it is best developed through complex processes that combine classroom and whole school approaches in which an open-minded culture and ethos is created and sustained. In the report we make the case for the creation of an 'Open-Minded School' and the report concludes with a single case study detailing how this has been established within a newly built school.

The research questions that inform the project are presented, and these are followed by a presentation and discussion of the data collected and findings/analysis.
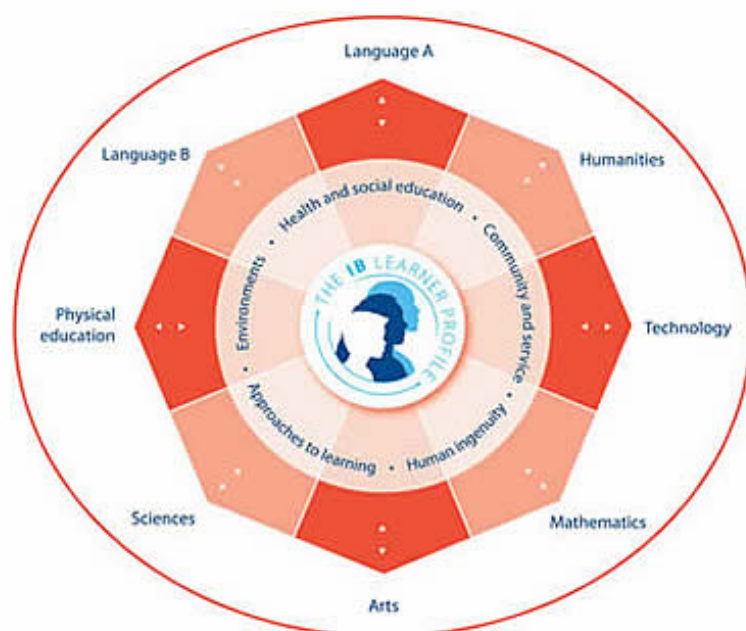
Background to the study

The focus of this research is the IB's Middle Years Programme. This programme formally emerged in the early 1990s and represents the middle link in the IB's continuum between the Primary Years Programme and the Diploma Programme. In this sense it occupies a unique position as the element of the IB K-12 continuum that 'faces both ways' in terms of securing continuity and progression with the continuum as a whole. The MYP has grown substantially in recent years, and Bunnell (2011) argues that in terms of numbers of students involved it is probably the largest programme of the three different elements of the continuum. Bunnell argues that the Diploma Programme is most widely recognised, and is present in the largest number of schools, but in many cases the number of participating students is few. In contrast the MYP generally covers much larger numbers of students in a school, and hence Bunnell's claim that the MYP is potentially the largest programme in the IB continuum.

Within the UK, where this research has been conducted, the MYP remains a relatively small programme. The expectations of the national curriculum in England and Wales, combined with the historic significance of the 16+ exit exam (previously O levels, and now GCSE) mean that the MYP has struggled to secure a space in state schools (approximately 93% of the sector). However, recent policy developments may change this. New types of schools are being developed, called Academies and Free Schools. These schools have grown significantly in number since 2010 and now represent more than 50% of all secondary schools. One feature of Academy and Free Schools is that they have increased institution- level powers relative to local authority maintained schools, of which an exemption from national curriculum requirements is arguably one of the most significant. It remains to be seen therefore whether these increased freedoms for schools will translate into increased interest in different curricula, such as the IB MYP. As it stands the MYP programme is currently available in 12 schools in England, of which three are in the state sector. Most providers are international schools, although there is some evidence of non-international schools turning to the IB MYP as

educators look for an alternative to so-called 'factory schools' (Seldon, 2010).

The MYP is based on eight academic subject areas, that surround five areas of interaction (Human Ingenuity, Community and Service, Approaches to Learning, Environments, Health and Social Education). These represent the key frames that shape the curriculum experienced by students. When represented visually (IBO, 2011) the academic subject areas form an outer layer, in the form of an octagon, with the areas of interaction within this octagon. At the centre of the image is the student, immediately framed by the IB's Learner Profile.

Figure 1. The MYP Curriculum

The IB Learner Profile 'is the IB mission statement translated into a set of learning outcomes of the 21st century' (www.ibo.org) or the organisation's mission statement 'in action'. IB's mission statement reflects the three fundamental principles that inform all of the IB programmes – communication, holistic learning (Hare 2010) and intercultural awareness (Hayden and Thompson, 2011), and hence the Learner Profile is common to the PYP, MYP and DP (in contrast to other elements where the nomenclature varies across programmes). This placing of the Learner

Profile within the IB programmes arguably ensures it has a significance within the IB curriculum above all others. It is, in essence, the definition of the IB Learner, presented in the form of 10 attributes. IB Learners aspire to be:

Inquirers	Knowledgeable
Thinkers	Communicators
Principled	Open-minded
Caring	Risk- Takers
Balanced	Reflective

There is no hierarchy within the Learner Profile, with all the attributes assuming equal significance. However, it is recognised that there is a correspondence between three of the attributes and the three fundamental principles with holistic learning relating to 'balance', communication with its Learner Profile namesake and intercultural awareness linking to 'open-mindedness'.

The MYP is currently a programme in transition. A review of the programme was commenced in 2010 and significant changes are being introduced from September 2014. This latest stage in the development of the MYP is sometimes referred to as 'the next chapter' (IBO, 2014). The research presented in this report was undertaken in 2013-14, and reflects the experience of IB teachers prior to the 2014 changes. Most of the changes in the 'next chapter' relate to the amendments to the middle rings in Figure 1, and in particular a transition from Areas of Interaction to Global Contexts. These changes are significant, and they were clearly in the minds of teachers involved in this study. However, it is important to note that there is no change in the Learner Profile (IBO, 2013) and therefore material presented in this report is very largely unaffected by the 'next chapter' changes.

Understanding open-mindedness:

The focus of this research is on the attribute 'open-minded'. This is expressed in the IB Learner Profile in the following terms:

> 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. (www.ibo.org)

Even a cursory analysis of this definition reveals its centrality to the IB mission, with many of the key aspirations of an IB education being shaped by a commitment to open-mindedness. In particular it is clear that a commitment to open-mindedness lies at the heart of IB's commitment to develop an 'international mindedness' in which IB students see themselves as global citizens (Oxfam, 2006). However, as Davy acknowledges (2011) the challenges of achieving this in a schools context are considerable:

> The practical application of the IB philosophy can be challenging even for schools that wholeheartedly embrace international-mindedness. Explicit instruction in ethics, perspective thinking, open-mindedness, interdependence, intercultural understanding, complexity and diversity is a formidable task in any classroom. The IB programmes will benefit from strengthening these philosophical attributes of global citizenship in the curriculum (Davy, 2011:3)

However, as the Learner Profile makes clear, international mindedness is only one element of the attribute open-mindedness. What is also central to the concept of open-mindedness is an approach to knowledge and a way of thinking. It is, as Spiegel argues, 'an important intellectual virtue' (2012:12).

Within this research we have drawn on IB's definition of open-mindedness to operationalise the concept as one that reflects both a way of thinking

(open-mindedness as an intellectual virtue) and as a way of seeing the world (open-mindedness as international mindedness). Below we set out in more detail what each of these dimensions means, and seek to demonstrate how they are intimately linked. We begin by engaging with some of the philosophical literature relating to open-mindedness before linking this to a wider discussion about open-mindedness and international mindedness.

Hare defines open-mindedness in the following terms:

> Open-mindedness is an intellectual virtue properly ascribed
> when an individual or a community is disposed to take into
> account all that is relevant to forming a sound judgment and
> likewise disposed to reconsider judgments already made, or
> information, in light of emerging difficulties, especially when it is
> tempting to avoid acting in these ways. In any absolute sense it
> is unattainable, and even relative success can be elusive. Those
> who try to be open-minded must steer clear of bias, prejudice,
> doctrinaire beliefs, hasty conclusions, fear of the truth, and
> pressure to conform, all of which undermine attempts to
> examine evidence seriously.
> (Hare, undated:2)

Hare's approach to open-mindedness is widely cited, but it is also challenged. One common criticism is to assert that 'open-mindedness' encourages an approach to knowledge in which all points of view are considered worthy of consideration, even where those points of view may be considered morally repugnant (see Gardner, 1996). The result therefore is a type of intellectual relativism in which credence is given to ideas and arguments that are not worthy of consideration.

Hare rejects these arguments and invokes Bertrand Russell to argue that claims that open-mindedness necessarily implies relativism and neutrality fails to distinguish between having definite beliefs, and how such beliefs are held. Hare's argument is that having strong convictions is to be

commended, but what is important is a willingness to review such beliefs, and subject them to critical scrutiny.

In our view Hare's approach to open-mindedness has a particular value in relation to this study because of the way in which he embedded open-mindedness within an educational frame. For Hare open-mindedness was not simply an intellectual virtue, but a pedagogical necessity. It was therefore both an end in itself, and a means to an end. As Hare argued:

> Open-minded inquiry, both as a way of learning and the
> desired outcome itself, is an indispensable feature of
> education if education is to mean more than simply
> reinforcing prejudices or receiving beliefs uncritically
> (Hare, undated:3)

Hare's approach highlights the central way in which open-mindedness informs pedagogical practices and that genuine open-mindedness is both process and outcome. Such a perspective reflects the thinking of those such as Dewey who argued that to be educated for democracy requires a democratic approach to education itself (Dewey, 2011). However he also points out that teachers seeking to develop open-mindedness in students can face particular challenges. One pressure emerges from curriculum overload and the sense that there can be insufficient time to allocate to areas such as open-mindedness, whilst arguably a more difficult issue is that promoting open-mindedness necessarily courts contention and Hare asserts that teachers require a willingness 'to live with the criticism that will almost certainly be directed at them' (Hare, undated:5). This is what elsewhere in this report we refer to as 'courageous teaching'.

As indicated, within the IB Learner Profile the attribute open-mindedness forms part of a wider commitment to international mindedness in which there is an aspiration to develop intercultural awareness and intercultural sensitivity amongst students. This extends the notion of open-mindedness as an intellectual virtue to a commitment to be 'open-minded' to those from other cultures. Intercultural *awareness* draws on the work

of Chen and Starosta (1996 and 1997) and indicates an individual's capacity to understand the similarities and differences between cultures (Fritz et al. 2000). However, intercultural *sensitivity* develops this further and refers to the 'emotional desire of a person to acknowledge, appreciate and accept cultural differences' (Fritz et al. 2000:3). Both these concepts, intercultural sensitivity and intercultural awareness, can be seen to be central to the IB aspiration of international mindedness, and the wider goal of the IB student as a global citizen. However, it is important to recognise that this objective is not without contention, including an awareness that the IB commitment to international mindedness has still struggled to shake free from a perceived western values bias (Walker, 2010)

Davy's IB position paper on global citizenship (2011) shares common ground with Hare in arguing that international mindedness is about process as well as outcomes and that this requires a distinctive pedagogical approach. She argues that 'Open-minded understandings of perspective, culture and diversity arise through open inquiry' (Davy 2011:5).

This overview of key literature in relation to open-mindedness sees this attribute as a both an intellectual virtue based on an openness to ideas and an international mindedness that underpins global citizenship. It is these twin elements that are brought together within the IB Learner Profile. This research study seeks to capture these twin elements of open-mindedness, but in particular it seeks to understand open-mindedness as both an outcome (in terms of being a learning objective, broadly conceptualised) and a process (in which open-mindedness represents an approach to learning). As such the study seeks to explore the complex relationship between open-mindedness as an attribute for young people to develop, but also open-mindedness as both a feature and an approach within the school institution itself. In bringing these two dimensions together we utilise the phrase associated with Bertrand Russell (see Hare, 2010) of 'critical receptiveness'. Within this research we draw on this phrase as one that captures both openness and

conditionality. Open-mindedness requires a willingness to be open to cultures, ideas and possibilities, but it also requires a commitment to questions and critique.

Research Design and Methods

Data for this research is based on a mixed methods approach with data collected from several sources.

The focus of the study is Middle Years Programme schools in the United Kingdom. There are currently 12 schools that offer the MYP, all located in England. Of these, three schools are in the English state (public) system, and the other nine are independent/private sector schools. Of the 12 schools, four provide the full continuum of IB programmes, i.e. Primary Years Programme through Middle Years Programme to Diploma Programme. Two schools offer the Middle Years Programme only and the remaining six schools offer the Middle Years and Diploma Programme.

All MYP schools in the UK were invited to participate in the study. Schools were invited to undertake an online survey with students in their Middle Years programme, and to participate as case study schools involving school site visits and interviews with staff and students. Where site visits were undertaken some documentation was collected, as and when this was provided by schools.

Schools are pressured environments and it is widely acknowledged that the demands on staff and students are exacting. Any request to take on additional commitments, such as participating in a research project must be cognisant of this context. We therefore approached schools with an outline of what we required in terms of access to data, whilst recognising that we needed to be sensitive to individual school's contexts and flexible in terms of what they might realistically be able to provide during the time we required access.

Following the initial approach six of the 12 schools agreed to participate in the study. Three schools undertook both the survey and the site visit. Two schools undertook the survey only and one school participated in the site visit only. In addition to the six IB schools participating in the project one non-IB school participated in the survey, with a view to facilitating

some comparison between IB and non-IB provision. This school was selected on the basis of several factors including demographic profile (appropriate age range) and academic achievement. The school is a state sector Academy school that would be considered academically high performing and is rated as 'outstanding' by the national inspectorate, OFSTED.

A full list of the participating schools, outlining the manner of each school's participation, and supported by relevant contextual information is provided in Table 1 below.

All participants, and participating institutions were assured of confidentiality and anonymity. Participating schools have therefore been provided with a school name based on characters from the Greek alphabet. However, it is important to recognise that in such a small study (with only 12 schools available to participate nationally) there is a greatly increased chance of institutions being identified. Even providing a modest amount of contextual information can make identification quite easy in some cases. For this reason individual schools have been identified (by their Greek alphabetic character) for the quantitative data, but where qualitative data is presented, such as interview quotes, there is no attempt to identify the school. Rather descriptors are restricted to role, such as 'Classroom Teacher', or 'MYP 5 student' (schools used different nomenclature to describe year based cohorts and in this report we have used a single system).

Before providing a summary of the data collected from different schools it is important to provide some further details about each of the different sources of data collected.

Survey:

The survey was intended to develop a broad picture of the levels of open-mindedness amongst the students. It was distributed to all schools that indicated they would participate in this aspect of the research. We

Table 1. Participating Schools and Project Participation

School name	IB school	Descriptor	IB Continuum	Survey responses	Interviewees (staff)	Interviewees (students)
Alpha	Non-IB school	State sector, comprehensive, ages 11-18. Number on roll (NoR) 1300+.	Non-IB	98	N/A	N/A
Beta	Yes	Independent sector, International school, ages 3-18. NoR c. 250.	PYP, MYP, DP.	35	7	6
Gamma	Yes	Independent sector, International school, ages 3-18. NoR 200+	PYP, MYP, DP.	106	11	20
Delta	Yes	State sector, all-ability, ages 11-18, NoR c. 300.	MYP	197	12	12
Epsilon	Yes	State sector, comprehensive, ages 11-16, NoR c. 550.	MYP	182	N/A	N/A
Zeta	Yes	Independent sector, International school (faith-based), ages 11-18. NoR c. 250.	MYP, DP	54	N/A	N/A
Theta	Yes	Independent sector, International school, ages 3-18. NoR c. 350.	PYP, MYP, DP.	N/A	5	15

N/A – did not participate in this element of the research

requested that schools undertook the survey with as many MYP students as was possible and practical. The survey was completed on-line and in class, under the supervision of a teacher – clear instructions were given to the schools regarding how and under what circumstances the survey should be completed so as to, as much as possible, synchronise the conditions under which the data was collected. Given the scale of the undertaking none of the schools carried out the survey with all of their MYP students, but rather each school completed the survey with a number of classes based on what was practical. The number of responses from each school therefore varies quite considerably between 35 and 197 students. These variations at least in part reflect the ratios in school size with the smaller schools in the sample having c. 250 students (3-18) through to the largest with over 1,300 (11-18).

The survey consisted of 44 statements with which respondents were asked to express their agreement of disagreement on a four item Likert scale, as well as ten further questions providing demographic information and identifying the school the respondent attended. The statements related to a range of values, beliefs, scenarios and perspectives intended to reflect multiple facets of open-mindedness, including being open-minded towards the people, practices and beliefs of other cultures, being open-minded towards one's own moral and personal beliefs, and being open-minded about sources of knowledge and information. Each statement was designed so that agreement or disagreement would clearly reflect an 'open-minded' orientation in later analysis, consistent with the definition of open-mindedness developed earlier in this report and reflecting the dual element of open-mindedness as presented in the IB Learner Profile.

The statements were developed in two stages. First, an extensive list of scenarios through which an individual's behaviour or attitudes might give an indication as to how open-minded they are, relating to the three spheres of critical receptiveness outlined above, were identified through discussion and reflection among the research team, and extensive engagement with relevant literature (for example: Adler, 2004; Brammall, 2000; Gardner, 1993; Riggs, 2010; Sigel, 1988. These scenarios then formed the basis of statements relating to an individual's attitudes or behaviour with which agreement or disagreement would capture an indication of their open-mindedness. These statements were then revised repeatedly following further discussion and deliberation, before eventually being used in a pilot survey of school pupils of the same age to those in the target sample of IB pupils. The feedback from

the pilot provided an indication of how comfortable the respondents were with considering those scenarios and answering the question, as well as of how much variation in responses we could expect the full list of statements to produce.

Following the pilot, the statements were revised once again, and any which produced either little to no variation, or which showed signs of not being likely to generate much useful information from respondents (such as, for example, those which produced an unusually high proportion of 'don't know' responses) were removed. This left the remaining 44 statements which were used in the final survey.

The project has sought to break new ground in terms of designing a battery of survey questions which can offer a measure open-mindedness while at the same time being accessible to school children and producing meaningful results. In light of the anticipated difficulties for the final analyses of the data stemming from the relatively small sample size – particularly from some schools - the final survey responses were analysed using latent structure analysis (see Appendices 2 and 3 for more details). This process, which identifies clusters of variables within a survey which are measuring the same, latent common construct to some extent, would both improve our understanding of the concept of open-mindedness (therefore aiding in the interpretation and analysis of the qualitative data), and improve the empirical utility and reliability of the survey measures themselves – a particularly important benefit in light of the limitation imposed on this analysis by the small sample size. Those survey statements which were not related to any other in measuring a latent component of open-mindedness were omitted from the final analysis.

It was not expected that the latent structure analysis would find that all 44 statements were measuring the same latent construct (i.e. open-mindedness), but rather facets or 'modes' of it i.e. different aspects of open-mindedness which are all related, but which can be caused by different experiences and/or manifested in different ways. The analysis did indeed identify several distinct modes of open-mindedness within the survey measures, reflecting both the complexity of the concept and the success of the survey instrument in exploring multiple different components of what it means to be open-minded.

These open-minded modes were then used as the dependent variables in further quantitative analyses to address the research questions underpinning this project.

This began with simple descriptive analyses to explore the distribution of the open-mindedness modes across the different schools. This was followed by regression analyses which allowed both for the effect of attending a particular school to be compared with another on open-mindedness to be identified, and to control for other factors which might affect how open-minded a particular student is unrelated to school experience, such as religious belief, ethnicity or gender.

A full list of all the items contained in the survey, and a detailed discussion of how the data was analysed is provided in the appendices.

Case- study site visits and interviews:

Visits were undertaken to all schools that indicated a willingness to participate in this aspect of the research. Each school visit was undertaken on a normal school day, so that it was possible to access both staff and students. All school visits involved a school tour which took place during the working day. We indicated to all schools the range of people we wished to meet with and it was then for schools to determine a schedule for the research team, based on staff availability and timetabling constraints etc. Within each school the following were interviewed:

- Headteacher/Principal
- MYP co-ordinator
- MYP teaching staff – drawn from across a range of subjects
- Students – interviewed in focus groups and ideally drawn from across the MYP age range.

Interview schedules were drawn up based on the research questions and are presented in appendix 1.

Separate interview schedules were drawn up for senior leaders, classroom teachers and students. Interviews with classroom teachers were sometimes conducted individually, and sometimes in small groups, depending on how these had been arranged by schools. All student interviews were conducted using a focus group format. In total 88 staff and students, across 4 schools, were involved in interviews.

All interviews were digitally recorded and fully transcribed. These were then subject to a process of thematic analysis (Miles and Huberman, 1994) whereby key themes were identified and coded and issues were organised in relation to the research questions.

Supplementary data:

The survey and site visits with interviews formed the core of the data collection. However, in relation to each of the case-study schools some additional information was collected. In all cases school websites were analysed, largely to assess to what extent the key features of the Learner Profile were evident on sites. School inspection reports were also looked at where available. State schools are inspected by the government's standards regulator Ofsted, and independent schools are inspected by the Independent Schools Inspectorate. Whilst these reports do not focus on the detail of specific elements of the curriculum studied within this report, they can provide important insights into issues such as culture and leadership, which within this research identified as significant issues.

Schools were invited to provide copies of documentation they believed might be helpful to the research team. Where provided, this material was treated as supplementary and there was no attempt to systematically analyse documents provided by the schools across the schools. This was because it was not possible to secure common document types across all schools.

Ethics

The research was conducted according to the ethical guidelines provided by the British Educational Research Association (BERA, 2011) and ethical approval was provided by the University of Nottingham School of Education Ethics Committee. A number of ethical issues presented themselves within the study, notably relating to anonymity and the participation of young people. Anonymity issues arise from the small number of schools in the UK participating in the MYP element of the IB. As has been identified, this can make school identification a potential problem. Within this study it is not possible to eliminate this risk. It is our view that any potential harm that might flow from identification is extremely limited. However, in order to provide maximum safeguards the decision was taken to present the qualitative data in a way that does

not make the school explicit, even using anonymised school names. Hence, direct quotes used in the report are not attributed to any school identifier.

All data collection involving children and young people requires particular care. In this study children were involved through their participation in the survey and as interviewees. In all instances students were provided with full details of the project and it was made clear that their participation was voluntary, and that they could withdraw at any point. Additional safeguards that were put in place in recognition of the age of the participants was to ensure that the online survey was always completed under teacher supervision, and that student interviews were always conducted in focus group format – with a minimum of three participants. All interviews were conducted by an interviewer with experience of being a teacher with the relevant age range and with relevant police checks up to date.

Open-Mindedness – student outcomes

This section will outline the analysis of the data from the open-mindedness survey administered to participating schools between June 2013 and March 2014. The report begins by outlining the details of the survey, and then presenting the results of Mokken Scale Analyses which identify the various dimensions of open-mindedness captured in it. Descriptive data showing how open-minded students at each of the schools typically are is then presented, which demonstrates that while for the most part schools differ little in terms of how critically receptive their students are, there are some differences between n schools.

The following section details the results of the second stage of analysis, in which regression analyses are used to establish whether or not the differences in how open-minded students from different schools are is significant. The regression analyses are also used to identify and control for background demographic characteristics that might affect how open-minded a student is in a particular context. This not only enhances our understanding of the backgrounds traits and experiences which contribute to how open-minded an individual may be, but also allows us to isolate the effect of attending a particular school on open-mindedness. The results suggest that overall choice of school has a relatively small impact on how critically receptive the school's students are. However, in some key areas of being open-minded about cultural differences attending a school teaching the International Baccalaureate (IB) curriculum has a positive effect.

The Survey and the Modes of Open-Mindedness

The Open-Mindedness survey was designed so as to examine how critically receptive students at different schools are in a variety of contexts. The respondents' critical receptiveness was examined in terms of their personal beliefs and values, their moral code, their understanding of knowledge, their views about the moral values and beliefs of different cultures and religions, and their views on the value of working with people from such backgrounds, and learning about them in school.

The survey consisted of a total of 44 statements and respondents were invited to indicate whether or not they strongly agreed, agreed, disagreed, or strongly disagreed with these statements (there was also a 'don't know' option). The statements were

split into three sections: open-mindedness in relation to personal views and beliefs, open-mindedness in relation to the beliefs, people and practices of other cultures and religions, and open-mindedness in relation to notions of truth and knowledge[1].

The survey was designed on the assumption that open-mindedness is not a simple, uni-dimensional concept, but rather is multi-dimensional (this is in part reflected in the way in which the survey was split into sections when it was administered). We expect there to be different 'types' of open-mindedness, which while they all share the common trait of reflecting critical receptiveness, could be expressed differently in different contexts. It does not follow, for example, that someone who might be characterised as 'closed-minded' (i.e. not at all critically receptive) about their personal beliefs to necessarily be as closed-minded about the beliefs of other people and other cultures, nor would we necessarily expect someone who is closed minded about their understanding of truth and knowledge to be equally closed minded about learning about how other people understand truth and knowledge. In short, we expect that critical receptiveness can be expressed in a variety of ways depending on the context, and we expect that an individual might be critically receptive in one context but simultaneously closed minded in another. These different expressions of critical receptiveness are reflected in its multi-dimensional nature.

In order to test this theory, and to identify the different dimensions of open-mindedness, Mokken Scale Analysis (MSA) is employed. MSA allows us to identify which questions in the survey are commonly measuring a latent trait, i.e. which groups of questions are measuring the same latent characteristic to some degree. These traits will represent the different aspects of open-mindedness reflected in the survey questions. The responses to those questions can then be combined into a composite measure of the trait, giving a more reliable and more detailed measure of it than any of the individual survey questions can achieve on their own.

The full details of the MSA are available in Appendix 3, including an outline of the justification for the choice of MSA over other methods, and the process by which the modes of open-mindedness are identified and then operationalised from the data. Out of the 44 survey questions examined, the MSA identified eight distinct modes of open-mindedness:

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[1] A full list of these statements is available in Appendix 2

1. Cultural/Religious Open-Mindedness:

This mode refers to an individual's critical receptiveness towards the values, practices and behaviours of other cultures and religions, and towards people from them. The scale includes items relating to the value the individual assigns to learning about other cultures and religions in school, and to the enjoyment they receive from doing so. They also relate to how receptive the individual is to working with people from other cultures, and how tolerant they feel people generally should be towards the views and beliefs of other religions and cultures. A critically receptive individual would be expected to be quite comfortable working with people from other cultures and/or religions, and towards learning about their beliefs and practices. They should also place high value on social acceptance of those beliefs and practices. A closed-minded individual, by contrast, would be expected to assign little value to learning about or working with people from other cultural or religious backgrounds. This does not necessarily imply racism or xenophobia, but simply that such individuals see little benefit in being exposed to the values or beliefs of others. They would also be unlikely to assign much significance to social tolerance of these alternative beliefs.

2. Problem Solving Open-Mindedness

The second scale reflects how respondents are critically receptive in approaching problems. This relates to how the respondent feels about working with people who have different ideas, about learning new ways of doing things or new things more generally, and about dealing with complex questions that may have more than one correct answer. A critically receptive individual would be expected to welcome the opportunity to encounter complex or challenging problems, and to learn new ways of doing things. They would also be expected to be comfortable when having to work with people who do things differently from them, seeing doing so as an opportunity to learn from the experience. A closed-minded individual, by contrast, would not welcome learning new things or new ways of doing things, instead preferring to deal with simple (i.e. 'one right answer') problems, and would not appreciate having to work with people who do things in a different way.

3. Open-mindedness to Challenge/Critique

The third scale represents how receptive the respondent is to the challenging of their opinions or values, and how critical they are prepared to be about those views as a result of that challenge. It focuses on how the respondent feels about being questioned and proved wrong by somebody else, and/or by somebody who does things in a different way. A critically receptive person on this scale would be comfortable with being challenged by other people with different ideas, and indeed we would expect them to welcome such critique. A closed-minded individual would not see a potential opportunity to learn from being proved wrong or exposed to new ways of doing things, and would likely feel quite uncomfortable, or even angered, in such situations.

4. Moral Open-Mindedness

Moral open-mindedness refers to how critically receptive the respondent is prepared to be about their moral principles i.e. how open they are to alternative moral positions and beliefs, and how critical they are prepared to be about their own moral code in light of alternatives. A critically receptive person would not necessarily have no moral code or exhibit an excessively flexible code, they would simply be willing to critically revisit and revise that code and the beliefs which underpin it in light of challenges from other sources, such as other people or experiences. A closed minded individual, by contrast, would be expected to have a rigid view of their moral code. They would likely be unwilling to reflect on, or to reconsider, their moral values in any situation.

5. Collaborative Open-Mindedness

Collaborative open-mindedness refers to how receptive the respondent is to working with other people to solve a particular problem. It is similar to the problem-solving mode, but refers specifically to how open the respondent is to seeking the input of other people to work out the right thing to do or to solve a complex problem. A critically receptive individual would be prepared to seek the input of other people, with different perspectives and views about the right way to do something, and would be comfortable working with such people to determine the best way to address the issue facing them. A closed-minded individual would not wish to seek the views of other people, or would not be comfortable working with other people when confronted by a challenging and complex problem.

6. Open-Mindedness towards Cultural Difference

This mode relates to how aware of cultural differences the respondent is, and how much value they assign to those differences. A critically receptive individual would be expected to recognise the differences between different cultures, and that those differences can extend towards moral codes, beliefs, behavioural customs and social norms and values. In other words, they accept that cultural differences are non-trivial. A closed minded individual would be unlikely to recognise such differences (for example believing that any such differences are purely superficial) or assign much value to the significance of those differences that they are aware of.

7. Open-Mindedness towards Cultural Primacy

This is similar to the previous mode, but focuses on the value an individual assigns to learning about, and from, other cultures. A critically receptive individual would welcome the opportunity to learn about the beliefs and practices of other cultures. A closed minded person would feel that there was little value in doing so, preferring instead to focus on their own culture.

8. Belief Open-Mindedness

The final mode is similar to moral open-mindedness, but focuses less on what is thought to be 'right and wrong' and more on an individual's broader beliefs. A critically receptive person would be willing to revise or re-examine their beliefs in certain contexts and under challenge, and expected to reflect on them to some degree. A closed-minded individual, on the other hand, would be unwilling to critically reflect on their beliefs, and would hold the view that some beliefs are simply too important to change regardless of context or challenge.

The analysis has identified, therefore, a multi-dimensional conceptualisation of open-mindedness based around the definition of a critically receptive orientation, but which at the same time reflects the fact that people can be critically receptive in some contexts, and not in others, and also that being critically receptive can express itself in different ways and through different views.

Before outlining how the analysis of open-mindedness will be conducted, this section briefly provides information about the survey respondents from each school. In total there were six schools involved in this analysis and who agreed to their students taking part in the survey. Five schools teach the International Baccalaureate (IB) curriculum, and one does not. The school names are not reported for anonymity reasons; the schools are identified as School Alpha (the non-IB school), School Beta, School Gamma, School Delta, School Epsilon, and School Zeta. Details about the sample of students from each of these schools who took part in the survey are shown in Table 2.

Table 2: Characteristics of Samples from each School

School	N (% of Total Sample)	% Females	% Non-White British	Average Age
Alpha	98 (15%)	44%	17%	14.6
Beta	35 (5%)	48%	89%	13.5
Gamma	106 (16%)	42%	92%	13.1
Delta	197 (29%)	51%	21%	12.8
Epsilon	182 (27%)	50%	18%	12.5
Zeta	54 (8%)	96%	83%	13.2
School	Average No. Languages	% Born outside UK	% Belong to a Religion	% Live Outside the UK
Alpha	1.6	11%	39%	5%
Beta	2.9	86%	69%	54%
Gamma	2.7	87%	69%	21%
Delta	1.8	11%	35%	9%
Epsilon	1.8	10%	55%	7%
Zeta	2.1	71%	74%	23%

Source: IB Open-mindedness survey; note that % may not equal 100% due to rounding.

Generally, the schools are very similar in terms of the proportion of females in the sample (with the exception of School Zeta) and the average age of the respondents.

There is clear variation, however, between schools with a large number of foreign born and/or non-white British[2] respondents, factors which are also reflected in the proportion of students currently living outside of the UK and the average number of languages spoken by the students, and to a lesser extent in the proportion of students identifying themselves as belonging to a religion.

Analysing Open-Mindedness in the Schools

Analysing how open-minded the students at the schools are, and how those levels of open-mindedness differ from one school to another, will be performed in two stages. First, a basic descriptive overview of the open-minded scores on each of the above modes of open-mindedness will be provided, with the average score of students at each school calculated. This will give us an idea of how typically open-minded students in the survey are, and allow for a basic outline of how the overall level of open-mindedness may differ from one school to the next.

The second stage of the analysis uses OLS regression analysis to examine the differences in open-mindedness between schools in more detail. The use of OLS regression provides several benefits. First, the regression analysis will form the basis of a test of whether or not the differences in open-mindedness between the schools is statistically significant. We can calculate both the magnitude of differences in open-mindedness from one school to the next, and determine the significance of that difference i.e. the probability that it has been found by chance. This will provide a robust test of the difference between the schools that may be found, and give more confidence in the validity of any findings relating to the effect of attending (or not) an IB school or a specific school.

The second advantage is that regression analysis allows for the effect of other characteristics which may affect how critically receptive someone is to be controlled

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[2] Note that the ethnicity variable originally included 15 different response categories covering a wide range of ethnic backgrounds. The categories included were selected based on those employed in national surveys of the British population which aim to capture information about a wide range of ethnic backgrounds such as the British Election Study and the British Social Attitudes survey. The final results were recoded into this dichotomous format, however, because while there was an extensive spread of ethnic backgrounds among the sample very few respondents were ever concentrated into a single category – with the exception of 'White British' which represented more than 56% of respondents. For example, after 'White British', the most commonly selected specific category (i.e. not 'other') was 'prefer not to say' with 6%, followed by 'any other mixed background' with 4%. These figures are too small to provide a meaningful analysis of differences based on specific ethnic groups, and so the basic dichotomy of 'white British' and 'not white British' was used.

for. Essentially, the result with the inclusion of such controls is the identification of the effect on critical receptiveness of going to one school rather than another, with the effect of other factors held constant. The control variables in this analysis reflect each of the characteristics detailed in Table 2, as well as an additional variable measuring whether or not the respondent has ever lived outside the UK (regardless of whether or not they do now), and how long for.

This implies an assumption, therefore, that each of those factors could potentially affect how critically receptive an individual will be. It is expected that an individual's age will have an effect on how open-minded they are because it reflects their psychological growth and development. Extensive research has demonstrated that an individual's attitudes and values change as they age, both as a result of psychological growth and development, as the changing nature and influence of socialisation forces (Gniewosz et al 2009; Sherrod et al 2002; Jennings and Niemi 1974; 1981; Verba et al 2005; Damico et al 2000). Furthermore, the age variable also gives an indication of how long the respondent has been in education, and therefore exposed to the IB or non-IB curriculum, giving an additional potential indication of the effect of the school on critical receptiveness. Controlling for gender is also important as differences in gender can often lead to differences in attitudes, such as those towards other people and other value systems (Wilkinson and Mulgan 1995; Stolle et al 2005; Karp and Banducci 2008).

The variables relating to ethnicity and religious background, while measuring very different aspects of an individual's identity and experiences, are both intended to capture the effect of cultural and institutional links and backgrounds which may influence how critically receptive an individual is. There is no expectation that a particular ethnic background or a religious affiliation would necessarily make an individual more or less open-minded than anyone else. There may be a difference of some sort, however, owing to the impact that differing ethnic and religious backgrounds have on other aspects of an individual's life, such as their educational performance or engagement with political issues (Pantoja and Segura 2003; Clarke et al 2004; Quintelier 2008; Marsh et al 2007).

Finally, the variables relating to the number of languages spoken, whether or not the respondent lives outside of the UK, whether or not they have ever lived outside the UK and how long for, and whether or not they were born outside of the UK, are all

intended to capture the effect of differing cultural backgrounds on critical receptiveness. There is no expectation relating to the nature of that effect (i.e. we do not anticipate people from a particular country, or who can speak 7 languages, to be more or less open-minded than their peers), but it seems plausible that people who have more experience of different cultural beliefs or practices may react differently towards the different practices or values of other cultures (in terms of being critically receptive) in certain situations from people without such experience.

The regression coefficients reported below, therefore, give an indication of how more or less open-minded a student at a given school would typically be expected to be compared with the respondents at the baseline school (School Alpha), while holding constant the effects of age, gender[3], ethnicity (i.e. 'non-white British')[4], how many languages they speak[5], whether or not they were born outside of the UK[6], whether or not they have ever lived outside of the UK[7], whether or not they live outside of the UK now[8], and whether or not they consider themselves to belong to a particular religion[9]. A significant[10], positive coefficient suggests that the effect of attending a particular school is to typically make students more critically receptive on the particular open-mindedness measure than the effect of attending the baseline school (School Alpha) while all the other factors in the analysis are controlled for. A negative significant coefficient suggests that attending that school makes students either less open-minded, or at least not as open-minded as does attending the baseline school.

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[3] Dichotomous variable, with female = 1

[4] A dichotomous variable, indication whether or not the respondent considers themselves to be White British or non-White British. Originally this variable included a range of potential ethnic backgrounds from which the respondent could choose, however the concentration of respondents in any of the options presented was always low, meaning that there was little analytic utility in trying to examine differences between particular ethnic backgrounds. The variable was recoded, therefore, into this dichotomous format.

[5] This variable simply records the number of languages in which the respondent feels they can maintain a conversation, ranging from 1 to 9

[6] This is a dichotomous variable, indicating whether or not the respondent was born outside of the UK

[7] This variable records for how many years the respondent has lived outside the UK, ranging from 0 (meaning they have never lived outside the UK) to more than 10 years

[8] This is a dichotomous variable, indicating whether or not the respondent currently lives outside of the UK and travels to the UK for school

[9] This is a dichotomous variable indicating whether or not the respondent considers themselves to belong to a particular religion. Like the ethnicity variable, this questions originally allowed respondents to identify which of a range of religions they considered themselves to belong to, however the proportion selecting any individual religion was generally very low and so the dichotomous variable was felt to provide more analytic utility.

[10] A significant effect is one which is statistically significant to the 95% confidence level (i.e. p = <0.05)

Results I: How Open-Minded are the Students?

In this section the basic figures i.e. the scores for open-mindedness that the pupils at each school achieved, will be examined. Throughout the text the mean scores for different modes of open-mindedness are discussed. In Table 3 below all the mean scores, and associated standard deviations, for each school are presented.

Table 3: Open-mindedness modes – mean scores and standard deviations for all schools

Open-Mindedness Mode	Alpha		Beta		Gamma	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Cultural & Religious	26.2	4.0	28.8	4.5	30.8	3.9
Problem Solving	11.9	1.8	11.8	2.2	12.6	1.8
Challenge	4.7	1.3	4.9	1.3	5.2	1.3
Moral	3.8	1.2	4.0	1.6	4.1	1.5
Collaborative	6.2	1.1	6.1	1.1	6.3	1.2
Cultural Differences	4.5	1.2	5.2	1.7	4.8	1.2
Cultural Primacy	4.4	1.0	4.9	1.8	5.0	1.5
Belief	4.0	1.2	4.0	1.4	4.3	1.3

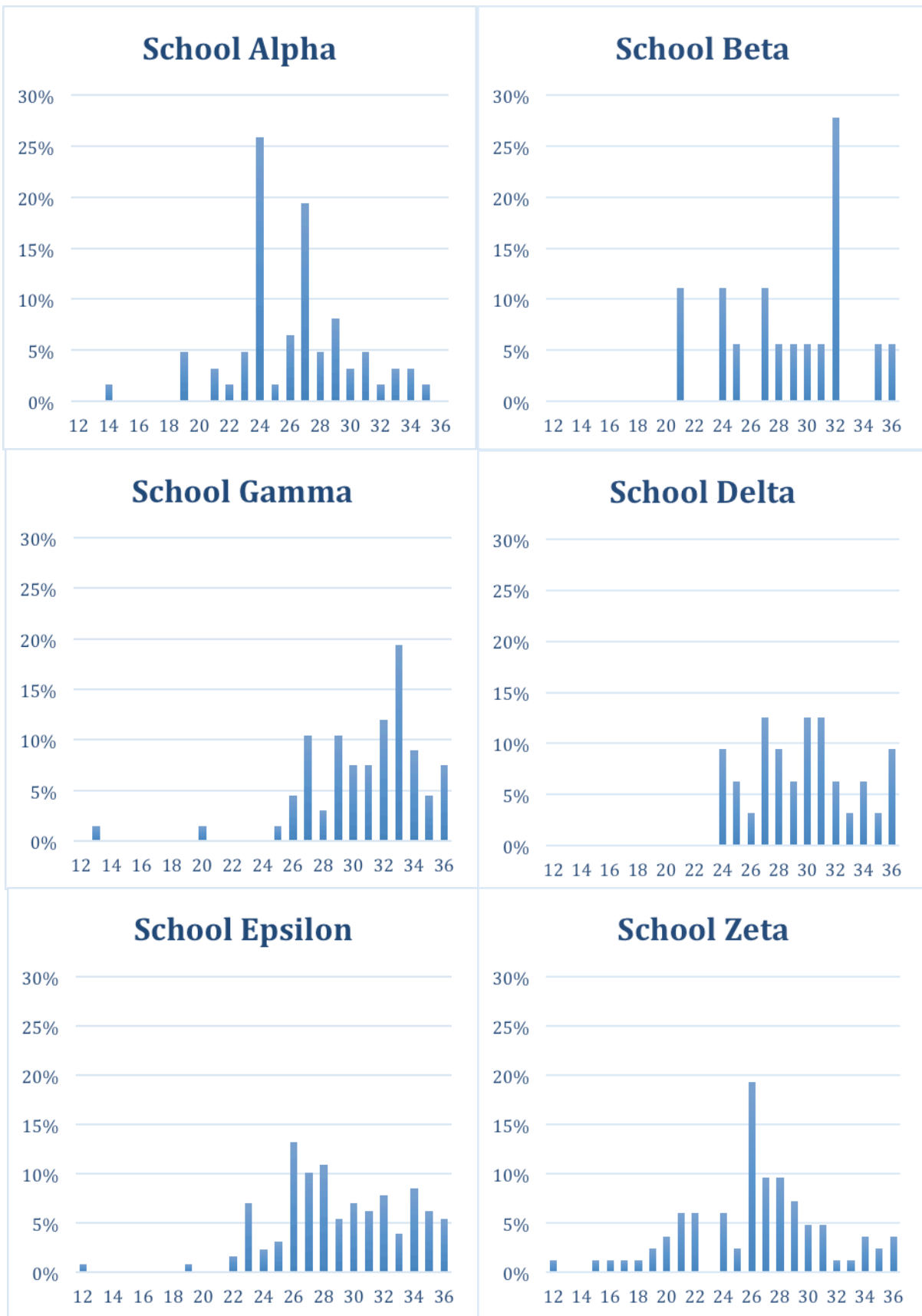| Open-Mindedness Mode	Delta		Epsilon		Zeta	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Cultural & Religious	29.1	4.2	26.3	4.9	29.7	3.6
Problem Solving	12.8	1.9	11.8	2.2	12.3	1.8
Challenge	5.4	1.4	5.1	1.5	5.1	1.3
Moral	3.6	1.3	3.9	1.2	4.4	1.2
Collaborative	6.4	1.1	6.1	1.1	6.5	0.9
Cultural Differences	4.7	1.4	4.9	1.5	5.1	1.2
Cultural Primacy	4.6	1.3	5.2	1.5	5.1	1.5
Belief	3.6	1.1	4.5	1.5	4.6	1.2

Cultural and religious open-mindedness

Data relating to cultural and religious open-mindedness is presented in Figure 2. This open-mindedness mode has a potential score range of 12 (the least open-minded score) to 36 (the most open-minded). Figure 2 shows the average score for this mode of open-mindedness for pupils in each school on the x-axis and the proportion of pupils in each school achieving this score on the y-axis. The data suggest that there are some substantial variations between a number of the schools, and in some cases

within the schools themselves. School Alpha (the non-IB school) and School Zeta (faith-based), for example, have a broader spread of critical receptiveness scores than the others, implying that the range of open-minded scores in these schools is wider than elsewhere (i.e. there is a great difference between the most and least critically receptive students in these schools than in the others). Schools Beta, Gamma, Delta and Epsilon have fairly similar ranges, with their students' scores showing more concentration at the upper end of the scale, suggesting a typically higher level of cultural open-mindedness in those schools than in Alpha or Zeta[11].

This impression is reinforced when we examine the mean score for each school (see Table 3). Schools Alpha and Zeta score means of 26.2 and 26.3 respectively, while Beta and Epsilon score 29, Gamma scores 31, Delta scores 30. The overall average score for this scale is 29, meaning that schools scoring above 29 are 'above average', while those with scores below 29 are 'below average' in terms of how open-minded their pupils are in this context. Typically, students score towards the upper end of this 12-36 scale regardless of the school they attend. However, all of the IB schools (except for Zeta) have scores equal to or above average, while the non-IB school scores slightly below it.

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[11] Note: The different variables measuring modes of open-mindedness have different value ranges owing to the variable number of individual statements which comprise each variable. Owing to the construction of the composite variables following the Mokken Scale Analysis, the scores for each variable are essentially added together, meaning that the potential range of scores is added together as well. This means that for every individual variable added to the composite measure of any given mode of open-mindedness, the potential range of scores an individual can achieve on that variable increases by four. For example, the cultural and religious open-mindedness mode consists of responses to nine different statements, leading to a variable score range of 12 to 36, while the mode for cultural differences consists of responses to just two statements, leading to a range of 2 to 8. See the Appendix for further detail on the construction of the variables.
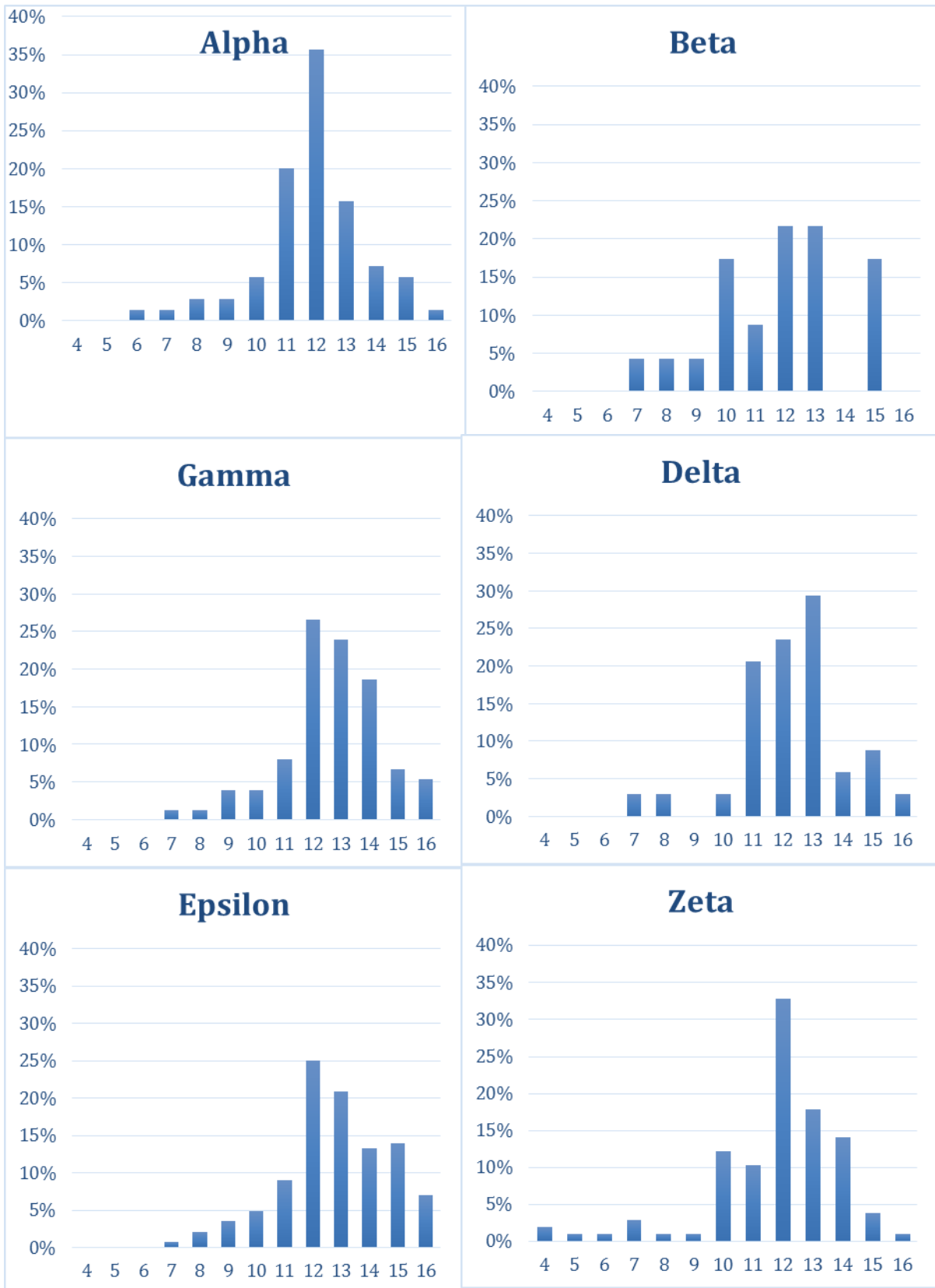
Figure 2: Cultural/Religious Open-Mindedness Score by School

Problem solving open-mindedness

Figure 3 looks at the scores for problem solving open-mindedness, plotting the average score for this mode on the x-axis. This open-mindedness scale has a potential score range of 4 (least open-minded) to 16 (most open-minded), and the overall average score is 12.2. Once again, most pupils are scoring towards the upper end of the scale regardless of school. The data suggest few differences between the schools: Alpha scores 11.9; Beta scores 11.8; Gamma scores 12.6; Delta scores 12.3; Epsilon scores 12.8; and Zeta scores 11.8. There is a slightly higher average score in Epsilon and Delta, suggesting there may be slightly more critical receptiveness towards problem-solving in those schools than elsewhere, but the differences are not particularly large.

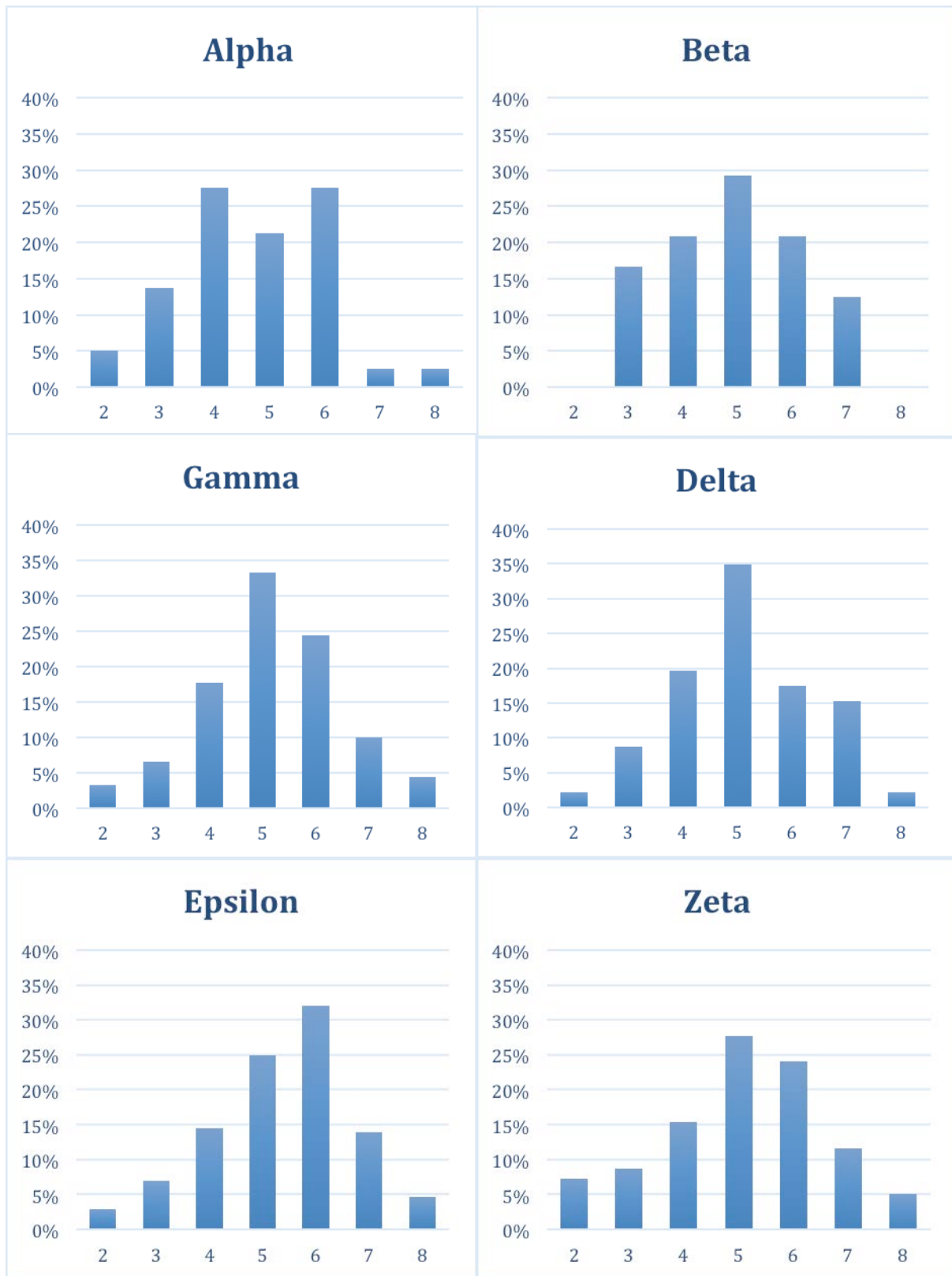# Figure 3: Problem Solving Open-Mindedness by School

Open-mindedness to challenge and critique

Turning to open-mindedness to challenge and critique, this scale runs from a potential score of 2 to 8, with an overall average of 5.1 suggesting that most pupils are scoring towards the upper end of this scale regardless of which school they attend. That said, Figure 4 shows that there are some small differences between the schools worthy of note. School Alpha has a broader range of scores, and with a mean of 4.7 typically scores lower than the other schools. Schools Beta and Zeta are similar, with respective means of 4.9 and 5.1 and a similarly broad spread of responses among their students.

School Delta has the same mean as Zeta (5.1), but the graphs suggests that the spread of responses is smaller (for example, the standard deviation around the mean for Delta is 1.3, while for Zeta it is 1.5 – see Table 3), suggesting that more students score close to this mean in Delta than in Zeta. Schools Gamma (mean 5.2) and Epsilon (mean 5.4) stand out as having the higher average levels of open-mindedness, and both have relatively small spreads of respondents. On average, students in Schools Gamma and Epsilon are the most open-minded to challenge, while students at Alpha and Beta are the least open-minded.

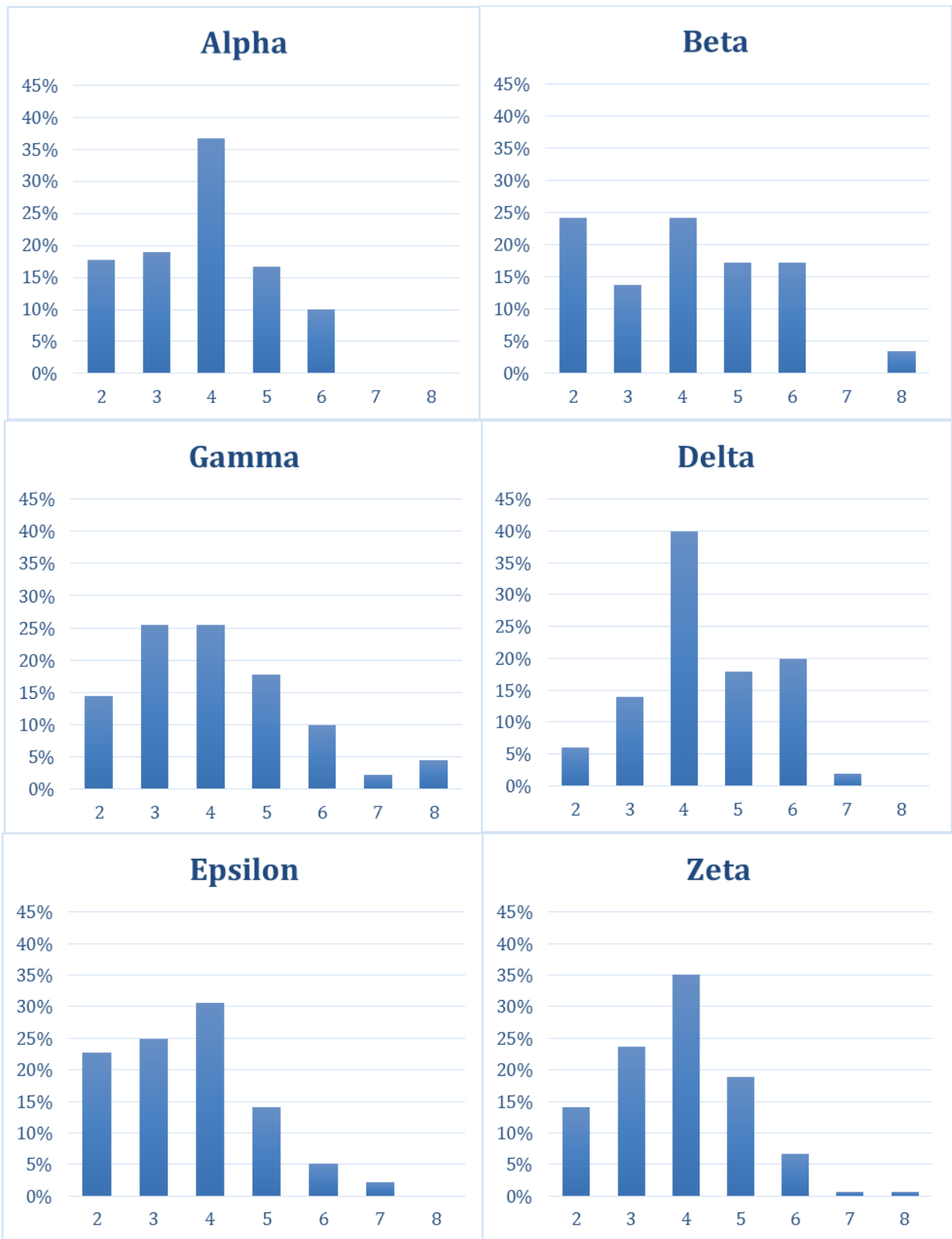**Figure 4: Open-Mindedness to Challenge, by School**

Moral open-mindedness

Figure 5 examines moral open-mindedness (this scale ranges from scores of 2 to 8), showing how critically receptive the students are towards their own moral values and challenges to them. It is immediately apparent that all the students are generally less open-minded about their beliefs on right and wrong than they are about problem solving, being challenged, and towards other cultures and religions; the overall average score is 4 (see Table 3), typically showing students at a lower point on the scale relative to the positions on the other open-mindedness measures considered so far. As has been indicated previously, being open-minded in relation to this issue is not about whether one has a clear moral code or not, but whether or not one is willing to revisit and question one's own moral code, or whether this is something that is considered 'beyond question'. Given the nature of these discussions, it is interesting, but perhaps not surprising, that students appear generally less open-minded when assessed in these terms.

With regards to differences between the schools, there are some notable albeit small differences. The least open-minded school is Epsilon, with a mean of 3.6, and few students scoring above a 5. This is followed by Alpha and Zeta, both with a mean score of 3.8, and the graphs show that the distribution of students across the range of scores in both schools is similar.

Schools Beta and Gamma score higher, with a mean of 4 and 4.1 respectively. Interestingly, however, the distribution of students in each of these schools is much more variable than for the others. Beta has a standard deviation of 1.6 and Gamma of 1.5; there is much more variation in levels of moral open-mindedness within these schools than there is in the others. The most morally open-minded students are in School Delta, with the majority scoring 4, and nearly all students scoring between 3 and 6. The mean score at Delta is 4.4.

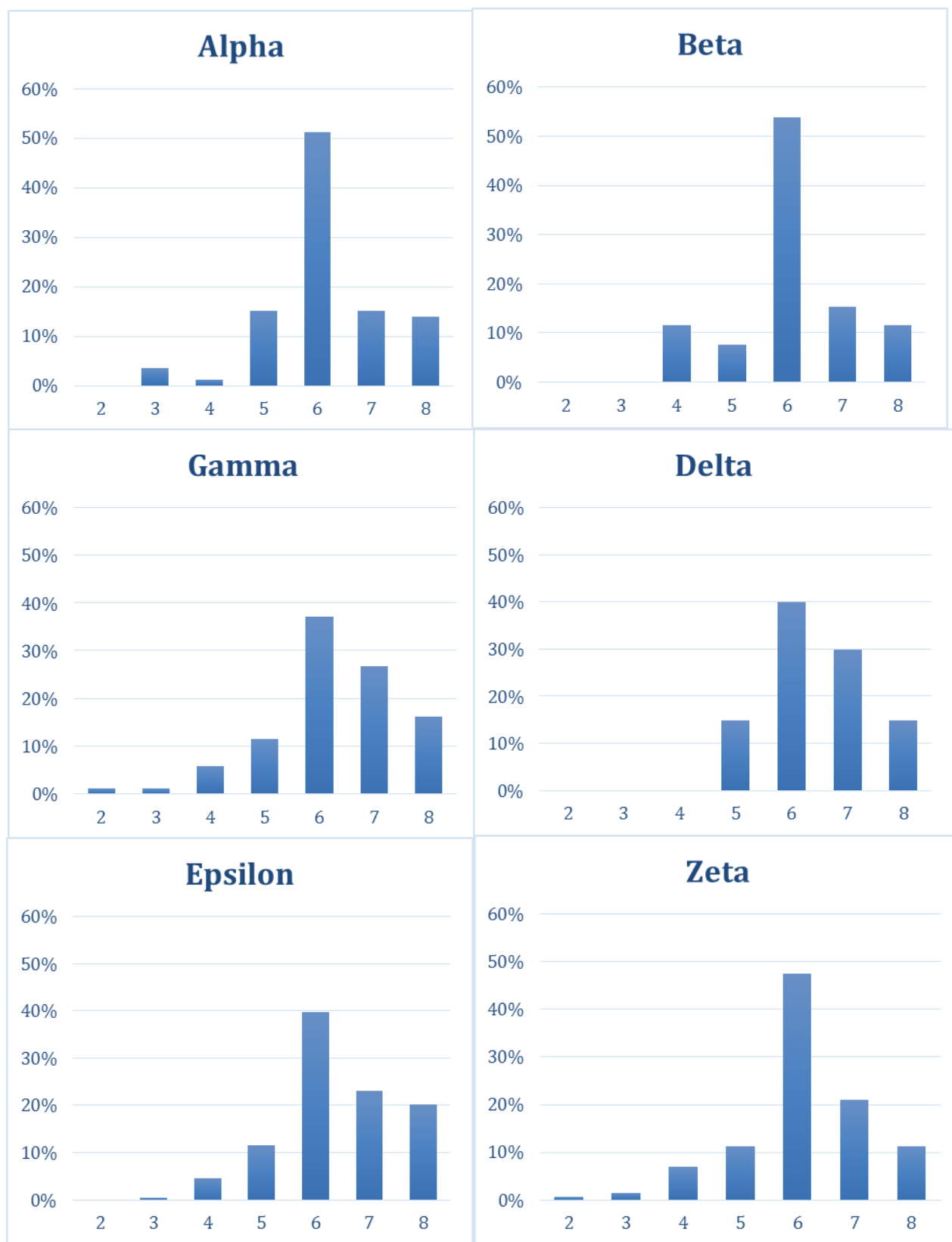**Figure 5: Moral Open-Mindedness, by School**

Collaborative open-mindedness

Moving onto collaborative open-mindedness (this scale also has a score range of 2 to 8), Figure 6 shows that the collaborative open-mindedness scores return to previous form, with more students scoring towards the upper end of the scale and demonstrating a willingness to work with other people to solve problems; the typical score overall is 6.3, above the half-way mark for this scale.

The distribution of scores for each school is quite similar, suggesting that there is not much variation between students within schools. There are some differences, however, between schools. Schools Beta, Zeta and Alpha are the least critically receptive, with mean scores of 6.1, 6.1 and 6.2 respectively. The most open-minded schools are Schools Epsilon and Delta, with respective scores of 6.4 and 6.5. School Gamma sits in between these two groups with a score of 6.3.

Figure 6: Collaborative Open-Mindedness by School

Open-mindedness towards cultural difference

The next mode is open-mindedness towards cultural difference (this scale also has a potential score range of 2 to 8). Figure 7 shows that generally, the majority of students score somewhere in the middle of the range on this variable. The overall average score is 4.9, almost in the middle of the scale.

There are some substantial differences between the schools, however. School Alpha exhibits the lowest level of critical receptiveness, with students on average scoring 4.5 and the vast majority of them scoring close to the mean. Table 3 shows School Epsilon is the lowest scoring IB school with a mean of 4.7, but there is much more variation within this school than Alpha (Epsilon has a standard deviation of 1.4 compared with 1.2 for Alpha).

The next highest scoring schools are Gamma and Zeta, scoring 4.8 and 4.9 respectively, although Zeta shows considerably more variation than Gamma (with a standard deviation of 1.5 compared with 1.2). The most open-minded students are to be found in Delta (mean 5.1) and Beta (5.2), however school Beta shows the greatest intra-school variation of all with a standard deviation of 1.7; there is a much larger spread of responses in the Beta students than elsewhere. While the differences are not considerable, therefore, these figures show a greater tendency for the IB schools to score at or above the mean score overall than the non-IB school, with some IB schools (specifically Delta and Beta) scoring particularly well compared with the others.
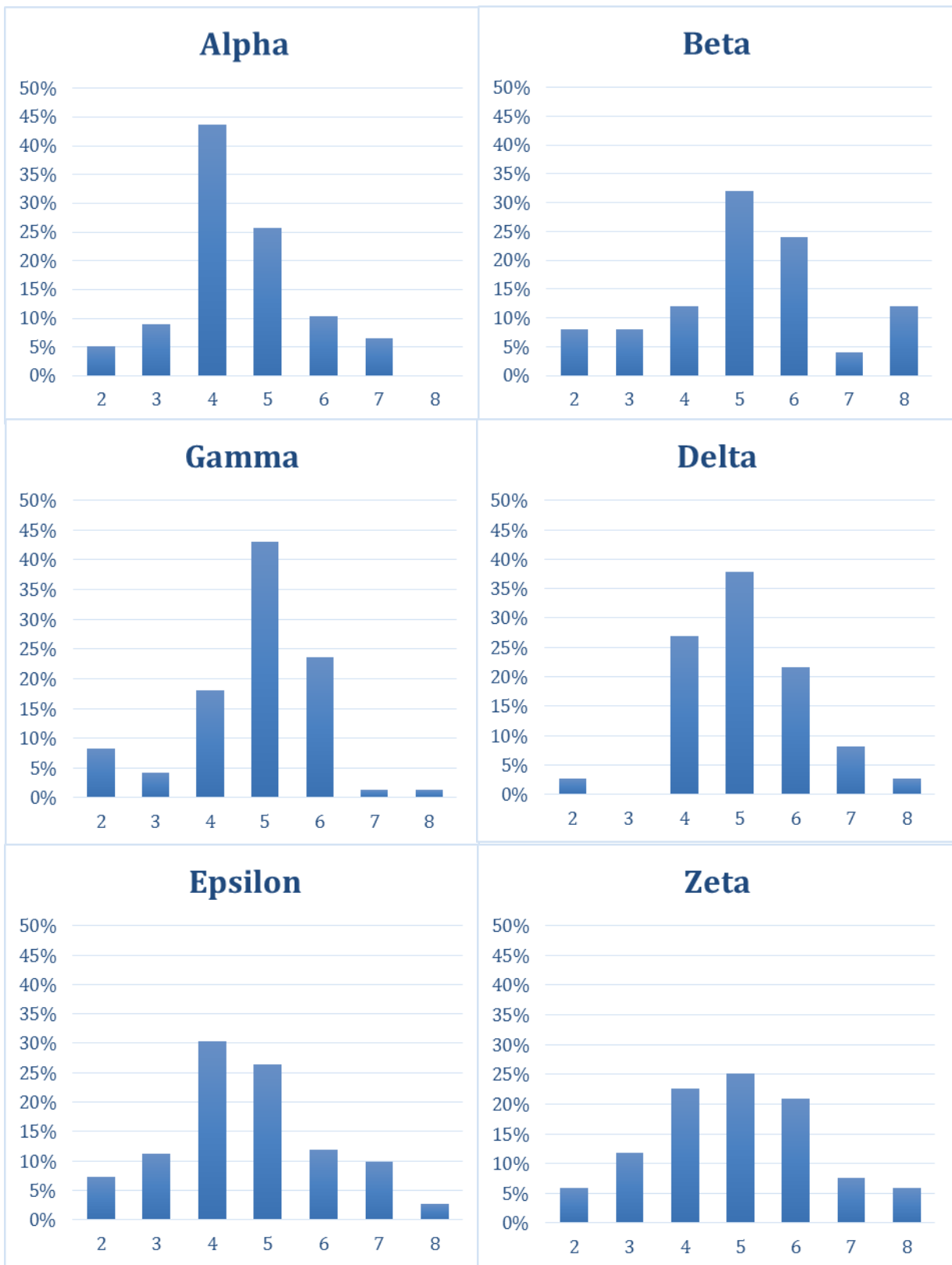
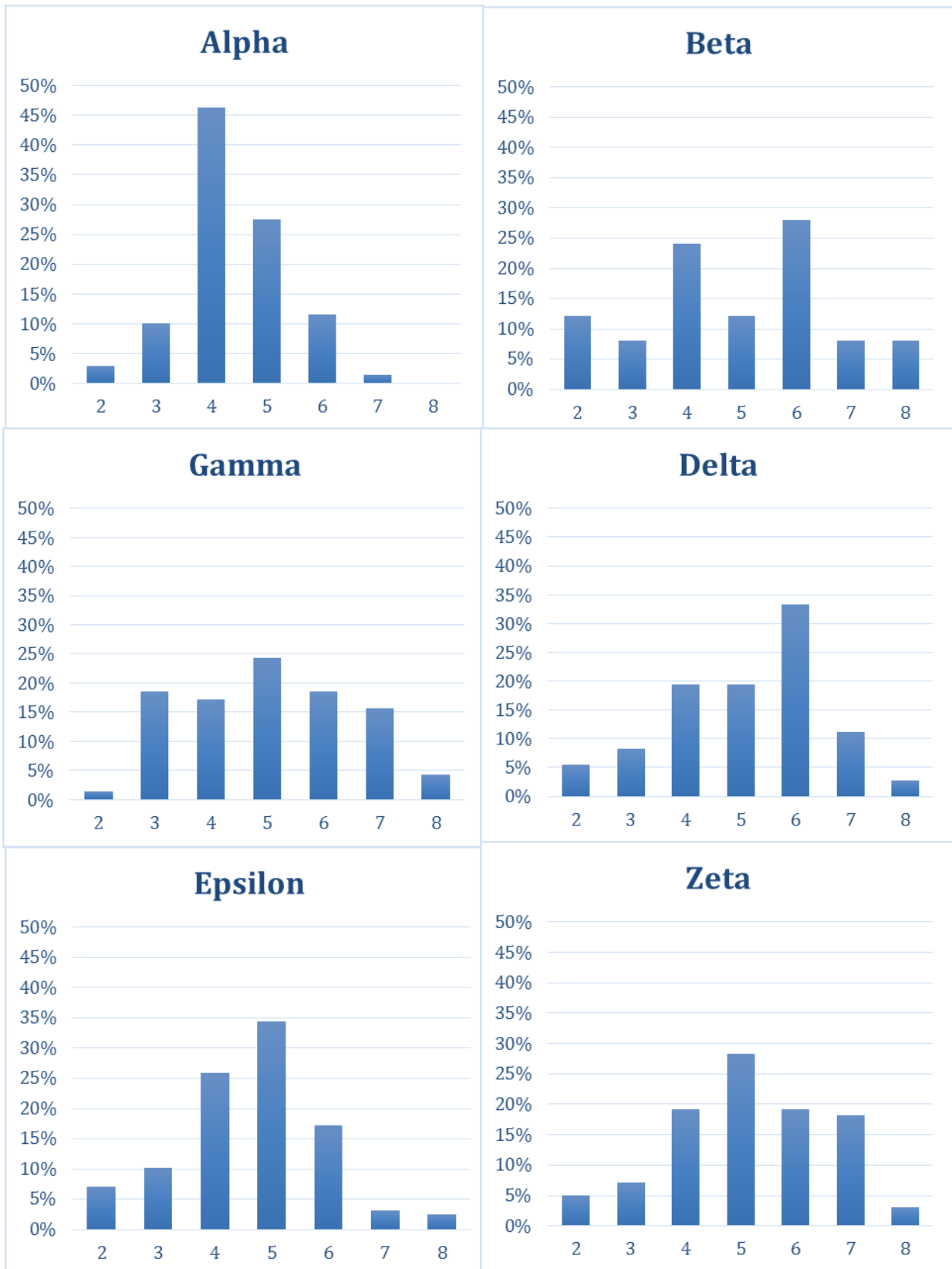**Figure 7: Open-Mindedness Towards Cultural Difference by School**

Open-mindedness towards cultural primacy

Figure 8 looks at open-mindedness regarding the perceived primacy of one's own culture (this scale scores from 2 to 8 as well). The overall average score for this open-mindedness mode is 4.9, almost right in the middle of the potential score range. The graphs show, however, that there are some substantial variations between the schools in terms of the typical level of open-mindedness and the amount of variation within each school there is.

School Alpha is the least open-minded in this regard with a mean score of 4.5 and little variation around that mean (the standard deviation is 1.2); the school typically gets a below-average score for feeling open-minded about one's cultural primacy, and most pupils tend to get roughly the same result. School Epsilon comes next with a score of 4.7 (still slightly below the mean), but there are more differences between pupils within Epsilon than was seen in Alpha (the standard deviation is 1.4). Next comes School Gamma (mean 4.8) and School Zeta (mean 4.9); both have scores almost at the overall average, but the graphs shows that there is greater variation of critical receptiveness between students in Zeta than in Gamma.

The most open-minded schools are Delta and Beta, both of which typically scored above the average (with mean scores of 5.1 and 5.2 respectively). Beta stands out, however, for having greater variation within its pupils (Beta has a standard deviation of 1.7 compared with Delta's 1.2), meaning that while both schools have pupils who are typically more open-minded in this regard than those in the other schools, pupils in Delta generally score closer to the average than pupils in Beta.

Figure 8: Open-Mindedness Towards Cultural Primacy by School

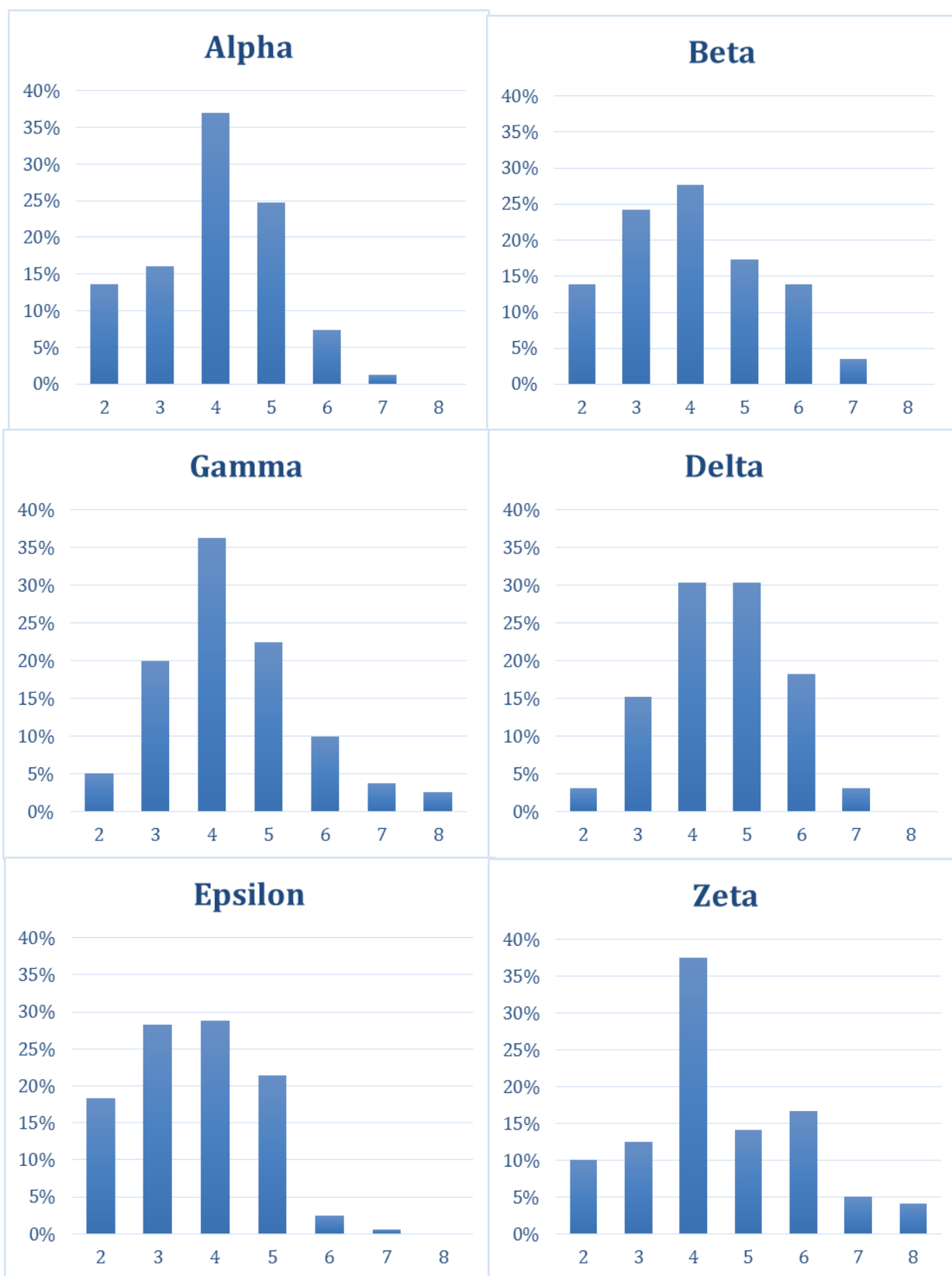**Figure 8: Open-Mindedness Towards Cultural Primacy by School**

Open-mindedness towards one's own beliefs

Finally, Figure 9 looks at open-mindedness towards one's own beliefs (this scale score runs from 2 to 8). Similarly to being open-minded about one's views on right and wrong, most students scored towards the lower end of the scale; the overall average score is 4.2. Being open-minded about one's beliefs and moral code is evidently a much more challenging form of critical receptiveness than the others considered in this analysis.

The lowest average score is for School Epsilon, which scores well below average with a mean of 3.6; the majority of students at Epsilon might be considered fairly closed-minded about their beliefs. The next schools are Alpha and Beta, each with a mean of 4 and fairly similar distributions of student scores. This is followed by School Gamma, with a mean of 4.3. The best performing schools are Zeta and Delta, with respective means of 4.5 and 4.6. Zeta stands out, however, for its high standard deviation of 1.5. As the graph illustrates, while Zeta students typically score higher than those in other schools, there is more variation in the open-mindedness levels of Zeta's students than seen elsewhere.

Figure 9: Open-Mindedness about Belief by School

The frequency distributions and average critical receptiveness scores give an idea of how typically open-minded students in the sample are and also points towards some potential differences between the schools. While the focus has been on how the schools differ from each other in terms of average scores and the range of scores of the students, generally these differences are modest. The students can be considered more similar in terms of critical receptiveness than they are different.

Where differences have been found, however, is in the modes of critical receptiveness themselves. It is clear from the average critical receptiveness scores across the schools that pupils are typically more critically receptive in some contexts than in others – regardless of school experience. For example, critical receptiveness when referring to one's beliefs or moral code is generally low, while pupils are generally much more open-minded about problem-solving or when dealing with other cultures and religions.

While this analysis points much more to similarity across schools rather than differences between them, including in the relative challenge of being critically receptive in different contexts, there are several differences between schools worth highlighting. While the gap in the typical open-mindedness score from one school to another is never large, School Alpha (the base-line school) has a lower mean score in more instances than any other. School Alpha students have the lowest mean critical receptiveness score for four of the above indicators (cultural and religious open-mindedness, open-mindedness towards challenge, open-mindedness towards cultural difference, and open-mindedness towards cultural primacy). By contrast, School Delta has the highest mean score for three modes of open-mindedness (open-mindedness with regard to moral issues, open-mindedness about beliefs, and open-mindedness towards collaboration), and Epsilon has the higher mean score for two modes (open-mindedness towards problem-solving and open-mindedness towards challenge). To the extent that the mean scores of open-mindedness are indicative of genuine differences in levels of critical receptiveness in the schools, therefore, while the differences are small, the non-IB school performs poorest in the sample more often than any other, and School Delta performs the best.

<u>Results II: Regression Analyses of Open-Mindedness</u>

The figures and mean statistics above have provided us with an idea of the 'typical' level of open-mindedness in both the overall sample and in each school, and have demonstrated that there are some areas in which open-mindedness seems to be more straightforward to develop than others. It has also suggested that there are small differences across some of the schools. Those statistics are not capable, however, of testing the significance of those differences while taking account of other factors such as sample size, nor of controlling for other background characteristics which may influence how open or closed-minded students are. To address these questions we will use ordinary least squares regression analysis[12].

Table 4 reports the results of the regression analysis examining how open-minded towards other cultures and religions students at each of the schools are. Each school coefficient shows the effect of being at the given school on a student's typical open-mindedness score in comparison with School Alpha (the baseline school to which the others are being compared), with all of the control variables listed held constant. For example, the positive and significant coefficient for Gamma (3.26) shows that a student at School Gamma would typically score 3.26 points higher on the cultural/religious open-mindedness scale once the effects of the control variables (age, gender, etc) have been held constant.

The coefficients for the control variables show the effect of a one unit increase in that variable on a student's average score on the cultural/religious open-mindedness scale with all of the other variables in the analysis (including which school the student attends) held constant. For example, the negative and significant coefficient for age (-0.35) shows that for every increase of one year in age, a student would be expected to score 0.35 points lower on the cultural/religious open-mindedness scale, with the effects of all the other variables in the analysis held constant.

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[12] For each regression analysis, the residuals were plotted to ensure that they were approximately normally distributed as a check that the assumptions underpinning ols regression analysis were not violated. In each case, the check confirmed that the old regression was acceptable for this data.

Table 4: OLS Regression Analysis Output for Cultural/Religious Open-Mindedness

Item	Coefficient
School (Baseline: Alpha)	
Beta	1.74
Gamma	3.26*
Delta	0.59
Epsilon	1.75*
Zeta	-0.58
Age	-0.35*
Religious Belief	0.51
Gender	2.16*
Ethnicity	0.79
Languages	-0.02
Born outside the UK?	1.11
Lived outside the UK?	-0.03
Live outside the UK now?	-0.77
Constant	30.67*

OLS regression performed in Stata. * - the coefficient is statistically significant at 95% confidence level. Prob > F = <0.001; $r2 = 0.2467$; $ar2 = 0.213$; Obs = 304

Looking first at the control variables, the results in Table 4 suggest that there are indeed some relationships between some of the control variables and critical receptiveness. Specifically, being young and being female tends to make the student more culturally and religiously open-minded. All of the other control variables were not significant.

Looking at the differences between schools, there are no significant differences between Schools Alpha, Beta[13], Delta and Zeta; students at these schools are no more

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[13] Readers may wonder why a coefficient for Beta of 1.74 is insignificant while a coefficient for Epsilon of 1.75 is significant. The significance testing at the heart of this analysis tells us whether or not, at a 95% level of confidence, we can be confident that the coefficient in the model is not 0. In this case, the test shows that we can be confident (at a 95% confidence level) that the coefficient for Epsilon is not 0, but we cannot have the same confidence for Beta. This can be caused by several factors, particularly the very small sample size from school Beta. It is possible that with more

or less open-minded when it comes to other cultures and religions than each other. Students at Epsilon (coef 1.75) and particularly Gamma (coef 3.26), however, are significantly more likely to be open-minded in this context than students at the other schools.

Table 5 shows the regression output for problem-solving open-mindedness. In this case, the only significant variable is age – which shows that younger students are more likely to be open-minded when it comes to problem solving and complex questions than older students. There are no significant differences between the different schools, showing that students at each of the schools are generally as open-minded as each other in this regard.

Table 5: Regression Output for Problem-Solving Open-Mindedness

Item	Coefficient
School (Baseline: Alpha)	
Beta	-0.26
Gamma	0.55
Delta	0.03
Epsilon	0.59
Zeta	-0.17
Age	-0.19*
Religious Belief	0.01
Gender	0.19
Ethnicity	-0.31
Languages	0.17
Born outside the UK?	0.17
Lived outside the UK?	-0.003
Live outside the UK now?	0.16
Constant	14.31

respondents, this coefficient would have been statistically significant. At this time, however, the data show that while we can be very confident that attending school Epsilon has a positive effect on open-mindedness in this regard, we simply do not have the confidence to say the same of Beta – regardless of the fact that the coefficient for each is so similar.

OLS regression performed in Stata. * - the coefficient is statistically significant at 95% confidence level. Prob > F = 0.007; r2 = 0.0.0793; ar2 = 0.0444; Obs = 357

The next analysis looks at how open-minded the students are to being challenged. However, there are no results to report because the regression model did not pass the test of statistical significance (Prob > F = 0.1315 – had the model been acceptably significant this figure would be below 0.05). This means that the model failed to predict any significant effects on open-mindedness to challenge and critique; none of the variables included in the model had a significant effect on being critically receptive.

Next is critical receptiveness towards one's own moral beliefs. Table 6 reports the regression analysis output, showing that none of the effects of the schools had a significant effect on moral open-mindedness. The only variable which does have an effect is holding a religious belief of some kind; people who identify themselves as belonging to a religion generally score 0.44 points lower on the moral open-mindedness scale than people who do not belong to a religion.

Table 6: Regression Output for Moral Open-Mindedness

Item	Coefficient
School (Baseline: Alpha)	
Beta	-0.31
Gamma	-0.17
Delta	0.55
Epsilon	-0.28
Zeta	0.03
Age	-0.02
Religious Belief	-0.44*
Gender	-0.12
Ethnicity	0.18
Languages	0.02
Born outside the UK?	0.2
Lived outside the UK?	-0.02
Live outside the UK now?	0.33

Constant	4.21

OLS regression performed in Stata. * - the coefficient is statistically significant at 95% confidence level. Prob > F = 0.0149; r2 = 0.0603; ar2 = 0.0312; Obs = 433

The next analysis examined critically receptiveness towards collaboration with others to solve complex problems or work out what to do. This model was found not to be statistically significant at the 95% confidence level (Prob > F = 0.3222). We must conclude, therefore, that none of the variables, including attending the different schools in the survey, have a significant effect on how open-mindedness a student is about working with other people to address challenging problems.

Next is open-mindedness regarding cultural difference, and Table 7 reports the results of the regression analysis for this variable. The data shows that there are significant effects from several variables. Older students are more likely to be open-minded about cultural differences, as are people who were born in Britain. There were significant differences depending on which school the students attending as well; students at School Epsilon would typically be expected to score 0.47 points higher on the open-mindedness score than School Alpha, students at Zeta would score 0.86 points higher, students at Delta would score 0.99 points higher, and students at Beta would score 1.38 points higher. In short, attending Schools Beta, Delta, Epsilon and Zeta makes students more open-minded in terms of being aware of cultural differences than attending School Alpha or Gamma.

Table 7: Regression Output for Open-Mindedness towards Cultural Difference

Item	Coefficient
School (Baseline: Alpha)	
Beta	1.38*
Gamma	0.63
Delta	0.99*
Epsilon	0.47*
Zeta	0.86*
Age	0.16*
Religious Belief	-0.17

Item	Coefficient
Gender	-0.15
Ethnicity	0.31
Languages	-0.03
Born outside the UK?	-0.69*
Lived outside the UK?	0.03
Live outside the UK now?	-0.24
Constant	2.34*

OLS regression performed in Stata. * - the coefficient is statistically significant at 95% confidence level. Prob > F = 0.0046; r2 = 0.0828; ar2 = 0.048; Obs = 356

Table 8 reports the results for the analysis of critical receptiveness regarding one's own cultural primacy. Most of the control variables in the analysis have no effect, with only ever having lived outside the UK having a slightly positive impact. There was one difference in the schools, however, in that attending School Zeta made students more likely to be open-minded regarding the primacy of their own culture than all the other schools; a student at School Zeta would typically be expected to get 0.74 points more on the open-mindedness scale than the students at School Alpha.

Table 8: Regression Output for Open-Mindedness towards Cultural Primacy

Item	Coefficient
School (Baseline: Alpha)	
Beta	0.46
Gamma	0.25
Delta	0.42
Epsilon	0.09
Zeta	0.74*
Age	-0.04
Religious Belief	-0.06
Gender	0.21
Ethnicity	0.002
Languages	-0.02
Born outside the UK?	0.08
Lived outside the UK?	0.06*

Item	Coefficient
Live outside the UK now?	-0.47
Constant	5.06*

OLS regression performed in Stata. * - the coefficient is statistically significant at 95% confidence level. Prob > F = 0.0033; r2 = 0.0952; ar2 = 0.0567; Obs = 319

Finally, Table 9 shows the results of the regression analysis for critical receptiveness towards one's beliefs. Of the control variables, only holding a religious belief of some kind was significant, typically making students less likely to be critically receptive in relation to their own beliefs. None of the other control variables had a significant effect. With regard to the schools, students in two of the schools are significantly more critically receptive towards their beliefs than students elsewhere. Students at School Zeta typically score 0.62 points higher on the open-mindedness scale than students at School Alpha, and students at School Delta typically score 0.87 points higher.

Table 9: Regression Output for Belief Open-Mindedness

Item	Coefficient
School (Baseline: Alpha)	
Beta	0.03
Gamma	0.62
Delta	0.87*
Epsilon	-0.24
Zeta	0.62*
Age	0.06
Religious Belief	-0.31*
Gender	-0.08
Ethnicity	0.11
Languages	0.03
Born outside the UK?	0.09
Lived outside the UK?	-0.03
Live outside the UK now?	0.18
Constant	3.21*

OLS regression performed in Stata. * - the coefficient is statistically significant at 95% confidence level. Prob > F = 0.0003; r2 = 0.0984; ar2 = 0.0659; Obs = 375

Summary

The regression analyses have allowed us to probe deeper into the relationships between the students, the schools and being critically receptive, and to explore what other factors might be important in making a student more or less open-minded. Overall, there are few differences between students at one school compared with another, confirming the impression given in the Results I section that the story of this study is more one of similarity than of difference. That said, there are some areas in which we have identified factors which have a significant effect on how critically receptive students at the different schools may be in different contexts.

Students at School Gamma and (to a lesser extent) School Zeta were found to be significantly more open-minded towards the values and practices of other cultures and religions, and towards working with and learning about people from them. Age and being male were also found to be negatively related to this form of open-mindedness, suggesting that younger boys were the least open-minded in the sample, and older girls were the most culturally and religiously open-minded.

When it came to problem-solving open-mindedness, moral open-mindedness and being open-minded towards collaboration and challenge, none of the schools has a significant effect; there is no difference in how critically receptive students at the various different schools are in any of these areas. In fact, the only variables that were found to have a significant effect for any of these modes were age (which is negatively related to problem-solving open-mindedness) and having a religious belief (which is negatively related to moral open-mindedness).

The mode of open-mindedness which saw the most substantial differences between the schools was open-mindedness towards cultural difference i.e. how critically receptive an individual is towards recognising that non-superficial nature of differences between cultures. In this regard, students at Beta, Delta, Epsilon and Zeta were significantly more open-minded than students at School Alpha or Gamma – with the largest effect in School Beta, in which students would be expected to score 1.38 points higher on the open-mindedness scale than those at School Alpha. That four of

the IB schools produced a more open-minded outlook than the non-IB school in relation to this key element of international mindedness suggests that attending an IB school would, on average, lead to higher open-mindedness scores than attending non-IB schools in this aspect of the curriculum. This hypothesis was tested in a further regression analysis (not reported here) in which all of the students from the IB schools were combined into a single group and compared with the non-IB school respondents. The result was a significant effect of 0.66, indicating that attending an IB school would be expected to increase a student's score on the open-mindedness scale by an average of 0.66 compared with the non-IB school – although it should be noted that to give this finding more confidence of reliability a larger sample of non-IB schools would be preferable.

In addition, age was found to be positively associated with being open-minded towards cultural differences. A one year increase of age is associated with an increase of 0.16 points on the open-mindedness scale. Perhaps surprisingly, being born outside of the UK was also found to be negatively associated; a student born outside of the UK scored 0.69 points lower on the open-mindedness about cultural difference scale with all the other factors held constant.

For being open-minded towards cultural primacy, there was a significant effect for students attending School Zeta only. Students at Zeta were significantly more open-minded than students at the other schools, typically scoring 0.74 points higher on the open-mindedness scale. There was also a small but significant effect from having lived outside of the UK, in which students who had done so were more open-minded about their own culture's primacy.

Finally, for belief open-mindedness students at School Delta and School Zeta were found to be significantly more open-minded than students at the other schools. Students at Delta typically scored 0.87 points higher on the open-minded scale (all other factors being equal), while students at Zeta typically scored 0.62 points higher. The only other significant variable in this regard was having a religious belief, which generally made people less open-minded.

Conclusion

The analyses in this report have explored the effect of attending different schools on open-mindedness, defined in the context of being critically receptive to external influences. Generally, the data have shown that while there are some small differences in how open-minded students are based on a variety of background characteristics as well as which school they attend, the story tends towards one of similarity than difference. The effect of attending a different school on any given student's critical receptiveness is statistically insignificant more often than it is significant.

That said, the study has nonetheless advanced our understanding of the concept of open-mindedness, and does suggest that there are some areas in which the choice of school is likely to have a significant effect on how critically receptive a student would be expected to be.

The most notable aspect of open-mindedness developed in this study is that it is a multi-dimensional concept. Out of the 44 statements presented to survey respondents in the initial survey, eight different modes of open-mindedness were identified, each focussing on a distinct aspect of what it means to be critically receptive to external influences and experiences. The first lesson from this study, therefore, is that when we speak of or study open-mindedness in the future, it should be borne in mind that there are many different 'types' of open-mindedness (in the wider context of critical receptiveness) which can be expressed in different ways. The Learner Profile, as we have indicated, highlights two different broad dimensions of open-mindedness, but within these two broad dimensions it is possible to identify a more multi-dimensional, or multi-modal, approach in which open-mindedness assumes different forms.

Furthermore, we have seen that these various modes of open-mindedness differ in forms of more than just the particular facet of open-mindedness they relate to. They are also influenced by different factors and personal characteristics. Being critically receptive about one's morals or personal beliefs, for example, was found to be significantly influenced by whether or not the individual held religious beliefs. Age was found to have a significant effect with regards to being critically receptive about other cultures and religions, as well as when it comes to recognising differences in other cultures and in problem solving. Being born outside the UK, or ever having lived

outside the UK, has a significant effect on how an individual views both the differences in other cultures, and their primacy of their own culture. Finally, gender was shown to have a significant and substantial effect on how critically receptive an individual is towards exposure to other cultures and religions. These findings confirm that not only is open-mindedness a multi-dimensional concept, each mode of which is expressed in different ways, but also that those modes are affected by different background characteristics. Depending on the type of open-mindedness we consider, an individual's age, gender, religious belief, and experience of living outside the UK can have a significant effect on how critically receptive they are, while in other areas such characteristics have little or no effect at all.

In addition, we have also seen that being critically receptive in different contexts can be more or less straightforward to develop i.e. it can be more challenging for someone to be critically receptive in some areas of their lives than others. In particular, being open-minded about ones beliefs, or views of what is right and wrong, would appear to be much more difficult than being open-minded about having to work with, learn about and be exposed to the people and beliefs of other cultures and religions, or in the way an individual faces challenges and complex problems.

Overall, this data has shown that open-mindedness is a much more complex and nuanced concept than can be summed up even in as clearly outlined a definition as that presented in this research. While being open-minded can clearly be linked to a disposition of critical receptiveness to external influences and experiences, it is also clear that this disposition takes several different forms relating to different aspects of an individual's beliefs, morality, life experience, and views of different cultural practice and values. Moreover, these different forms are influenced by differing factors and characteristics; some are influenced by demographic factors such as age or gender, others by an individual's religious beliefs or experiences of other environments and cultures.

In looking at the link between this complex attribute and the school environment, it is not surprising that the analyses found that the effects of school were significant and substantial in some areas but much less so in others. Specifically, school choice had a significant effect on open-mindedness towards other cultures and beliefs, towards one's own beliefs, towards recognising cultural difference, and to a lesser extent towards one's views of students' own cultural primacy. School influence did not

appear to be relevant in any of the remaining four modes of open-mindedness identified in this study. The data suggest that the effect of school experience is largely limited to affecting how an individual views other cultures; whether in the sense of how they relate to or differ from their own culture, or how they feel about learning about and working with other cultures and people from them. There is evidence of an effect on an individual's personal beliefs as well, but this does not extend to how they view their moral code, how they approach complex problems and questions, or how they feel about interacting with, or being challenged by, other people in doing so. These are areas in which schools appear to have much less effect on how critically receptive their schools are.

Finally, in comparing the IB schools as a whole with the non-IB school, the area in which the IB schools had a significant effect was in being open-minded in recognising cultural difference. Students at IB schools are typically more open-minded about recognising differences in other cultures than students at the non-IB school, even with other important factors like age and being born outside the UK controlled for. Taking this finding together with the points made above, there is some evidence that attending schools teaching the IB MYP curriculum increases the critical receptiveness of students with regard to being aware of the significance of cultural differences, and to a lesser extent to questioning the primacy of one's own cultural heritage, and to working with and learning about people from other cultures and religious backgrounds. However, given that this evidence is limited to comparing IB schools with one 'baseline' non-IB school, further research is needed to establish if these results remain when using a larger sample of non-IB schools.

Open-Mindedness: School Practices

This section of the report presents the findings from the school visits, and the qualitative data collected. It opens with discussion of how teachers and students make sense, and make use, of the IB Learner Profile generally. Our view is that there can be no understanding of open-mindedness in the IB curriculum without locating that in a wider analysis of the role of the Learner Profile. The report then discusses school practices specifically in relation to open-mindedness and its development.

The Learner Profile

As has been indicated previously the Learner Profile is at the core of the IB's curriculum. It is the only element that is common to all the different elements of the Continuum from PYP through to DP, and can be identified as the IB's mission statement 'in action'. In attempting to understand the role of open-mindedness within the MYP it is first important to understand the role of the Learner Profile more generally. In this section we discuss how teachers and students 'make sense' of the Learner Profile – how do they use it and experience it in their work and study?

The sense of the Learner Profile as the 'heart' of the IB emerged strongly in the research. For teachers and students it was recognised as the embodiment of what an IB student should be like. In this sense the Learner Profile acts as both guide and aspiration.

Many teachers indicated they saw the IB Learner Profile as the expression of what they sought to develop in students. These teachers felt a strong commitment to the different attributes articulated in the Learner Profile, and wanted to develop these in students. The view was expressed by the following teacher that the aims of the Learner Profile aligned with their own professional values.

> If I am honest . . . I just teach. Because one of the things I do think is
> that the IB Learner Profile is quite frankly . . . good education. I won't
> even call it teaching – it is good education.
> [Classroom teacher].

This support for the Learner Profile as an ideal was in some cases presented as aligning strongly with the personal values of teachers, and in particular creating an alignment between teachers' personal values, their educational aspirations for young people and the pedagogical practices they adopted to work towards these aspirations. One teacher made the following observation about the Learner Profile, and its significance to her:

> *I like it because it is very humanistic in its set up and I really like the open kind of values and they really chime with what I am and what I stand for. So I have absolutely no problem implementing it because it is part and parcel of what I am . . . and what I do. It is not that I think I am going to have to use this particular one . . . or I am going to use this one now. I think it permeates everything you do if you believe in it.*
> [Classroom teacher]

The views of this teacher express important issues that emerge frequently throughout the data, whether in reference to the Learner Profile generally, or in relation to open-mindedness in particular. First is the sense of alignment between personal beliefs and pedagogical practices whereby teachers express a strong commitment to the Learner Profile, and thereby the IB 'mission' because it 'fits' with what their belief set. In this sense it is possible to identify a consonance between teachers' sense of moral purpose and the wider curriculum within which these teachers work. Second is the importance of 'permeation' in the sense that the Learner Profile is seen as something that underpins, or is embedded, but that does not always need to be articulated explicitly. Rather there is a view that the Learner Profile, like our values, does not always need to be made visible, but rather is experienced as it is lived. This emerged as a strong theme within the research, but also a complex one, and it is one that will be revisited throughout this report – it might be expressed simply in the question posed by one MYP Co-ordinator – '*do you laminate it or do you live it?*'

The importance of the Learner Profile as an expression of values could be identified at a number of different levels. This was not restricted to individual teachers, or indeed students, but was also strongly identified as an expression of institutional values. Those in leadership roles (although not exclusively) frequently highlighted the importance of the Learner Profile as expressing the educational mission of the

institution. However, the case study visits highlighted differences between schools that had adopted the IB to *fit* their values, and those that had adopted the IB to *shift* their values. The former might be considered to emphasise and reinforce what was already considered to be the prevailing ethos, whereas the latter approach focused on change and a re-orientation. In these latter cases adoption of the IB MYP curriculum was part of a process of 're-engineering' the school in order to reflect a more ambitious and aspirational vision for the school.

An example of reinforcing existing commitments and values was highlighted by one of the case study schools in which the Learner Profile as an expression of 'international mindedness' was identified as pivotal. The views of the MYP co-ordinator are presented below at some length, in which key points are made powerfully.

I will answer that [the 'fit' between IB values and school values] by looking at the values we have in terms of our mission as a school, and we have a very multicultural, multi-ethnic and multi-lingual school environment and our kids have two things in common – which is 'nothing' and 'London'. So we have a variety of different backgrounds and contexts and proficiencies and a variety of different fields and different cultural and educational attitudes that these kids have adopted. So we needed an educational programme, and a curriculum, that suits our context and the only thing that comes anywhere close is the IB in all of the programmes. It's the only programme where we have the freedom to create a curriculum filled with concepts and contexts that suit kids that come from everywhere in the world. You know you always feel that knowledge is heavily contextual dependent, depending on where you are. When you have got kids coming from everywhere you need to make learning relevant to them – and this is the only way, and the only programme that we could have adopted to suit that.

If you ask 'Do we adhere to the IB philosophy?' – we <u>are</u> the IB philosophy . . . we genuinely don't have a choice.
[MYP Coordinator]

The approach set out above represents a contrast with other case study schools that have used the IB as a means of bringing about change, and using the Learner Profile, and the IB curriculum more generally, as a means of shifting the culture of the organisation. For example, in another international school the school's 11-16 curriculum was originally based on the English National Curriculum (NC) and associated General Certificate of Secondary Education (GCSE) exams. In this instance the school wanted to shift away from the approaches that underpinned the NC and not only develop a more international curriculum ('*more suited to our student population*'), but also to adopt pedagogical approaches informed by inquiry based learning. It was the view of the leadership in the school that the National Curriculum model in England did not promote this approach to learning. It was agreed that a change to a more innovative pedagogical approach required a comprehensive curriculum framework, that was not just coherent across 'subjects', but across diverse age ranges also. The headteacher indicated:

> *We were looking for some coherence. Coherence across the whole school. The standards and practices of the IB hopefully offered some way to that coherence and articulation – and the Learner Profile does that as well.*
> [Principal]

The role of the IB as a source of institutional change is illustrated by the case study example provided later in this report.

The research thus far has already identified the extent to which the Learner Profile is 'embedded' within learning, and 'permeates' the curriculum experience of students. It is thus an important part of the culture of IB schools. This dimension of the Learner Profile opened up a rich discussion with teachers about how the Learner Profile is used to plan teaching, the extent to which it is implicit or explicit in the curriculum and the extent to which it might be more formally assessed or evaluated.

A range of approaches to the Learner Profile were discernible in the approaches of MYP teachers. A common characteristic across teachers was to draw on different Learner Profile attributes depending on the opportunity provided by the curriculum. Curriculum planning was principally guided by agreed Areas of Interaction, and the

Unit Questions that were developed to guide students' work. These are the core elements of planning for IB MYP teachers. Although the IB MYP eschews a content based approach teachers understandably started their planning with a consideration of the approaches to learning they wished to develop, and the discipline content they sought to cover in any given unit. The role of the Learner Profile generally came at a much later stage of the planning process. At this point differences in approach could be identified between teachers who consciously 'built in' the Learner Profile to their planning, and those who adopted a more serendipitous approach – introducing the Learner Profile within lessons when teaching opportunities allowed for it. Some teachers made explicit references to different Learner Profile attributes in their Unit Plans, whilst for others this was less systematic. It is significant to note at this point that no teachers identified with the need to 'cover' the Learner Profile, in the sense that coverage would be ensured through a systematic process of curriculum planning and mapping. Learner Profile attributes tended to be 'added' to curriculum plans, where opportunities presented, and in other cases teachers introduced the attributes when they saw fit. This was acknowledged by many interviewees as a paradox. The Learner Profile is the core of the IB experience, and can be considered to be the IB's heart – and yet in none of the school's was there evidence that 'coverage' of the Learner Profile is reviewed in any systematic way – either at the level of individual teachers, across subjects, within the MYP or at whole institution level. Indeed, explicit discussion of the Learner Profile, and how it features in the curriculum, is often conspicuous by its absence.

Many interviewees recognised a *potential* problem, insofar as it was not possible to demonstrate where, or when, a particular attribute might be being 'covered'. However, it was also argued that such an approach not only ran counter to the philosophy of IB, but that it was not practically possible. The Learner Profile was seen as embedded within teaching processes, and therefore virtually an 'ever present' in the IB experience. Whilst there are undoubtedly opportunities to identify explicit examples of any Learner Profile attribute being drawn on in a classroom context the view was also expressed that by the very nature of the Learner Profile many attributes will be happening in some form almost all of the time. To consider that at any one point in time a class might 'do' open-minded was seen by many teachers as completely inappropriate. It was argued that the Learner Profile should not be seen as something that is 'done' in any explicit sense, but that is so embedded in everyday pedagogical practice that it happens 'always' - often in ways that students do not

notice, but also in ways that teachers are not always conscious of. There is therefore a range of approaches, often being used by the same teacher, illustrated by the view of this classroom teacher:

I use it [the Learner Profile] as a reminder of the type of learning styles that are needed. I use it as a reminder that you have got to offer them opportunities to develop . . . independence, risk-taking and all that sort of thing. So it affects the way you consciously plan your lessons and include deliberately . . . ummm . . . aspects in your lesson that would bring out, or develop, the Learner Profile. I am not really that explicit about it . . . I don't really go in for explicit because personally I think that it gets boring with kids when you get over explicit and they are experiencing it and you don't have to say 'You are now taking a risk!'. You know you provide a situation where they take, or they have to take, or risk their opinion . . . or they have to try something out. I think if you over do it, and if it has been done across the school in that kind of way then they get fed up with it 'oh here we go – here is the Learner Profile again.'
[Classroom teacher]

Such an approach was considered by teachers to be pedagogically appropriate, given the nature of the Learner Profile attributes, but it was also recognised that the specific nature of the Learner Profile (10 attributes, common across all subjects, and through the whole IB Continuum) made it vulnerable to over- exposure and 'Learner Profile fatigue'. Teachers expressed concern that students could become cynical about the constant return to a limited number of themes, and this had the potential to be counter-productive. Teachers therefore might deliberately avoid specific references to Learner Profile attributes, but rather took the view that the learning matters more than the label. Therefore whilst there may be instances where it is entirely appropriate to highlight particular attributes at particular times, this was felt to be something to be done judiciously. An overly instrumental approach was seen as contrary to the encouragement of creative approaches that underpin IB. On the other hand, weaving the Learner Profile attributes into teaching, but in sophisticated and appropriate ways, might be considered a key element of the IB teacher's skills repertoire.

Given the view about instrumentalism, the vast majority of teachers and students indicated that formal assessment of Learner Profile attributes was inappropriate. Teachers were wary of a 'tick box' culture in which it would be necessary to constantly demonstrate achievement in relation to Learner Profile attributes. The view was expressed that the attributes did not lend themselves to crude forms of measurement, and any attempt to impose this would be received negatively by students. It was recognised that Learner Profile attributes could be more effectively integrated into planning ('it is no good having a profile if everybody ignores it') and teachers welcomed developments that placed more emphasis on this. However, there was resistance to being overly formal.

> [Classroom teacher 1]: *You don't want it to become that kind of 'Oh God – now I've got to do the Profile'. Because that is what it can become. You feel you have got to write a plan, and the somebody is looking at your plan, and somebody is saying 'well yeah they have done that, and they are doing that' – and it is like ticking – it ends up a tick box exercise. Rather than . . .*

> [Classroom Teacher 2]: *something active and immediate.*

This description of a 'tick box culture' reflects a concern about increased formality and accountability within the IB system, and an anxiety that increased prescription will challenge the 'essence' of the IB, which is seen as an alternative to the performative cultures that are a feature of the English state school system (Ball, 2003).

Open-Mindedness and the Learner Profile

We have argued previously that the IB's Learner Profile seeks to capture two fundamental dimensions of open-mindedness. Firstly, an 'international mindedness' in which 'we critically appreciate our own cultures and personal histories, as well as the values and traditions of others' combined with a 'intellectual virtue' whereby 'we seek and evaluate a range of points of view, and we are willing to grow from the experience' (both quotations from IB Learner Profile statement). These are two related, but also quite distinct dimensions of 'open-mindedness' that we have connected through the notion of critical receptiveness.

It is our view that IB teachers, and students, often have a sophisticated understanding of what open-mindedness means, and how it is experienced, and that this understanding reflects both the dimensions of open-mindedness contained within the Learner Profile. Within this section of this report we seek to discuss the different ways in which leaders, teachers and students have sought to make sense of open-mindedness in relation to the Learner Profile, and the two dimensions identified above. However, what this research also revealed was a rather broader notion of open-mindedness and these ideas are developed further in the next section when we discuss the notion of 'The Open-Minded School'.

Within the context of highly diverse international schools there was a frequently articulated argument that intercultural awareness and sensitivity are not just aspirations, but practical necessities. This also aligned with a view that cultural diversity in schools generated a type of default open-mindedness in relation to other cultures.

I mean we like to think that the school was so international that those kids have to be open-minded right. You could come here and be very closed, but you would be so isolated . . . and one of the things that really thrills the kids here is the incredible mix. We see it because they are learning each other's languages, and things about each other's cultures . . . and they are fascinated. So I think by default they are open-minded.
[Classroom teacher]

This was view was echoed by students, who believed that the diversity in the school encouraged an open-mindedness.

I think that being an IB student . . . and like having an open mind is really important. When I came here . . . you get to be more open minded because you are surrounded by people that come from different backgrounds and have different cultures and different points of view about certain things.
[Student, MYP 3]

Interestingly, some students recognised that international mindedness was about more than understanding the cultures of others, but also understanding one's own culture, and developing a sense of one's own identity. In these cases the multi-modal nature of open-mindedness that emerged from our quantitative research becomes more apparent.

> *IB teaches you to realise what you really believe in and that you may actually value other people's perspectives – and your identity, and to respect your identity a lot. In Spain we were all the same in the sense that we all had to think in the same way. Here, with all the different cultures and stuff you get to know your own self better with, like, your identities are more defining, and that is really important for the future. Knowing who you are, and knowing the way that you think and how others' opinions are going to affect you in the future.*
> [Student, MYP 4]

However, the notion of a 'default open-mindedness' was not seen as something that existed purely because of high levels of cultural diversity. In all the schools there was a recognition that notions of open-mindedness were culturally determined, and that international mindedness could be undermined by tensions between different cultural groups. This could open up difficulties for teachers as they sought to navigate what were seen as highly complex issues.

> *I do issues with them like immigration, and it is surprising just how many of them are really against immigration. OK. But it is also at the same time the goal of the IB that they should be 'open minded', 'internationally minded' etc etc. Oh my god . . . what do I do now? Because all my kids are against that. It can be even worse than that – we have students who think quite the opposite – they have racist ideas, and they are quite nationalist, and they think our liberalism is a nonsense – and they know that back home everyone is laughing at us – because of our liberalism. So they have quite different ideas and sometimes they verbalise that. So . . . ok. Is it enough I wonder . . . is it enough that we just discuss an issue like that?*
> [Classroom teacher]

This teacher highlights a concern raised by others that in highly diverse contexts then opening up issues for discussion can generate tensions that are not easily resolved in the classroom. Where these differences remain unresolved then some students may feel they have been exposed and made vulnerable. The teacher above asked if '*maybe I have done them a disservice*'.

Within the research several teachers identified tensions that existed when trying to develop open-mindedness, and to what extent open-mindedness required 'pushing boundaries', especially within the context of culturally diverse environments. One teacher recounted an incident in which he had responded to a request from students to explore issues related to teenage pregnancy and so he developed a reading comprehension on the topic. The teacher recalled '*if the kids are interested let them learn something and go with it. Develop it and support them – just as a one-off in reading comprehension.*' However, the incident resulted in the teacher being reprimanded for discussing inappropriate issues. He concluded:

> *. . . there are limits to open mindedness – but that is a difficult one isn't it. Where are the limits? Where are those borders? And what is the map of open-mindedness? What do we accept and what don't we accept? And that is very fluffy . . . and we never talk about that with the kids.*
> [Classroom teacher]

Within the same interview a colleague recognised the same issues, and argued for the need for teachers to '*trust ourselves for those limits*', but for the teacher who had been reprimanded there was now much more caution, with an unwillingness to take risks on such matters. Such examples highlight the need for teachers to develop the confidence to engage in controversial issues, and the need for schools to find ways to support what we call 'courageous teaching'.

Both teachers and students highlighted open-mindedness as an intellectual virtue in which alternative views and perspectives should be valued. However, as with the findings from the survey, the interview evidence highlighted a complexity of issues within the broad definition of intellectual receptiveness.

The most common issue presented was to see open-mindedness in this regard as a willingness to look at alternative perspectives, and to be prepared to consider these. This was seen as being inextricably bound up with pedagogical approaches that encourage open-mindedness, and emphasises that the development of open-mindedness as an attribute of the Learner Profile is something that must be deeply embedded within all aspects of organisational culture – of which approaches to teaching are central. One teacher argued that open-mindedness is about being:

> . . . open to alternative methods, through all sorts of investigations. It goes hand in hand with asking questions . . . so those aspects of the Learner Profile overlap each other. They are not individual but at the same time they are based on questioning and not accepting what is written in stone . . . it would be the nature of our teaching here anyway.
> [Classroom teacher]

For students the notion of being receptive to the ideas and views of others was frequently cited, and seen as the basis for an open-mindedness. The following argument presented by a student might be considered as typical:

> I think that being open-minded is about taking into account, and trying to understand, other people's opinions which is like not judging other people's opinions or perspectives . . . You try to see the good and the bad in everything and like not just all that is bad. It's always trying to see both sides, or like however many sides or opinions that someone has about something – you kind of try and take that all in.
> [Student, MYP 4]

Within the research students were always questioned as to whether open-mindedness required an openness to ideas that may be considered morally unacceptable. In these cases students generally responded by arguing that open-mindedness required a commitment to try to understand why particular views were being presented, and to listen to the views of others with respect. However, students were clear, and often expressed this view with great clarity, that open-mindedness did not require personal beliefs to be compromised.

You really need to listen to what we say and what we think – but it doesn't have to affect your opinion every time.
[Student, MYP 3]

If you choose, if you know that someone else's opinion makes more sense, or you actually agree with it more, but you still choose to stick with your own opinion because that is the way you were taught – it is kind of closed minded I guess. But I think that IB just teaches you to realise what you really believe in and that you actually value other people's perspectives.
[Student, MYP 5]

Being open-minded to alternatives views and approaches was seen as positive, but the connections to clarity about one's own beliefs and values is illustrated in the following exchange when a group of students were asked if a refusal to change their opinion necessarily meant they were closed minded.

[Student 1, MYP 4]: *well I think it doesn't mean you are closed minded – it just means you don't agree with that person. You might, in your head, have been open minded to the idea, but then you realise it wasn't actually correct, or maybe (and I'm not talking about religious views or cultural views – I'm talking about an answer to a question). Being open-minded is not just agreeing with the person. I don't believe that open-minded is always agreeing with someone. It is about understanding and acknowledging their opinion but also being able to say 'No – I don't think you are correct'. Without offending them or ignoring them.*

[Student 2, MYP 4]: *There is sort of three stages to an argument. First it seems you need to be open-minded, and not just say 'No – I don't agree with you!', and then you kind of 'critical think' – and think of their point of view and what they are trying to suggest . . . and then you make a decision if you agree with it or not. It doesn't mean you are not open-minded – it just means you have different views in something.*

[Student 3, MYP 4]*: You come to a conclusion about what you think, and what they think, and come to a sort of solution that involves both of them. Both of the different views.*

[Student 2]*: Or you can stick with your view! It is still being open-minded!*

In this case the views of Student 2 are particularly interesting as there is a clear recognition that being open-minded does not require a consensus that emerges from a type of aggregation of alternative perspectives. The response also highlights the multi-modal nature of open-mindedness, reflecting several different dimensions of what open-mindedness can mean. It also highlights issues raised in the quantitative data that suggested students found it difficult to be critically reflective on their own moral codes.

However, just as teachers in relation to cultural awareness and sensitivity had identified there were boundaries, or limits, beyond which they did not believe it safe to go, then so to in relation to a plurality of ideas there was a tendency to work within limits.

I think that in a lot of education the hard questions are not asked anymore. I used to run a course on controversial teaching and now, from my experience, and in a lot of International Schools, I don't see those courses anymore. I don't see them. I see them shy away from controversial issues – for various reasons. I would say it is against the whole idea of being 'open-minded' – because you are going away from the real nub of a lot of life- where there are disagreements – there are tensions. How do we deal with them? And how do we work our way through these kind of moments – and deal with a kind of controversial issue and work through that in exploring what open mindedness means? But we tend to have a notion of open-mindedness that gets passed down- the general one you hear is that 'we should be open to new ideas' and that's it.
[Classroom teacher]

The argument presented above reinforces the notion of open-mindedness as risk taking, and this was a recurring theme in the research. The Learner Profile was identified by many teachers as a set of over-lapping and inter-connected attributes, and this was just one of the reasons why teachers felt formal assessment was inappropriate. However, throughout the research some attributes emerged much more frequently in relation to open-mindedness. Notions of inquiry were frequently cited, because as the quote above highlights, there was a strong sense that IB is based on an inquiry based approach to learning, and this necessarily requires open-mindedness. Another attribute commonly cited was that of 'thinker', and especially the concept of critical thinking that underpins this. Notions of questioning and challenge were seen as central to open-mindedness, with an ability to interrogate an argument, test it and be open to changing one's mind as a consequence of an evidence-based argument.

However, there was no doubt that the Learner Profile attribute most frequently cited in relation to open-mindedness, by both teachers and students, was that of 'risk-taking'. Students argued that being open-minded required a need to consider a broad range of opinions, and to be willing to venture opinions that might be considered unorthodox. Students recognised this as risk-taking, and requiring courage. It also highlighted the importance of creating classroom cultures in which students feel comfortable to take such risks. In this sense it might be argued that a student being genuinely open-minded can often involve personal risk-taking, and that this becomes more likely in an environment in which others are respectful and supportive, i.e. principled and caring. These issues were highlighted by the following student from Russia:

> . . . in Russia . . . I don't know . . . there was a strange feeling that
> you were scared to share some of your opinions on something. But
> when I came here I have seen people just saying their opinions even
> if they knew it might be wrong . . . they are still saying it . . . if it is
> your opinion.
> [Student, MYP 3]

For teachers, as has already been illustrated, there was often a sense that open-mindedness necessarily involved risk-taking as it required teachers to push boundaries and confront contentious issues. In these examples notions of open-

mindedness as an intellectual virtue and cultural awareness and sensitivity could overlap. For example it was suggested that open-mindedness was based on a form of intellectual liberalism, and that this did not always sit comfortably with students' experiences:

> *. . . we are very liberal here, and that is a challenge for the students. Some of them are expecting us to tell them what to do, and we are trying to say to them, well maybe you can make some decisions, but of course trying to scaffold and support that. So I think we are forced into being open-minded just because we co-habit.*
> [Classroom teacher]

Given the nature of these issues it was also recognised that 'open-mindedness' was necessarily political, and this increased the sense of risk-taking required to deal with issues – '*you have got to look at the politics – like democracy, freedom of speech, and you have the arguments in the media all the time, I mean there are a lot of moral dilemmas*'. However, as has been indicated earlier, teachers recognised that there were limits to what might be considered possible and courageous teaching is required to push boundaries in ways that may help develop open-mindedness.

> *There are limits to open-mindedness and open-mindedness does not mean anything goes. In the school there are limits, and I have met those limits.*
> [Classroom teacher]
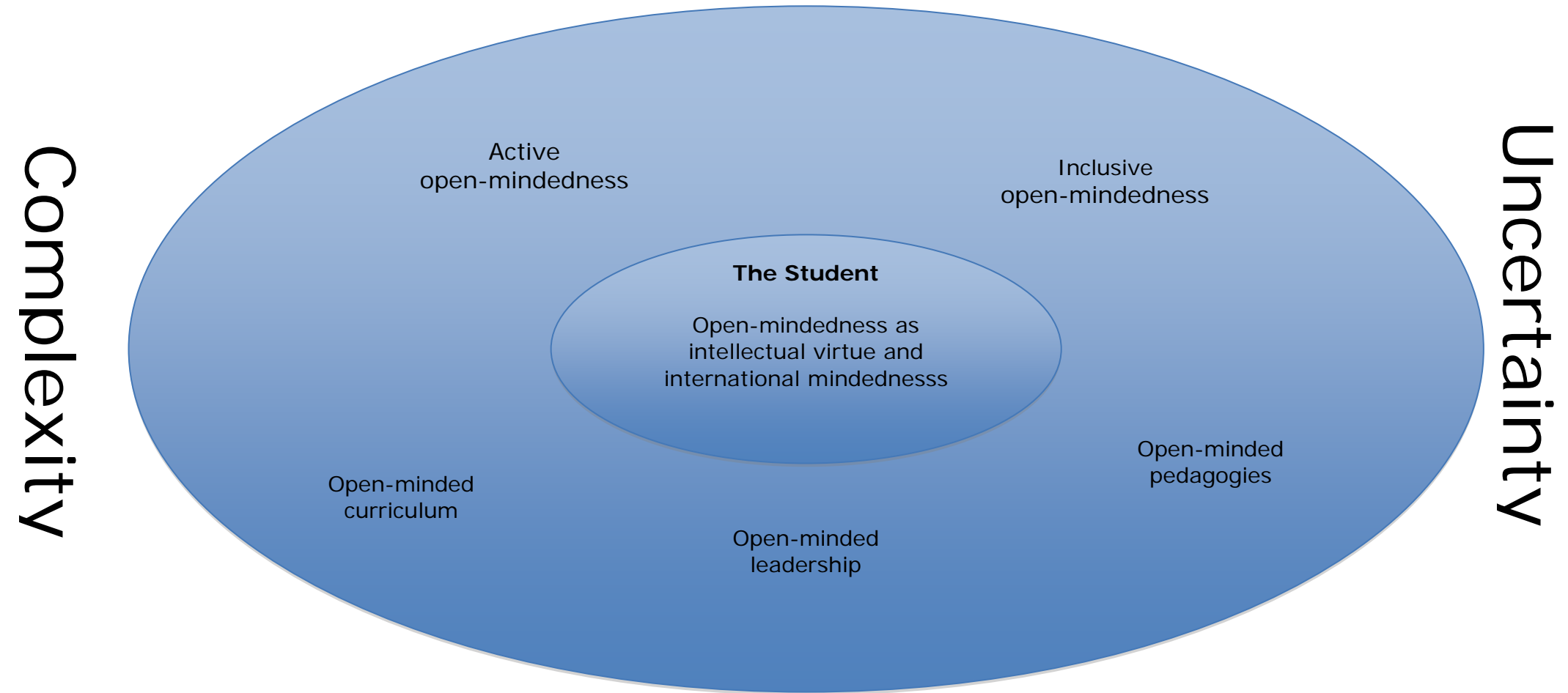
The Open-Minded School

The aim of this research has been to explore the place of open-mindedness within the IB Learner Profile, and within the context of the IB curriculum more broadly. Our starting point for this work was to develop a notion of open-mindedness that reflected the dual dimensions of open-mindedness highlighted within the Learner Profile – open mindedness as international mindedness, and open mindedness as an intellectual virtue. These dual dimensions of open-mindedness were clearly at the core of what teachers and schools sought to develop amongst young people, within the context of the Learner Profile. However, what the survey in this study revealed is that within these two dimensions of open-mindedness there is a need for a multi-dimensional conception of open-mindedness that recognises a more nuanced understanding of critical receptiveness.

What also emerged strongly from the research was a sense that open-mindedness within schools needs to be considered more widely than the framework provided by the Learner Profile. The Learner Profile can be considered to be the heart of the IB's curriculum programmes, and as such has an important role framing the wider ethos of the institution. This in turn has encouraged us to think about the Open-Minded School as one in which the student is at the centre, but in which the institution in parts acts as mediator between the individual student and the wider societal context. In this sense we see the Open-Minded School as both a process and an outcome. Open-mindedness can be considered as an outcome in the sense that it is an attribute to be developed in young people, even if it is not helpful to consider it as a state to be 'achieved'. However, open-mindedness must also be considered as a process, whereby it is actions that model and reflect open-mindedness, that in turn encourage open-mindedness amongst students. This in turn prepares young people for participation in a global society that recognises two key issues – that the world that students inhabit, and will inhabit, is both complex and uncertain. If students are to be equipped to be active citizens in this world then open-mindedness is essential – as this is a pre-requisite for being able to cope with both complexity and uncertainty.

In order to more clearly represent these relationships it can be helpful to consider these visually.

Figure 10: The Open-Minded School

The Open-Minded School

Complexity

Uncertainty

Active
open-mindedness

Inclusive
open-mindedness

The Student

Open-mindedness as
intellectual virtue and
international mindednesss

Open-minded
pedagogies

Open-minded
curriculum

Open-minded
leadership

At the centre of the diagram is the learner – both individually and collectively. Here the intention is to develop the dual elements of open-mindedness within the Learner Profile – open-mindedness as intellectual virtue and international mindedness. However, within the wider context of the institution it is possible to identify several features of individual establishments that were central to creating the Open-Minded School. Within this model we identified five dimensions of institutional open-mindedness:

Open-minded curriculum: the curriculum might be described as 'what schools do', and in all its complexity it is the curriculum that defines and shapes students' experiences and what they learn. What emerged from this research is the central role played by the curriculum in providing a basis for the Open-Minded School. In this context an open-minded curriculum is one that is based on freedom and flexibility, and therefore eschews prescription and rigidity. However, an open-minded curriculum extends beyond this flexibility of content and also emphasises inquiry as the basis for learning.

Open-minded pedagogies: relates to the pedagogical processes that not only promote open-mindedness amongst students, but which themselves reflected an open-mindedness by teachers to new ideas. In these instances teachers were willing to explore alternative approaches, take risks and create learning opportunities that were intentionally challenging, and potentially unsettling, for learners. Teachers themselves were willing to take on new practices, and were open to alternative and innovative approaches to learning. Within this report this includes what we have called courageous teaching.

Open-minded leadership: A key aspect of the open-minded school was the role of a leadership that reflected, and modelled, open-mindedness both as an attribute and as a value. Within the research school leaders emphasised the need to be open-minded in their approach to leadership, by which they often referred to the need to seek to include the views of a broad range of perspectives within the institution. However, they also emphasised the need to model an open-minded approach in the way that they conducted themselves. It was highlighted throughout that there needed to be a consonance between a leader's actions and the culture of the open-minded school. Open-mindedness more widely could not be developed out of a culture that did not itself reflect open-mindedness at the most senior levels of the organisation.

Active open-mindedness: one feature of open-mindedness that was seen as an important characteristic of an open-minded culture was the need to make open-mindedness 'active' in the sense that attitudes needed to be transformed into actions. Open-mindedness was not seen as a passive process in which individuals simply reflect on alternative ideas, but rather there was a keen sense that action was often required to underpin open-mindedness. In this sense open-mindedness could be considered as a form of active citizenship. For example, open-mindedness in terms of international mindedness requires action that challenges racism and the impact of prejudice. Open-mindedness may be an intellectual virtue, but it cannot be a purely intellectual activity.

Inclusive open-mindedness: within the Learner Profile there is a clear commitment to promoting intercultural awareness and intercultural sensitivity as part of a broader notion of international mindedness. However, within this study there emerged a wider notion of open-mindedness which extended to embracing diversity in its broadest sense. This emerged through several instances, many of which were characterised by a strong commitment to valuing individuals for who they were, and a discomfort with cultures that sought compliance and conformity. This was highlighted by one student who described how at previous schools her independence of mind had been seen as a threat, and as something to be contained. The student was appreciative of an approach that valued her for who she was and avoided closing down her possibilities for agency.

> *I see it as more personal, because in my old school . . . who I was I would always be in trouble . . . and I would be in detention all the time, because it is just who I am. Like a lot of people . . . they don't like it. So in this school when you come here they embrace who you are . . . they see what your faults are and they try to channel them, and deal with them in a different sort of way. So that you feel open, and they are open towards you as well. So it is channelled in a different sort of way, instead of, for instance, the English system of schools – if they don't like your characteristics they will just shut you down – and, you know . . . you wouldn't have anywhere to go.*

. . . but when I came here, it was a more open platform to explore who I am and how to channel how I am and make it better.
[Student, MYP 5]

In a later section we provide a case study example of what an open-minded school can look and feel like to those who study and work in it.

Developing the Open-Minded School: identifying good practice

Through the data collection within the case-study schools it was possible to identify a number of different practices that were clearly supportive of developing an Open-Minded School. Drawing on the model of the Open-Minded School presented in the previous section, and the emphasis placed on creating an 'open-minded culture' it is important to recognise practices that might be considered at both the level of the institution and the level of the individual learner.

Given the importance of whole school factors it was clear that the role of school leadership was a significant factor in creating the conditions in which an open-minded ethos could be encouraged. Principals in the case-study schools were of the opinion that there was something distinctive about leadership in an IB school, although they did not always find it easy to articulate what this was.

Clearly a key role in developing an organisational culture is through the recruitment and development of staff, and within the case study schools it was possible to identify a number of specific issues relating to both these aspects of staff support.

The case study schools faced quite different issues both in terms of labour market demand and supply. For example, the International Schools, with their commitment to offer an extraordinarily rich range of language teaching, might need a teacher able to offer a language considered quite unusual within a more traditional curriculum. However, being based in London these schools were able to draw on the city's extremely cosmopolitan community, and were often able to find the teachers they needed. Each of the case study schools had quite distinct labour market issues. One obvious issue of difference was the level of staff turnover with some schools, because of the international nature of the their staff profile, having higher turnover of staff than might be considered usual in other contexts. Moreover, the distinct nature of school cultures could sometimes make it difficult to ensure an organisational 'fit'. Within the international schools this was in part overcome by recruiting staff with previous IB experience. This was not such an explicit objective for the state sector school, in the sense that IB experience was not something that formed part of the selection criteria. The notion of 'fit' in terms of organisational culture was identified as a significant issue when making appointments (Tooms and English, 2010), and one school demonstrated how they used the Learner Profile to inform selection criteria.

Given the nature of the Learner Profile as the 'heart' of the IB it seemed appropriate that school's sought staff who modelled the Learner Profile attributes. The following interview transcript with a Principal and two senior leaders is lengthy, but highlights some important issues:

[Senior leader 1]: *And when you come across new candidates sometimes you can tell they have the right qualities . . . the sort of qualities that you'd want, and it is about finding the right people, that if you have those qualities, even though may not be IB teachers, you can train them – if they have got the right sort of outlook.*

I keep using that word . . . rather than sometimes you come across teachers who have got IB experience but you feel they haven't really understood what the programme is about.

[Principal]: *They have been on a workshop . . .*

[Senior Leader 1]: *Yes! They have been on a workshop. And that is it . . . but perhaps . . . they are not wholehearted.*

[Principal]: *And I think that is a really insightful comment . . . that in a sense there is the hidden . . . you know . . . who has what it is that we are all looking for. Obviously two or three years as a successful IB teacher is great . . . but it is more the attitudes that we are looking for.*

[Senior Leader 2]: *One of the interview questions we have started to ask is 'How do you model attributes of the Learner Profile as a teacher?'. It can be a slightly stilted question – but you are looking for people who are prepared to take risks – to try things out. That is the whole point – you are not coming into an MYP school looking for a set syllabus, and not to tick boxes and numbers. You are looking for people who can innovate.*

[Senior Leader 1]: *It is interesting reflecting on the recruitment process, because you don't necessarily spell it out . . . you might not be conscious of it . . . but you are looking at, pretty much, the attributes of*

the Learner Profile when you interview people. You don't put that in the questions, but when you really start to think about it – that is probably what you are doing in terms of the qualities that you are looking for.

Staff development across the schools varied considerably in scale and form. Teachers in IB schools are required to participate in IB provided professional development. This was acknowledged as important, and useful, but it was inevitably limited. Teachers accessed this type of professional development relatively rarely – often when they started their teaching career in an IB school. In some cases, there was little formal professional development beyond these opportunities, and this could lead to some frustration.

As in most contexts, informal professional development was both more common, and seen as more useful, by teachers. This mostly took the form of team meetings, with teams organised around subjects. However, as is often the case, such groups often focus on the immediate and the practical. Teachers report that team meetings were often preoccupied with planning, and ensuring that different curriculum requirements (subject content, unit questions etc) were appropriately aligned. As the Learner Profile is not formally assessed it was acknowledged that it was rarely, if ever, discussed between teachers in these sorts of environments. The paradox was recognised that the Learner Profile is the 'heart' of the IB, but is generally not frequently discussed. As such, it can be difficult to identify 'good practice' in relation to the Learner Profile and ensure this is shared. The case study schools all demonstrated excellent practice in relation to developing open-mindedness amongst students, and students themselves often recognised the practices adopted by teachers that sought to develop open-mindedness. However, in relation to developing open-mindedness, and indeed the Learner Profile more generally, it was not always clear how good practice might be identified, and shared more widely. Throughout the research this issue emerged as the paradox within IB – that the Learner Profile is the defining feature of the IB, and yet it is the aspect of the IB curriculum that teachers arguably discuss the least.

In one school the MYP co-ordinator had introduced a model of professional development based largely on collaborative action research projects. This involved all MYP staff working together in sub-groups on inquiry based projects focused on teaching and learning, with teachers working collaboratively and then sharing their findings across all staff at the project end. Research teams were often formed around

groups of staff who otherwise might not normally work together. For example, research groups were sometimes based on research interest rather than subject discipline, and this involved new cross-school collaborations. One of the advantages of this approach was the synchronising of professional learning for teachers with the pedagogical philosophy of IB, and its emphasis on inquiry based learning. There was also evidence that these projects generated dialogue, and shared learning, about the place of the Learner Profile within the curriculum.

The importance of teachers working collaboratively was highlighted in relation to the importance of transitions within the IB Continuum. Three of the case study schools were PYP through to DP schools, and hence the relationship between the PYP and MYP was important. In these schools MYP students appeared to benefit significantly from having experienced the PYP curriculum, and then being able to take this understanding into the MYP.   In all the schools where there was a PYP programme students and teachers reported that the Learner Profile was deliberately more explicit in the PYP. In this instance the Learner Profile was considered the bedrock of the IB and hence a focus on the Learner Profile was seen as laying the foundations for later stages of the Continuum (although please note this study involved no data collection within the PYP).

This notion of the PYP laying the foundation for subsequent stages ensured that the MYP (and later DP) was able to build on this base, and this appeared to work particularly well where there were good transition arrangements between the PYP and MYP stages. Arguably this offers one reason why the place of the Learner Profile appears less obviously at MYP, because within the PYP it has already been embedded. At the MYP level there is more likely to be an internalised understanding of the Learner Profile, and attributes such as open-minded. However, this does presume in part that transitions are planned and structured. As has been indicated, this was evident in the case study schools although it was acknowledged as requiring more thought and consideration at the PYP/MYP transition as it is unusual for staff to teach across these stages. This contrasts with the MYP/DP transition, in which several staff will work across this divide, and therefore informal communication can happen more easily.

Given the ways in which the Learner Profile was seen as 'permeating' the MYP curriculum, often in an implicit way, it was important to identify opportunities where

attributes such as open-minded can be made explicit when appropriate opportunities present themselves. Within the study several teachers highlighted the importance of reflection activities to highlight open-mindedness 'post-hoc'. In these cases teachers often avoided highlighting Learner Profile attributes in advance of students engaging with them. This was in part to avoid 'Learner Profile fatigue', but also recognising that the nature of Learner Profile attributes such as 'open-minded' do not always lend themselves to being planned in advance. In many cases such opportunities arise, by definition spontaneously. In these instances the 'open-minded pedagogy' discussed previously requires teachers to be flexible and open-minded to the learning opportunities that present themselves in unanticipated forms. Part of the skill of the IB teacher is the ability to recognise these opportunities and to capitalise on them. For these reasons it was seen as more both more practical and more effective to identify where students had demonstrated attributes such as open-mindedness 'after the event'. This therefore reinforced the need for teachers to be highly skilled in developing opportunities for student reflection as well as exploiting opportunities to develop open-mindedness. Many teachers argued that this type of reflection was pivotal to effective practice in relation to the Learner Profile.

Creating the Open-Minded School: a case-study

This research has provided data from a number of schools, and reported how they use the IB Learner Profile in the Middle Years Programme and how they have sought to develop 'open-mindedness' amongst their students. In a previous section we discussed the notion of the 'Open-Minded School' as a learning environment in which open-mindedness could be seen to inform the school culture at many different levels and in different forms. This extended beyond the notion of open-mindedness as articulated in the Learner Profile, and began to assume a broader, cultural role in the school. In this case-study we describe how one school in particular has sought to use the Learner Profile to develop an 'Open-Minded School'.

The school in question is significant within the study because it is the only case study school in the project that is not an international school. As such the school could not be described as one where students might naturally be expected to have developed an international mindedness based on 'third culture' experiences. Indeed, the case was the opposite with the context reflecting a local community characterised by limited social and cultural capital and with little access to opportunities for international collaboration and exchange. The school in question is also interesting as it is a newly built school, and as such it represented an opportunity to bring together a number of different elements including curriculum, pedagogy and building design to develop a school culture that reflected 'open-mindedness'.

In order to fully understand the case-study it is important to establish the context of the school. The school opened in its current form in September 2009. The school was opened as an Academy school during the period of the 1997-2010 Labour government when Academy schools were established as one part of a 'turnaround' strategy for schools that had experienced low levels of student achievement over a sustained period of time. The predecessor school had operated as a secondary modern school in a local area described by one teacher as '*super selective*' whereby there was intense competition to secure access to grammar (selective) schools in the area. The case study school's student population was drawn predominantly from social housing estates in the locality, and in very few cases had students chosen to attend the school. The school had been characterised by low levels of achievement coupled with high levels of truancy and student exclusions. When the new school opened in 2009 the context was very challenging – '*we took everyone who couldn't get a place*

anywhere else basically – we had 42 students in the first Year 7, of whom nobody chose us' (Vice-Principal).

The local area would be described as largely White English, and the impact of student selection at 11 meant that the student population of the school was largely 'white working class' and drawn from within the local community which was seen as stable with limited access to wider opportunities.

The challenges for the school therefore were multiple. The new school had emerged from a predecessor school that had a record over decades of low levels of achievement, and a reputation that reflected this. The school also functioned within a selective context in which its structural disadvantage was reinforced by the 'creaming off' of particular students to local grammar schools. Not unsurprisingly the staff who transferred to the new school had had their experiences shaped by the context in which they worked. The new Principal of the school described a context in which both staff and students had limited aspirations.

> *. . . it was very, very, very kind of closed in – a sort of very defensive kind of place. The kids didn't go anywhere . . .nobody went anywhere . . . staff didn't go anywhere and nobody was allowed in. Oh god it felt physically kind of enclosed, let alone mentally and sort of psychologically . . . and philosophically. . . .*
> [Principal]

This sense of 'closedness', whereby those in the school 'didn't go anywhere' was evident at multiple levels. In one sense it was suggested that students had had few opportunities, and for example, few had experienced life outside of the locality, let alone international travel. However, in another sense students didn't go anywhere in terms of occupational destinations and ambitions. The Principal, supported by several other interviewees, described a type of closed down world in which social and cultural capital was scarce.

The establishment of the new school, and in turn the building of a completely new school, combined with new leadership provided the opportunity to turn the tide on this experience.

The new Principal immediately saw the need to raise aspirations, and to open students' minds to new possibilities. Within the school leadership there was a view that England's national curriculum provided little opportunity to offer what students needed, and as an Academy school it became possible to explore alternative curriculum frameworks. The Principal was immediately attracted to the IB. In part because it offered a comprehensive framework, but more importantly because it captured what she wanted to achieve for students.

> . . . most importantly it was aspirational. It was academic, and it was broad. You get to do everything and I am a linguist, so you have to do a language, you have to do creative arts – it is all these things, that these kids should be doing. I loved the Learner Profile – it was about putting your head above the parapet, and do you know what – there is a big wide world out there – and let's allow our children and our staff to explore that world through the curriculum – so that kind of 'international mindedness' was very important to me . . .
> [Principal]

In this sense the curriculum became central to the transformation of the school, with a clear emphasis on a curriculum that would open up students' minds, in part to new places but more importantly it was about opening minds to new possibilities and new ambitions.

The transformation was further supported by the physical building of a new school to replace the old premises. For a school with a history such as it had had then a new building offered an opportunity to provide a very physical image of transformation – this was literally a 'new' school. However, for the Principal the opportunity to be involved in the design of the new school opened up many more possibilities of ensuring the physical environment aligned with the curriculum and the wider vision for the school.

> . . . you put your bid together [to the designers] for what you want. So you have to think about what you want and I wanted something . . . I mean, in effect, really something that reflected the Learner Profile.

I wanted to show how subjects interacted with each other, and not be opposed to each other. So in one specialism wing you have technology sitting next to a science lab. You move seamlessly from one to the other.
[Principal]

The design of the building has a strong emphasis on 'open spaces', and this design in turn opens up opportunities for increased collaboration between staff as ideas are shared more easily and more widely. For example one teacher interviewee described how the building design encouraged increased cross-curricula work with students.

I was just trying to crystallise everything that we do . . . and the way in which we have designed the building, and the way the curriculum is written, allows students to be more reflective of how everything links with everything else. For example we have 'Newton' – it is this huge thinking space in the middle – we do have classrooms off it, and we are not quite where we want to be curriculum wise, but the idea behind it is that you can have two very different subjects breaking out and working together in this huge breakout space in the middle, and then popping back into lessons. And there are these cross-curricular projects that happen and I think there is now this kind of linking 'Aha! This is how that works!' – there's a joining up of thinking.
[Classroom teacher]

Another teacher described how a chance conversation with another colleague the morning of the day we visited immediately led to a discussion about a cross curricula collaboration, with the teacher arguing that the school's culture made it 'open' to such networking and 'open' to the ideas generated:

I had a conversation with one of the history teachers this morning, just whilst we were waiting for briefing , and she was doing propaganda posters at the moment . . . and we were just having a chat – literally a five minute chat, and I said 'Well next year, let me know, because we can get Art involved , and what we will do, you can teach them the history, they can write it in German, and they can design it in Art.'

That type of thinking won't happen in a lot of schools. But immediately, because I have had the [IB] training, and she's got good understanding, suddenly within five minutes we have gone . . . bang, bang, bang and then I bumped into the Vice-Principal in the corridor and I said 'I've just had a word with [history teacher] and this is what we might do next year', and he said 'Yes . . . brilliant . . . no problems. Let me know which term and we will make that happen.

[Classroom teacher]

In this context the link between the design of the building and the wider culture and philosophy of the school is recognised by teachers, and is seen as central to what the school seeks to achieve. One teacher made the following observation about the building.

. . . it is the curriculum. Because actually you start with the curriculum and then you build everything else around it – and that is a great way of thinking. And that is what I mean when I say we now have a building that supports the IB, and allows that way of thinking to happen. It is very clever – it really is fantastic.

[Classroom teacher]

What the above examples also illustrate are the changes that take place in pedagogical practices as teachers open up to new ideas and new ways of organising students' learning. Within the context of this school a key issue that emerged was a much more international perspective in relation to teaching many subjects. This was in part reflected in subjects that lend themselves to an international minded approach – '*if you are going to teach languages properly then you can't teach languages without open-mindedness*'. However, there were also clear instances of where this extended beyond these subjects. One teacher commented:

For me personally it means a lot more awareness globally . . . and awareness of yourself as well. I think it is very easy to become quite insular as an education establishment, and within yourselves. I think it takes quite a lot to encourage students to look outside and appreciate.

[Classroom teacher]

This same teacher then discussed how his teaching combined both international mindedness and a receptiveness to different ideas as the means by which key concepts in his science teaching were discussed.

You can look at the history of medicine, or almost any aspect of science, and you can get . . . almost very narrow minded, with students saying 'I can't believe people used to think like that' and then moving to 'Now I have a greater appreciation of where we have come from'. In my opinion that has changed a lot in the last year. When I first came to the Academy students weren't necessarily willing to look at other ideas, It was more a case of 'that is what I have been taught and it must be right!' But now students are more willing to step back and say 'OK – that is what I do know . . . however this is what could be another idea, and this could be another possibility'.

The language that the students use is so much better. They are questioning, and reasoning, and sort of having a balanced argument – and being open-minded . . .
[Classroom teacher]

In student interviews there was a strong sense that students felt encouraged to articulate different points of view, and to develop alternative approaches to the issues and problems they were faced with.

[Student 1, MYP 4]: *I don't know if this is the teachers' highest priority, but I believe it is one of their priorities – you have got to look at the fact that the some of the greatest people – mathematicians, scientists and artists they all broke the boundaries and what they have done would actually have been laughed at if they were in school right now. So like Nicolaus Copernicus is a great example – he was laughed at because he said the Earth revolved around the Sun . . . and the Church didn't believe that. And that could happen in class. You could have an idea about something and you could interpret it differently. It is right . . . it could be proved right, and the teachers always think about that. That fact that scientists, mathematicians and artists who have broken the conventional rules of learning, and kind of just messed around with it . . . . which I think is what you are encouraged to do at the school because it*

makes you a better learner. If you can . . . if you can actually . . . if you can understand the rules you are able to break the rules, and to bend them . . . at your will. It is encouraged a lot to be able to do that – and to be able to look at a problem and go 'OK . . . these are the rules to it . . . what if I can bend this and create a different output for the answer.

[Student 2, MYP 4]: *And I think that is kind of the main aspect of open-minded, definitely!*

The case highlights how the curriculum, the building design and approaches to learning developed by students and teachers represent an alignment in which each element complements the other. This intentional alignment was part of the Principal's vision for the new school, and highlights the significant role of leadership in creating the open-minded school. In this instance the Principal was able to articulate how the overall ethos of the school that she sought to develop, was one that was reflected within the IB. This arguably drew on all aspects of the Learner Profile, but the sense that the school was open-minded to other possibilities, in much the way articulated by the student above, was clearly an important issue.

I also think an IB school has that kind of . . . It has gone beyond . . . It doesn't just do what it is told to do by central government . . . It shows a kind of leadership of . . . of . . . I guess . . . vision, and of being prepared to do things a little differently.

You know, I could have listened to whatever, the sponsors – 'oh you can't do this' and it could have been very confining, and very narrow and limiting – because you have got a job to do, and you have got to get results up and so on. And it could be 'Ok, so that is what we will do!' But I have a completely different view of 'Well let's do something exciting and different and broadening – in order to come to the same outcome.'
[Principal]

However, the Principal also made clear that leadership in the school was about more than a vision in which the ethos of the school aligned with the values of the IB curriculum, and in particular its expression in the form of the Learner Profile. In the

Principal's view leadership also needed to model the Learner Profile, and in particular its commitment to open-mindedness.

Why you would be an IB school says a lot about leadership in the first place. It is about being open minded. It is about being all those attributes in the learner profile. I would hope that I am role modelling them, and I think it is a really important part of it, and that all of the staff and senior leaders are role modelling it.

That is why it was so appealing to me to be honest – it is the very essence of both how I like to lead and the kind of ethos I would like in the school.
[Principal]

Hence within this case study school we see a clear example of how a leader with a clear sense of vision, grounded in the principles of IB, has provided a framework within which a new school has been developed, and an ethos created that reflects that vision. What is significant, is that the vision is rooted in a specific pedagogical approach. Creating an open-minded school, in a community where opportunities have traditionally been closed, is, for example, about more than establishing curriculum content that reflects an internationalism (although this is important), but it is about encouraging ways of thinking that 'bend the rules' (as the student indicated) and open up new possibilities.

In this case study, the Principal has had the fortunate experience of being able to create a largely new school, and literally with new buildings. This is clearly a very favourable set of circumstances not experienced by many others. However, set against this must be the very considerable challenge of turning around a legacy of low aspiration and low achievement. What emerges most strongly is the extent to which the Principal has been able to align school vision, the curriculum, pedagogical approaches and building design in a way that has established the culture and ethos she wished to create. In this instance, the Principal has been able to draw on the framework provided by the IB to create an open-minded school. There is therefore a 'coming together' of individual agency, and structural frameworks, that have helped develop this.

Conclusion

This research report has sought to develop a better understanding of the role of open-mindedness within the IB MYP curriculum. Throughout the research the concept has emerged as one that is complex, and this correspondingly presents challenges for those seeking to develop this attribute amongst young people. Within the IB curriculum open-mindedness has a dual dimension in the way that it combines both a commitment to international mindedness with the pursuit of open-mindedness as an intellectual virtue. What this research has identified is that within these over-arching dimensions it may be helpful to consider a more multi-dimensional, or multi-modal, approach in which more finely grained approaches to open-mindedness are developed within the over-arching dimensions that are captured within the Learner Profile text.

Such a multi-dimensional approach also allows for a more detailed understanding of how open-mindedness is developed in different school contexts. This study highlighted that differences across different modes of open-mindedness could be significant, and that students in one school may be more open-minded in relation to some modes, but less so on others, suggesting that the causal relationships behind developing a more or less open-minded orientation within students are complex and varied.

Within the constraints imposed upon aspects of this study associated with limited sample size and a single non-IB school involved, it is difficult to discern substantial differences in open-mindedness that may or may not be the result of schools teaching the IB curriculum. That said, there is limited evidence of such effects which are noteworthy. In particular, there was a clear and significant relationship between attendance at an IB school and a greater level of open-mindedness among pupils with regard to awareness of cultural differences. There were also several instances in which attendance at a particular IB school led to greater average levels of open-mindedness among pupils than those seen in both the non-IB school and other IB schools (such as being open-minded about cultural primary, belief open-mindedness, and cultural religious open-mindedness). While there is an insufficient range of non-IB schools in this study to be certain that these effects are associated with the IB curriculum, there is nonetheless encouraging evidence that schools teaching an IB curriculum have the potential to raise levels of open-mindedness among their pupils, particularly with regard to awareness of cultural difference and diversity, but also regarding religious and cultural beliefs, and their own beliefs. Within this report there

is clear evidence of good practice within the case study IB schools which may have a positive effect on how open-minded their pupils are which are worthy of further examination.

The complexity of open-mindedness as an attribute to be developed in young people ensured it was a correspondingly complex concept for teachers to work with. This research highlighted that teachers, and students, have a well developed understanding of the concept of open-mindedness, although this can be quite personal and sometimes it is limited in range. There is not always the complexity of open-mindedness as emerged from the survey in teachers' understandings of open-mindedness and it may be that there is much to be gained from helping teachers better understand the multi-modal nature of open-mindedness developed within this report. For example, this may help teachers identify specific opportunities to develop particular aspects of open-mindedness, for example in relation to moral and personal beliefs.

Developing this deeper understanding of open-mindedness may help develop teachers' own confidence to deal with complex, and sometimes controversial, issues. For example, this research clearly revealed that sometimes teachers can deliberately 'close down' the possibilities for open-mindedness where they sense this may generate tensions and problematic situations. This was not what they felt they necessarily *wanted* to do, but there was a realisation that open-mindedness pushes boundaries and sometimes pragmatic caution was preferred to what were seen as more risky ventures into new territories.

The complexity of open-mindedness as a concept, and its place at the heart of the MYP curriculum meant that teachers were resistant to trying to evidence and measure the attribute in a more formal form. Time and again we heard that the value of the IB MYP lies in its openness and teachers were keen that the pressure to 'measure everything' that can be found in many systems is resisted. It was felt that Learner Profile attributes should be 'felt' rather than 'delivered' and that they would be diminished if a more instrumental approach was adopted. However, this approach does generate something of a paradox within the IB curriculum – which is that its most important element, its mission expressed as learning objectives, can be the aspect that is discussed explicitly less than any other. It is often assumed it is 'happening', and teachers are often confident that they are 'doing it', but several

teachers acknowledged that their coverage of Learner Profile attributes generally could be serendipitous. There is therefore not a clear sense of how effective a school might be in developing the attribute, where good practice is happening and how that practice can be developed. Given this situation it does highlight the need to ensure that the Learner Profile, and its different attributes, are built into the 'professional dialogues' that take place in IB schools. Here we deliberately use the phrase professional dialogues because this is about much more than formal professional development. Rather it is important to ensure that teachers are talking more explicitly about the 'big issues' rather than what can appear like what one teacher described as an exclusive focus on 'the logistics of delivery'. These may be the day to day conversations of professional discourse, but the important issue is to ensure that the bigger issues are not lost sight of. If the Learner Profile represents the heart of the IB it needs to be looked after. Teachers need to talk about its well-being, and how to nurture it. Such conversations cannot be left to chance.

These discussions are much more likely when the Learner Profile attributes are embedded in the culture of the school. Within this study we have developed the notion of the open-minded school as one in which key elements of the organisational culture and ethos inform the development of the individual student. In the open-minded school the development of open-mindedness as an attribute emerges through a complex relationship between the student, the Learner Profile and a number of organisation factors all of which reinforce each other. It is the alignment of these factors at an organisational level which we believe is mostly likely to support the development of open-mindedness amongst young people – individually and collectively.

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Appendix 1: Interview Schedules

Interview protocol

School Leaders (Principals, vice-principals, curriculum leaders eg MYP coordinator)

Name and brief personal history

Please can you explain the history of IB at the school and summary of current provision?
Why IB?

How are you an IB school? What does that mean?

How does being an IB school reflect in your leadership?
Is there something distinctive about leading an IB school?
How can you relate your leadership to the notion of open-mindedness?
What are the leadership challenges of leading an IB school?

What do you identify as the key benefits of being an IB school?

How do you see the role of the Learner Profile? How do you seek to embed/integrate the Learner Profile into the curriculum / wider school?
Are there any difficulties experienced in this process?

How have teachers responded?
What support required? (PD etc)
What support effective/ineffective?

How does IB fit with the wider school system? (GCSE, Inspection etc)

Longer term aims - what are the key development issues for the IB curriculum (MYP) in the longer term? Any issues relating to 'getting there'?

Teachers - classroom teachers involved in teaching MYP programmes

Please describe your experience of IB - elsewhere, and at current school

What IB specific PD have you had - please provide details

What do you see as the merits of IB? (for children individually, at school level?)

What do you see as the key curriculum challenges in the IB curriculum?

In what ways do you evaluate the effectiveness of your teaching re IB expectations?

What are the specific classroom planning issues re IB?

How do you build your teaching around the Learner Profile? How is the Learner Profile 'covered' across your teaching/the whole school curriculum?

Are there any issues about fit with the wider curriculum?

What are the benefits of teaching in an IB school?

How does an IB school look/feel different?

SEN issues - are there any specific issues relating to SEN provision with regard to the IB curriculum? If so, please explain . . .

On open-mindedness …

What does 'open-minded' mean to you?

How do you build into your curriculum/teaching?

How do you cover the learner profile?

Do you see open minded as posing any problems? (eg do we need to be open-minded to ideas we don't agree with - morally?)

Please provide an example from your teaching of 'good' open-minded teaching - explain it? Why?

How would you describe the impact of open-mindedness on students? (and wider impact on the school?)

Students

What do you like about this school?

What do you like about IB?

Does IB make this school different? How?

Tell me about the Learner Profile? What does it mean to you?

Specific questions about open-minded . . .

What does open-minded mean to you?

Can you tell me how open-mindedness differs from critical thinking . . .

Do your teachers refer to open-mindedness? How? [give examples]

Please provide examples of the way your school is 'international' (with follow up questions to probe intercultural awareness and intercultural sensitivity)

How has your experience at this school made you 'open-minded'?

Appendix 2: The survey

This appendix details the list of statements which were presented to survey respondents in the online survey. The response categories for each statement were:

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- Don't Know

The full list of statements is:

1. First impressions are important for judging people
2. When I meet someone for the first time, I can quite quickly tell whether or not I like them
3. I enjoy arguing about what is right and wrong
4. The best way to work out the right thing to do is to get different views from a wide range of people
5. If you know something is absolutely the right thing to do, you shouldn't let anybody change your mind
6. A person who is willing to change their belief is admirable
7. People should stick to what they believe in
8. Some beliefs are just too important to change
9. If I know something is wrong, I will not let anybody change my mind
10. I like to work with people who have different ideas from mine
11. The best way to solve a complex problem is to get input from a wide range of people
12. I don't like to work with people who do things differently from me
13. I like to work with people who think they know a better way of doing things
14. I like to try and convince people to agree with me
15. I don't like it when my views and beliefs make me the odd one out
16. I enjoy learning new ways of doing things
17. I don't like it when somebody proves me wrong
18. I enjoy doing things differently from everybody else
19. The most important culture to learn about is your own
20. When people go to other countries, it is important that they spend time learning about the cultural beliefs and practices of that country

21. Learning about other cultures at school is not really a good use of my time

22. I enjoy learning about the way people in other countries live

23. Poor countries have little to teach rich countries

24. One day, poor countries will be very similar to richer countries, it's simply a matter of time before they develop.

25. I like to work with people from different cultures

26. It's interesting to meet people from other cultures

27. The main difference between a rich country and a poor country is how developed they are.

28. I'd rather work with people from my own culture than with people from different cultures

29. It doesn't really matter how people from different cultures define right and wrong - what matters is the way our own culture defines right and wrong

30. I'm not working with people from different cultures

31. When we learn about what people in other countries think is right and wrong, we should be prepared to reconsider what we think is right and wrong

32. People with different religious beliefs have different views of what is right and wrong, and we should try our best to learn what they are

33. We need to respect the ways people in other religions live, even those that we don't agree with

34. There are some religious practices which are wrong

35. The only real difference between most countries is that the inhabitants speak different languages

36. Customs are different in different countries, but deep down we're all basically the same

37. It's good when there are lots of people from different backgrounds living together, as there will be lots of different ideas for how to do things

38. I like it when there is more than one answer to a question

39. I don't really like to find things out for myself - I prefer to be taught

40. There is always one best way of doing most things - we just have to find it

41. If you have a tried and tested way of doing something, there is still value in trying to find other ways of doing it

42. I don't like questions where there is no right answer

43. Questions with lots of 'right' answers don't really teach us anything

44. There is no such thing as 'truth'

Appendix 3: Mokken Scale Analysis

This appendix details the procedure and results of the Mokken Scale Analysis (MSA) used to identify the modes of open-mindedness outlined in the main report, and upon which the construction of the composite variables relating to those modes was based. The first section of the analysis will provide some information about MSA and why it is preferable to in this instance to factor analysis and/or principal components analysis. The second section will then detail the technical procedure behind conducting the MSA in Stata. The third section will then outline the results of the procedure for the 44 statements listed in Appendix 1, before detailing the process by which the composite variables representing each mode of open-mindedness was constructed.

Section 1: Mokken Scale Analysis

Mokken Scale Analysis is a method of analysis from the family of item response theory methods. It is a probabilistic version of Guttman scaling – a method of analysis which has been used elsewhere in the field of education and study of children and young people's attitudes (Van Schuur 2003; 2011; Yamaguchi and Kandel 1984; Brookover et al 1964; Single et al 1974). The primary difference between the two is that MSA compensates for Guttman Errors by assuming a probabilistic distribution of the likelihood of success or failure for successive items on a uni-dimensional scale of difficulty rather than a deterministic one (Van Schuur 2011).

MSA (like Guttman scaling) assumes that all of the items to be analysed form a uni-dimensional scale which measures a single latent trait (Van Schuur 2003). The items on the scale differ on the basis of their relative 'difficulty', assuming that fewer people will 'succeed' in dominating the more difficult items than the easier ones. It also assumes that an individual who dominates a higher difficulty item is likely to successfully dominate all of the easier items (Van Schuur 2011)(as opposed to Guttman scaling, which assumes that this individual *must* dominate all of the easier items or the analysis will not function (Van Schuur 2011).

For example, assume the items in the analysis are maths questions, and the latent trait they measure is mathematical aptitude. Item 1 is the 'easiest' item, asking about basic addition. Item 2 is slightly harder, asking about multiplication. Item 3 is harder

still, asking about algebra. Item 4 is the hardest item, asking about calculus. MSA assumes that a) most people will successfully answer Item 1 (i.e. they will dominate the item), fewer will dominate 2, fewer still will dominate 3, and very few will dominate 4; and b) that the vast majority of individuals who dominate Item 4 will also dominate Items 1, 2 and 3, while the individuals who dominate Item 3 will likely dominate Items 1 and 2 but will fail to dominate Item 4.

This is the assumption which MSA tests in our survey data. If this assumption is violated, then we must conclude that the survey items do not all measure the same latent construct on a uni-dimensional continuum. The MSA will then report how many latent constructs are being measured by the survey items, allowing us to identify the clusters of survey questions which are measuring the same latent component of our broader concept of interest: critical receptiveness.

This function of identifying which clusters of survey items (if any) are measuring the same latent construct(s) is a task often performed using factor analysis or principal component analysis. However, MSA is a preferable alternative to these methods for the analysis of survey data, for two main reasons. First, factor analysis has been shown to over-estimate the number of latent dimensions within a dataset, particularly when that dataset includes dichotomous survey items (Van der Eijk and Rose 2011). In addition, MSA, as outlined above, assumes that the relative 'difficulty' of each survey item varies (in practice this means that the likelihood of respondents answering in the affirmative – however this is measured – for various survey items is assumed to vary) (Van Schuur 2003; Hemker et al 1995). Factor analysis, however, assumes that this is not the case – that each item has an equal difficulty of being answered in the affirmative by each person - because it assumes that individual respondents do not vary (Van Schuur 2003). This is an assumption which is often violated in survey research (Van der Eijk and Rose 2011; Van Schuur 2003) – indeed, it is hoped that respondents *will* vary in survey research so as to tell us something about the subject we are interested in.

For these reasons, MSA is the preferable tool for analysing the survey data in this analysis and for identifying modes of critical receptiveness that can be more reliably measured and extensively examined through the use of composite variables.

Section 2: The Process of the MSA

The MSA will be conducted using Stata's 'msp' and 'loevh' modules[14]. The first stage in the analysis uses the 'search' function (the 'msp' command), which uses an iterative process to determine whether or not items can be said to measure a latent common trait. First the 'easiest' item is identified (in the absence of any other indicator of the ease or difficulty of dominating a survey item, the relative difficulty of the survey items is calculated based on the mean score of it), and then the item which correlates most strongly with it is added. This process continues until no further items fit onto the scale, and the process begins again with the next 'easiest', currently unscaled item.

MSA determines which items commonly measure the same latent trait through the use of Loevinger's H-Coefficient (Van Schuur 2011). A coefficient of 0.3 or greater is considered sufficient to identify a particular survey item as measuring the same latent construct as the other items on a given scale (Mokken 1971; Van Schuur 2003). A lower coefficient implies that the items are not measuring the same latent trait, while a higher coefficient implies a strengthening of the relationship between the items in question in their measurement of that trait. In addition, an H-Coefficient for the overall scale of items is also calculated, which works in the same way; a coefficient of 0.3 implies that the combined scale is measuring the same latent construct to a satisfactory level (Mokken 1971; Van Schuur 2003).

In the MSA search process, therefore, the software determines which items are measuring the same latent construct on the basis of the H-coefficient relative to the other items in the proposed scale, and on the basis of the overall H-coefficient for the combined items on that scale.

Once the search function has identified the potential scales, they are tested using the 'loevh' command. The 'loevh' function runs a test on the proposed item scale, testing the null hypothesis that they do not measure the same latent construct. It calculates the H-coefficient for each item and for the overall scale; if any of these coefficients is below 0.3, the proposed scale must be rejected as a measure of a common latent trait. The advantage of using the 'loevh' function in Stata is that by only including the items which potentially make up a single scale, the effects of data loss through

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[14] The two modules were designed by Dr Jean-Benoit Hardouin, and are available for download at http://ideas.repec.org/c/boc/bocode/s439401.html (Accessed 21st March 2014).

listwise deletion are minimised. By contrast, when the 'msp' command is used, depending on how many variables are to be included in the initial search procedure, the loss of data because of listwise deletion of cases with missing responses to single variables can be substantial. Through testing each proposed scale with the 'loevh' command, therefore, the scale is usually tested on a larger sample than was included in the initial search procedure which identified it.

Once the search and testing functions have been completed, and any refinements to the scales made on the basis of each, we are left with scales of items measuring the same latent construct which can be combined into composite variables for measuring that construct. The resulting composite variables will have greater potential (and, often, actual) variance than the original constituent variables, and will also provide a more reliable measure of the trait of interest owing to its being measured in several different ways.

Section 3: Mokken Scale Analysis for the Open-Mindedness Survey

Owing to the fact that 44 different statements were employed in the initial search stage of the MSA, the loss of observations because of listwise deletion was substantial. Out of an initial 672 observations, the initial analysis was left with just 122 observations representing the respondents who had provided a valid answer to all 44 of the items. This necessitated an extensive process of search, test, refine, re-test, search in identifying the valid scales from the full range of items. It is not necessary to report the full step-by-step output of this process here – what is reported is the final scales that resulted from this process, along with the relevant statistics which indicate the strength of the scales in measuring the respective modes of critical receptiveness.

Table 9 reports the final output of the MSA, detailing the eight scales which indicated the eight different modes of critical receptiveness identified and conceptually outlined in the main report. Note that, owing to page size constraints, only the item numbers corresponding to each statement from the survey has been provided in the table; the actual statement text can be found by looking up the corresponding statement in Appendix 2.

Table 9: MSA Output for Measures of Critical Receptiveness

Scale 1				
Item Number	Mean	H Coef	Scale H Score	Obs
30	3.13	0.45	0.48	391
21	2.88	0.44		
32	3.08	0.4		
33	3.39	0.47		
22	3.18	0.51		
28	2.89	0.52		
26	3.35	0.54		
25	3.19	0.52		
37	3.27	0.48		
Scale 2				
Item Number	Mean	H Coef	Scale H Score	Obs
10	3.08	0.34	0.35	453
38	2.9	0.3		
41	3.05	0.38		
16	3.25	0.38		
Scale 3				
Item Number	Mean	H Coef	Scale H Score	Obs
17	2.26	0.39	0.39	549
12	2.86	0.39		
Scale 4				
Item Number	Mean	H Coef	Scale H Score	Obs
5	1.79	0.42	0.42	583
9	2.07	0.42		

Scale 5				
Item Number	**Mean**	**H Coef**	**Scale H Score**	**Obs**
4	3.19	0.38	0.38	554
11	3.07	0.38		
Scale 6				
Item Number	**Mean**	**H Coef**	**Scale H Score**	**Obs**
35	2.68	0.34	0.34	482
36	2.09	0.34		
Scale 7				
Item Number	**Mean**	**H Coef**	**Scale H Score**	**Obs**
19	2.45	0.38	0.38	427
29	2.39	0.38		
Scale 8				
Item Number	**Mean**	**H Coef**	**Scale H Score**	**Obs**
7	1.96	0.36	0.36	506
8	2.12	0.36		