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# Information Literacy Awareness Within the Diploma Years Programme of the International Baccalaureate

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*In an information-centred society, information literacy (IL) skills have become increasingly important. The International Baccalaureate (IB) focuses on these skills through an inquiry-driven educational approach. This research examined IL's place within IB's Diploma Programme. Through case studies at three IB schools, students', parents' and teachers' perceptions of IL's significance, the need and preferred methods for improving IL and the librarians' current practice of IL education were analysed.*

*IB is gradually giving the librarian's role for IL education more visibility but its view of a holistic IL concept, as defined in the literature, remains ambiguous. The case studies revealed low levels of librarian-teacher collaboration, even though in-context learning proved to be the stakeholders' shared preferred method for IL education. Preconditions are nevertheless favourable for increasing the emphasis placed upon IL as all stakeholders acknowledge IL's significance and expect to be taught IL skills throughout life but especially within secondary education.*

## List of Abbreviations

AASL ...................................................... American Association of School Librarians
ACRL ............................................... Association of College and Research Libraries
AECT ....................... Association for Educational Communications and Technology
ALA ...................................................................... American Library Association
ANZIIL .................... Australian and New Zealand Information Literacy Framework
ATL ..................................................................................... Approaches to learning
CILIP ........................... Chartered Institute of Library and Information Professionals
DP ........................................................................................... Diploma programme
Ecolint ................................................................... International School of Geneva
EE ............................................................................................... Extended Essay
IASL ............................................ International Association of School Librarianship
IB .......................................................................... International Baccalaureate
IBO ......................................................... International Baccalaureate Organisation
ICT ...................................................... Information and communication technology
IFAP ................................................................. Information for All Programme
IFLA ..................... International Federation of Library Associations and Institutions

IL ........................................................................................ Information Literacy
IT ....................................................................................... Information Technology
MYP ................................................................................... Middle years programme
PQ ......................................................................................... Parent questionnaire
PYP .............................................................................. Primary Years Programme
SCONUL ............................... Society of College, National and University Libraries
SQ ......................................................................................... Student questionnaire
TOK .................................................................................... Theory of Knowledge
TQ ...................................................................................... Teacher questionnaire
UNESCO .............. United Nations Educational, Scientific and Cultural Organization

# Introduction

> *In 1965 … Ernest Roe, Professor of Education at the University of Queensland observed that 'In general, 'promoting the efficient use' of resources has been nobody's business'.*
> *(Bundy 2004 p.45)*

Roe expressed frustration with educators who made painstaking efforts to ensure students were using the available resources but showed complete disinterest with how those students used these resources. His observation touched upon the essence of information literacy (IL): a holistic view of information handling that goes far beyond the mere access of information. The following decennia were marked by technological advancements that made information access abundant and ubiquitous but in the process also increased the difficulty of information use. After the American Library Association (ALA) published their Final Report (1989), discussing the issues brought about by the "tidal wave of information", IL steadily gained importance and is now recognised as a basic human right (UNESCO, 2011a).

This research examined to what extend IL became an essential element, not just within the curriculum but more importantly within the minds of the different stakeholders: students, growing up in a world with abundant and often dubious information; teachers, relied upon to teach students the skills, required to deal with this information; parents, determining the school's agenda through their expectations and demands. The significance placed upon IL is examined within the context of the International Baccalaureate (IB) with a focus on its last two years: the Diploma Programme (DP). IB has a unique place in education: its widespread curriculum is not defined by national standards and is centred from its inception around inquiry. This focus on inquiry makes the IB continuum pre-eminently suitable for teaching IL skills:

> *An emphasis on how students use information (for example, through critical thinking, synthesis and forming opinions) is vital and is central to inquiry.*
> *(IBO, 2012b, p.52)*

The results of the IB continuum should be felt most towards the culminating years when students can be expected to have acquired a thorough understanding of IL and to possess the ability to reflect upon their skills.

## *Aims and objectives*

The research aimed to examine how different existing IL standards informed the IL standards within the IB curriculum. It explored the significance placed upon the development of students' IL skills by teachers, librarians, students and parents. It examined how teachers developed their own IL skills and how librarians and teachers collaborate for the instruction of IL skills.

To achieve the aims, the objectives were:

o    To establish a broad overview of existing IL standards and policies on a national and organisational level, in the wider context in which the schools operate, and within the framework of IB's DP curriculum in particular.

o    To survey DP students at three experienced IB schools in order to explore the development of their IL skills, the significance they place upon IL and whether they recognise a need to further develop their IL skills.

o    To survey within these schools DP parents in order to explore their view on the development of their children's IL skills, the significance they place upon their children's IL skills and whether they recognise a need to further develop their children's IL skills.

o    To survey DP educators within these schools in order to explore the significance they place upon teaching, learning and applying IL skills, the level of collaboration in IL education between teachers and librarians and teachers' confidence levels with regards to their own IL skills.

## Methodology

The research acquired through a non-experimental design data concerning perceptions, preferences and current practice at three similar sized IB schools with comparable IB experience. A fourth smaller IB school participated in the study to trial the questionnaires.

Through anonymous online questionnaires, distributed based on saturation sampling, mainly quantitative data was obtained from students, parents and teachers. To allow cross-comparisons, the questionnaires collected similar data for the different stakeholders and consisted mainly of closed-ended questions.

*Figure 1: Cross-comparison of data* (c.f. following page)
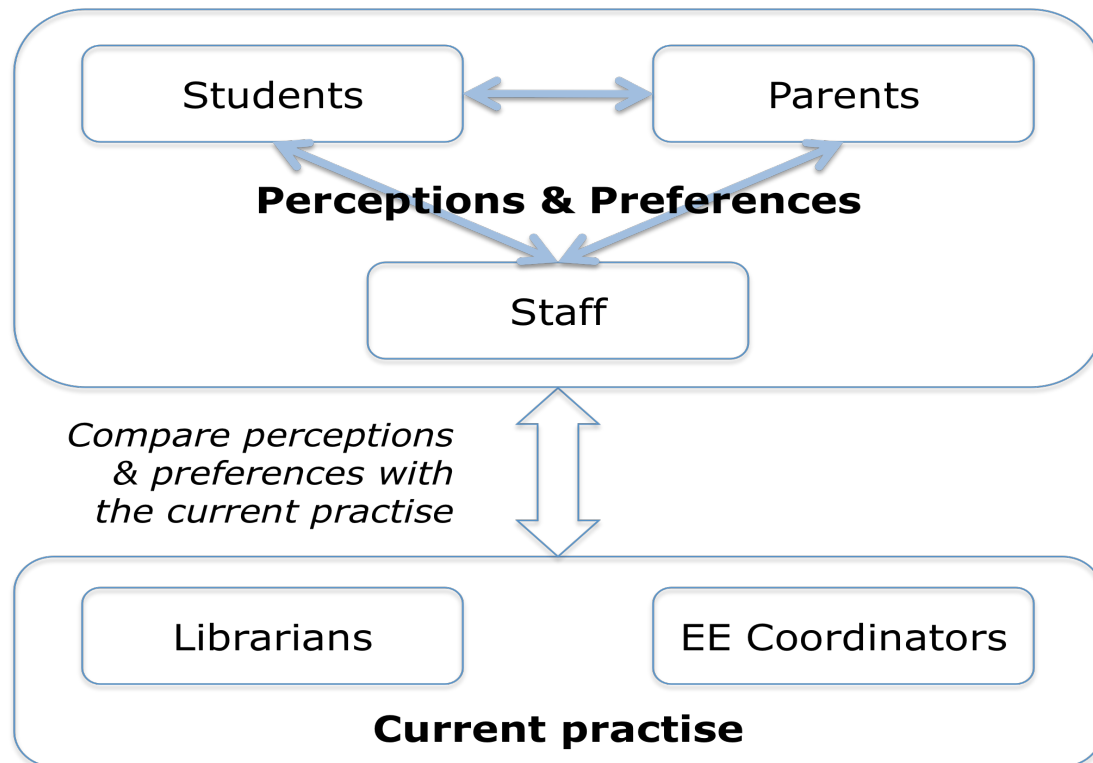
The research focus was not on what IL comprises but rather on the perceptions that surround IL and its elements. To ensure clarity, an indication of what IL comprises, based on the IL indicators in IB's curriculum documents (IBO, 2008), was provided in the introduction to the questionnaires:

> *Students learn to apply a range of skills such as the way information is accessed (e.g. using a variety of sources and technologies), how information is selected and organized (e.g. verifying the reliability of information or identifying different points of view) or the way information is used (e.g. adhering to principles of referencing and academic honesty).*
> *(Extract from the introduction to the questionnaires)*

IL was within the questionnaires subsequently broken down in its different aspects, based on a common understanding of IL, obtained from the literature review:

- o generate questions at the start of research
- o access a broad range of information sources
- o evaluate the relevance of the found information
- o evaluate the reliability of the information
- o keep track of the found information efficiently
- o cite and reference used sources consistently
- o generate personal ideas based on research
- o present ideas and information

Qualitative data was obtained through interviews with the DP librarians and email questionnaires, send to the EE coordinators. These provided a view of the current practise of IL education and the level of collaboration between librarians and subject teachers.

Literature review

> *Information Literacy has a hollow sound. It is empty of content*
> *and has the connotation of being a fad.*
> *(Snavely & Cooper, 1997, p.9)*

Snavely and Cooper started their paper on the IL debate with an anonymous quote that characterised the mixed feelings and ambiguity that surrounded IL. Today, an understanding of the holistic IL concept seems still to be restricted to information specialists (Miller, 2005; Badke, 2010). Teachers, according to Moore (Miller, 2005), lack understanding of the broad model of IL and confuse it with research or library skills. Similarly, Williams and Wavell noted teachers' limited view on IL as they left out "defining the information need and knowledge building" (2007, p.199) from the IL concept. Kuhlthau, Maniotes and Caspari (2007) on the other hand observed teachers' confusion with computer and media literacy.

Walton explained teachers' limited view of IL through their existing understanding of the term 'literacy', often used as to complement other terms, as IL is "ultimately the overarching framework that provides a sense-making structure which underpins all literacies" (2009, p.3). Tilke (2011) and Wolf (2007) confirmed this confusion: "[m]ost grade-level or subject-area educators … have an innate understanding of literacy, but when combined with information that understanding becomes clouded" (Wolf, 2007).

In an editorial for an IL-focused issue of Knowledge Quest, Abilock explains the meaning of IL through an example. In 'A Bone From a Dry Sea', a story by Peter Dickinson, a young girl in a prehistoric tribe applies a strategy, learned in a children's game, in order to catch a dangerous shark. Abilock describes how "Li is just what colleges wish for. She is able to access information, weigh its credibility against criteria she has devised, and synthesise knowledge from multiple sources" (2004, p.9). But even more importantly, Li discovered how she learned to learn, a skill that would allow her not only to find answers to questions but also to examine her own existence and through questioning advance her community. IL had transformed Li into a lifelong learner.

## *Definition and models*

After Zurkowski launched the term 'Information Literacy' in 1974, researchers and organisations progressively created their own definitions.

ALA's Final Report, the first high profile paper dedicated to IL, defined information literate people as those who are prepared for lifelong learning as they "know how knowledge is organized, how to find information, and how to use information in such a way that others can learn from them" (ALA, 1989).

In their follow-up report, Breivik, Hancock and Senn (1998) fine-tuned the definition as "[t]he abilities to know when there is a need for information, to identify information for that need, and to be able to locate, evaluate and effectively use that

information" and stressed that to become information literate, one "would have to start with a basic change in the way young people learn". Gradually, national associations (AASL/AECT, 1998; ACRL, 2000; Bundy, 2004; CILIP, 2011) as well as international organisation (Garner, 2006; UNESCO, 2005; Catts & Lau, 2008) established similar definitions.

## *The need for IL*

In a rare article, Wilder (2005) discarded the need for IL skills, depicting it as an imaginary problem, created by professionals who claim the layman is unable to judge when information is needed or whether the found information is credible. However, the majority of the literature recognised the need for IL and situates this need in different areas.

ALA's Final Report (1989) highlighted the need for IL due to the emergence of the Information Age. It emphasised the danger that increasingly easy-accessible pre-packaged information poses as it "encourages people to accept the opinions of others without much thought". Later on, UNESCO's Alexandria Proclamation (Garner, 2006), based on 2003s Prague Declaration (UNESCO, 2005), declared IL "a basic human right in a digital world". This was reiterated by UNESCO's Information for All Programme, an intergovernmental programme that strives "to create equitable societies through better access to information" (UNESCO, 2011b) and which made IL one of its five priorities (UNESCO, 2011a).

Within primary education Laverty (2002), Skirrow (2009) and McTavish (2010) discussed the need for IL education as students showed their skills to be "insufficient for the task of information retrieval" (Laverty, 2002, p.166). In secondary education, students were found to lack IL skills (Williams & Wavell, 2006; Irving, 2006a) and to be insufficiently prepared for college education (Foster, quoted by Hollister, 2007; Burhanna, 2007). Crawford and Irving observed a lack of IL training in Scottish schools, resulting in "first years students arriv[ing] at university without any skills set which librarians can recognise and build on" (2006, p.44). Within tertiary education, the view on students' IL skills remained bleak. Fitzgerald (2004) concluded that students faced significant difficulties with several IL aspects, varying from the inability to formulate questions to serious issues with accessing, evaluating and applying information. Despite these rather discouraging perspectives, the future looks more promising. Due to the rise in attention, the need for IL skills is increasingly addressed through specific courses. Daugherty and Russo's research indicated that a shift of mindset is starting to emerge at the user's side, as students who participated in an IL course indicated "the course should be required for everyone" (2011, p.319).

At the start of professional life, Ray and Day found that "large numbers of students ... are leaving university without the necessary transferable skills to cope in an information based society" (SCONUL, 1999, p.4). Studies by Feldman in 2004 and Breivik and Gee in 2006 found that, despite the increasingly richer information landscape, "the workforce has a deficit in functional IL leading to a demonstrable lack of efficiency" (Walton, 2009, pp.3-4). UNESCO confirmed the economic need as IL is "central to both the notion of a learning organisation and to the development of a

competitive advantage for firms and for nations within the global knowledge economy" (Catts & Lau, 2008, pp.9-11).

Today, IL has become essential to society to allow the efficient and effective use of the right to information (Catts & Lau, 2008). While information can be made more accessible, it can also be easily misused and abused. Therefore, today's information users need the skills "to recognise propaganda, distortion, and other misuses and abuses of information" (ALA, 1989). To permit personal development through lifelong learning, IL is an essential element (Bruce, 2003; Garner, 2006; Williams & Wavell, 2007) which is ever more important as the pace of change within society increases.

To what extend is this widespread recognition of IL's importance in all walks of life limited to information professionals? Todd and Kuhlthau's large scale Ohio school libraries study (2004) showed how students recognised most of IL's separate elements as being fundamental to their learning while undergraduates in Morrison's study almost unanimously agreed "some information literacy should be attained in the course of earning an undergraduate degree" (1997, p.8). Similarly, Franklin (2005) found a wide recognition amongst doctoral students of the importance of most of IL's elements. Hartmann (2001) on the contrary observed first-year students to be unaware of their required information needs while Maughan (2001) and Salisbury and Karasmanis (2011) found students to have over-inflated perceptions of their own IL skills. A survey amongst eight hundred teacher-librarians "indicated that, overwhelmingly, neither teachers nor students recognise the importance of skills tied to information literacy" (Miller, 2005, p.15). Constantino (2003) found administrators, faculty, and students overwhelmingly agreed upon the importance of IL skills but disagreed though if and how these skills were learned.

## Perceptions of IL elements

Limited research has been conducted into the appreciation and perceived proficiency of IL's separate elements. Todd and Kuhlthau (2004) found elements such as 'realising the need for information' or 'communicating information' were absent from the elements which students considered fundamental for their learning. Undergraduates in Hartmann's study (2001) ranked recognising an information need as unimportant and effective use, location and evaluation of information as highly important. Kurbanoglu (2003) found students showed the highest self-efficacy beliefs for defining an information need and initiating a search strategy, closely followed by the ability to locate and access resources and to comprehend the found information.

## IL skills education

There is a consensus within the literature about the need for IL education throughout all levels of education (Breivik, Hancock & Senn, 1998; Garner, 2006; CILIP, 2009). Employers from their side expect new employees to be information literate but do not provide IL training (Irving, 2006b). As a result, the educational sector carries the main responsibility for providing the future workforce with IL training.

Also the role of the librarian for IL education is widely agreed upon (ALA, 1989; Kuhlthau, 1993; Todd, quoted by Markuson, 1999; Todd & Kuhlthau, 2004; Kuhlthau, Maniotes & Caspari, 2007). This role is nevertheless not fully recognised by the school community (Todd, quoted by Markuson, 1999; Kuhlthau, Maniotes & Caspari, 2007). This lack of recognition can be partly caused by librarians themselves who do "a disservice to the concept of information literacy by reducing the concept to an online catalog orientation" (Doyle, 1994, p.6) and "focus on resource provision, reading literacy and teacher/student support" (Baker, 2006). Teachers from their side consider the librarian to be central to increasing IL's prominence within schools (Williams & Wavell, 2006) even though they often do not see librarians as collaborating partners and co-teachers (Duke & Ward, 2009). Reports on students' views of the librarian's role are mixed. Seamans (2002) reported how students seldom approach library staff while Constantino (2003) observed how students claim not to have learned or to have self-taught IL skills. Contrary, Morrison (1997) and Hartmann (2001) reported how students expect the library to be part of all students' IL development, especially after having attended a course themselves (Daugherty & Russo, 2011).

How to teach IL skills is still far from clear (Williams & Wavell, 2007). Single-shot lessons are considered to be ineffective (Jacklin, Gibson & Pfaff, 2010). Students themselves do not see value in non-contextualised, repetitive library instruction but expect library instruction to be clearly linked to the outcomes of their work (Todd & Kuhlthau, 2004; Eisenberg, 2008). Curriculum integration and collaboration between librarians and educators is essential for meaningful IL education (Baldwin, 1992; Miller, 2005; Scott & O'Sullivan, 2005; Baker, 2006; Williams & Wavell, 2006; Kuhlthau, Maniotes & Caspari, 2007; Eisenberg, 2008; Duke & Ward, 2009; Skirrow, 2009; Becker, 2010; Eisenberg, Johnson & Berkowitz, 2010; Kovalik et al., 2010) and increases the approachability of the librarian who becomes an integral part of the class (Becker, 2010). Within the collaborative team, it is the librarian's task to define "the essential skills and associate[s] them with units of study at each grade level" (Hadley, quoted by Gordon, 2003, p.13).

The importance of collaboration and integration for the advancement of IL is widely recognised and supported by organisations such as SCONUL (1999), IFLA & UNESCO (2002) and ANZIIL (Bundy, 2004). Nevertheless, librarians themselves still seem to struggle to put this into practice (Williams & Wavell, 2007).

*Hindrances*

IL education suffers form invisibility as "so few people recognize that there is a problem to address" (Badke, 2010, p.139). Hindrances are situated on different levels. Students and teachers face a lack of time due to an already overfull curriculum (Williams & Wavell, 2006; Tilke, 2011). At the same time, teachers and librarians have an unclear view of each other's roles and lack planning time geared towards team teaching (Kuhlthau, 1993; Baker, 2006; Brodie, 2006; Kovalik, 2010) while many confuse ICT and IL skills (SCONUL, 1999; Badke, 2010). The resulting lack of collaboration can lead to a misalignment of goals between librarians and teachers (Brodie, 2006).

Additionally, the present lack of teacher training in the field of IL can become a hindrance to IL education in the classroom. The deficiency in teacher-education programmes results in large numbers of active teachers who never received IL training (Tilke, 2011) or who graduated with insufficient IL skills " (Duke & Ward, 2009). The outcome is a teacher-base that is insufficiently prepared for teaching IL skills (Asselin & Lee, 2002; Kovalik et al., 2010).

## *Summary*

Different organisations and experts have a common understanding of the holistic IL concept. There is a consensus that IL is needed in all domains and on all levels, from primary to tertiary education, in the economy, in the political arena as well as in our personal, social and cultural life. Students, teachers and administrators recognise the need for IL but students often lack adequate skills when starting tertiary education and over-estimate their own skills.

Information professionals agree on the need for IL education in all levels of education, on the librarian's central role for IL education, on the necessity for integration of IL education within the curriculum and on the need for collaboration between librarians and teachers.

In order to increase IL's visibility, the existing hindrances need to be addressed. Curriculum integration and collaboration are held back by an overfull curriculum, a confusion between IL and ICT skills, a lack of clarity of each other's roles and a lack of time. Additional, due to the lack of IL teacher-training many teachers lack adequate skills to teach IL, resulting in a further holding back of an advancement of IL education.

# International baccalaureate

IB's Diploma Programme was created as a global pre-university programme[1], aimed mainly at private international schools throughout the world. In the last eighteen years, the Middle Years Programme (MYP) and Primary Years Programme (PYP) were added, forming now IB's K-12 continuum.

From its inception, IL had a central place in the IB programme. Maurette, in a paper for UNESCO that would lay the foundation for the IB programme (Walker, 2005), noted how inquiry came natural as "the children went very willingly to the unknown" (Maurette, 1948 p.9)[2]. She described the need for inquiry-based education,

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[1] IB's DP was created in 1968 by teachers of Ecolint, an international school started by a small group of official of the League of Nations in 1924, with the support of teachers at other international schools.

[2] Maurette's paper, written in 1948 for UNESCO, titled 'Techniques d'education pour la paix. Existent-elles?' (*Is There a Way of Teaching for Peace?)*"forms the foundation of the IB programme (Walker, 2005). In here she mentioned how "l'Ecole Internationale a constaté que les enfants allaient très volontiers d'emblée à l'inconnu"

contrary to the existing educational methods that were based on "accumulating knowledge as fact by memorization" (Hill quoted by Marshman, 2010, p.3). Walker[3] pointed out the six characteristics, essential for international education. Two of those, "Communication: knowing how to access information" and "Criteria for truth: how do we judge what is right or wrong?" (Walker, 2005, p.1) referred directly to IL skills, while the other points referred to the outcome of adequate IL skills.

At the hart of the IB programme is the learner profile[4]. Although it originates from PYP, it is now viewed as the common ground of all three programmes and represents the essence of the IB continuum: "[t]he learner profile is a profile of the whole person as a lifelong learner" (IBO, 2009a, p.1). Its characteristics are linked directly to different IL elements and put aiming to be an inquirer at the top of the list.

To fully understand the importance of IL for the IB continuum, IB's attitude towards IL within the three programmes is examined.

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[3] Walker was the director of the International Baccalaureate Organization from 1999 to 2005.
[4] See appendix: IB learner profile

## *Primary Years Programme*

*Figure 2: PYP programme model (IBO, 2009b, p.17)*
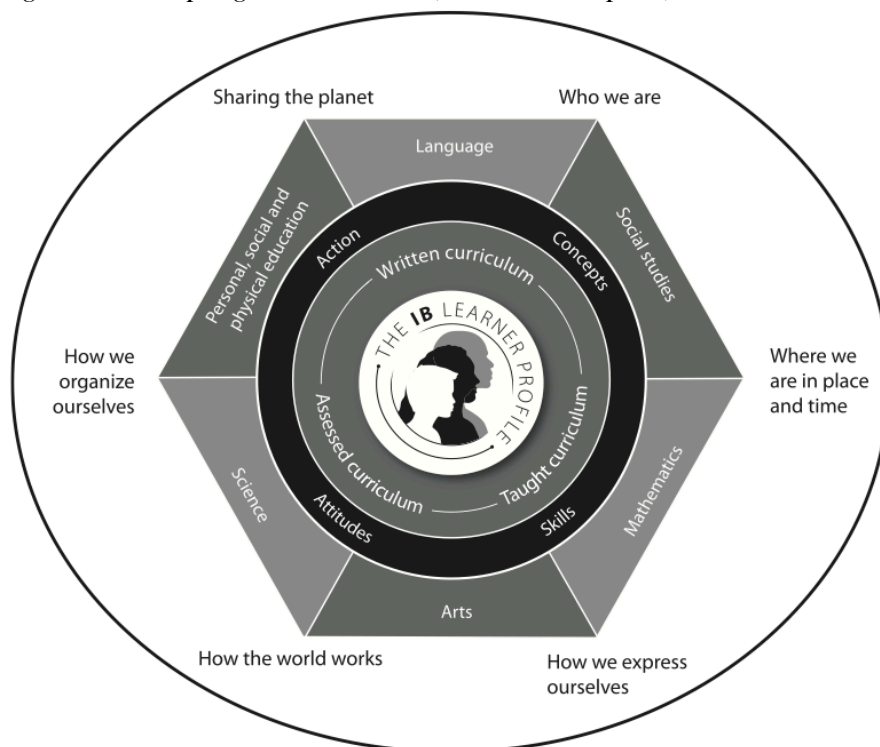


PYP puts an explicit emphasis on inquiry as its main pedagogical approach (IBO, 2011). The programme is constructed around six transdisciplinary themes[5], forming the basis for its six units of inquiry that students go through every year. This constant emphasis on learning through inquiry gives IL a central place within the programme. At the same time, the build-up of the units, taking the students repeatedly through the process of inquiry, ensures that students are increasingly exposed to the different aspects of IL from start to finish.

## *Middle Years Programme*

*Figure 3: MYP programme model (IBO 2008 p.13)*

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[5] The six transdisciplinary themes form the outer ring of the PYP programme model (see figure 2: PYP programme model) which has the learner profile at its core.
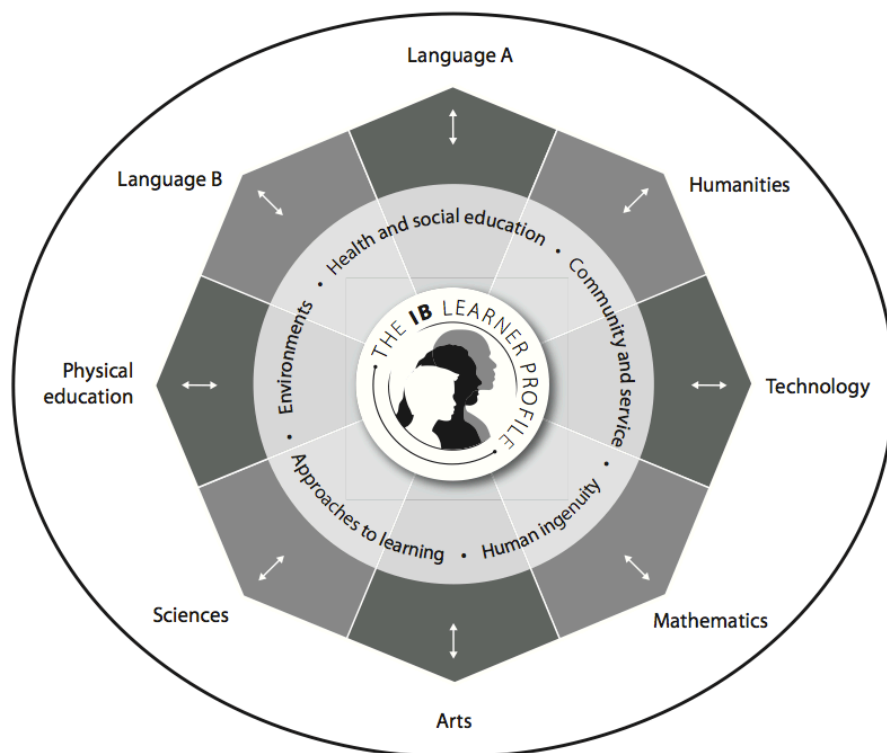
In contrast to PYP's concept-based transdisciplinary teaching, MYP is a discipline-based programme (IBO, 2008). Areas of interaction form the connection between the learner profile and subject areas. Within these areas, 'Approaches to learning' (ATL) form MYP's explicit link to IL. Amongst ATL's seven skill areas, IL is a skill area by itself. But despite its explicit presence IL is not defined explicitly. Instead indicators are used to provide guidance.

| ATL skill area | Student learning expectations could include: | Key questions for use with MYP units of work |
|---|---|---|
| Information literacy | accessing information—including researching from a variety of sources using a range of technologies, identifying primary and secondary sources | How can I access information? |
| | selecting and organizing information—including identifying points of view, bias and weaknesses, using primary and secondary sources, making connections between a variety of resources | How do I know if the information is reliable? |
| | referencing—including the use of citing, footnotes and referencing of sources, respecting the concept of intellectual property rights | What will I do with this information? |

Table 1: ATL skill area: IL (IBO, 2008, p.24)

## Diploma Programme

*Figure 4: DP programme model (IBO, 2009e, p.2)*
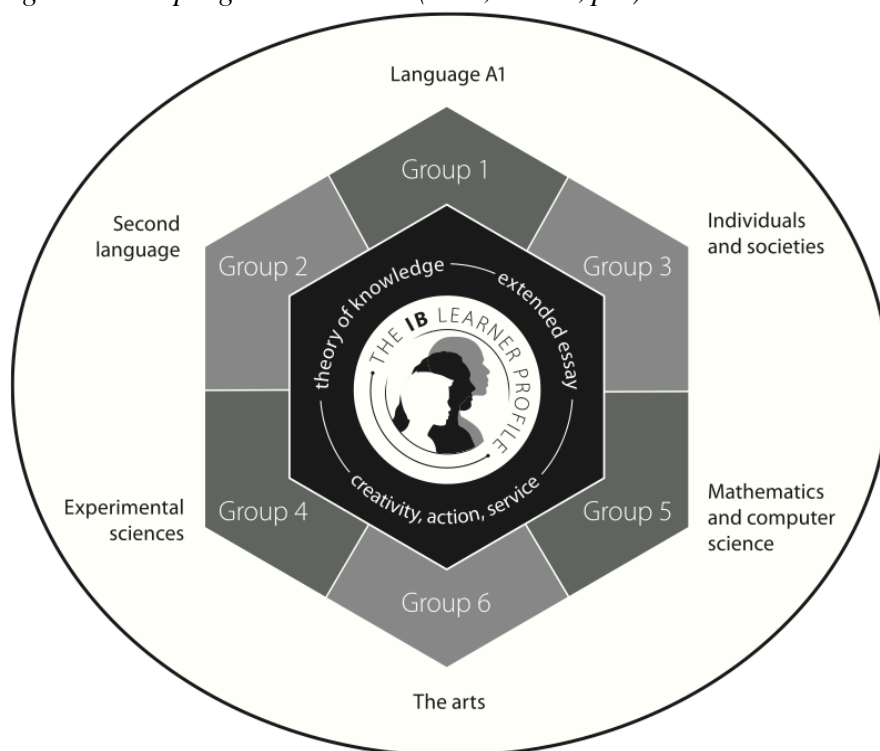


DP continues MYP's discipline-based approach. The programme is constructed around six subject groups with three separate elements at its core: the Extended Essay (EE), Community Service and Theory of Knowledge (TOK) (IBO, 2009e). Students choose six specific subjects, complemented by the three core elements, providing students with a balance of breath and depth of knowledge (IBO, 2009c). Throughout different subject areas, students are required "to reflect on and to evaluate the knowledge claims they encounter" (IBO, 2009e, p.5).

Two of the three core elements, TOK and EE, require students to demonstrate their acquired IL skills. Of these, the EE has the largest need for IL skills. Students are expected to formulate a research question, develop a methodology, explore and communicate found information, developed arguments and personal ideas while adhering to strict rules of academic honesty (IBO, 2009d; IBO, 2009e). Throughout the process, they need to demonstrate competence in all aspects of IL. Different aspects of IL are explicitly mentioned within EE's objectives while the criteria provide clear indicators towards achievement levels.

| In working on the extended essay, students are expected to: | |
|---|---|
| 1 | plan and pursue a research project with intellectual initiative and insight |
| 2 | formulate a precise research question |
| 3 | gather and interpret material from sources appropriate to the research question |
| 4 | structure a reasoned argument in response to the research question on the basis of |

| | |
|---|---|
| | the material gathered |
| 5 | present their extended essay in a format appropriate to the subject, acknowledging sources in one of the established academic ways |
| 6 | use the terminology and language appropriate to the subject with skill and understanding |
| 7 | apply analytical and evaluative skills appropriate to the subject, with an understanding of the implications and the context of their research. |

*Table 2: Extended Essay assessment objectives (IBO, 2009d, p.6)*

Notwithstanding the frequent references to IL aspects, IL itself is only defined within the core competencies. Due to their highly transient population, international schools, offering the DP, need to ensure their syllabus provides a number of core competencies, amongst which IL, defined as "the ability to effectively use a variety of electronic and other media in support of learning and the production of assignments" (IBO, 2009c, p.16).

Similarly as within MYP, even though most elements of IL can be found back amongst the different core competencies, the view of IL itself is limited and separates research skills from other IL aspects that are in the literature considered to be part of the holistic IL concept.

## *The role of the librarian*

Markuson and Todd stressed the central role of the librarian in PYP and MYP but Todd observed the school librarian's "role [is] not often fully understood and endorsed or capitalized by the school community" (Markuson, 1999, p.11). Tilke (2011) observed the absence of official documentation on the role of the library in DP. A search for 'librarian' throughout ninety-four IB papers and curriculum documents, covering the three programmes, turned up six instances of suggestions when a librarian might be consulted and eight instances, which discussed the role of the librarian. This is changing within MYP as new curriculum documents contain a separate chapter, dedicated to the librarian's role in function of the specific subject area for unit planning, resource provision, team-teaching in context and as a key educator for ATL's.

> *As a result of collaborative planning, librarians can be involved in co-teaching lessons where students are learning information literacy skills in the context of their units. An emphasis on how students use information (for example, through critical thinking, synthesis and forming opinions) is vital and is central to inquiry. Collaborative teaching with the librarian need not be restricted to the library but can take place in any learning spaces within the school.*
> *(IBO, 2012c, p.112; IBO, 2012d, p.52)*

## *Conclusion*

Inquiry and therefore IL has been from its inception a vital element within the IB continuum. The teaching of lifelong-learning skills through the application of IL

is at the heart of PYP, MYP and DP.  The importance of IL is recognised as can be seen explicitly within MYP's ATL's and implicitly within EE's assessment criteria in DP. The holistic concept of IL is nevertheless still largely invisible and ambiguous within IB's curriculum documents. The role of librarian for IL education gains visibility but this is at present limited to IB's MYP documentation. Previously discussed national or organisational standards have not visibly influenced IB's view of IL but the literature's view of the librarian's role for IL education is reflected in recent MYP documents.

# Analysis of findings

Three separate questionnaires, addressing students (SQ), their parents (PQ) and their teachers (TQ), were distributed at three IB schools. The librarians' and EE coordinators' viewpoints[6] were examined through respectively semi-structured live interviews and semi-structured email questionnaires.

Response rates reached 41% for students of which 62% grade-11 students, 21% for parents of which 63% grade-11 parents and 29% for teachers.
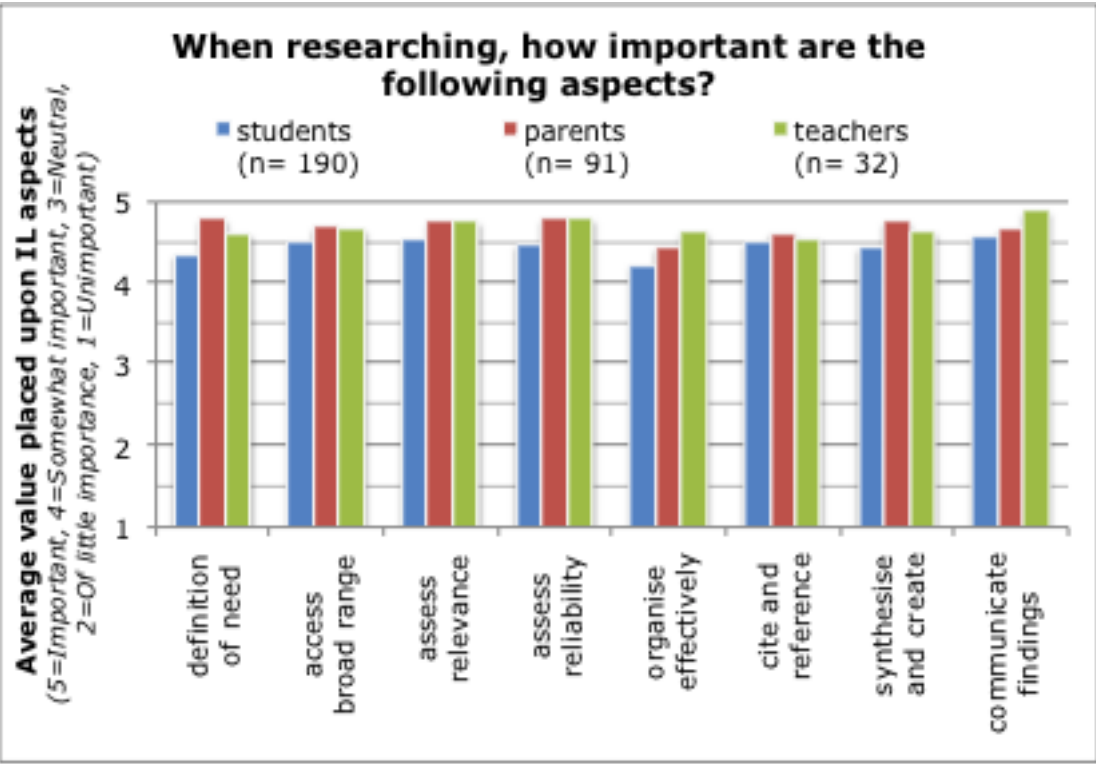
*Figure 5: Response rates*
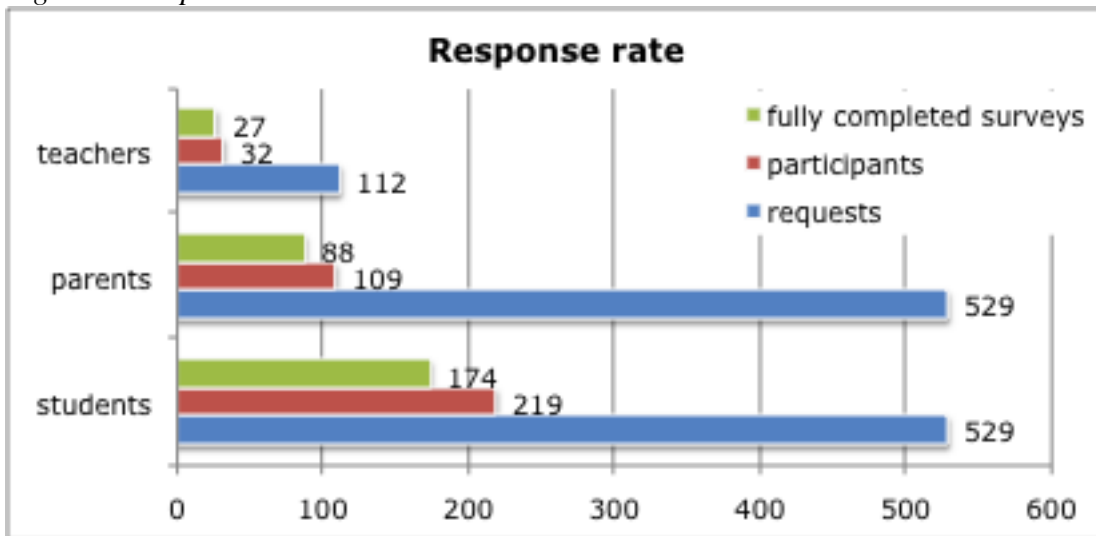


The faculty distribution showed participation from the different disciplines while 50% of teachers had an additional role as EE supervisor.

## *Significance of IL*

To determine the recognition of IL's significance, stakeholders were asked to reflect on the importance of specific IL aspects in order to be successful in research and on IL as a whole to be successful in different areas of life. Each group considered all separate aspects of IL important to somewhat important. Similarly, they marked for each area of life the importance of IL well above the median. Students placed a marginally lower importance on most elements. Secondary and tertiary education as well as professional life were considered to be areas, depending most on IL.

*Figure 6: Significance of IL aspects*

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[6] Each school has one EE coordinator and one librarian, responsible for, amongst other years, the DP years.
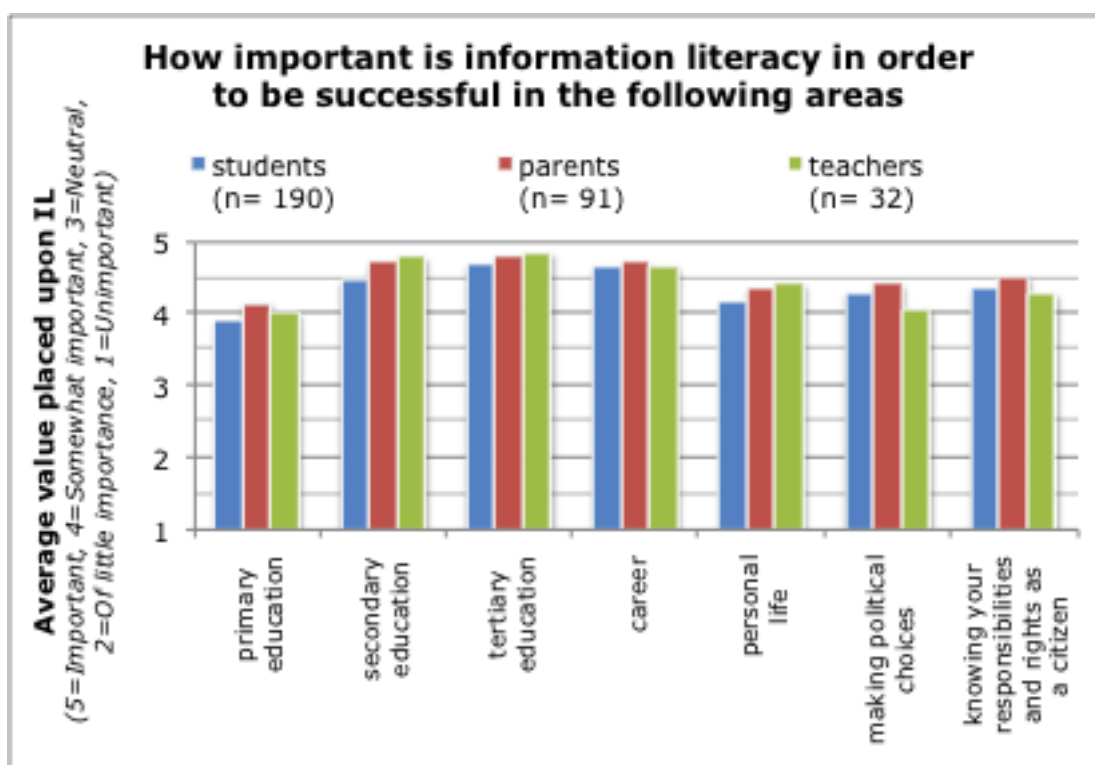
When researching, how important are the following aspects?

■ students (n= 190)   ■ parents (n= 91)   ■ teachers (n= 32)

Average value placed upon IL aspects
(5=Important, 4=Somewhat important, 3=Neutral, 2=Of little importance, 1=Unimportant)

definition of need | access broad range | assess relevance | assess reliability | organise effectively | cite and reference | synthesise and create | communicate findings

*Figure 7: Significance of IL for different areas*

The way IL is incorporated into the curriculum gives an indication of the importance the schools place upon IL: one school had recently developed an IL scope and sequence document, mapping different IL aspects and their indicators to K-12 grade levels, while the other schools used a curriculum management tool to map specific skills to the curriculum without the provision of indicators.

The different stakeholders showed a high awareness of IL's relevance. Unlike in Todd and Kuhlthau's Ohio study (2004), all elements were considered to be important, pointing towards a positive evolution in the appreciation of IL as a broad holistic concept.

## *Perceptions of IL skills*

The different groups rated the students' proficiency for the previously introduced IL aspects, using a Likert scale, modified from SCONUL's information skills model (1999). SCONUL's model placed the typical first-year undergraduate at the novice level while postgraduate and research students aim to reach the expert level. As the questionnaires did not provide indicators for the different levels, it can be assumed that participants placed the real first-contact researcher, being the primary student, at the novice level while maintaining the professional researcher at expert level. This assumption gains validity within the IB curriculum where inquiry-based learning forms the foundation from kindergarten onwards.

If the gradual development of IL skills would be a linear process, students would reach the competence level towards the end of their secondary education. This is also where teachers placed their students' IL skills. Parents and students placed students' skills roughly one level higher at the proficient level.

*Figure 8: Average rating of skills for individual IL aspects*



**Average rating of skills for individual IL aspects**

★ Students   ★ Parents   ★ Teachers

(Y-axis, top to bottom: Postgraduate & research student, Tertiary student, Secondary student, Primary student)

(X-axis, left to right: Novice, Advanced beginner, Competent, Proficient, Expert)
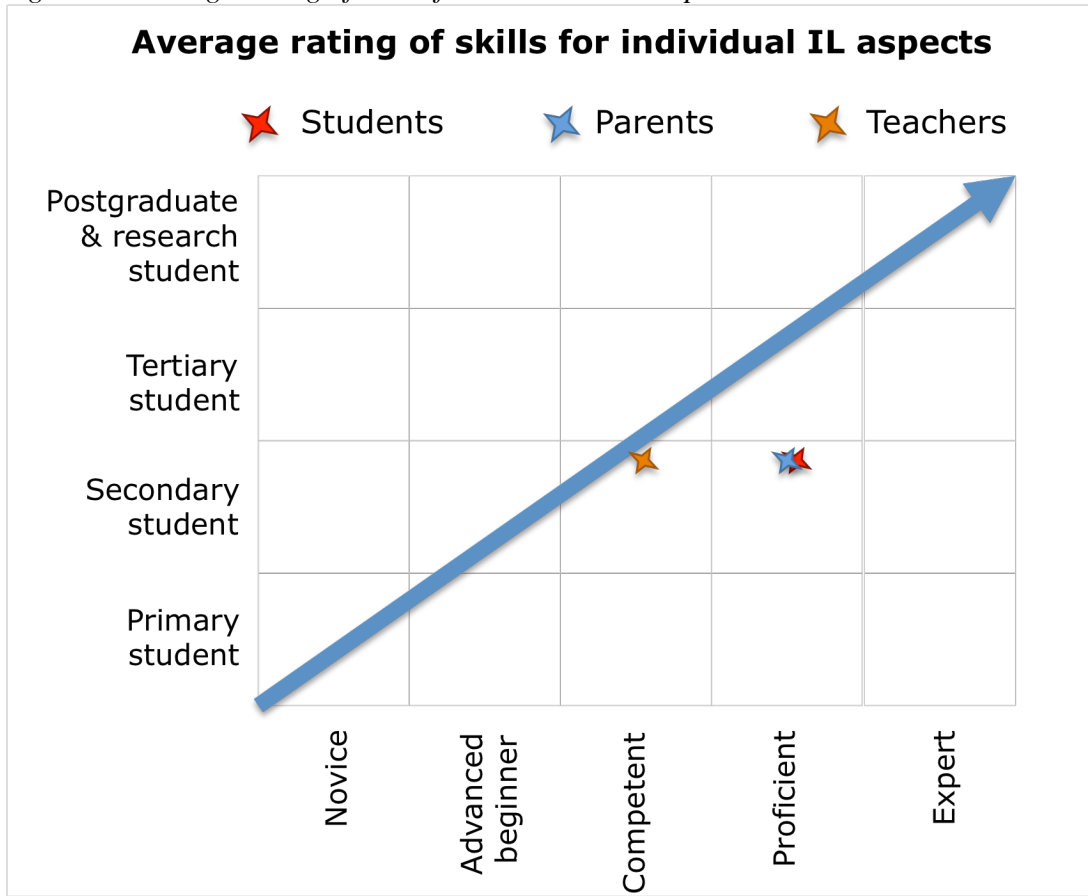
This observed discrepancy manifests itself across all IL aspects and confirms students' overestimation of their own skills as observed by Salisbury and Karasmanis (2011). This overestimation can be caused by a lack of assessments as exams in DP take place towards the end of the DP years and IL skills are prior to the exams not necessarily assessed. This can in turn explain the alignment between students' and parents' opinion as parents partially rely on assessment results for forming an opinion about their children's abilities.

*Figure 9: Perceived students' IL abilities*



**Rating of students' IL abilities**
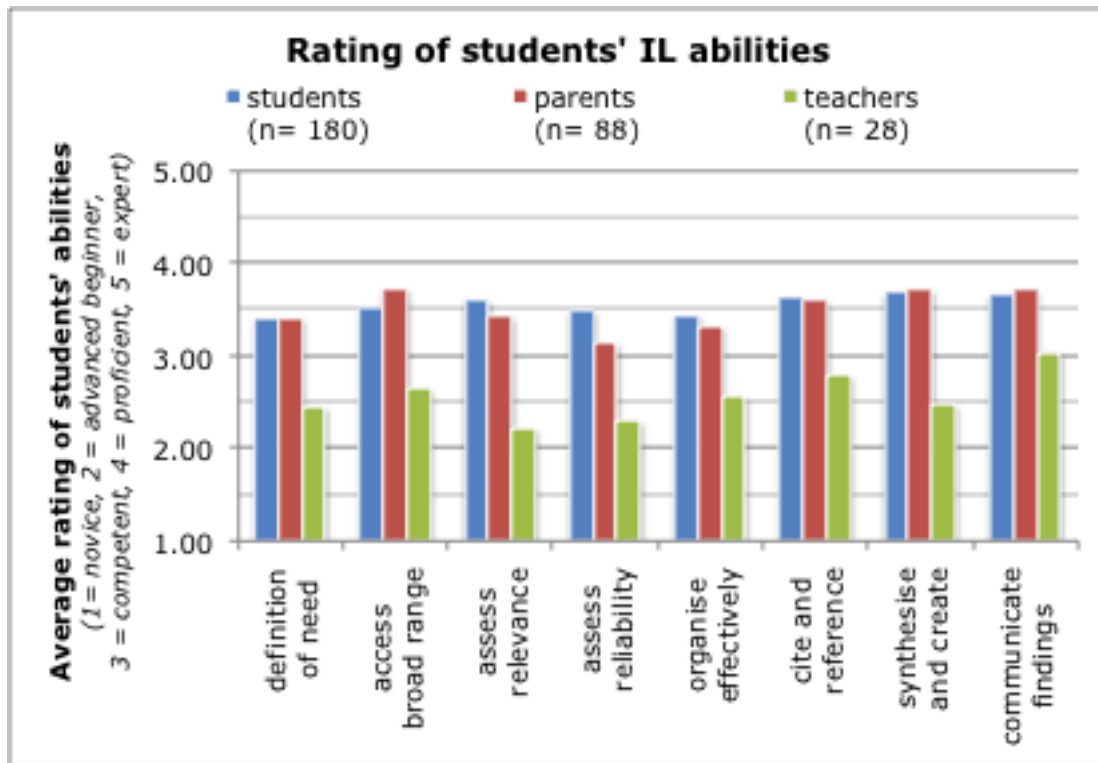
## Improving IL skills

Although stakeholders agreed on IL's significance, they disagreed about the distance students still need to go to become information literate. However, most participants recognised the need for improving students' IL skills.
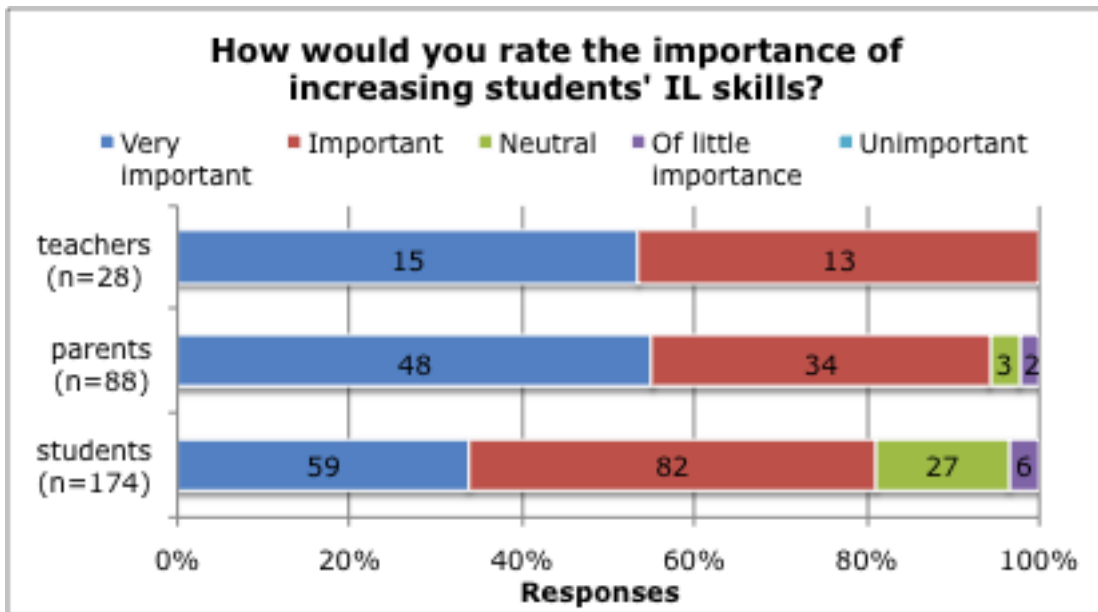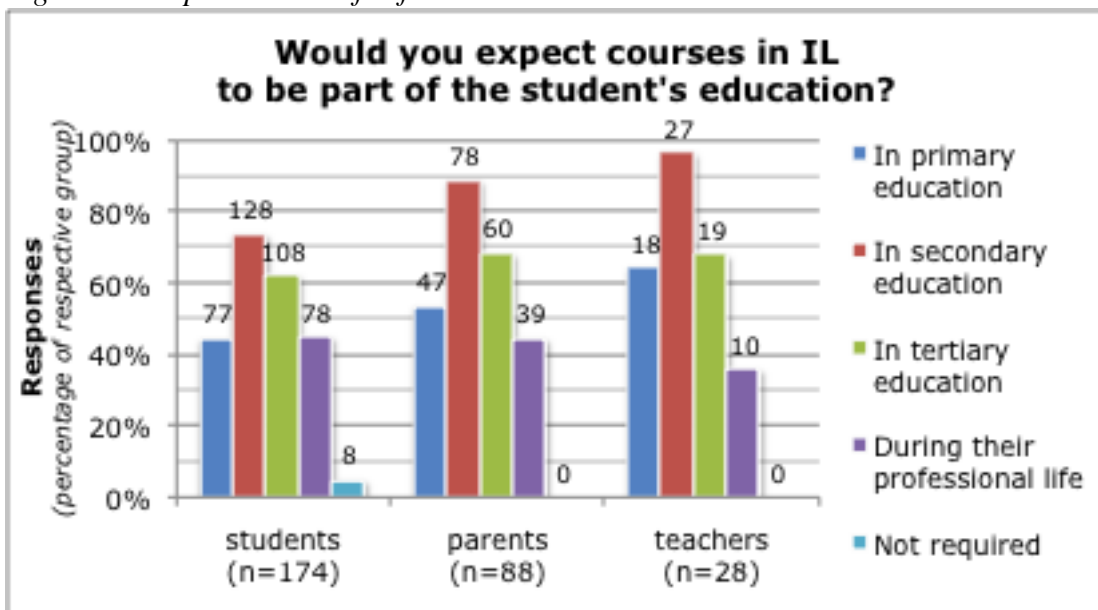
*Figure 10: Perceived importance of improving IL skills*

The majority of participants expected to receive training primarily in secondary education but many expected this to start already in primary education.

*Figure 11: Expected areas for formal IL education*



When asked to rank their three preferred IL education methods, a clear division between the different groups could be observed. From the seven predefined options, online tutorials and independent learning were selected by 38% of students, confirming Constantino's findings (2003) of students' perception to have self-taught IL skills. This was in sharp contrast with their parents and teachers, of whom the majority preferred project integration. A large group of teachers selected a multiple session
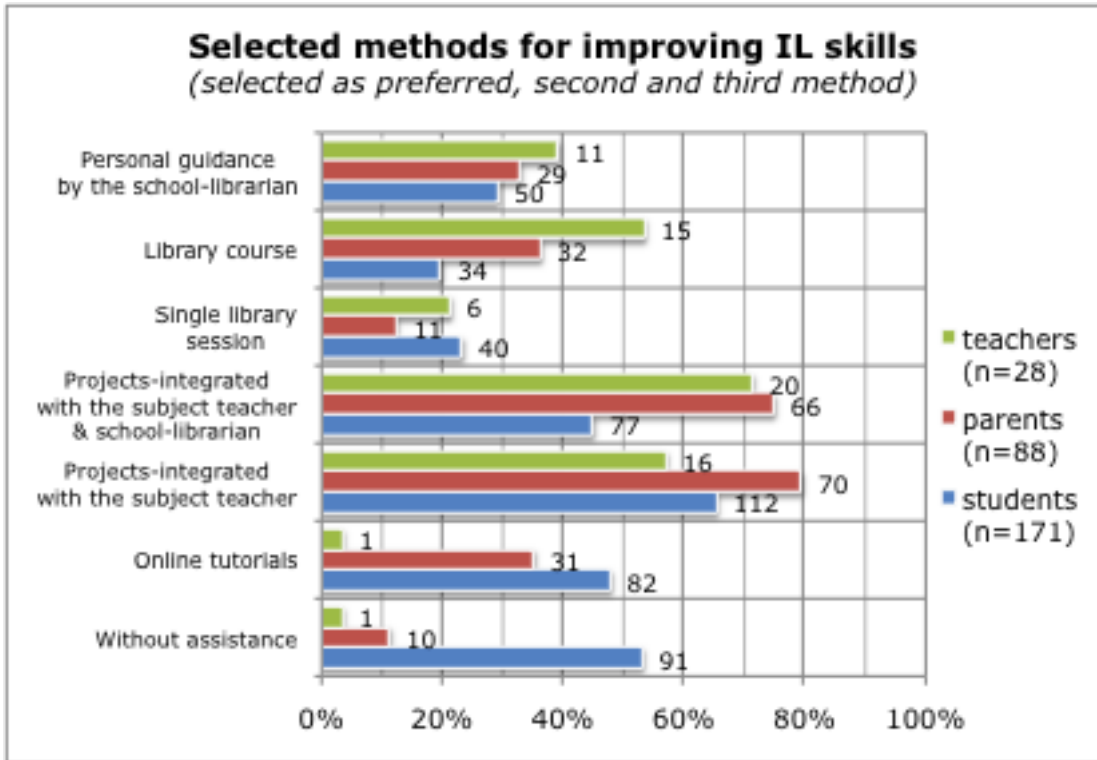
library course. Single-shot sessions, which Badke (2010) found to be still the norm in tertiary education, ranked low with all groups.

*Figure 12: Preferred method for improving students' IL skill*
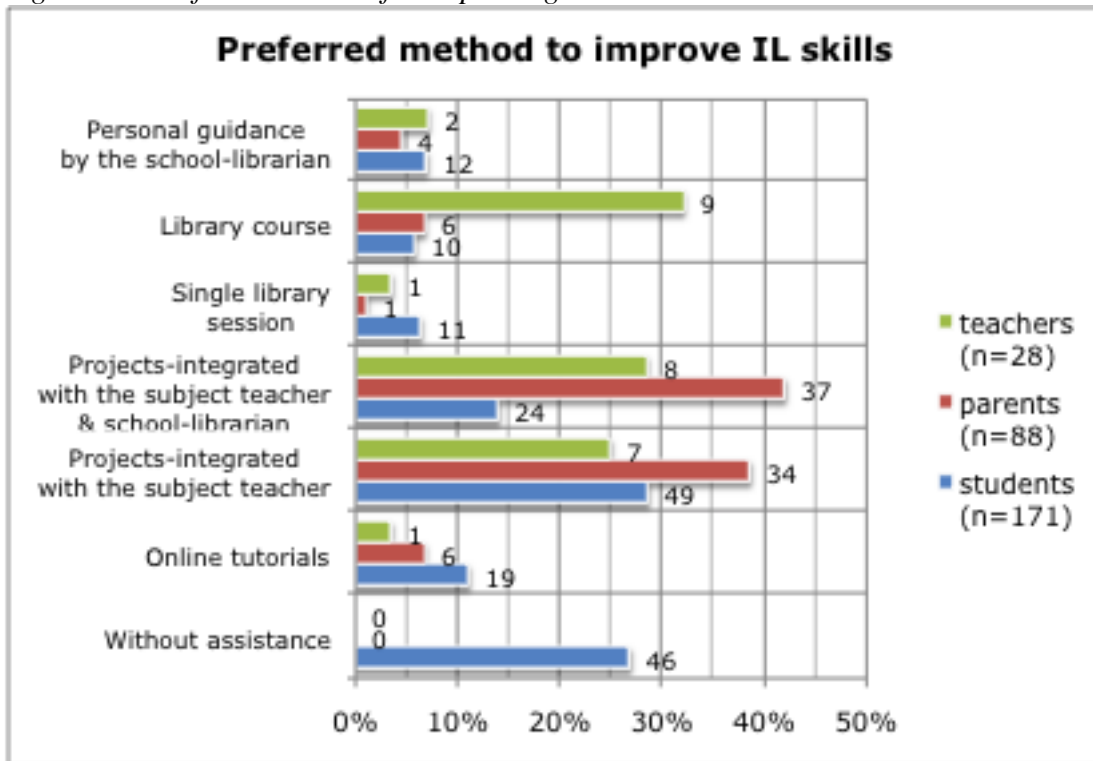


When examining the three preferred choices, the common denominator amongst the three groups was project-integrated learning, a preference expressed by 43% of students, 54% of teachers and 81% of parents.

*Figure 13: Selected methods for improving students' IL skill*

**Selected methods for improving IL skills**
*(selected as preferred, second and third method)*

Personal guidance by the school-librarian: teachers 11, parents 29, students 50

Library course: teachers 15, parents 32, students 34

Single library session: teachers 6, parents 11, students 40

Projects-integrated with the subject teacher & school-librarian: teachers 20, parents 66, students 77

Projects-integrated with the subject teacher: teachers 16, parents 70, students 112

Online tutorials: teachers 1, parents 31, students 82

Without assistance: teachers 1, parents 10, students 91

teachers (n=28)
parents (n=88)
students (n=171)

*The role of the librarian*

An examination of teachers' reliance on the librarian showed that, although international schools tend to have extensive libraries, teachers use them rarely with their classes and when used, only 30% of the usage includes the librarian.
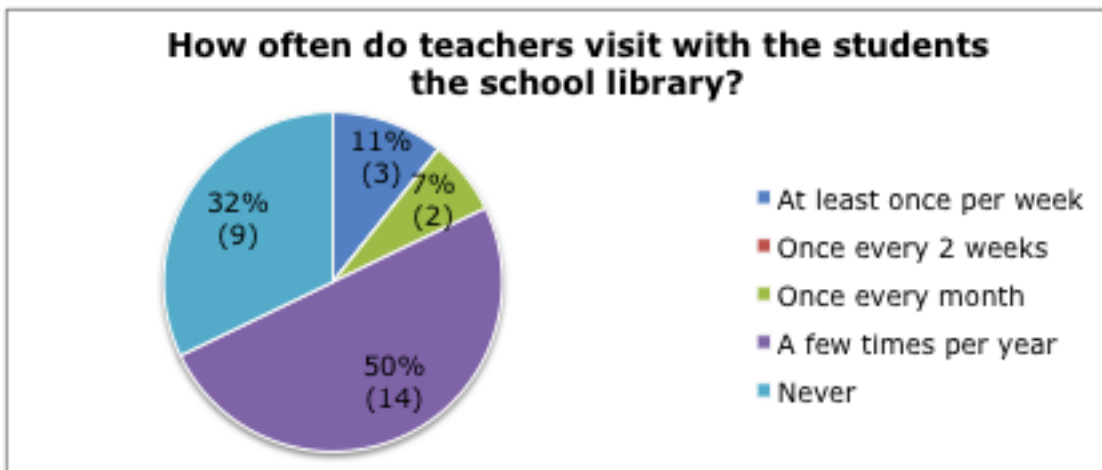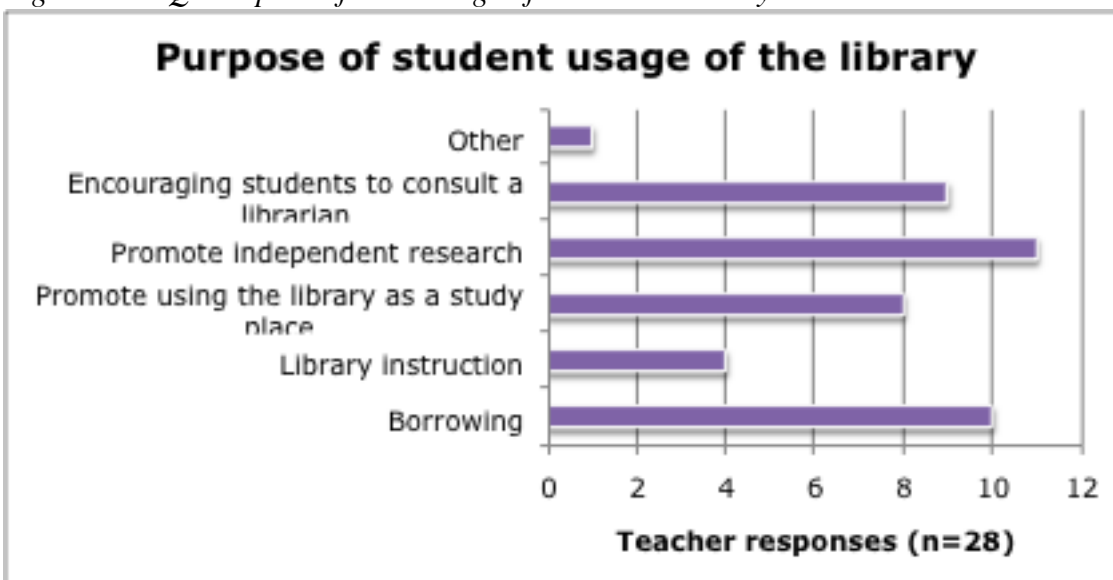
*Figure 14: TQ: Frequency of class visits to the school library*

*Figure 15: TQ: Purpose of class usage of the school library*



Teachers' low usage contrasts with their own expectations as 53% of teachers indicated the use of the library was explicitly required for some to all assignments. Consequently, teachers expect students to use the library independently.
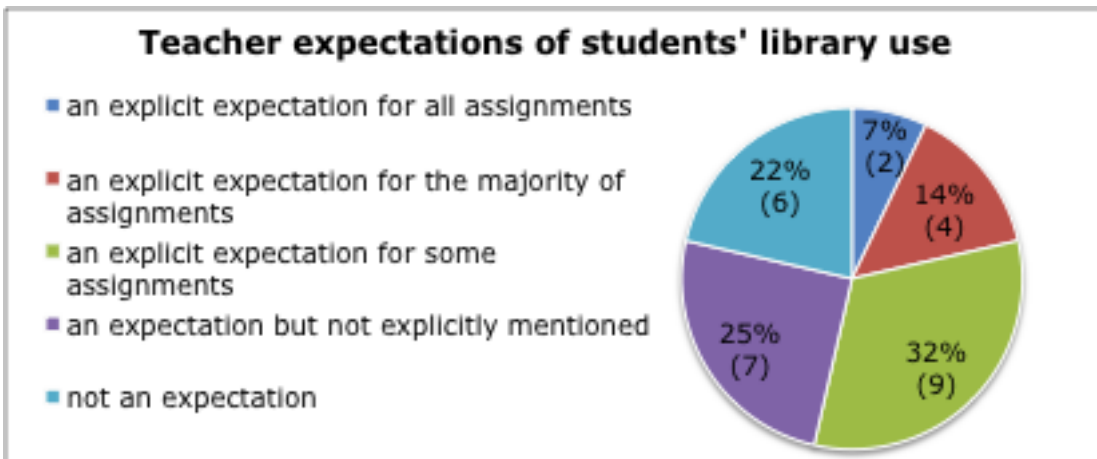
*Figure 16: TQ: Teacher expectations of library usage*

Students confirmed this expectation as a majority indicated to use the library frequently while their visits related often to their studies but seldom included the librarian.
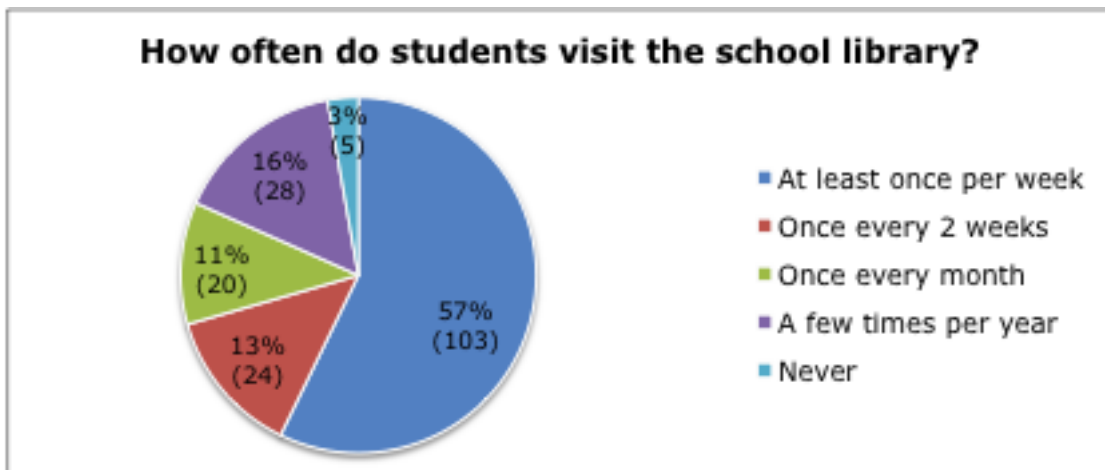


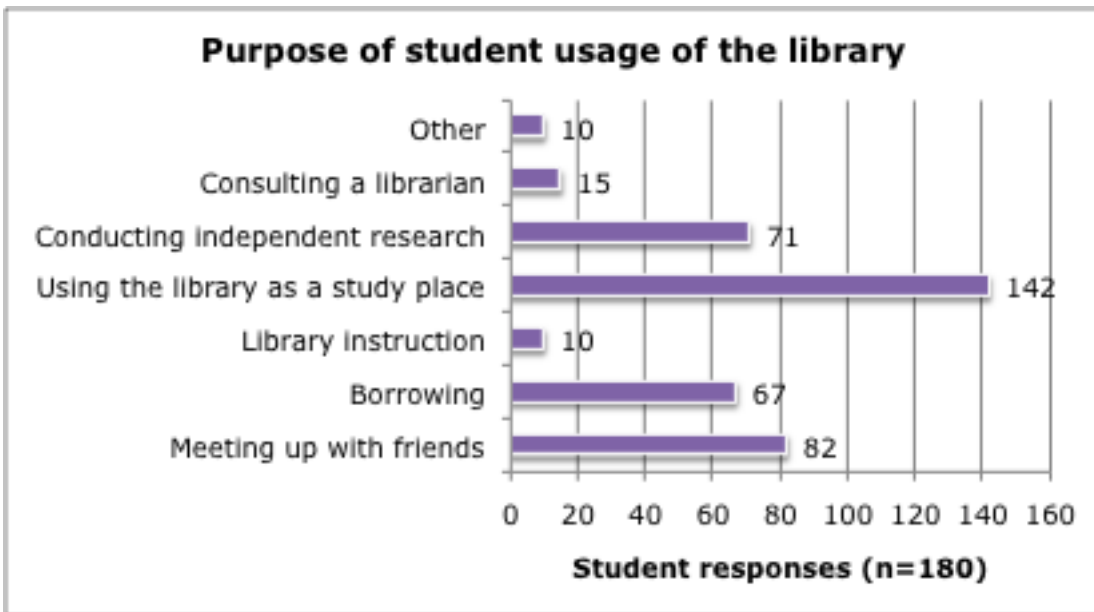*Figure 17: SQ: Frequency of students' visits to the school library*

*Figure 18: SQ: Purpose of usage of the school library*

Students' low reliance on the librarian was confirmed when examining whom students sought assistance from for their research. Parents and teachers showed an accurate view of the students' reliance on themselves and their fellow students but overestimated the role of the librarian. The importance of peer-assistance was significant, opening up possibilities for the librarian to reach the larger student community through one-to-one guidance of individual students who could in turn take up the role of experts amongst their peers.
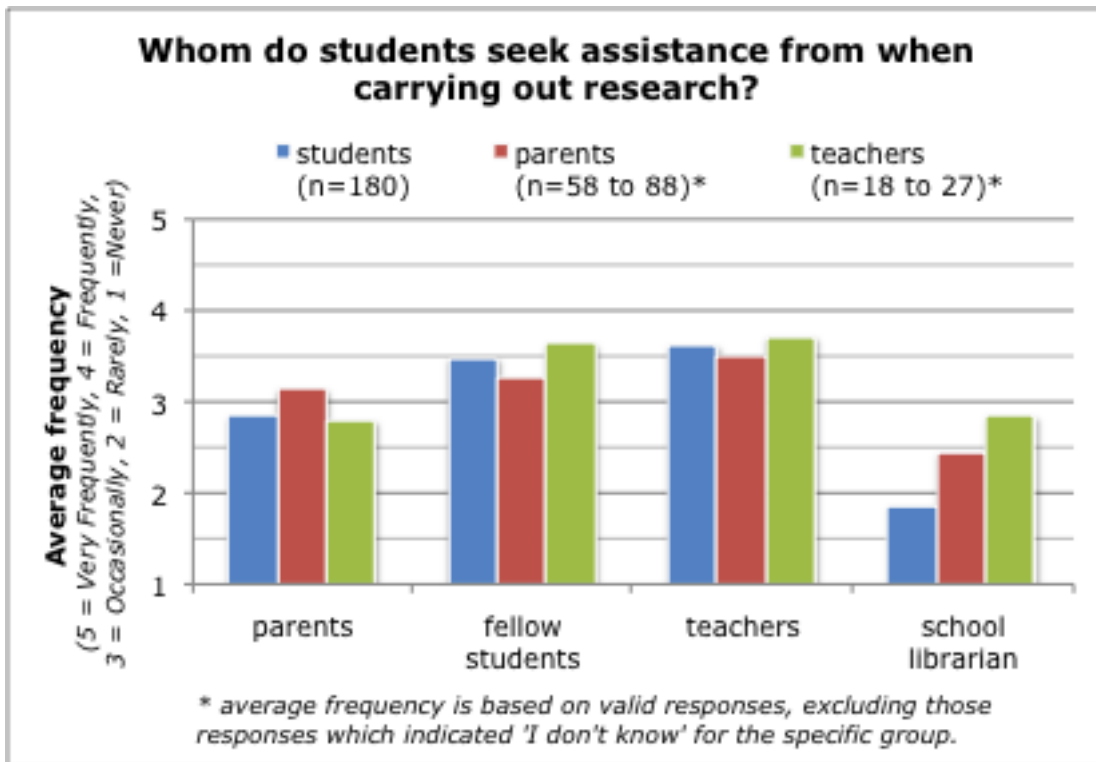
**Whom do students seek assistance from when carrying out research?**

■ students (n=180)　■ parents (n=58 to 88)*　■ teachers (n=18 to 27)*

*Average frequency (5 = Very Frequently, 4 = Frequently, 3 = Occasionally, 2 = Rarely, 1 = Never)*

parents　fellow students　teachers　school librarian

* average frequency is based on valid responses, excluding those responses which indicated 'I don't know' for the specific group.

*Figure 19: Frequency of students' requests for assistance*

The librarian interviews confirmed the low reliance on the librarian. They painted overall a bleak picture with regards to the librarian's role for IL education. Although the schools moved on from Doyle's observation (1994) where librarians reduce the IL concept to the use of the online catalogue, Baker's observations (2006) are still very relevant as librarians, despite their recognition of the importance of IL, often focus on resource provision, reading literacy and individual teacher/student support. This contrasted with the EE coordinators' view that places librarians at the centre of IL education.

## *Collaboration for teaching IL*

The observed preferences confirm Todd and Kuhlthau's findings (2004): students do not see value in non-contextualised, repetitive library instruction but expect library instruction to be clearly linked to the outcomes of their work. To do so, project-integrated IL education is the most effective and meaningful method, a viewpoint widely agreed upon in the literature.

The interviewed librarians believe strongly in the value of teaching IL in context. Despite this belief, two of the three librarians showed very low levels of collaboration. Also teachers showed low expectorations for team-teaching research-heavy units while several indicated not to need the librarian's assistance at all. Teachers' main expectation of the librarian still remains resources provision.
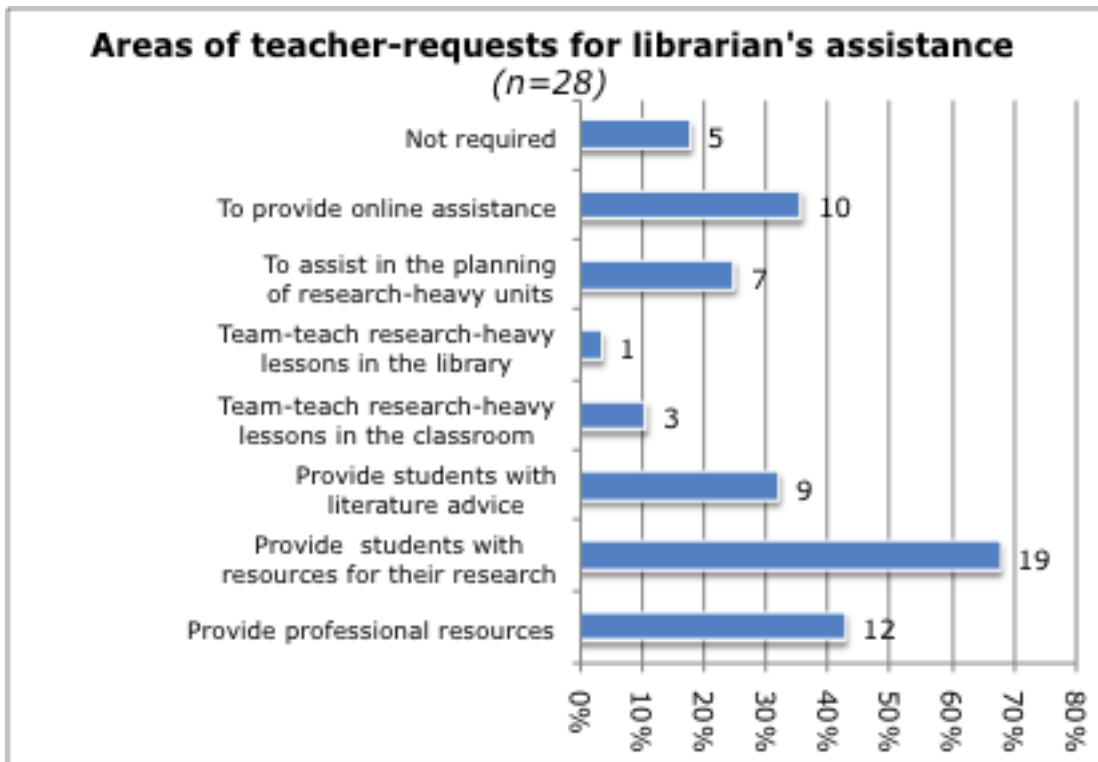
*Figure 20: TQ: Teacher requested librarian's assistance*

Overall, teachers do not seem to recognise the potential of using the library and the librarian, as demonstrated also through previous research (Doyle, 1994; Todd in Markuson, 1999; Kuhlthau, Maniotes & Caspari, 2007). Teachers provide their students with a role model that contrasts with their student expectations. This lack of recognition of the role and potential of the librarian prove to be a major hindrance for what is considered to be the most efficient way of teaching IL and what is, based on the questionnaires, also the preferred method: project-integration.

## *Hindrances*

When examining the perceived hindrances to IL education, a large group of teachers indicated not to see any hindrance while 50% identified lack of time as a hindrance, confirming previous observations of the impact of an already overfull curriculum on IL education (Williams and Wavell, 2006; Tilke, 2011).
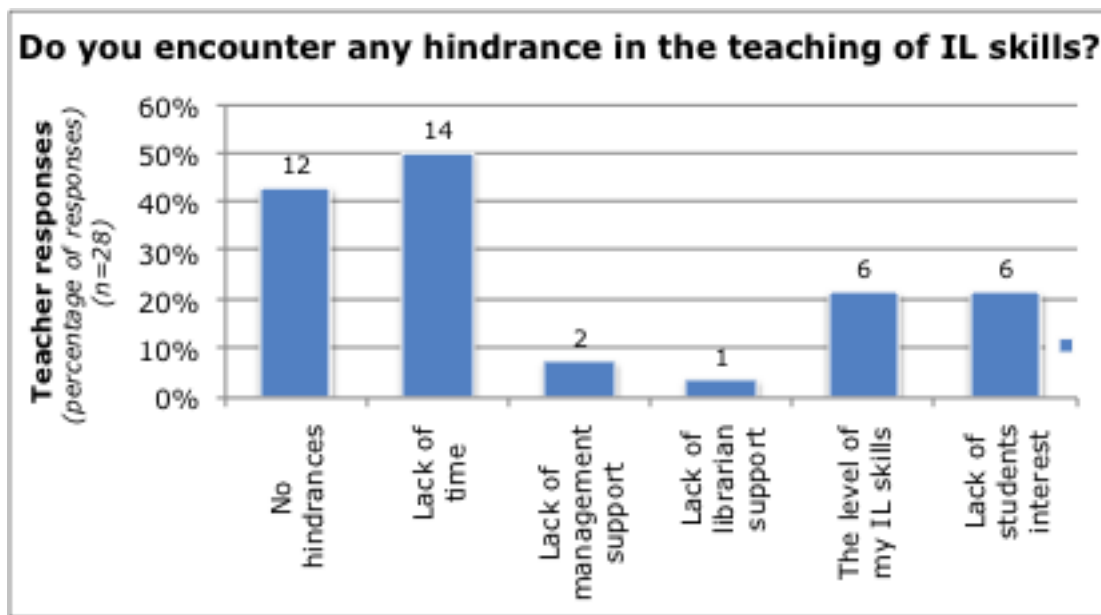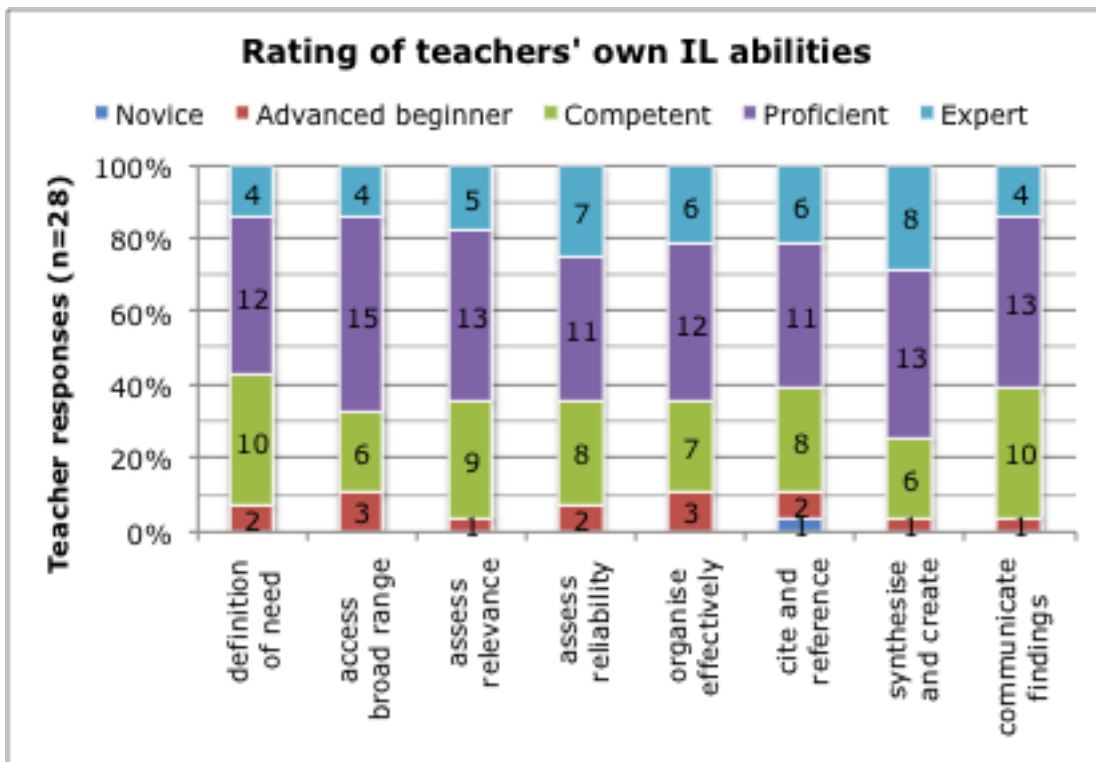


*Figure 21: TQ: Perceived hindrances for teaching IL*

Although some teachers identified lack of student interest as a hindrance, this contrasts with the finding that 81% of students considered improving their IL skills important.

Some teachers considered the level of their own IL skills to be a hindrance. A possible reason, identified in the literature (Duke and Ward, 2009; Kovalik et al. ,2010; Tilke, 2011), is the lack of IL education during teacher-training: 50% of the teachers indicated not to have received IL training while 68% of teachers did not have their IL skills assessed.

A lack of training can lead to low IL levels although this is not necessarily experienced so by the individual teacher due to the lack of assessment. Most teachers placed their IL levels at or above the competence level. This was however not translated in high IL-teaching confidence levels as only 59% of teachers felt themselves sufficient or more equipped to teach IL skills, confirming to some extend findings by Asselin and Lee (2002) that lack of training affects teacher confidence for teaching IL skills.

*Figure 22: TQ: Teacher's IL skills perceptions*

**Rating of teachers' own IL abilities**

Legend: ■ Novice ■ Advanced beginner ■ Competent ■ Proficient ■ Expert

Y-axis: Teacher responses (n=28)

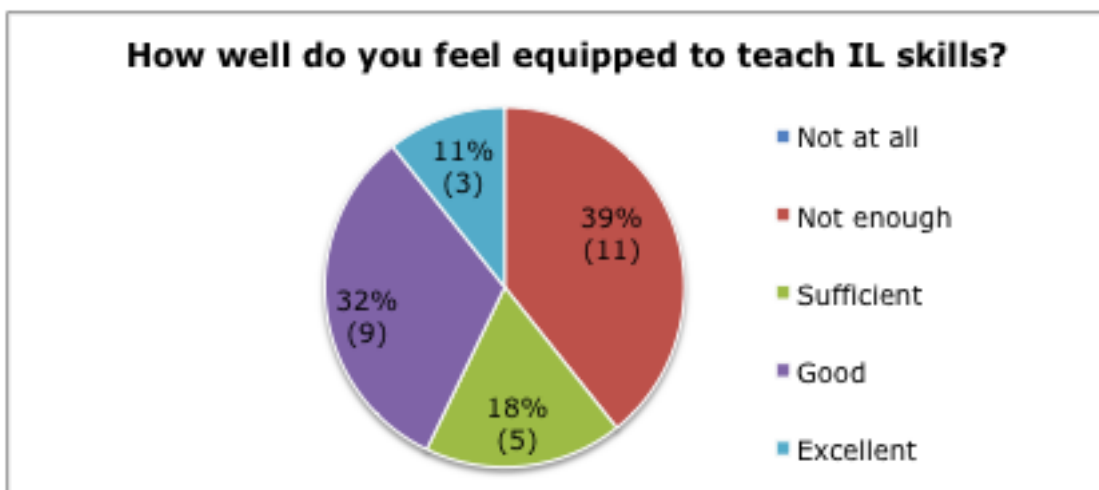| Category | Advanced beginner | Competent | Proficient | Expert |
|---|---|---|---|---|
| definition of need | 2 | 10 | 12 | 4 |
| access broad range | 3 | 6 | 15 | 4 |
| assess relevance | 1 | 9 | 13 | 5 |
| assess reliability | 2 | 8 | 11 | 7 |
| organise effectively | 3 | 7 | 12 | 6 |
| cite and reference | 2 (1 Novice) | 8 | 11 | 6 |
| synthesise and create | 1 | 6 | 13 | 8 |
| communicate findings | 1 | 10 | 13 | 4 |

*Figure 23: TQ: IL teaching confidence levels*

Lack of librarian support is not seen as a hindrance. This is in line with the perceived role of the librarian as being mainly a resource provider. Therefore not the lack of support but rather the perception of the librarian's role needs to be seen as a hindrance. Possible causes for the current perceived role are: librarians' lack of time, due to the broadness of the librarian's role and an often limited library staffing; lack of management support, required to allow librarians to carry out the educational aspect of their role; librarians themselves who often limit IL education to single-shot IL sessions.

Although lack of management support is not seen as a hindrance, the support is needed to address lack of time, the main perceived hindrance: for teachers by providing them on-the-job training, resulting in a higher IL-teaching confidence levels; for the librarian by giving them the support and means to conduct professional development and to team-teach, giving the librarian more visibility amongst faculty and students.

An increase in support from within the curriculum by providing a description of the librarian's role within the IB curriculum documents[7] can be a first step to convince management of the need to increase the emphasis placed upon IL education and the need to give the librarian a central place in this development.

## *Findings: summary and conclusion*

Through a SWOT analysis[8] (JISC Advance, 2012), the different findings can be turned into opportunities for increasing the emphasis placed upon IL education.

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[7] From January 2012, all MYP curriculum documents have a separate two-page chapter discusses the role of the librarian for the specific subject area.
[8] See appendix: SWOT analysis

The identified strengths demonstrates how the fundamental elements for IL education are already in place: teacher expectations and student practice of the use of the library; EE coordinators' recognition of the librarian's central role for IL education. Several opportunities present themselves to build further upon these strengths: a wide-ranging recognition of the need for IL education, especially in secondary education; a common preference for IL education through project-integration; MYP's recognition of the librarian's role. These elements provide strong arguments for increasing the emphasis place upon IL education in DP, a clear expectation from all stakeholders, as well as for increasing the currently often low levels of team-teaching, allowing for IL education in context.

Exploiting the identified opportunities addresses the present weaknesses: as librarians take on a more active role in IL education and increase the level of IL education through teacher-librarian collaboration, the librarian's importance for IL education will become self-evident and the currently lopsided view of the librarian's role will change. This collaboration will lead to higher IL levels with teachers, resulting in a decrease in time-pressure for the subject teacher due to the shared workload, an increase in IL teaching-confidence levels and a higher valuation of team-teaching for research-heavy subjects.

Independent learning, by many students preferred as IL education method, allows students to expand the in-class acquired IL skills. The high reliance of students on fellow students can be harnessed through peer-assistance, a valuable method for increasing IL by leveraging upon student experts amongst the student community.

Above all, management support is required. Although lack of management support was not seen as a hindrance, an increased IL emphasis requires a more active and outgoing librarian, adding to the librarians' already busy schedule. Allowing librarians to put team-teaching into practice on a regular basis, to conduct parent workshops which recognise the important role parents play in the student research habits, to conduct professional development session for teachers, to create online help systems and to act as a mentor for students who can become experts amongst the student community are just a few methods which address the identified threats and weaknesses and make use and exploit the identified strengths and opportunities but which require management support. To obtain a higher level of management support, recognition of the librarian's role within the IB curriculum documents is essential. It is necessary to carry the recent change within MYP's curriculum documents through to the whole IB continuum to allow and increase the emphasis placed on IL and on the librarian's role for IL education.

## Conclusion

To allow IL to become a fundamental part of our education system, change is needed from within, not only from the information professional but also from the information user. To allow for this change, it is essential to understand the stakeholders' perceptions and expectations.

IB's curriculum documents show an ambiguous view of IL but the recent change within MYP documents brings the librarian's role for IL education to the forefront, in line with the literature's view.

IB's end-users, students, teachers and parents, recognised in this study the importance of all IL aspects for different areas of life. Even though students and parents overestimated students' IL skills, they recognised the need to improve these skills. All expected IL education to be part of the curriculum, especially in secondary education. The different stakeholders disagreed however on the method: many students preferred unassisted learning but even more choose for the method, preferred by their teachers, parents and the literature: project-integration.

To increase the emphasis, placed upon IL education, different hindrances need to be addressed. The main threat, lack of time, can become an opportunity as the librarian's involvement for team-teaching leads eventually to a decrease of teachers' workload while the increase in teachers' and students' IL skills leads to higher efficiency and increased students' self-learning skills.

To give IL an unambiguous place within the curriculum, the confusion surrounding IL and the role of the librarian needs to be addressed: from IB's side by aligning their view of IL with the existing standards; from the school's management side by providing the necessary support for the librarians, allowing them to fulfil the expectation for team-teaching; from the teachers' side by modelling their own student expectations; from the librarians side by moving the librarian's role beyond the stereotypes and taking on actively the responsibility for IL education. By doing so, an environment, conducive to IL education, will be created, allowing students to become effective and efficient livelong learners.

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# Appendixes

## *IB learner profile*

| | |
|---|---|
| **Inquirers** | They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives. |
| **Knowledgeable** | They explore concepts, ideas and issues that have local and global significance. In so doing, they acquire in-depth knowledge and develop understanding across a broad and balanced range of disciplines. |
| **Thinkers** | They exercise initiative in applying thinking skills critically and creatively to recognize and approach complex problems, and make reasoned, ethical decisions. |
| **Communicators** | They understand and express ideas and information confidently and creatively in more than one language and in a variety of modes of communication. They work effectively and willingly in collaboration with others. |
| **Principled** | They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual, groups and communities. They take responsibility for their own actions and the consequences that accompany them. |
| **Open-minded** | They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience. |
| **Caring** | They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment. |
| **Risk-takers** | They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies. They are brave and articulate in defending their beliefs. |
| **Balanced** | They understand the importance of intellectual, physical and emotional balance to achieve personal well-being for themselves and others. |
| **Reflective** | They give thoughtful consideration to their own learning and experience. They are able to assess and understand their strengths and limitations in order to support their learning and personal development. |

*Table 3: The IB learner profile (IBO, 2009a, p.5)*

## *SWOT analysis*

> ### Increasing the emphasis on IL education in IB's DP

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| **Strengths** | - Teachers expect students to use the library for most to all assignments.<br>- Students visit the library frequently, often for their studies.<br>- EE coordinators place librarians at the centre of IL education.<br>- Teachers strongly value their own IL skills.<br>- Teachers assume to have to have achieved competence in IL. |
| **Weaknesses** | - Librarian-teacher collaboration levels are low for two out of three schools.<br>- Teachers' expectations of the librarian focus on resource provisions while teachers hardly expect librarians to team-teach.<br>- Librarian EE involvement focuses on single-shot lessons and is limited to a few aspects of IL such as referencing and identifying resources for two out of three schools.<br>- Librarians focus on resource provision for two out of three schools.<br>- The majority of teachers seldom visit the library with their students, thus providing students with a role model, not conform their own student expectations.<br>- Only one third of class library usage involves the librarian.<br>- More than half of teachers did not receive formal IL education during their teacher training.<br>- Teachers' IL skills are seldom assessment during teacher-training.<br>- Some teachers see their own IL skills as a hindrance for teaching IL.<br>- Many teachers have low IL teaching-confidence levels<br>- IB's DP curriculum documents do not explicitly recognise the role of the librarian for IL education. |
| **Opportunities** | - All recognise the importance of all IL aspects.<br>- All see IL as being crucial for success in their educational career as well as for different aspects of life.<br>- All recognise the importance of improving students' IL skills.<br>- Many expects IL education to be part of students' education, especially in secondary education, but starting already in primary education.<br>- There is a shared preference amongst stakeholders for project integration as IL instruction method.<br>- Many teachers prefer an Il instruction method which involves the librarian.<br>- Many teachers find a librarian-led IL assessment at the start of the year useful.<br>- MYP recognises the fundamental role of the librarian for IL education. |

| | |
|---|---|
| **Threats** | - Students and parents overestimate students' IL skills when compared with their teachers' judgment.<br>- Students value the importance of increasing their IL skills slightly lower than their parents and teacher.<br>- Many students prefer independent learning methods for IL education.<br>- Only one third of students and half of parents prefer a method involving the librarian for IL education.<br>- A library course is the preferred IL education method for a third of teachers.<br>- Students seldom consult the librarian for assistance with research, contrary to their teachers' perception.<br>- Students value peer-assistance for research equally high as teacher-assistance.<br>- Two thirds of teachers see one or more hindrances for IL education.<br>- Half of teachers see lack of time as a hindrance for IL education.<br>- Although lack of management support was not seen as an important hindrance, many other hindrances can be brought back to this, making it an unrecognised hindrance. |

*Table 4: SWOT analysis of research findings*

## *Author Note*

Jeroen Callens became a school librarian and information technology teacher after a career change, which took him away from his life as information technology and computer graphics manager. This was, like many good things in life, more an accidental change then a well-planned move that opened challenging perspectives. The fields of technology, libraries and information are becoming increasingly entangled, allowing the author to combine his technological skills with his passion for information handling. He obtained recently a master in Information and Library studies at the Robert Gordon University in Aberdeen with a dissertation on information literacy for which he received the Douglas Anderson Award.