School-Based Curriculum Development in the International Baccalaureate Primary Years Program

Final report
of a study conducted
by the University of Twente
for the International Baccalaureate Organization

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Executive summary

Every IB school plays a crucial role in translating, operationalizing, and realizing the IB vision. To better support school efforts in implementing the IB curriculum (frameworks) into their own context, the IB-PYP seeks to understand specific curriculum design practices at the school level and the role of the teachers as curriculum designers in the process. The present study describes how IB PYP schools develop curriculum and perceive their own capacity to undertake the challenging yet invigorating task of school-based curriculum development (SBCD).

The study was undertaken in three phases, focusing respectively on (1) literature review; (2) SBCD practices inside the IB-PYP, and (3) synthesizing. Across the study, attention was given to three key perspectives on curriculum development:

- *substantive* (establishing key components of the curriculum such as goals, subject matter, learner activities and resources for classroom use);
- *technical professional* (the methods of the overarching development process, which includes needs and context analysis, design, evaluation, and implementation); and
- *socio-political* (the influences of key stakeholders such as teachers, school leaders, parent associations, policymakers, administrators, teacher unions and subject associations, textbook publishers, assessment developers, higher education institutions, inspectorate or pupils).

Further, attention was made to the infrastructure (i.e. the human, material and structural features of context) that supports SBCD. As such, the overarching research question guiding this study was: *How do (IB-PYP) schools attend to the substantive, technical-professional and socio-political perspectives of curriculum development and how do (human, material and structural) contextual factors shape that work?* The remainder of this summary shares answers to this broad question by responding to six sub-questions (two per phase).

Literature review

The first sub-question asked: *How do school-based curriculum development models attend to the substantive, technical professional, and socio-political perspectives of curriculum development?* The review of SBCD models yielded two main sets of factors that influence a school's ability to attend to one or more of the curriculum perspectives. The first set has to do with the nature of the SBCD endeavor, and includes the central subject matter, products created for use during class, products to be used for planning or organizing class time, creators directly involved, and roles held by teachers, school leaders, or external experts. The second set of factors concern the context in which the school is situated and includes how curriculum input is regulated, how curriculum output is regulated, and how change interactions are shaped.

The second sub-question asked: *How do human, material, and structural aspects of context influence (the different perspectives of) school-based curriculum development?* The review of empirical studies revealed key aspects of infrastructure that affect how schools are able to engage in SBCD productively. Relating to the substantive perspective (SBCD product quality), this includes expertise regarding student needs, teacher concerns, disciplinary understanding, pedagogical (content) knowledge, assessment, visual design, school vision, and characterizing the curriculum. Artefacts which influence SBCD product quality include inspiring examples, ready-made components, reference materials, and guidelines. Structures which influence SBCD products include those which focused attention on learners, focus on teachers, afford access to expertise, clarify goals and vision, and provide leadership. With

regard to the technical-professional perspective, expertise which influences SBCD processes especially includes sense of responsibility, conviction of worth, empathy for users, phase-specific knowledge and skills (analysis, design, development, implementation, evaluation) and project management. Artifacts which influence SBCD processes include resources for understanding or executing overall processes or individual sub-phases. Structures which influence SBCD the processes include, culture, choice, support, and access to external expertise. Finally, infrastructure supporting the social political perspective element includes expertise which influences stakeholder engagement, such as being able to identify and value as well as communicate and collaborate with stakeholders, and curricular leadership. Artifacts which influence SBCD stakeholder engagement include boundary objects and spreading vehicles. Structures which influence SPCD the stakeholder engagement include an open culture, communications routines, and channels for distribution and spread.

Looking inside the IB

The third sub-question asked: *How do IB curriculum development processes compare to the recommendations identified in literature?* Based on the how survey respondents answered, it appears that both teachers and school leaders are proactively involved in SBCD processes, and external groups are typically not involved in any significant way. This suggests that the schools organize most of the work themselves. Efforts to support SBCD in most IB-PYP schools may need to pay attention to increase curricular literacy to assist schools in acting on their curricular freedom. Since vast majority of respondents to this survey indicated that SBCD is perceived to be the responsibility of those involved, it can be inferred that there is substantial ownership and commitment for SBCD especially among the principals who responded. School leaders and IB-coordinator responses differed with regard to communicating and collaborating with relevant stakeholders, which may be explained by their roles within the school. Nearly all respondents indicated that both they and their teams are somewhat or very satisfied with the SBCD practices at school and the support that they receive from the IB for this work.

The fourth sub-question asked: *How are the literature-based recommendations for attending to the substantive, technical-professional and socio-political perspectives of curriculum development manifested in the work of IB schools and what elements of infrastructure do they have or lack?* This question was answered through 5 case studies. Similarities and differences were observed with regard to the nature of the SBCD projects in the cases examined. Most schools have multiple frameworks to adhere to alongside the IB framework, which may include their national curriculum, specific curricular products that have been adapted by the school, and other benchmarks or standards. However, within those frameworks, there was often room for autonomous curriculum development and the creation of their own curricular products. All schools had a strong focus on (developing) expertise for attending to students and their needs, and utilized a learner-centered approach. Teachers were viewed as the most essential asset in attending to these needs. All schools have access to an abundant amount of artefacts (materials and resources) which influenced the product quality in their school-based curriculum development. While different structures that influence products for school-based curriculum development were identified, the most important aspect was the necessity for all stakeholders to achieve a shared vision. Various types of expertise were viewed as important during the SBCD processes within the schools (e.g. project management, analysis, design, and construction expertise were important to the teams), yet all schools valued evaluation expertise the most. The importance of this type of expertise seems to be intertwined with the cyclical design process that was used across schools. In terms of structures which influence school-based curriculum development processes, leadership seems to be the most important.

Expertise for communication and collaborating with stakeholders was deemed an important factor on all levels: from the team level to the school, regional and national level, and in the IB's case, also on the international level. Most teams prefer to start the design process with a smaller team, and involve various stakeholders later on in the process. Schools are content with the different artefacts that influence stakeholder engagement that are already in place in most schools, though they did note that some of their regular channels were interrupted due to COVID-19 pandemic. Most schools celebrate stakeholder involvement and have a desire to connect to other IB schools. Most schools expressed a need for leadership and guidance through general IB workshops, formalized programs, and professional development.

Synthesis

The fifth sub-question asked: *How do IB-PYP schools perceive their own needs and wishes for support related to school-based curriculum development?* Respondents to this survey indicated that they have less time than they need to collaborate and to conduct their SBCD work. Regarding needs in terms of IB frameworks, results show that most respondents either have a need for general IB workshops, need some clarity regarding specifics in IB-frameworks, and that there is a need for clarification of the IB's expectations on certain topics (e.g., learner agency). Further, respondents indicated that, although many materials are present, they need guidance in terms of finding the right materials for their local context and specific projects. In addition, they would like to empower teachers to take up a teach-the-teacher role and facilitate workshops. They feel a need for more expertise on curriculum design in their team. They would like help from internal and external experts in their school-based curriculum development efforts. Results show that the vast majority of respondents would like to learn more about using a design approach to curriculum development. Most respondents feel a need for sharing of inspiring practices and innovative educational activities externally. Furthermore, there is a need for school-based curriculum development workshops and for the IB to provide professional development in curriculum design. Finally, schools do think it is important to interact with other schools on occasion (e.g. +/- 2 times a year).

The sixth sub-question asked: *How can the IB better support IB schools and teachers to be curriculum designers?* A synthesis of all existing data across the project yielded 12 key recommendations:

- Related to (using) SNCD models
    - Use SBCD models to provide structure for the IB guidance
    - Use SBCD models as thinking tools in IB schools
- Related to SBCD practices in IB schools
    - Acknowledge the differences across schools
    - Acknowledge the differences within schools
    - Engage with clarity, shared focus and concrete product orientation
- Related to human aspects of infrastructure
    - Provide guidance on a systematic prototyping approach
    - Start from the expertise that is already present in the teams
    - Promote sharing experiences amongst PYP schools
- Related to material aspects of infrastructure
    - Celebrate SBCD champions and make local work visible
    - Provide exemplary materials, guidance and workshops
- Related to structural aspects of infrastructure
    - Provide professional development for curriculum leadership
    - Conduct SBCD workshops with number of schools on annual basis

1. Introduction

Curriculum design and development[1] are critically important to the educational enterprise, in all subject matters at all levels. At the International Baccalaureate (IB), investments have been made into supporting the curriculum development work undertaken by the IB staff, and it is also recognized that each IB school plays a crucial role in translating, operationalizing, and realizing the IB vision. While the importance of the role played by schools is acknowledged, the IB currently has an increased interest to gather insight into how schools are fulfilling this role to better support school efforts in implementing the IB curriculum into their own context. More specifically, the PYP is particularly concerned with the specific curriculum design practices at the school level and the role of the teachers as curriculum designers and their agency in the process. The present study will inform the IB on further decisions regarding the type of resources, guidance, PD and support that schools' stakeholders needs in order to successfully implement the IB PYP curriculum. As a result, the overarching goal of this project was to better understand how IB PYP schools develop curriculum in ways that are relevant to their local contexts and to learn how the IB may further support schools in their curriculum development journey.

[1] In many cases the terms, design and development, are used interchangeably. In this study, the term, development, refers to the overarching process, which includes phases of needs and context analysis, design, construction, evaluation, and implementation, and revision.

2. Theoretical framework

2.1 What is SBCD?

The origins of school-based curriculum development (SBCD) stem from curriculum discourses in the 1970s. School-based curriculum development includes all decision-making processes at the school level, where professionals have contextual knowledge of the necessary developments and are able to be responsive to local concerns (cf. Marsh, Day, Hannay & McCutcheon, 1990; Skillbeck, 1984; Law & Nieveen, 2010). Most SBCD efforts take place at the meso (school) or micro (classroom) levels. But even within one of those, decision-making takes place at various sub-levels and in different degrees of detail depending on where the responsibilities are assigned in the school (Nieveen, 2019). Making school-specific agreements about the curriculum promotes the joint orientation of the teaching-learning process and thus provides guidance for further elaboration to the level of the class or group. SBCD can result in new or refined practices, programs, policies or products. Teacher collaborative design is seen as essential to bridge the gap between the work of individual teachers (within their own subjects and classrooms) and school-wide aspirations (Handelzalts, Nieveen & van den Akker, 2020). This work can also provide a viable and practical form of professional development (Boschman, McKenney, Pieters & Voogt, 2016; McKenney, Boschman, Pieters & Voogt, 2016). However, there is a need for support to enhance teachers' design expertise (Huizinga, Handelzalts, Nieveen & Voogt, 2014). In this project, both existing practices and support needs were investigated.

2.2 What influences SBCD?

While many factors affect SBCD, including national standards, assessment systems, and teacher education, two are particularly relevant to the development of curriculum at the school level. First, there is understanding and acceptance of the fact that curriculum development is a multifaceted endeavor. In this project, we focused on three essential and enduring perspectives of curriculum development which were articulated in the classic work of (Goodlad, 1994), namely: the substantive, technical-professional, and socio-political perspectives (see Figure 1.1). Second, it is important to note that the curriculum development process in general, and attending to each perspective in particular, is influenced by the human, material, and structural aspects of the organizational infrastructure which is present or absent (McKenney, 2019). These considerations are elaborated next.

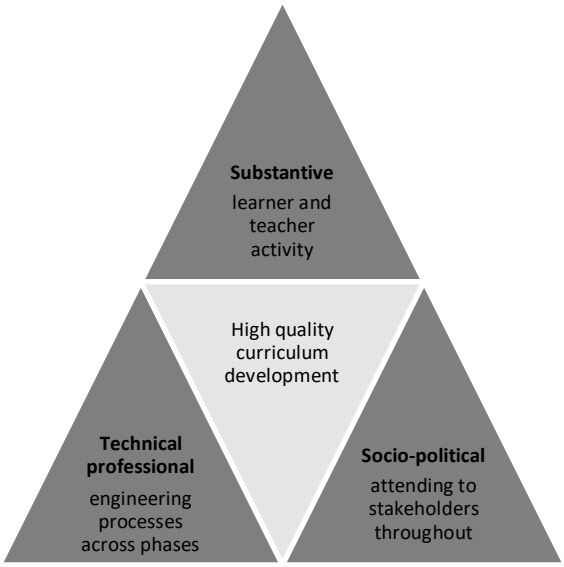

Figure 1.1 High quality curriculum development attends to three perspectives

2.2.1 (Infrastructure for attending to) the substantive perspective

The substantive perspective includes the 'commonplaces' of the curriculum such as goals, subject matter content, learner activities and resources for classroom use. While some aspects are outside school jurisdiction, most schools have the autonomy to shape teacher and learner activity. To develop these aspects, schools need insights from various disciplines, related to the subject matter content at hand, pedagogy, learner perspectives, teacher support needs for implementation, school leadership practices and so on. They must support the curriculum development process by ensuring that those participating have (access to) the disciplinary expertise required to envision, create, and refine high quality teaching and learning. Further, tools can help this aspect of the work, for example by helping to elicit or develop a vision for enactment. Similarly, structural support can be present in the form of policies that focus efforts on learners and their needs, or in the form of a school culture which encourages teachers to exercise their autonomy and professional judgment for achieving shared goals.

2.2.2 (Infrastructure for attending to) the technical-professional perspective

The technical-professional perspective is concerned with methods of the development process itself, including engineering, logistics and evaluation. These evolve over phases, typically including analysis; (re-)design and development; and evaluation or monitoring. Schools require sound understanding of these processes in order to shape them in ways that are optimal for informing their substantive goals. This requires human resources in the form of personnel who are competent and confident in guiding the engineering processes, and understand what these processes demand of participants, as well as material resources such as prompts and guides for shaping activities within phases and overarching cycles of work. Further, schools must support their teams by cultivating norms and routines that stimulate participants to focus on the priorities identified.

2.2.3 (Infrastructure for attending to) the socio-political perspective

Finally, the socio-political perspective refers to the influences exercised by various stakeholders (pupils, parents, teachers, IB leaders, local policy makers, etc.). In early stages, schools must be able to anticipate the concerns of stakeholders, test those assumptions, and derive criteria for their work accordingly. In later stages, they must examine if and how (well) they have addressed stakeholder concerns. Throughout all phases of curriculum development, schools must recognize that attending to stakeholder concerns is not an afterthought, but rather something that warrants consideration from the start. Robust school-based curriculum development teams recognize and help shape such involvement in ways that are beneficial to achieving the school's mission (e.g. by preparing the conditions necessary for successful implementation). They use both one-way tools (e.g. newsletters) and two-way structures (e.g. student committees, parent advisory boards) as well.

2.3 Context and focus of the study

This project focuses specifically on the SBCD processes of IB-PYP schools. Within the IB-PYP, SBCD is required to achieve implementation of the organization's vision for transdisciplinary learning throughout its written, taught, and assessed manifestations in ways that support voice, choice and ownership of all those involved. While much is known about what the IB-PYP schools are given in terms of guidance (inputs) as well as what they are responsible for achieving (outputs), comparatively little is known about how they organize and nourish that work (processes). Therefore, in light of the theoretical framework and the need for insight into IB-PYP SBCD processes, the overarching research question guiding this study is: *How do (IB-PYP) schools attend to the substantive, technical-professional and socio-political perspectives of curriculum development and how do (human, material and*

structural) contextual factors shape that work? Table 1.1 summarizes the theoretical lens used to answer this question.

Table 1.1 Theoretical lens of this study

Infrastructure **Perspective**	***Human*** *Designer expertise, including what they do and how they feel about it (e.g. agency, self-efficacy)*	***Material*** *Resources*	***Structural*** *Policies, routines (visible); norms, culture (sometimes hidden)*
Substantive Refers to what is actually designed such as goals, subject matter, learner activities and resources for classroom use (e.g. van den Akker spider web elements). In this project, we focus on (understanding) elements for which schools have the autonomy to shape teacher and learner activity	Designer knowledge, skills and attitudes (e.g. subject-matter and pedagogical expertise) required to **accommodate the users** of the curriculum (teachers and learners) so that they can understand and enact the learning environment with integrity.	Artefacts, tools and instruments that support designers in **determining the curriculum substance** - products and/or its underlying intentions (e.g. articulation of the vision, goals, content, learning activities, teacher roles, testing, time, learning environment, grouping, materials and resources; characterization of the kind of curriculum (see IB-Perceptions of impact IB-PYP enhancements with skills, knowledge based etc.)	Structures that help designers **enrich the product substance** (e.g. access to pedagogical content expertise, services for graphic design and publishing, valuing state-of-art influences on content).
Technical professional Refers to how the development process is shaped including engineering, logistics and evaluation, e.g. phases, typically including analysis; (re-)design and development; and evaluation or monitoring	Designer knowledge, skills and attitudes related to supporting and/or engaging in the technical aspects of the development process (e.g. analysis, design, evaluation).	Artefacts, tools and instruments that support designers to **shape the phases of activity** (analysis, development and evaluation), e.g. prompts for eliciting a vision for enactment, monitoring development, evaluating implementation.	Structures that enable designers to **engage in the development work** (e.g. time, and space to collaborate; culture of recognition or encouragement for efforts).
Socio-political Refers to the influences exercised by various stakeholders (pupils, parents, teachers, IB leaders, local policy makers, etc.). In this project, we focus on how school personnel anticipate the concerns of stakeholders, test those assumptions, and derive criteria for their work accordingly. In later stages of SBCD, staff examine if and how (well) they have addressed stakeholder concerns.	Designer knowledge, skills and attitudes related to stimulating stakeholders to share concerns, needs and agendas (e.g. lobbying for particular content, preparing implementation) and making socially-politically informed decisions.	Artefacts, tools and instruments to help designers **communicate with stakeholders** (e.g. newsletters) or think about how to do that wisely (e.g. Z-movement). When used as boundary objects* (i.e. to get people from different perspectives talking), this could also include (prototypes of) the curriculum products.	Structures for facilitating **stakeholder communication** (e.g. student committees, parent advisory boards),

3. Study design

Three main phases of activity were undertaken to answer the overarching research question presented in Chapter 2. Each phase addressed two research sub-questions. Throughout these phases, attention was given to how schools attend to each of the three curriculum perspectives described earlier. From the substantive perspective, we examine how schools enable deep understanding and rich performance in teachers as well as learners. From the technical-professional perspective, we investigate how they leverage engineering processes to inform their work. And from the socio-political perspective, we study how they anticipate acceptance and uptake, given the variety of stakeholders concerned. Within each phase, attention is also given to the human, material and structural features of context that can support them (infrastructure). Table 2 previews key aspects of each phase. Detailed descriptions of the methods are given in the subsequent chapters, along with the results of each phase.

Table 2.1 Methodological preview (black text = completed/described in this interim report)

	Research sub-questions	**Data sources**	**Data analysis**
Literature review Chapter 4	1a. How do school-based curriculum development models attend to the substantive, technical professional, and socio-political perspectives of curriculum development?	Literature available through the databases and libraries of the University of Twente	Data extraction and analysis according to Petticrew and Roberts (2008) on models relevant to *substantive, technical-professional and socio-political* perspectives of school-based curriculum development
	1b. How do human, material, and structural aspects of context influence (the different perspectives of) school-based curriculum development?		Further analysis within each model focusing on *human, material and structural aspects of context*
Looking inside the IB Chapters 5 & 6	2a. How do IB curriculum development processes compare to the recommendations identified in literature?	Survey sent to all IB-PYP schools + (case study) invitation	Basic descriptive statistics (e.g. # responding schools, type of school, World school strand, language profile, representation across countries, etc.) Cluster analysis
	2b. How are the literature-based recommendations for attending to the substantive, technical-professional and socio-political perspectives of curriculum development manifested in the work of IB schools and what elements of infrastructure do they have or lack?	Interviews 2-way workshop methods Document analysis	Qualitative deductive codes on the *human, material and structural aspects of context* and how schools attend to the *substantive, technical-professional and socio-political* perspectives Qualitative inductive coding to identify patterns within categories
Synthesis Chapters 7 & 8	3a. How do IB-PYP schools perceive their own needs and wishes for support related to school-based curriculum development?	Survey sent to all IB-PYP schools	Basic descriptive statistics provide meta data about the respondents Frequency counts and qualitative analysis give insight into support needs
	3b. How can the IB better support IB schools and teachers to be curriculum designers?	Synthesis of all existing data	Synthesis of all existing data

4. Literature review

4.1 SBCD models

Sub-question 1a asks: *How do school-based curriculum development models attend to the substantive, technical professional, and socio-political perspectives of curriculum development?* The work to answer this sub-question was conducted primarily by one of the principal investigators, who is an expert in the area of SBCD. Based on her knowledge of the field, purposeful sampling was employed to identify sources of literature that described key models, principles, and practices related to SBCD. Priority was given to peer-reviewed sources that would include theoretical and conceptual contributions.

Data analysis focused on factors that influence a school's ability to attend to one or more of the curriculum perspectives. The analysis yielded a set of important contextual factors to attend to as well as a refined understanding of the relationships between the perspectives and supportive infrastructure. This overview is useful in its own right, and also structured the next stage of work.

4.1.1 Nature of the SBCD projects

Because the term school-based curriculum development (SBCD) has wide connotations in the literature (cf. Marsh, 2010), it is important clarify its nature, i.e. what characterizes SBCD and what qualities make it unique. In this study the term *curriculum development* refers to all activities and considerations related to the creation of a plan for learning (Taba, 1962), including considerations of the purpose/rationale aims and objectives of learning, deliberations about pedagogy (learning activities, teacher role, materials and resources), decisions about how learning can be best organized (grouping, location and time) and how opportunities to assess students can be built-in. The curricular spider's web metaphor (Thijs & van den Akker, 2009) is helpful in indicating the full range of decisions that need to be taken into account in curriculum development, with 'they' referring to the students (see Figure 4.1). As such, SBCD includes all curriculum decisions and related activities that are performed within the school with the direct involvement of teachers and/or school leaders (cf. Marsh, 2010).

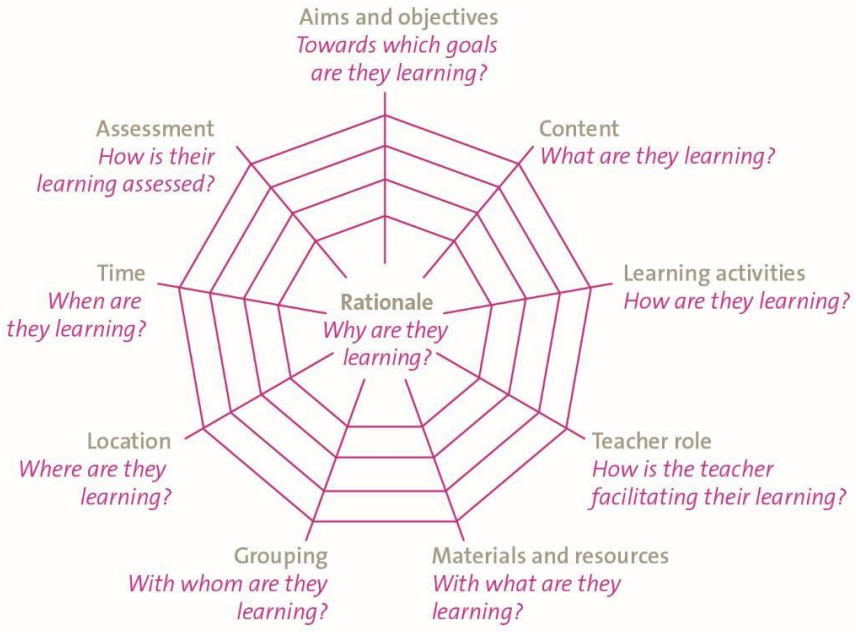

Figure 4.1: Curricular spider's web (Thijs & van den Akker, 2009)

- SBCD disciplinary orientation

Depending on the scale of the school-based curriculum work (meso or micro level), the plan for learning will cover all, some or just one of the school subjects and/or learning areas in the school (e.g. language(s), mathematics, science, social studies, geography, history, arts, physical education). Curriculum products designed for use within a particular lesson usually cover one subject or, in case of interdisciplinary projects, a few school subjects. Outside class products may cover one subject or learning area (for instance in case of a learning progression for a specific subject), several subjects (for instance an overall assessment plan for the languages) or may be linked to all subjects or learning areas of the school (for instance in case of an overarching school vision).

- SBCD products: For use during or outside of class

Many different (interim) products result from SBCD efforts. They can be found at different levels and to varying degrees of detail within a school depending on where responsibilities are placed in the school (Nieveen & Kuiper, 2021). A common distinction related to this is the difference between on the one hand the curriculum products at the micro level that are of use in-class and on the other hand the curriculum products at the meso level that are of use outside class (Nieveen, Voogt & van den Akker, in press). In both instances the curriculum products describe the decisions made regarding one or more components in the curricular spider's web (figure 1).

Some products take the form of resources for use during class, such as overviews of complete lessons, explaining decisions regarding all or most components of the curricular spider's web. Yet, in-class products can also be associated with one specific curriculum component, such as the design of learning materials for use by pupils during one individual lessons or a lesson series or a project, teaching resources for use during class (such as discussion guides, writing activities, listen-and-read activities, grouping ideas), decisions regarding the physical or digital learning environment (e.g. project workspaces, classroom lay-out, online environment, outside the school), design of specific assessment tools (e.g. tests, rubrics, quizzes).

Aside from resources to be used during class, SBCD efforts also often produce resources for planning and organizing class time. Examples for these kinds of school-based curriculum products are the school vision or profile (e.g. statements about the values and ambitions of the school), a syllabus or a learning progression sheet for specific subjects or learning areas (e.g. big-picture view of learning progress in a school subject, learning strands, overview of special projects throughout the year), and overall assessment plans (e.g. outline of methods that will be used throughout the school year for evaluating learning results).

- SBCD actors: Creators and roles

School-based curriculum development efforts are primarily performed by actors within the school. Usually (teams of) teachers and school leaders are in the lead of the work. As the work can be quite extensive and complex, many SBCD projects also (need to) draw on the support of external actors, such as subject matter experts, curriculum experts and pedagogical experts as well as process facilitators (Huizinga, Handelzalts, Nieveen & Voogt, 2014). Teachers, school leaders as well as external experts can have pro-active development roles, in the sense that they outline, create and revise the curricular products or they can have more reactive roles by providing comments and suggestions during pilots of draft products. In case of external experts, the role taking can raise a tension between being too dominant and steering (pushing the team in a certain direction) and staying too reactive (only following the

team for their initiatives). This tension calls for active negotiation and reflection on the supportive role of experts at the start and during the SBCD process (Handelzalts, Nieveen, & Van den Akker, 2019).

4.1.2 Influences on the SBCD processes and outcomes

As schools are nested in a wider education context or system, it depends on the degrees of freedom the wider context allows for, how much room for school-based curriculum development is left for schools. These levels in the wider education context can be referred to as the macro level (with for instance curriculum and assessment regulations at the national or regional level) and the supra level with possible international curriculum and assessment frameworks that schools may need to adhere to (Thijs & van den Akker, 2009).
The nature of the SBCD work will be influenced by the curriculum policy of a country (and/other jurisdictions) at the macro level.

- Input and output regulation in relation to degree of centralization

Regarding curriculum policy two extremes can be distinguished (Leat, Livingston & Priestley, 2013; Kuiper, Nieveen & Berkvens, 2013). At the one extreme, the curriculum policy is centralized. Here it is a government's intention to prescribe the curriculum at the input level (in terms of goals, contents and teaching and learning materials) and prescribe the curriculum at the output level (in terms of assessments, examinations and inspection). By detailing the curriculum at input as well as output level, the government plans to ensure that education adheres to the regulations (Kuiper, Nieveen & Berkvens, 2013). This type of curriculum regulation fits a fidelity approach towards the curriculum implementation (Snyder, Bolin, & Zumwalt, 1992). Here, possibilities for SBCD efforts will be minimal and teachers will be supported in such a way that they implement the curriculum as faithfully as possible (Nieveen, Sluijsmans & van den Akker, 2014).

In the other extreme, the curriculum policy of a country/jurisdiction is decentralized. This reflects a government's intention to hold back from prescription and control at the input and output level. Within such a decentralized curriculum policy, there is room for SBCD efforts (Kuiper, Nieveen & Kuiper, 2013). The support of teachers takes place via an enactment approach (Snyder, Bolin, & Zumwalt, 1992). The extent to which a country or jurisdiction has a centralized or decentralized curriculum policy thus determines the characteristics of the curriculum change process, including for instance the role of various stakeholders.

- Change interactions

Also within a school various change interaction can be in place and can shape the SBCD activities. For instance, when a school opts for a top-down approach, first the school leadership sets general statements at the meso (school) level and subsequently (teams of) teachers who take micro level decisions in accordance with the decisions at school level. In case of a bottom-up approach, teachers define what needs to be done and shape the work during development, the school leadership will need to invest in coherence-making activities in order to bring these decisions into accordance. Schools can also opt for a collaborative approach where school leadership and teachers join forces in their SBCD endeavors. One way of doing so is when taking a deliberative approach. Here, school leaders and teachers first work together towards a common platform of ideas or common framework, followed by teachers developing curriculum products at the micro level in accordance with the common framework (cf. Walker, 1990). Another possible collaborative approach is a dovetailing or zipper approach. Here parallel and side-by-side collaborative curriculum development is

taking place at the school as well as classroom level. Usually teachers and school leaders are working as one team and are dovetailing the curriculum decisions at the various levels. Typical for a wooden dovetailing construction is not only that wooden parts are joined together in a special way, but due to that, the construction as a whole becomes more solid (Nieveen & Kuiper, 2021).

4.2 Infrastructure to support the different perspectives of SBCD

Sub-question 1b asks: *How do human, material, and structural aspects of context influence (the different perspectives of) school-based curriculum development?* The work to answer this sub-question was conducted by a pair of research assistants, with support from the principal investigators. It used the literature available through the University of Twente (inter-)libraries, followed the procedures for searching and selecting relevant literature as described by Petticrew and Roberts (2008). Elaborated below, the main steps were:

- Defining a question
- Searching for articles with empirical findings related to SBCD infrastructure
- Extraction of relevant information
- Analysis and synthesis of the extracted information

First, the team discussed each term in sub-question 1b until shared understanding of the guiding question was achieved. Then, the team searched in Google Scholar, Scopus, and ERIC for school-based curriculum development (and similar terms). Results were screened based on title and after that, abstract. Studies that appeared to be relevant to at least one cell in the theoretical framework (Table 1) were retained. One assistant focused on secondary-source empirical studies like meta-analyses or multiple case studies. The other focused on primary-source empirical studies. Then, following full-text screening, studies that were not clearly about *school-based* curriculum development were excluded from data extraction, though several were retained for their relevant background information. The remaining set included sources from a variety of countries and regions.

Qualitative analysis ensued in two phases. First, deductive coding was undertaken to classify relevant insights in relation to materials, humans, or structures for each perspective of curriculum development. Then, inductive coding took place to identify relevant themes within those areas. This yielded a set of indicators for portraying the (infrastructure for) school-based curriculum development. The set of indicators is valuable in its own right, and was also used to structure the next stage of work.

4.2.1 SBCD from the substantive perspective

Human infrastructure for SBCD from the substantive perspective

Designers require specific knowledge, skills and attitudes to accommodate the users of the curriculum. Here, the users include teachers or students, and designers require knowledge of both teachers' needs and students' needs, if they are to create a learning environment that can be understood and enact the learning environment with integrity (i.e. in ways that align with intentions). This section examines the types of expertise that must be embodied in products that curriculum designers create.

- Product expertise: Understanding student needs

For curriculum products to be usable and have added value, they must address the needs of the learner. Student needs may range from cognitive needs (Gao et al., 2020), to concerns about workload and rules (Kärkkäinen, 2012) to student interest and motivation (Bolstad, 2004). Historically, students have been seen as recipients of the curriculum, instead of being

part of the conversation. However, in recent years this view has shifted. School-based curriculum development is seen as a way for schools to be able to be flexible and inclusive, addressing students with diverse backgrounds and educational needs (Bolstad, 2004). The ability to tailor the curriculum to specific needs of individual students and local communities is often cited as a major motivator for teachers (in this case, also the the designers) to work on school-based curriculum development (i.e., Bolstad, 2004; Gleeson, 2020; Kärkkäinen, 2012; Marsh, 1990). For example, a study on Innovative Pathways schools showed that in all seven schools, staff had the perception that the existing curricula, practices and structures for assessment were insufficient in meeting student needs, which stimulated school-based curriculum development (Bolstad, 2004). School-based curriculum design allows teachers to negotiate with students about their needs (Kärkkäinen, 2012), and be more inclusive and flexible when working with students that possess a diverse range of educational needs, social and cultural backgrounds (Bolstad, 2004). Furthermore, a curriculum that is interesting and relevant to the lives of the students in their particular context is seen by teachers as more motivating and effective (Bolstad, 2004). Therefore, the way that the curriculum addresses student needs influences (how teachers perceive) the quality of the product.

An example from Singapore illustrates this point. In Singapore and around the globe, teachers are expected to interpret and transform materials to achieve curriculum objectives according to their classroom or school situations. They can reorganize or restructure the content within a particular subject area (Gopinathan & Deng, 2006). Teachers transform the materials into learning experiences that are meaningful and cater to the needs of particular students. Most crucially, they need to identify the "big ideas" (i.e., important concepts, issues, and themes) that underlie a particular topic to be taught. They also need to know the interconnections among these ideas and the progression involved in developing a particular idea so that the significance of the topic can be understood by students (Gopinathan & Deng, 2006). In the quest to open up alternative pathways to better unlock student potential, the Ministry of Education announced moves to achieve better articulation between subjects taught in schools and those offered in the Institute of Technical Education and in the polytechnics (Gopinathan & Deng, 2006). In Singapore the education ministry's "Teach Less, Learn More" initiative promotes a holistic development and greater engagement with students (Hairon et al., 2018). Ultimately, teachers should be encouraged to actively engage in tailoring the curriculum to the needs and interests of their students (Gopinathan & Deng, 2006). Further, student needs may be a significant motivator for teachers to work on school-based curriculum development. This yields potential benefits to their own learning while also improving the quality of the curriculum product itself.

- Product expertise: Understanding teacher concerns

Aside from the needs of students, teachers may experience concerns and constraints while working with the product, which also have to be kept in mind. Common teacher concerns are related to workload and (a lack of) resources (i.e., Lee, 2017; Chun, 1999; Lee et al., 2018). For frontline teachers, an increase of workload in the implementation of the school-based curriculum can be a serious concern that management is not always conscious of; some teachers felt it was a major burden (Lee et al., 2018). They may be concerned with practicality, which can prompt further investigation and (re)design (McKenney et al., in press).

The aim of the Singaporean government is to improve the General studies (GS) lessons using SBCD, but also for the main subjects. This results in more freedom for teachers but also a

higher burden on work load (Wong, 2007). Some of the teachers in Hong Kong encountered various difficulties in working with SBCD such as the lower status of General Studies, heavy workload, time constraints, different agendas of some teachers, a lot of time spent in preparing worksheets or searching for references, short time span in a lesson and the problem of classroom management (Wong, 2007). Teachers are expected to prune, modify, and integrate curriculum materials, it would seem to be within the reach of experienced teachers with perhaps some support from externally based resource persons (Gopinathan & Deng, 2006). Teachers should further be seen as active agents in the planning, designing, and enacting of curriculum experience in particular classroom contexts. They are curriculum developers in the sense that they create their personalized versions of the externally developed curriculum (Gopinathan & Deng, 2006). Specific school conditions, such as the capacities of teachers and the characteristics of students inevitably impinge on the development of curricular goals and objectives as well as teaching and learning goals (Hairon et al., 2018).

Some problems can occur in the implementation process. For example, in Singapore there was a lack of 'student voice' on matters of SBCD and partnership between teachers and students to include some or all aspects of the students' experiences in SBCD was lacking (Hairon et al., 2018). Novice teachers in Finland are more interested in curriculum integration than are experienced teachers, but lack the courage and skills to implement it (Niemelä & Tirri, 2018). Indonesian teachers' competence in implementing the scientific approach with 5Ms in their instruction is low, specifically in promoting students to, ask questions, to analyze data, and to communicate the results (Suyanto, 2017). Infrastructural issues e.g., the ability of teachers and students to use ICT in the learning process in Curriculum 2013 is limited by the number of computers in the IT laboratory and the low bandwidth connection or that students, specifically in remote areas do not have an internet access (Suyanto, 2017) are as a result limiting factors to the implementation process.

Furthermore, teachers are not always convinced that they are prepared or have the necessary skills and competencies required to create or implement a curriculum (Lee et al., 2018). Sometimes, they feel that the designed curriculum products are of insufficient quality or not thoroughly tested (Chun, 1999). In some instances, the purpose of the school-based curriculum projects is unclear (Chun, 1999). Lastly, dealing with differing expectations from multiple parties during the design and implementation process can be a cause of accumulating stress for teachers (Yuen et al., 2012), resulting in negative perceptions and emotional responses that do not lead to positive participation (Bolstad, 2004). It is therefore essential to keep teachers' concerns in mind when developing new curriculum products. Having to develop an entirely new subject would most likely be beyond the capacity of most teachers (Gopinathan & Deng, 2006).

- Product expertise: Disciplinary understanding

The capacities teachers need to work on school-based curriculum development vary. For example, SBCD projects may require disciplinary skills and knowledge, pedagogical content knowledge, expertise on assessment and evaluation or construction skills such as writing or graphic design. Curriculum innovations rely on the competencies of teachers and practitioners (Kärkkäinen, 2012). As mentioned earlier, teachers occasionally report feeling unprepared for the new roles and tasks of school-based curriculum design. This may be due to lack of training in either the specific subject matter or pedagogical content knowledge (Lee et al., 2018).

- Product expertise: Pedagogical (content) knowledge

In terms of pedagogical content knowledge, it should not be automatically assumed that practitioners have the capacity to initiate or support school-based curriculum innovations (Kärkkäinen, 2012), nor that they want to bear this burden of responsibility (Marsh, 1990). In order to perform the tasks that are expected of them, it is therefore essential that teachers have access to support and training. However, some studies show that this is not always the case (i.e., Chun, 1999).

- Product expertise: Assessment

Another type of expertise that teachers need concerns assessment. Their expertise on assessment and evaluation may influence the curriculum product. For example, the contents of the curriculum might be tested on a small group of students to evaluate the results before the curriculum is introduced to the rest of the school (Lee et al., 2020). Problems can arise if teacher understanding on authentic assessment and how to implement it in the classroom is low e.g., in Indonesia (Suyanto, 2017).

- Product expertise: Visual design

Changes in the infrastructure do not necessarily result in changes immediately; time is needed to integrate them into the process. For example, there was very little substantial change by the provision of computer infrastructure, to the high-stakes examinations that dominated pedagogical practice in Singapore (Gopinathan & Deng, 2006). Finally, especially when the final products are used by colleagues who are not on the original design team, the visual presentation is extremely important. The graphic design of the resources must make it easy for users to quickly and flexibly identify relevant elements and navigate through them (McKenney, 2017).

- Product expertise: School vision and profile

Aside from teacher capacities, the curriculum product is also likely to be influenced by the school's vision and profile. Schools might have a specific focus or specialty, or design their curriculum around certain themes or the local context (i.e., Bolstad, 2004; Gao et al., 2020). Teachers would need the ability to attend to the school's vision and profile in order to create a curriculum product that suits the school's needs.

- Product expertise: Characterizing curriculum

Furthermore, there are differences in the characterization of the curriculum between schools and countries that teachers need to attend to. For example, the Ministry of Education (MoE) of Singapore provides the national curriculum. Processes and outcomes in the centralized Singapore education system increasingly encourage greater school autonomy, yet require schools to keep to national standards (Hairon et al., 2018). SBCD could also vary from one teacher investigating an area for a one-off activity to collaborative effort among teachers, parents, and students working together to create curriculum for long term school plans (Marsh et al., 1990). A teacher can gain support from well-developed curriculum materials, even though the materials are not written by teachers themselves. The professional identity of a teacher, in a similar fashion, is centered upon the art of teaching, not the responsibility to write curriculum materials (Gopinathan & Deng, 2006). SBCD is by no means construed as an alternative or replacement for the MoE-directed curriculum development (Gopinathan & Deng, 2006). For example, in Hong Kong, schools are encouraged to "adapt the central curriculum to different degrees by varying the organization of contents, contexts, learning and teaching strategies, and criteria and modes of assessment to help their students achieve

the learning targets", started by a top-down approach of the administration side. Researchers monitored and evaluated the integration using interviews, observations and questionnaires (Wong, 2007). In conclusion, there are different approaches to school-based curriculum development in terms of curriculum characterization. These aspects will likely influence the way teachers work on SBCD, as well as the final product.

Principals and teachers should be encouraged to make full use of autonomy given to schools with respect to modifying texts to suit the needs of their students (Gopinathan & Deng, 2006). This has been achieved by setting up of four Centers of Excellence for Professional Development to enable teachers to discuss and share teaching methods (Gopinathan & Deng, 2006). Further, as Curriculum Integration is explicitly compulsory for all Finnish schools, every school year has to include at least one multidisciplinary learning module lasting approximately 1 week. Schools have been given a list of seven cross-curricular transversal competences, such as multi-literacy and ICT competence, which are to be taught in connection with every subject (Niemelä & Tirri, 2018). Finally, larger systems have significant influence in the way SBCD is shaped in schools whether in Western or Asian contexts (Hairon et al., 2018). Centralization and localization/decentralization of curriculum development work needs specific balance points that schools negotiate in developing their curriculum innovations. SBCD becomes an endeavor to increase schools' autonomy so as to meet the individual needs of the school encompassing the needs of school leaders and teachers, students and parents, but also satisfying the needs of the wider community such as district and state policymakers (Hairon et al., 2018).

Material infrastructure for SBCD from the substantive perspective

In school-based curriculum development, artefacts, tools and instruments are used to support designers in determining the curriculum substance. These artefacts, tools and instruments may consist of products and/or its underlying intentions; for example, articulation of the vision, goals, content, learning activities, teacher roles, testing, time, learning environment, grouping, materials and resources, as well as characterization of the kind of curriculum. In this section, different types of material infrastructure will be examined from the substantive perspective.

- Artefacts for products: Inspiring examples

There are different types of artefacts that can influence the material infrastructure for school-based development from the substantive perspective. Inspiration is often taken from existing materials that serve as inspiring examples, ready-made components, reference materials and guidelines. The newly developed materials may be closely related to existing materials, syllabi and/or curricula (Chun, 1999). An inspiring example was mentioned in an article by Goh (2006), who describes the idea of 'Niche Schools' whereby each school has to work on their unique branding of curriculum innovation (Goh, 2006). This has since morphed into two initiatives (Applied Learning Programme and Learning for Life Programme) where schools are encouraged to develop curricular innovation in either of these two foci. Schools were also strongly encouraged to set aside 1-hour per week of curriculum time for teachers to come together in their respective groups (e.g., similar subject or grade) to engage in professional dialogues to improve on their pedagogical practices (Hairon et al., 2018).

- Artefacts for products: Readymade components

Aside from inspiring examples, ready-made components may also be available for use in the curriculum development. These components can be implemented as part of the new curriculum or adapted. A study by Chun (1999) showed that in Hong Kong, modification of

existing materials was the main focus of the curriculum development process. A teacher can gain support from well-developed curriculum materials, even though the materials are not written by teachers themselves (Gopinathan & Deng, 2006). The curriculum innovation in Singapore was a bought curricular package from an Australian education consultant company (Hairon et al., 2018). In Indonesia lesson plans are made by teacher organizations (MGMP), not by individual teachers (Suyanto, 2017).

- Artefacts for products: Reference materials

Reference materials are most often mentioned in the literature as being insufficient or difficult to access (i.e., Chun, 1999; Lee, 2017). In Hong Kong government documents are used as a basis for the design of SBCD (Wong, 2007). During the interviews, teachers all admitted they worked very hard and spent more time in searching for more reference materials, and preparing the SBC booklets and worksheets (Wong, 2007).

- Artefacts for products: Guidelines

Furthermore, guidelines may exist to help school staff with the interpretation of relevant policies that could shape the way the product is made. The prescriptiveness of these guidelines impacts how much freedom teachers have in the development of school-based curriculum documents (Marsh, 1990). Notably, these guidelines do not always align with system-level assessments: for example, a great majority of OECD countries included 21st century skills in their curriculum regulations or guidelines, but they were rarely specifically represented in student assessments and school evaluations (Ananiadou and Claro, 2009 as cited in Kärkkäinen, 2012). These types of misalignments can stand in the way of the innovation power of the curriculum (Kärkkäinen, 2012). In summary, especially ready-made components and inspiring examples seem to be used in school-based curriculum development. These components might be adjusted or implemented as a part of the new curriculum. Reference materials often seem to be lacking. Guidelines are a strong indicator for the levels of freedom teachers have, but do not always align with assessments and evaluations.

Structures for SBCD from the substantive perspective

The structural aspects for the substantive perspective are defined as structures that help designers enrich the product substance (e.g., access to pedagogical content expertise, budget for graphic design and publishing, valuing state-of-art influences on content).

- Structures for shaping products: Focus on learners

One structural variable that shapes curriculum products is a school's focus on learners, which can influence the quality of the products. School-based curriculum development is linked to the pursuit of curricula that are designed to better fit the needs of students and their communities (Chun, 1999). In order to design instruction, teachers select tasks and models through navigating various instructional resources, and they are expected to plan instructional activities that are meaningful and relevant to students (Gopinathan & Deng, 2006).

- Structures for shaping products: Focus on teachers

Aside from focusing on learners, schools can also put a heavy focus on teachers. A focus on teachers might influence the way school leaders interact with the school's teachers, like the amount of demands principles place on teachers or their opportunities for professional development. School-based curriculum development is linked to teacher autonomy and professionalization (Chun, 1999). Giving teachers ownership of their own learning is an

advantage for school-based curriculum development, since this should make it (more) feasible to match the needs of teachers to their work environment (Marsh, 1990).

- Structures for shaping products: Access to expertise

During the design process, it is important for teachers to have access to external expertise or potential users, like teachers and students. Employers, institutions, and external providers are also often essential in shaping curriculum programmes, because they provide continuity and linkages for students from their current school to further education, training, and work (Bolstad, 2004). For example, in Singapore a knowledge and inquiry syllabus has been introduced to junior colleges (years 11 and 12) that aims at broadening the curriculum, developing thinking skills, and allowing students greater choice in subjects and levels at which subjects are offered. A noteworthy feature of these developments is that much of the curriculum is being developed at the school sites (Gopinathan, 2006). Teachers in Hong Kong received support from the school by the provision of different teaching and learning resources, and the support from the former EMB by organizing workshops for them. (Wong, 2007).

- Structures for shaping products: Clarity of goals and vision

Clarity of the goals and vision of school-based curriculum development, or any type of innovation, is essential for teachers to be able to envision their role (McKenney et al., in press). Misalignment of these goals and visions with the implementation of the curriculum can be a cause for concern and frustration in teachers (Chun, 1999). For example, one case study showed that a development scheme of which the rationale was about the importance of teacher participation in curriculum development, while in practice, the Education Department employed control mechanisms that encouraged teachers to essentially create products to use with the existing, central curriculum (Chun, 1999).

School leaders may discuss values, plans, strategies, and anticipated results with teachers and other key staff, as well as organizing collaborative discussions with major stakeholders (Wang et al., 2019). In Singapore, a commitment was made to further cut curriculum content. An option was given to schools to offer new subjects which had resulted in three schools offering computer studies, seven drama and three economics (Gopinathan & Deng, 2006). This outlines that if a vision is set by the government and freedom is given for school-based curriculum development, schools will make it their own task to deliver products, hence develop new subjects.

- Structures for shaping products: Leadership

The role of leaders in schools is to initiate, organize and to guide the development of curricular products. Furthermore, they are responsible for the school-based curriculum development process on a local and global level. Hairon et al. (2018) discuss that mobilizing department heads to lead in curricular innovations would have involved more of existing limited resources in Singapore. Moreover, they mention that the main reason for the teacher leader to adopt a more directive and didactic approach in her interactions with the teachers is to maximize the use of limited time resources available during school time to build teachers' capacity to implement the curriculum successfully (Hairon et al., 2018). The study by Hairon et al. (2018) also showed that the appointed teacher leader played many essential roles that had a positive impact on the products made throughout the curriculum development process: setting direction, facilitating discussions in curriculum work meetings, developing teacher capacity for curriculum change, providing appropriate instructional materials, and monitoring the curriculum implementation through feedback.

4.2.2 SBCD from the technical-professional perspective

Human infrastructure for SBCD from the technical-professional perspective

Designers need to possess knowledge, skills and attitudes in order to support and/or engage in the technical aspects of the development process. Examples of attitudes are the belief that curriculum design is their responsibility, that it is worth analysis, design, evaluation). In this section, several types of knowledge, skills and attitudes are identified and investigated.

- Process expertise: Sense of responsibility

One thing to take into consideration is the teachers' belief that curriculum development is their responsibility. Although teachers are the main users of the curriculum product, their wish to innovate or implement innovations should not be taken for granted (Kärkkäinen, 2012). Not all teachers believe that the responsibilities of curriculum design should fall upon them (Marsh, 1990). For example, a study by Lee et al. (2018) showed that teachers were unprepared to embrace the curriculum reform initiatives and had little sense of ownership of the project. In more traditional settings with externally mandated curriculum reform, the role of the teacher focuses on syllabus implementation; teaching pupils the content of the syllabuses produced by the government (Chun, 1999; Gleeson, 2020). Traditional curriculum development processes were often carried out by external experts that were not always practicing teachers. These types of projects often did not show much consideration for user ownership or negotiation (Marsh, 1990).

- Process expertise: Conviction of worth

Furthermore, the teachers' belief that school-based curriculum development is a worthwhile effort is another influential factor. A belief that something is worthwhile, or adds value, is undeniably helpful to any type of design or innovation process. A value-added innovation offers an improvement to what is already in place (McKenney et al., in press). Kirschner (2019) uses three criteria for added-value: effectiveness (more or deeper learning), efficiency (learning in less time or with less effort), and enjoyable (feelings of accomplishment and self-efficacy) – for both the teacher and the learner (McKenney et al., in press). For teachers, the benefits of the innovation should outweigh the investments (Dayle & Ponder, 1978, as cited in McKenney et al., in press). For example, one teacher in a study on Otari schools (Bolstad, 2004) thought the cause of their project being more successful than previous ones was the fact that it had started from a "real need".

A belief that the existing curriculum products are not sufficient or tailored to the needs of their students may add to teachers' motivation to work on school-based curriculum design. A study by Chun (1999) showed that the main reason for teachers to participate in SBCD projects was because they were not satisfied with their students' academic achievements and felt a need to adapt materials to better suit their abilities. This study also showed that teachers believe the products created in school-based curriculum design are helpful to students in developing their social and cognitive skills, as well as their interest. Furthermore, teachers also believe that participating in curriculum development has value for their own professional development and identity. Through school-based curriculum development, teachers became more confident in sharing their work, their self-efficacy increased, and they felt that their views of themselves transformed beyond being 'teachers' (Wang et al., 2019). A study conducted by Wong (2007) also showed that "teachers worked hard, prepared the lessons jointly, and claimed that students showed more interest in lessons".

- Process expertise: Empathy for users

Another aspect that influences the design process are the teachers' attitudes in terms of empathy for the users that will be working with the curriculum products, such as students and teachers themselves. Studies have shown that teachers engage with curriculum products in a way that matches their own existing ideas, values and beliefs (McKenney et al., in press). Furthermore, teachers might have concerns about practicality in their classroom that may steer (re)design choices. Therefore, it is important to keep these factors in mind.

- Process expertise: Analysis knowledge and skills

Teachers' knowledge and skills also influence the process. In order to participate in the development process, teachers need sufficient knowledge and skills in analysis, design, construction, evaluation, implementation and project management. In terms of analysis knowledge and skills, some OECD countries promote research activities for their teachers, enabling them to act as school-level experts. However, the frequency of teachers conducting such activities is modest and varies greatly across countries (Kärkkäinen, 2012).

- Process expertise: Development knowledge and skills

Teachers seem to be more involved in the design and construction processes than in the analysis process, but the way they view their role in that process differs. An extensive literature review by Kärkkäinen (2012) shows that most teachers or practitioners in OECD countries are directly involved in school-level curriculum development. However, they do not always perceive themselves to be curriculum developers, or that have the authority to make curriculum development decisions (Bolstad, 2004). For example, a study by Lee et al. (2018) showed that teachers and practitioners do not believe they are well prepared or supported in their new roles. Some even perceived the expectation to switch roles as a major burden (Lee, 2014). The level of comfort that teachers have in their role as a designer may differ. Some teachers may feel at home in the role of (co-)designer, others may not. Some teachers have already been involved in curriculum development activities, while others lack such experience (Chun, 1999). Generally speaking, teachers are more comfortable with the role of re-designer. They appreciate guidance in the design process and do not necessarily feel the need to be in charge (McKenney et al., in press).

- Process expertise: Evaluation knowledge and skills

Evaluation and assessment is another important part of the process. Evaluation of the curriculum design starts and ends with curriculum objectives. In order to evaluate the curriculum, teachers must be able to provide timely feedback on students' learning performance (Gao et al., 2020). The evaluation process differs per school. For example, one school in a study by Lee et al. (2018) handpicked a small group of students to test the teaching and learning initiatives on, before implementing the innovations in the rest of the school.

- Process expertise: Implementation knowledge and skills

Teachers also need knowledge and skills to prepare the implementation process. In a study by Suyanto (2017), teachers tried to implement the 'Curriculum 13'. In order to implement the curriculum, teachers have to develop a lesson plan, a student worksheet, instrument of evaluation, and instructional media, which was guided by mentor teachers. A recurring theme in curriculum development is that the formal curriculum often does not perfectly align with the way the curriculum is actually taught in the classroom (Kärkkäinen, 2020). Implementation should therefore be monitored to ensure that the curriculum is taught as

intended, or to be able to make adaptations to the curriculum to better fit the classroom practice. In Hong Kong the teachers had to provide justification for adopting or modifying elements in the previous themes in the SBCD process for monitoring purposes (Wong, 2007).

The implementation quality is significantly higher for teachers that have a more active role in the design process. Participating in school-based curriculum development allows them to better understand the contents of the curriculum, develop a sense of ownership and feel motivated to implement the activities as intended (McKenney et al., in press). Furthermore, the implementation quality can be improved for example by appointing a teacher leader who has the role of monitoring the curriculum implementation through feedback (Hairon et al., 2018).

- Process expertise: Project management

School-based curriculum development also requires project management skills, like decision-making and group process skills, the ability to initiate and support innovations or to reconcile conflicting ideas. The presence of these skills should not be assumed (Marsh, 1990; Kärkkäinen, 2020). For example, Findings from a study by Chun (1999) showed that school-based curriculum development was more successful and sustainable when the school culture was consensual, the teachers were motivated and had experience with collaboratively working on developing materials. Therefore, it might be beneficial for the curriculum development process to train teachers on these skills and attitudes.

Material infrastructure for SBCD from the technical-professional perspective

From the technical-professional perspective, the material infrastructure for school-based curriculum development consists of artefacts, tools and instruments that support designers to shape the phases of activity (analysis, development and evaluation). Examples of this would be prompts for eliciting a vision for enactment, monitoring development and evaluating implementation.

- Artefacts for processes: Resources for developing understanding

During the development process, teachers may use resources such as handbooks, guides, principles, models and frameworks to help them understand development activities. However, Lee et al. (2018) noted that decentralization sometimes means that a comprehensive central knowledge base is absent. They suggest that a cooperative platform that integrates central intelligence with school-based initiatives would be of help in providing the central knowledge base, intellectual resources and support that a teacher may need. Curriculum materials like syllabi and textbooks are seen as delivering mediums and the role of teachers is seen as the one who delivers. The adoption of the enactment approach calls for a fundamental shift in teachers' conceptions or beliefs about curriculum, curriculum materials, and the role of teachers (Gopinathan & Deng, 2006). In Singapore the library of instructional tools containing a range of teaching strategies provided in the curriculum package were appreciated by the teachers in the context of teachers' busy schedules as they fed into the lessons for each theme. These instructional tools were essentially teaching strategies to directly build thinking and social skills in students (Hairon et al, 2018).

- Artefacts for processes: Resources supporting execution

In terms of executing the curriculum, it can be helpful for teachers to have access to resources that help them carry out their development activities, such as templates, tools and instruments. For example, in a professional development program for Otari school in New

Zealand, a template based around Bloom's Taxonomy was used to plan their teaching using a curriculum integration approach (Bolstad, 2004). Gopinathan and Deng (2006) state that teachers should be adapting, modifying, and translating the externally developed curriculum materials according to the school context. When teachers enact the externally created curriculum materials in and with their classes, they work across five intersecting domains, in terms of students, curriculum materials, instructional resources, learning environment, and school context (Gopinathan & Deng, 2006). In the classroom teaching, teachers interpret and modify the intended curriculum according to their perceptions of the needs and abilities of the students and create their own implemented curriculum. The attainment of the students, the attained curriculum, depends not only on students' learning, but also on what teachers choose to teach in the classroom (Wong, 2007).

Changes in the ministerial education structure happened as a result of the presidential election in Indonesia (Suyanto, 2017). Therefore, some schools train their teachers independently using their own budget, prepare the textbooks, and socialize the curriculum to students and parents. The government provides a five-day training for the National trainers who then give a five-day training for teacher trainers. However, five-day training was not enough (Suyanto, 2017), suggesting that teacher professional development for curriculum execution should be a more prolonged and meaningful effort.

In Indonesia there is a lack of students and teacher books. Furthermore, they have low bandwidth for accessing the internet. Only a few students have a laptop or smartphone. Teachers have limited knowledge using websites with good information on science and biology (Suyanto, 2017).

Structures for SBCD from the technical-professional perspective

From the technical-professional perspective, there are different types of structures that enable designers to engage in the development work. Some examples are time and space to collaborate and a culture of recognition or encouragement for designers' efforts.

- Structures shaping processes: Leadership

School leadership plays an essential role in facilitating the decentralization of curriculum development *(*Lee et al., 2017). Not only do they provide the necessary resources, adequate leadership, support and guidance can help promote autonomy and performance in schools, groups and teachers (Lee et al., 2017). Trust can help foster the success of desired outcomes (Wang et al., 2019). Furthermore, a certain amount of flexibility is required in order for the process to go smoothly. If school leaders are not willing to make changes in the school's culture, conflicts can arise between teachers and senior management (Lee et al., 2017). Finally, leaders should be willing and able to promote participation, collaboration and collegiality in significant decision-making (Marsh, 1990).

- Structures shaping processes: Culture

As with any type of design or development process, the school's culture and atmosphere can contribute to a school-based curriculum development project's success or failure. Research by Chun (1999) showed schools that varied in terms of openness, supportiveness, directiveness, collegiality, engagement, democracy and consensuality. For example, the policy philosophy in Singapore is "Bottom-Up Initiative, Top-Down Support" (MOE, 2005) as cited in (Hairon et al, 2018).

One example of a school's culture that influenced the curriculum development work is the culture of pragmatism in Singapore, which 'involves prudent political management of the means, directions, timing, wording, and public presentation of policies, especially sensitive policies involving language, religion, and culture' (Mauzy & Milne, 2002, p. 53 as cited in Hairon et al. (2018)). In essence, pragmatism promotes 'commitment to rationality and practical results' (Mauzy & Milne, 2002, p. 52 as cited in Hairon et al. (2018)). Schools in Singapore are continuously encouraged by education policymakers, who are constantly aware of the nation's economic survivability, to commit to continual school improvement in their curricula in response to the constant change in the education landscape (Hairon et al., 2018). Singaporean schools are given more autonomy and space to construct their own curricular innovations, albeit within the ambit and scope of the stipulated curriculum developed by the ministry of education (MoE) (Hairon et al., 2018). Shared decision-making in the school-based curriculum development process dependent mostly on culture and regulations (Hairon et al., 2018)

Another example is the Finnish core curriculum, which stresses the holistic growth of students as ethical persons. For teachers to cultivate moral and social awareness in students, the prerequisite is that teachers have a good understanding of educational values and purposes. In addition to general educational values, subject-specific values can be recognized. - In subject teacher education programs in Finland, student teachers in different subjects study with instructors who are specialized in pedagogical content knowledge/didactics of certain subjects (Niemelä & Tirri, 2018). A subject-based curriculum is the usual way of arranging schoolwork in Finland. When a change is proposed to the status quo, it must be well reasoned in order to make the objectives visible and understandable. Teacher education in Finland emphasizes pedagogical thinking (Niemelä & Tirri, 2018).

- Structures shaping processes: Choice

Gordon (in Sabar et al., 1987) argues that school-based curriculum development relies on the removal of constraints and teachers' perception that they are allowed and able to develop curricula themselves. In cases of schools with a high-power distance, teachers may experience difficulties upholding their autonomy (Lee et al., 2018).

There may also be structural aspects at the school level that determine the amount of choice that teachers have. For example, in the case of public lower-secondary schools, the schools have autonomy regarding teaching methods, textbook choices, number of instruction periods, student grouping and daily assessment activities. In OECD countries the use of instruction time is often predetermined, but allows for some flexibility (Kärkkäinen, 2012). Other factors that could play a role are financial autonomy and budgeting control. One way of gaining buy-in from teachers was to provide the initial basic curriculum contents along with the instructional strategies to help students acquire satisfactory mastery of the expected curriculum learning goals (Hairon et al., 2018).
Examples are found in literature where teachers do not feel that school-based curriculum development enhances their autonomy, but rather inhibits it (e.g., Prideaux, 1993, Hannay, 1990, Shoham, 1995, as cited in Bolstad, 2004). For teachers, the curriculum development process might come with conflict and struggles that should not be overlooked for the purpose of reaching consensus (Prideaux, 1993, as cited in Bolstad, 2004).

- Structures shaping processes: Support

Curriculum materials could also support teachers' understanding of the content they are supposed to teach. This is particularly important in contexts where teachers' mastery of content knowledge is weak and/or where opportunities for professional development are limited. In addition, they can also provide teachers with necessary background information and different ways or perspectives of looking at a topic to be taught. This, we believe, can support teachers in the process of interpreting, modifying, and reorganizing the curriculum content according to the particular needs of their classroom situations. (Gopinathan & Deng, 2006). It is important to note that educational curriculum materials need to be accompanied by new and more powerful continuing professional development activities (Gopinathan & Deng, 2006). Curricular innovations are supposed to be taking place at the ground level among teachers in collaboration with school leaders with support provided from the top – that is, the ministry of education (MOE, 2005) as cited in (Hairon et al., 2018). In Hong Kong teachers received full support from the head teacher and benefited from collaborative lesson preparation, but some of them still encountered various difficulties (Wong, 2007).

- Structures shaping processes: Access to external expertise

Resources and Pedagogical repertoire can provide teachers with a wide range of curricular resources such as textbook series, teacher guides, educational software, videos, and internet web sites. They can also recommend to teachers' particular pedagogical methods, activities, models, and tasks that may enable effective curriculum enactment in their particular classrooms (Gopinathan & Deng, 2006). Sometimes, advisory boards or committees are set up to support the curriculum implementation (Chun, 1999). In Hong Kong interdisciplinary units were formed to work on the SBCD (Wong, 2007). Once external expertise has been identified, the way this expertise is accessed and communicated is another key factor. For example, in one study by Chun (1999), teachers were meant to receive support and guidance from inspectors in the Curriculum Development Section and the Subject Sections. However, in practice, the inspectors' role was perceived as a controlling one rooted in hierarchy and bureaucracy (Source, year).

A major and expansive initiative launched in 1997 to provide schools with computers, software, and teacher professional development to exploit the power of information and communication technology to enhance learning (Gopinathan & Deng). A review of Chinese, Malay, and Tamil teaching has recommended a modularization strategy for Chinese to enable teachers to cope better with diverse pupil abilities (Gopinathan & Deng, 2006).

Teachers need access to external expertise to develop interdisciplinary learning. For example, the Finnish integrated subject taught as environmental studies in primary school is later differentiated into natural sciences in secondary school. This is an example of how curriculum integration serves as a form of pedagogical content knowledge (Niemelä & Tirri, 2018). Today, when the new Finnish core curriculum is requiring every school to implement curriculum integration, there is reason to research and teach it systematically in departments of teacher education (Niemelä & Tirri, 2018).

4.2.3 Socio-political perspective

Human infrastructure for SBCD from the socio-political perspective

The human infrastructure for school-based curriculum development from the socio-political perspective refers to designer knowledge, skills and attitudes related to stimulating stakeholders to share concerns, needs and agendas (e.g., lobbying for particular content, preparing implementation) and making socially-politically informed decisions.

- Stakeholder engagement expertise: Identifying and valuing

Being able to identify and value important stakeholders is a key skill, as they can meaningfully support or influence the curriculum development process. Students, parents and the local community are important stakeholders that directly or indirectly influence the curriculum design process. Their support should not be taken for granted (Kärkkäinen, 2012). It is important for schools to gain and maintain support from parents and the local community. Especially parents may have strong views or expectations on what their children should be learning in school, and how (Cuban, 1992; Marsh and Willis, 2007; Hargreaves, 2000, as cited in Kärkkäinen, 2012). An example of indirect influence from parents is freedom of school choice, which affects the school's decisions and financial incentives through market accountability (Kärkkäinen, 2012). Other stakeholders that support the development process may consist of external experts, alumni, other primary schools or schools for further education, employer groups, councils, boards or other central educational institutions (Bolstad, 2004; Kärkkäinen, 2012). For example, visits and talks usually require the support of external stakeholders or alumni (Lee, 2017). Hairon et al. (2018) express the important point to meet the expectations of both parents and the school board to bring the school to ever increasing heights regarding students' learning experiences and outcomes.

- Stakeholder engagement expertise: Communicating and collaborating

Considering the importance of tending to the needs and gaining support from stakeholders, being able to communicate and collaborate well is essential. New levels of human-relating and group process skills will be expected from teachers during the school-based curriculum development process. These skills will not always have been taught to teachers in their pre-service teachers' education programs (Marsh, 1990). Therefore, the way that school staff communicates and collaborates with stakeholders can vary. For example, a study by Wang et al. (2019) shows that school leaders organized collaborative discussions between major stakeholders and key personnel, considering values and anticipated results in order to ensure that they fully understood the goals and strategies of school-based curriculum development. In other instances, collaboration with stakeholders was less fruitful: for example, in a study by Chun (1999) the teachers perceived the relationship with inspectors in the Education Department as highly bureaucratic and hierarchical, while the intent was for the teachers to receive guidance from the inspectors.

- Stakeholder engagement expertise: Curricular leadership

Curriculum development and implementation often comes with increasingly diverse needs and expectations from different stakeholders, which teachers and school leaders have to deal with appropriately and efficiently. This can cause a lot of stress, tension and negative emotions, which is unhelpful to the development and implementation processes (Lee et al., 2018; Bolstad, 2004). Therefore, it is important for school leaders and teaching staff to have the skills to manage these conflicting expectations in a productive and considerate manner. The task for school leaders and teachers in Singapore is to integrate the curricular contents with its existing subject-based curriculum (Hairon et al., 2018). In Indonesia, teachers were guided by mentor teachers to implement the so called 'Curriculum 13' (Suyanto, 2017). However, it was mentioned that a five-day training for National trainers was not enough, which limited the effectiveness of the implementation of SBCD.

Last but certainly not least, parents have a high influence on and stakes in the current curriculum. They sometimes oppose SBCD, due to the fact that they support children's learning processes and are only familiar with the national curriculum and learning materials

(Wong, 2007). They want the best education for their children. However, they prefer what they know and where they can help their children with.

Material infrastructure for socio-political aspects of context

The material infrastructure for socio-political aspects of context consists of artefacts, tools and instruments to help designers communicate with stakeholders (e.g., newsletters) or think about how to do that wisely (e.g., Z-movement). When used as boundary objects* (i.e., to get people from different perspectives talking), this could also include (prototypes of) the curriculum products.

- Artefacts for stakeholder engagement: Boundary objects and spreading vehicles

Curriculum enactment needs to be informed by an understanding of the issues and trends in the broader community and the context in which they work, as well as by the expressed ideas and concerns of parents, school administrators and policymakers. These stakeholders need to understand and interpret policies about the goals of instruction and about educational initiatives, and their interpretations play a role in the way they enact the curriculum (Ball & Cohen, 1996) as cited in (Gopinathan & Deng, 2006). Sometimes communication takes places via boundary objects. For example, parents preferred worksheets and materials that they are already familiar with, like textbooks from the government (Wong, 2007).

Structures for SBCD from the socio-political perspective

From the socio-political perspective, structures for school-based curriculum development are meant to facilitate stakeholder communication. Examples of such structures are student committees or parent advisory boards.

- Structures shaping stakeholder involvement: Culture of involvement

As mentioned before, a culture of involvement shapes the way stakeholders are associated with the school-based curriculum development process. For example, Singaporean education policymakers encourage schools to innovate their curriculum yet maintaining a steep culture of academic achievement and control over standards across schools (Hairon et al., 2018). An extensive network of alumni, fraternity and parental group was key for communication. Government-aided status is given to schools in Singapore with strong and historical affiliation with a religious group (e.g., Catholics, Methodists, Buddhists). In the context of the education ministry's TLLM initiative that promotes holistic development and greater engagement with students (Hairon et al., 2018). Regular bi-weekly meetings which are termed as Professional Learning Teams (PLTs), which then become the means from which pedagogical changes can take place at the ground level (Hairon et al., 2018).

SBCD in Singapore is considered a necessary complement to the Ministry's curriculum planning and development efforts. This provides more flexibility, choices and encourage local initiatives and ownership. SBCD can be seen as a tangible expression of the ability-driven school system that the Ministry of Education wishes to create (Gopinathan, 2006). If teachers are involved in the process, they are more likely to take it upon themselves in trying to implement it into their classroom.

- Structures shaping stakeholder involvement: Communication routines

Structures that facilitate stakeholder communication may be formal or informal - even when formal structures exist, the emphasis might still be on less formal channels (Chun, 1999). Examples of communicative structures include student committees, parent advisory boards

and teacher networks. Teachers and students are encouraged to "communicate and collaborate with other educational institutions, local and foreign, and the community at large" (MoE, 1997, p. 1) as cited in (Gopinathan & Deng, 2006).

- Structures shaping stakeholder involvement: Channels for distribution and spread

Educational materials could educate teachers while promoting their autonomy, and help them to make professional decisions about how to adapt the materials to their classroom situations (Davis & Krajcik, 2005) as cited in (Gopinathan & Deng, 2006). Teachers should embark on joining professional learning communities (PLCs) (Hairon & Dimmock, 2012) as cited in Hairon et al. (2018). In Singapore low power distance cultural value is more germane to shared decision-making (Hairon et al., 2018). Within the school, curriculum innovation might extend from participating teachers to the whole school (Wang et al., 2019). School level innovations can then spread horizontally from one school to another (i.e., Fink, 2000, as cited in Kärkkäinen, 2012) or move through teachers' personal acquaintance networks (Snyder, Bolin and Zumwalt, 1992; see also OECD, 1998; Elmore, 1996; as cited in Kärkkäinen, 2012).

Several other factors bear mention with regard to stakeholder involvement. First, a cluster of initiatives will give schools greater freedom to use criteria other than examination results to select students (Gopinathan, 2006). Second, funds were given to 'autonomous schools' to expand their enrichment programmes so as to further enhance learning (Liew, 2009) as cited in (Hairon et al., 2018). Third, the primary focus is on achieving the desired outcomes based on evidence informed by science and technology, and not be "shackled by ideological, moralistic and sentimental rigidities" (Tan, 2017, para. 24 as cited in Hairon et al. (2018)), giving a result-oriented impetus in the decision-making and policy-making processes that is heavily influenced by cost-benefit calculations (Tan, 2012 as cited in Hairon et al. (2018)). Singapore's pragmatism is a framework that evaluates problems rationally, and takes a flexible approach in selecting workable means with a view to attaining the ends (Hairon et al., 2018). Singapore's pragmatism is based on its dynamic and adaptive nature, which values efficiency in order to keep up with and be ahead of in an ever-changing and fast-paced world (Tan, 2012 as cited in Hairon et al., 2018)). The process of SBCD would therefore be influenced by this same pragmatism (Hairon et al., 2018). Finally, in Finnish schools, the challenge for integrative co-teaching is that it has been seen mostly as an instrument for inclusive education rather than being considered primarily in the context of CI (Niemeä & Tirri, 2018).

4.3 Synthesis of key constructs

As described previously, the review of SBCD models yielded a set of factors that influence a school's ability to attend to one or more of the curriculum perspectives, and the review of empirical studies yielded a set of indicators for portraying the (infrastructure for) school-based curriculum development. Shown in Figure 4.2, this set of indicators is valuable in its own right, and was also used to structure the next stage of work. The careful reader will note that the bulleted items in the figure correspond to the bulleted sub-headings throughout this chapter.

This synthesis is unique because it is (to our knowledge) the first to systematically examine existing theoretical and empirical literature at the nexus of curriculum perspectives and infrastructure to support SBCD. It combines insights from classic curriculum theorists with findings from recent empirical studies that have met the quality standards of being published in peer-reviewed academic journals. As such, the synthesis makes a valuable contribution to

the literature on SBCD in general, and provides a robust foundation for the subsequent phases of work in the present project.

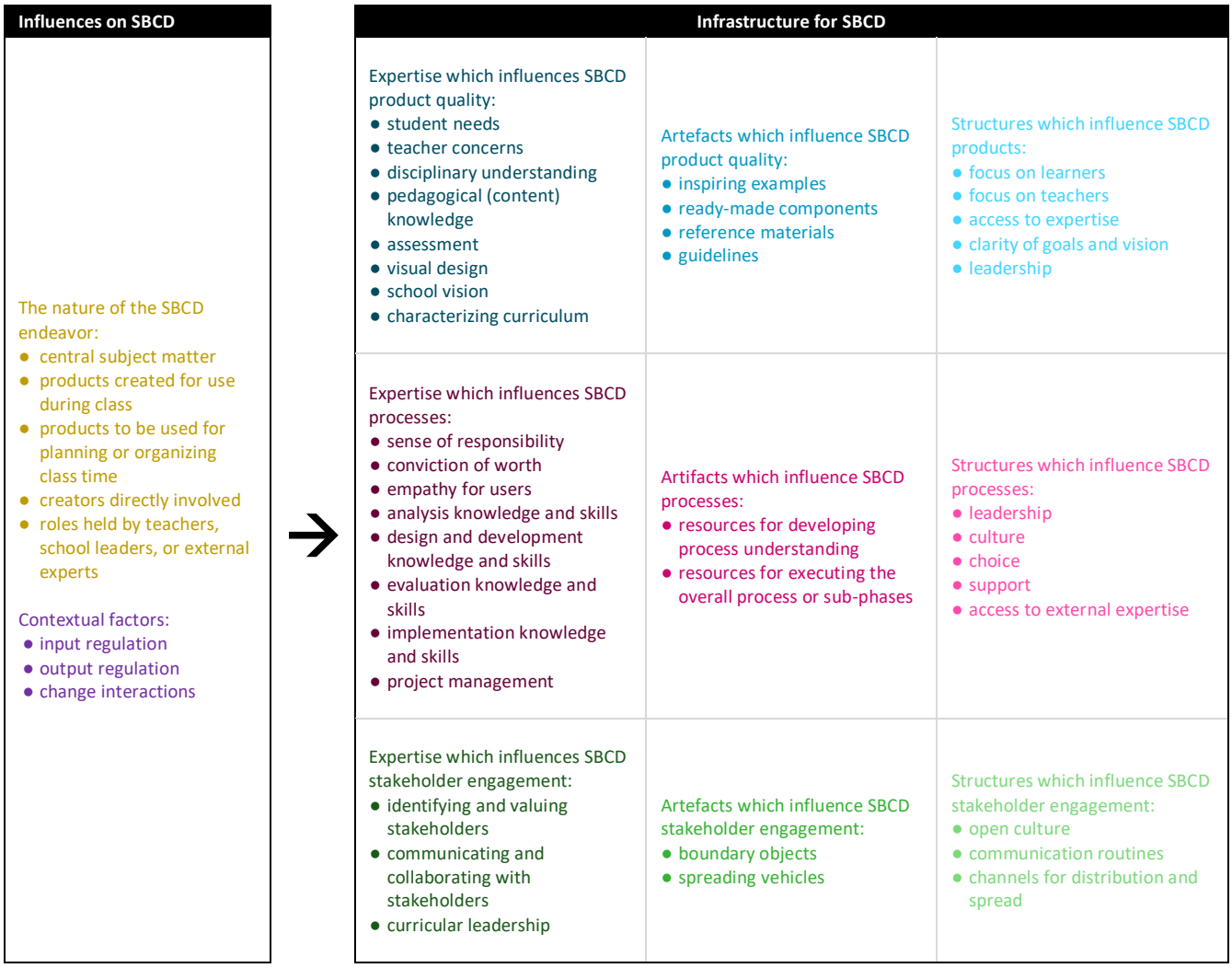

Figure 4.2. Visual synthesis of key insights derived from the literature review

5. Inside the IB PYP schools: Survey results

As mentioned earlier, research question 2a was: *How do IB curriculum development processes compare to the recommendations identified in literature?* Based on the results of the literature review, a survey was developed to inventory existing practices of IB schools. The survey was based on the results of the literature review, as summarized in Table 4.2. Appendix 5.1 contains the survey instrument, and Appendix 5.2 maps the survey items to individual variables. In addition to describing their SBCD for a recent project, schools were asked to indicate if they are content with their current SBCD approaches, or if bolstering these practices is a priority. They were also asked to indicate any potential interest to learn more. This information is useful for the IB-PYP in general, and was also used to target recruitment for the subsequent phase of inquiry.

A Qualtrics online survey was sent to the school leaders and IB coordinators of all 2058 IB-PYP schools worldwide. The survey was open for two weeks and a reminder was sent after one week. Subsequently, 179 school leaders, 502 IB coordinators, and 85 other personnel responded. In total, 766 individuals and 680 IB-PYP schools were represented, yielding a response rate of 33% of schools, which is considered quite high for voluntary surveys.

As the remainder of this chapter reveals, basic descriptive statistics were calculated. Frequency counts reveal how SBCD is perceived and how often human, material and structural resources are (experienced as) present. The Chi-Squared Test was carried out to explore if and how school leader responses differed from IB-Coordinator responses. Cluster analysis was undertaken to identify patterns of responses that are prevalent across all respondents. (NB: Most schools were represented by a single respondent. Therefore, no attempt was made to conduct analyses at the within-school level in this survey. For school level information, please refer to the case studies, reported in Chapter 6.)

5.1 Findings on the schools and respondents

The first set of questions posed concerned some general information about the school (location, IB region, size of the school) and respondents (years of experience and the school, gender, age and participation in SBCD projects). Regarding the IB regions, the respondents' schools were almost equally divided among IBA (IB Americas), IBAEM (Africa, Europe and Middle-East) and IBAP (IB Asia-Pacific). The survey data showed a wide geographical spread, with the highest frequencies being the United States (95) and India (72).

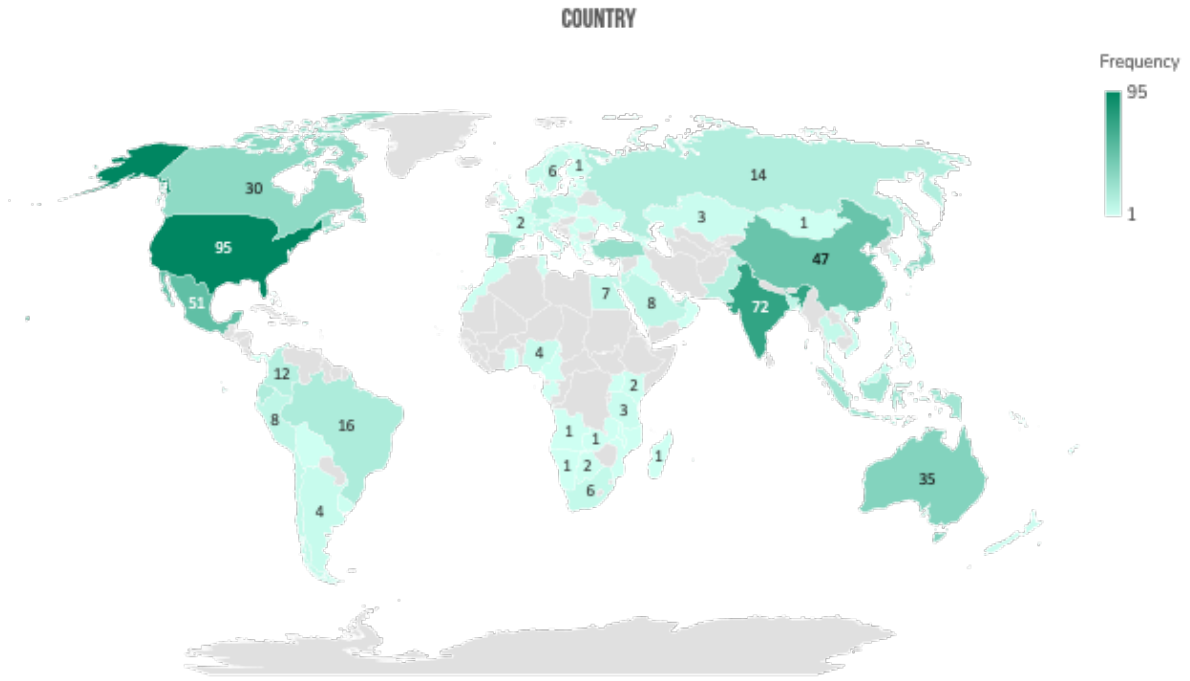

Figure 5.1. Geographical locations of respondents

The vast majority of respondents identified as female (620), as opposed to male (146). Most of the respondents (514) were in the age group of 30-50 years old.

Table 5.1: Region, gender and age divided by role

	Number	Region			Gender			Age		
Role		IBA	IBAEM	IBAP	Male	Female	Other	Under 30	30-50	50+
School leaders	179	61	61	57	73	106	0	2	86	91
IB-coordinator	502	180	163	158	58	444	0	24	384	94
Other	85	27	26	32	15	70	0	0	44	41
Total	766	246	250	269	146	620	0	26	514	226

The size of the respondents' schools varied regarding the number of learners: most schools have 0-250 learners (322) or 251-500 learners (290). However, there were some (4) schools with over 2000 learners. About two third of the respondents (492) have worked at their current school for less than 10 years. Further, for this study, it is important to note that all respondents had at least some experience with performing SBCD projects. Most respondents (476) were involved in 0-5 SBCD projects at the school. A group of 121 respondents were participating in over 10 SBCD projects. The remaining group (169) were joining 6-10 of these projects.

Table 5.2. Years working at this school, SBCD projects done at this school and number of learners at this school, divided by role

		Years working at this school			SBCD projects at this school			Learners at this school		
Role	**Number**	<10	11-20	20+	0-5	6-10	10+	<250	251-500	500+
School leaders	179	111	45	23	116	34	29	82	69	28
IB-coordinator	502	325	139	37	310	110	82	203	192	107
Other	85	54	25	5	50	25	10	37	29	19
Total	766	492	209	65	476	169	121	322	290	154

5.2 Nature of SBCD projects

In general, as a group, the respondents undertook projects covering all subject areas, with the highest frequency being Language (585) and the lowest Arts (282) and Other (148). Regarding the kind of curriculum products that the respondents have been working on, it is important to note that respondents indicated to have been working both on developing resources for in-class use (micro level) as well as with resources for planning and organizing class time (meso level). The resources that respondents developed for in-class use are almost evenly distributed amongst teaching resources (566), learning resources (515) and assessment materials (511). To a somewhat lesser extent the projects were geared to the design of physical or digital learning environments (although still 423 projects). For projects at the meso level (planning or organizing class time), most respondents indicated that they have been involved in projects that were resulting in the design of syllabuses or learning progression overviews (625) and assessment plans (482). Resources detailing the school's vision or profile were less common (333).

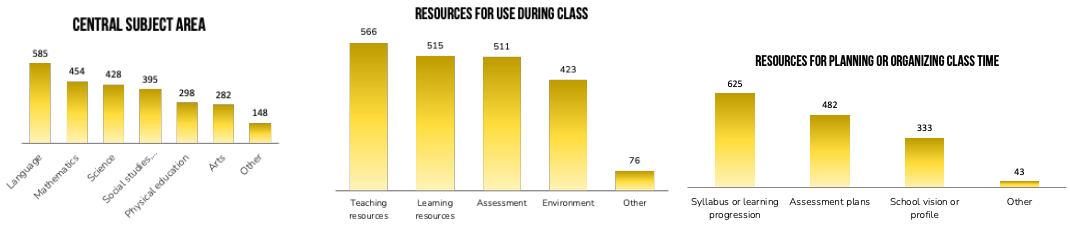

Figure 5.2 Central subject areas addressed and types of products being created

Most of the curriculum products were created directly by the teachers (703) and/or school leader(s) (566). In a few instances also external groups were involved (86). Considering their role in the SBCD process, teachers were most mentioned as being both proactive and reactive (525), followed by school leaders/principals (393). Proactive refers to taking initiative, e.g. outlined, created, or revised curricular products, whereas reactive refers to responding to initiatives taken already, e.g. commented on or tested curricular products. Regarding having a proactive role, teachers as well as school leaders were mentioned most (resp. 178 and 179). Teachers were also mentioned most with respect to a reactive role (99, school leaders 48, external experts 64). External group(s) most often had no significant role (417).

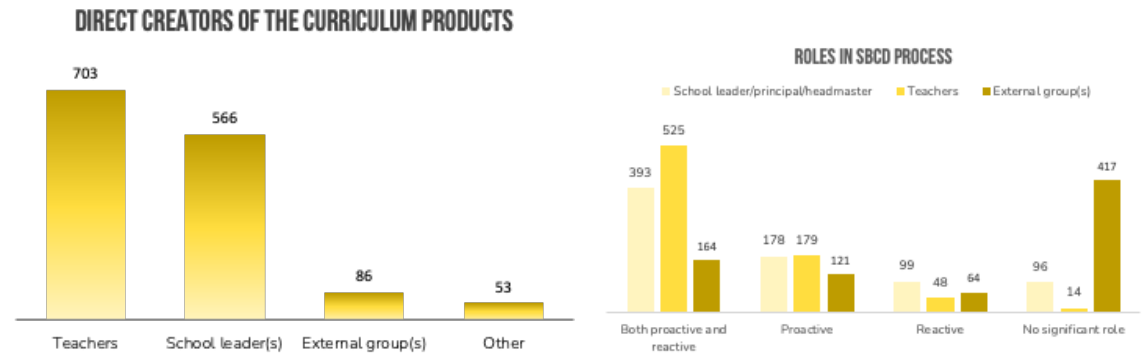

Figure 5.3. Direct creators and roles played in SBCD processes

5.3 Influences on the SBCD processes and outcomes

Regarding how participants experienced regulation of curricular inputs and outputs, it is important to note that most respondents (87%) answered that their schools were responsible for determining the goals and contents of the SBCD products as well as for monitoring the effects of the SBCD products (95%). In the other instances, the respondents responded that the input (goals and contents, 13%) and output (monitoring effects, 5%) was regulated by others from outside of the school, like the IB, the municipality or ministry, or an external inspectorate.

Regarding the change interactions most respondents would either characterize these as 'push-and-release' (361), meaning that after the IB defined what needed to be done, teachers or school leaders shaped work during development or as 'bottom-up' interactions (332), meaning that teachers or school leaders defined what needed to be done and shaped work during development. 'Side-to-side' interactions, where IB schools took initiative to collaborate with other IB schools, and 'top-down' interactions, where the IB defined what needed to be done and shaped work during development, were in the minority.

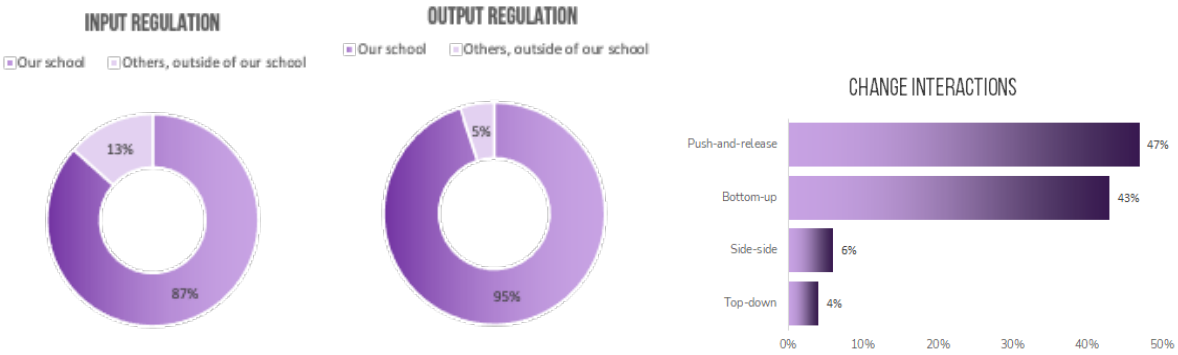

Figure 5.4. Participant perceptions of regulation and change interaction

5.4 Substantive perspective

Respondents were asked to indicate the human, material, and structural supports present in their most recent SBCD projects. Figure 5.5 shows the kinds of expertise that influenced the quality of the SBCD products. Expertise for addressing student needs (546) and characterizing the curriculum (528) were mentioned most often, also disciplinary knowledge, teachers' concerns, PCK and assessment expertise were important in many projects, whereas graphic design expertise seemed to be key according to a much smaller number of respondents (58).

Artefacts that clearly influenced the quality of the products were guidelines (510), inspiring examples (490) and reference materials (473), e.g. handbooks on subject matter or guides articulating pedagogical content knowledge. Ready-made components were slightly less common (309).

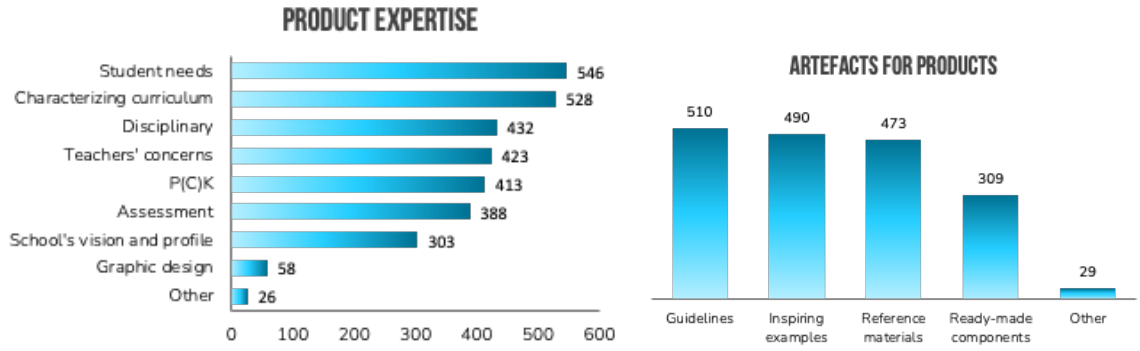

Figure 5.5. Expertise and types of tools used to create SBCD products

Figure 5.6, 'Structures shaping products' shows visible structures or invisible values that shaped the quality of the products according to the respondents. The most commonly selected answer was a focus on teachers (573). Access to external expertise or potential users (395), the clarity of goals and vision (394), and pressure or support from the school leadership (320) were also frequently occurring answers. Services for materials, such as graphic design, publishing, online hosting was indicated to be important by 152 respondents. Surprisingly, a clear focus on learners (0) was not selected by any of the respondents.

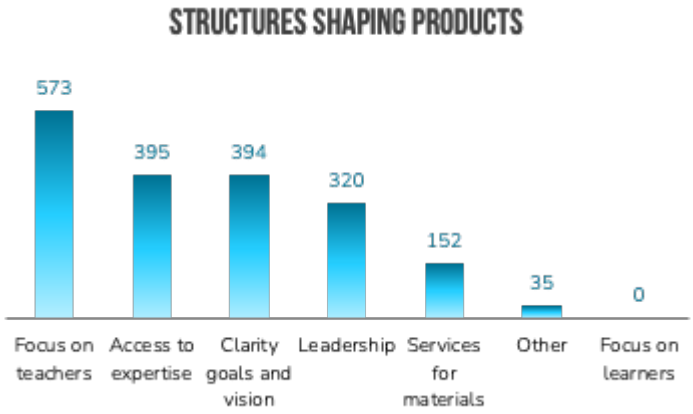

Figure 5.6. Structures shaping products

5.5 Technical professional perspective

Respondents were asked to reflect on the human, material, and structural features of the school context which supported their most recent SBCD project. In terms of which types of process expertise influenced respondent SBCD projects, answers concerning attitudes were most often selected; mainly, the belief that SBCD is the respondents' responsibility (653), empathy for the future users (488) and the worth of SBCD (449). Regarding knowledge and skills, it is interesting to note that respondents mentioned most the importance of skills in the domains of implementation (414), analysis (395), project management (353) and evaluation (353). Interestingly, knowledge and skills for design (226) and construction (223) were not selected as much, and only 9 respondents indicated that it were other types of expertise that influenced the development process.

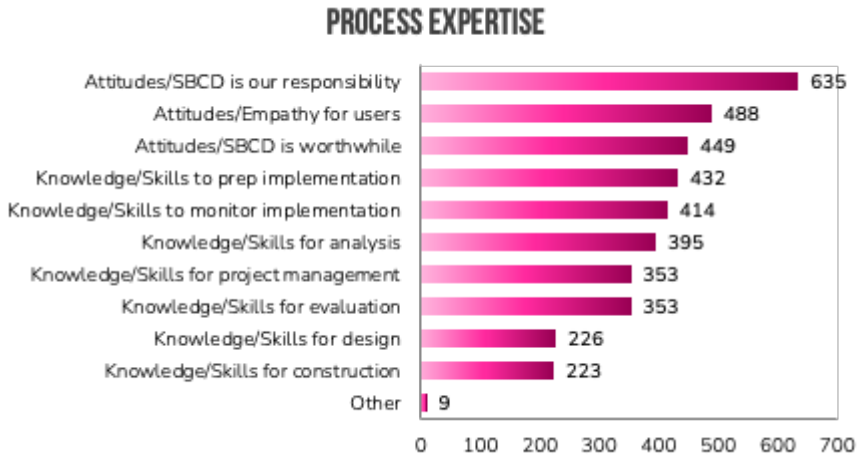

Figure 5.7. Process expertise

When asked about artefacts that guided the development process, the majority of the respondents (650) indicated that they use resources for (conceptual) understanding development activities, like handbooks, guides, principles, models and frameworks. Resources for executing curriculum development activities, like job aids, templates, tools and instruments were also used by a little more than half of the respondents (404).

Most respondents (626) indicated that leadership (where the school leaders monitor, reassure and grant freedom to design teams) clearly influenced the development process, as well as a design engaging school culture (581). Moreover, a large number of respondents (494) indicated that to them is has been important that teacher-designers have access to resources such as time, budget, or scheduling assistance and have the authority to decide how they are allocated. In a similar note, 416 respondents answered that specific support has been helpful, such as active endorsement of or communication about SBCD goals, processes, or results. Finally, access to external expertise (271) was less often selected to be an important structural variable.

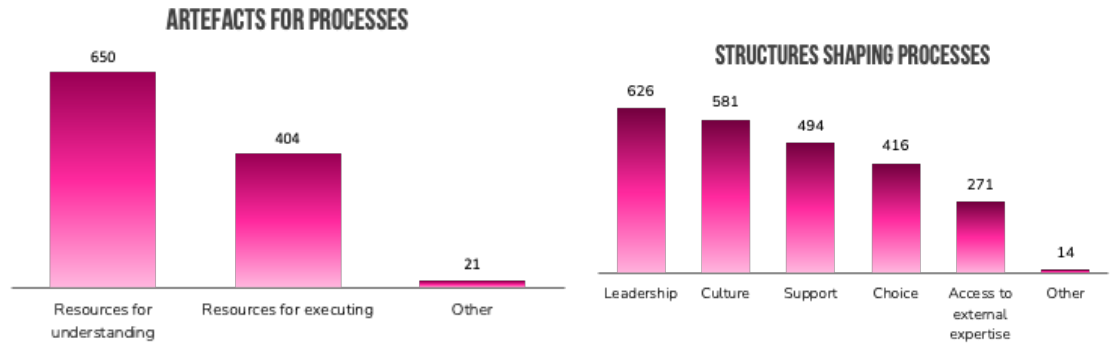

Figure 5.8. Artefacts and structures shaping the SBCD process

5.6 Socio-political perspective

Respondents were asked to reflect on the human, material and structural aspects of context that can support interactions with stakeholders outside of the design team, and to indicate which ones were present in their most recent SBCD project. In order to engage stakeholders, respondents indicated that they use their expertise in communicating and collaborating with

stakeholders most (500), followed by expertise in identifying and valuing relevant stakeholders (451) and curricular leadership (408).

In terms of artefacts that were used to engage stakeholders, communication tips and guidelines (e.g. books, articles, job aids, work sheets) were selected most often (471), followed by spreading vehicles like newsletters, websites, mail and social media (456). Boundary objects (e.g. prototypes, draft versions, examples of proposed product) (249) and other artefacts (52) were mentioned less often.

Visible structures or invisible values that influenced stakeholder engagement were mainly a culture of involvement (506) and existing communication structures (e.g. meetings) for facilitating stakeholder communication (e.g. student committees, parent advisory boards, teacher networks) (488). Channels for distribution and spread (288) and other structures (35) were not selected as much.

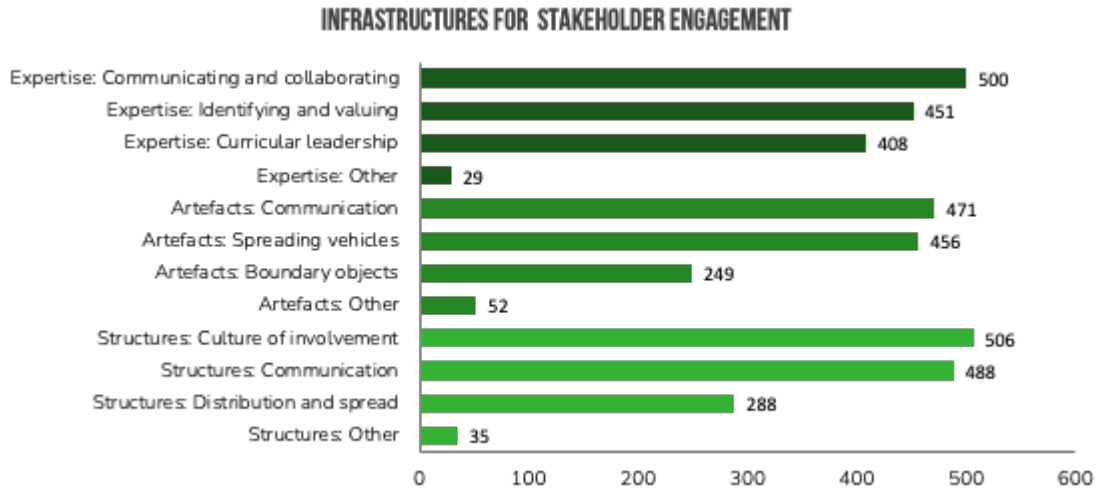

Figure 5.9. Infrastructure for stakeholder engagement

5.7 Respondent overall perceptions regarding their SBCD projects and IB support

Finally, at the end of the survey, respondents were invited to provide their view regarding the SBCD efforts at their schools. In general, two third of the respondents were somewhat satisfied (as a team or individually) with the SBCD practices, and saw possibilities for improvement. About one third of all respondents were very satisfied. Interestingly, almost no respondents indicated that their team (2%) or that they themselves (3%) were not satisfied with the SBCD efforts.

Similar responses were recorded for the respondents' perception of the guidance received from the IB for SBCD projects: 9% of the respondents were not satisfied, 62% were somewhat satisfied and 29% were very satisfied. The results indicate that, according to the respondents, there is a lot of room for improvement.

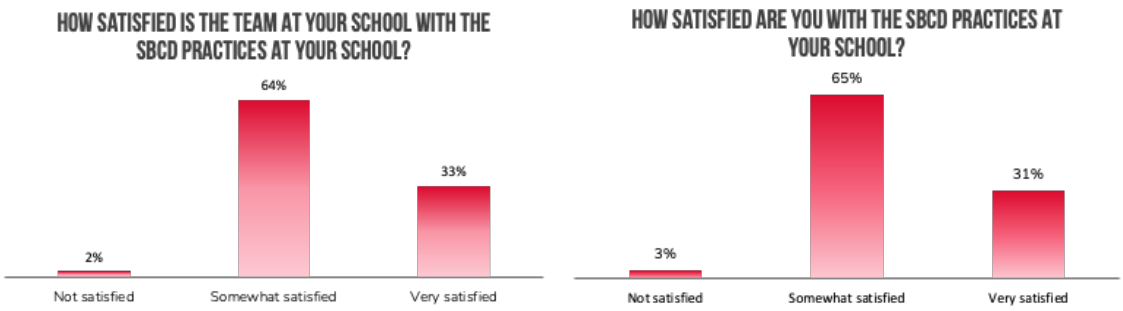

Figure 5.10. Respondent satisfaction with SBCD practices at own school

A key finding is that most respondents were interested in receiving information about improving SBCD efforts (48%), and 39% was also interested in joining future workshops on this theme. 13% of the respondents indicated that they did not need any further information about the topic.

Finally, most respondents did not have any further comments about SBCD at their school or the survey. Only a few respondents provided additional information about the way they operate within the school, asked for more information, or mentioned that they were proud of their team's efforts in SBCD projects.

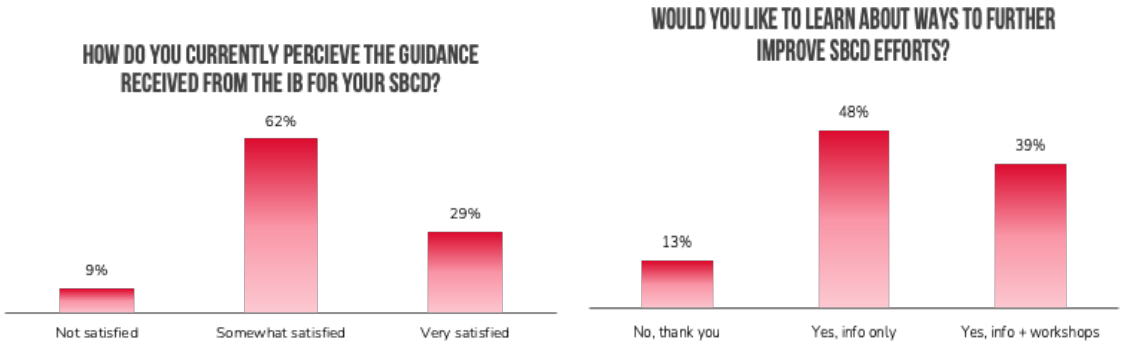

Figure 5.11. Perceptions of support and ambitions for developing SBCD

5.8 Differences between school leaders and IB-coordinators

The Chi-Squared Test was carried out to explore if and how school leader responses differed from IB-Coordinator responses. For 75% of the items there were no significant differences between these two respondent groups. However, significant differences (Pearson-Chi-Squared<0,05) were found for a quarter of the item. Namely, or each of these 13 items, school leaders indicated more frequently that they were present than IB coordinators did. Shown in Table 5.3, the school leaders reported more than one aspect related to product expertise (n=2), process expertise (n-3) and structures shaping stakeholder involvement (n-3). For two variables, the distribution within groups bears mention. Namely, the majority of school leaders indicated that those engaged in the SBCD held the conviction that the work was worthwhile and had expertise for communicating and collaborating with stakeholders outside of the design team, whereas the IB-Coordinator responses to these were more varied.

Table 5.3. Answers selected significantly more frequently by school leaders than by IB-Coordinators (Chi-Squared Test). Italics indicates selected by majority

	Human	**Material**	**Structural**
Substantive	P(C)K Assessment	Ready-made components of the new curriculum (e.g. existing tests, visualizations, movies found in [online] repositories	School's clear focus on teachers and their needs
Technical professional	*The conviction that the SBCD project is worthwhile* Analysis expertise (e.g. problem and needs analysis) Evaluation expertise (e.g. asking for feedback, performing test runs)		Support (e.g. active endorsement of or communication about SBCD goals, processes, or results)
Socio-political	*Communicating and collaborating with relevant stakeholders (e.g. engaging them to participate and interact, discussing draft versions)*	Other	School's open culture to welcome and involve stakeholders Existing structures (e.g. meetings) for facilitating stakeholder communication (e.g. student committees, parent advisory boards, teacher networks) Channels for distribution and spread

5.9 Patterns across all respondents

Cluster analysis was undertaken to identify patterns of responses that are prevalent across all respondents (using Ward's method of minimized variance). The cluster analysis revealed three groups of respondents. Here, key findings are described.

The first cluster (n=13) could be referred to as the *unconventional*. Respondents in this cluster stand out as a group primarily because of their tendency to select the answer option, "other" in relation to more of the questions related to the infrastructure for addressing each perspective. This group additionally mentioned having in-house graphic design expertise as well as expertise that enables the design team to focus on learners and their needs. It seems plausible that these could have been particularly (unconventionally) diligent respondents, attempting to be as complete as possible on the survey.

The second cluster (n=677) might be referred to as the *typical*, for the simple reason that nearly 90% of all respondents fall into this category. This cluster is characterized by design team access to expertise (related to student needs, teacher concerns, relevant disciplines, pedagogical [content] knowledge, assessment and characterizing the curriculum. Additionally, these teams have access to inspiring examples, reference materials, and guidelines for how to shape their SBCD products. When it comes to competencies related to development, the design teams of these respondents believe that SBCD is their responsibility, hold the conviction that it is worthwhile, and have empathy for users of the products. In addition, they have resources to guide development work as well as leadership, culture, choice in and support for their initiatives. Finally, their design teams have expertise which is relevant to stimulating stakeholder engagement (by identifying and valuing them, communicating and collaborating with them, and demonstrating curricular leadership) as well as artefacts and structures to support communication as well as a culture of involving stakeholders.

Finally, just under 10% of the respondents fall into the third cluster (n=66), which could be referred to as the *developer*. Respondents in this cluster note that their school's SBCD team has expertise related to the school vision and profile, ready-made components of the new curriculum (e.g. existing tests, visualizations), and access to relevant expertise, services for materials production, and pressure or support from the school leadership. They report having expertise related to key development processes (analysis, design, construction, evaluation, implementation, monitoring, and project management), as well as resources to support these processes and access to external expertise. In addition, they mention the use of boundary objects and spreading vehicles (e.g. newsletters, websites, social media) as well as existing distribution channels for structuring stakeholder engagement.

There were 6 respondents that did not belong to any cluster. The full hierarchical overview of the analysis is illustrated in the dendrogram found in Appendix 5.5. Table 5.4 presents the clusters in light of specific survey items.

Further, cluster membership analysis was undertaken to ascertain if school leaders or IB-coordinators belonged more to one cluster or another. Minor differences were found, but none were statistically significant. Further details are available in Appendix 5.5

Table 5.4. Cluster overview

	The unconventional (n=13)	**The typical** (n=677)	**The developer** (n=66)
Substantive	Graphic design expertise Other product expertise Other artefacts for products Focus on learners Other policies, norms, culture or routines shaping products	Expertise related to: Student needs expertise Teachers' concerns Disciplines P(C)K Assessment Characterizing curriculum Inspiring examples Reference materials Guidelines Focus on teachers Clarity goals and vison	School's vision and profile Ready-made components Access to expertise Services for materials Leadership
Technical-professional	Other process expertise Other artefacts for processes Other Policies, norms, culture, routines shaping processes	Responsibility Worthwhile Empathy-users Resources for understanding development activities Leadership Culture Choice Support	Analysis Design Construction Evaluation Implementation Monitor implementation Project management Resources for carrying out development activities Access to external expertise

Socio-political	Other stakeholder engagement expertise Other artefacts for stakeholder engagement Other policies, norms culture, routines for shaping stakeholder involvement	Identifying and valuing stakeholders Communicating and collaborating Curricular leadership Communication Culture of involvement Structures for communication	Boundary objects Spreading vehicles Channels for distribution and spread

5.9 About the findings

The data from this phase of work provides a first impression of how school-based curriculum development is taking place at IB PYP schools. Namely, it provides a comparison between state-of the-art as described in literature and the state-of-practice as described by IB schools as well as an indication of how urgently (or not) schools perceive the need to work on this area. This information is valuable in its own right, and was used to target purposeful sampling of case study schools.

Further, a number of findings bear particular mention:

- About the respondents: 33% of IB-PYP schools are represented in this survey, which is surprisingly high. Two plausible explanations for this could be that IB-PYP schools are highly committed to participating in the IB community and/or the topic of SBCD is of keen interest to IB-PYP schools. It should be acknowledged that most schools are represented by a single respondent. While this is sufficient to begin to gain a general impression of IB-PYP school engagement with SBCD, broader representation would be required from each school in order to gain more accurate portrayal of SBCD in IB-PYP schools.
- Nature of SBCD projects: Both teachers and school leaders are proactively involved in SBCD processes, and external groups are typically not involved in any significant way. This suggests that the schools organize most of the work themselves. It raises the question of if and to what extent they feel that they have sufficient infrastructure to undertake this work, alongside the many other duties that they perform.
- Influences on SBCD processes and outcomes: The minority of schools experience strong steering from outside the school, in terms of both input (e.g. curricular goals) and output (e.g. monitoring achievement). This means that efforts to support SBCD in most IB-PYP schools may need to pay attention to increase curricular literacy to assist schools in acting on their curricular freedom. Further, respondents reported relatively high levels of bottom-up initiatives (a fact to be celebrated) and it seems worth asking if side-side interactions are desirable.
- Substantive perspective: Zero respondents indicated that "a clear focus on learners" in response to the question, "*What visible structures or invisible values clearly influenced the quality of the curricular products in this SBCD project?"* This could be explained by measurement error (e.g. if there had been a flaw in the Qualtrics form). If that is not the case, then it seems like a very interesting detail to inquire more about, given that this is known to be so important. Further, it could be questioned if school standing (state versus private) might be related to responses of artefacts that influence product quality.
- Technical professional perspective: 635 respondents (83%) indicated that SBCD is perceived to be the responsibility of those involved in the most recent SBCD project.

While this could point to some bias in the respondent sample (i.e. if the schools who do more of this work felt inclined to respond), it clearly shows that there is substantial ownership and commitment for SBCD among IB-PYP schools (especially principals, as they selected this significantly more often than IB-coordinators did). This seems like a strength to be celebrated and nourished. At the same time, further inquiry into how other perceive this dimension seems warranted.

- Socio-political perspective: School leaders and IB-coordinator responses differed significantly with regard to communicating and collaborating with relevant stakeholders (e.g. engaging them to participate and interact, discussing draft versions) as well as all three kinds of structures which influence SBCD stakeholder engagement (open culture, communication routines, channels for distribution and spread). It seems wise to explore if aligning perspectives should be a priority or if this is evidence of productive specialization (i.e. labor division based on role within the school).
- Support and ambitions: Nearly all respondents indicated that both they and their teams are somewhat or very satisfied with the SBCD practices at school and the support that they receive from the IB for this work. And yet, 87% requested information or workshops to learn about how to improve SBCD efforts. This suggests a strong learning culture and interest in continuous improvement. It also suggests that the urgency for investments in SBCD practices is not experienced as particularly high.
- The developers: The cluster analysis identified a small number of respondents (9%) with more technical professional expertise and access to external expertise than the other groups. This suggests that it might be possible to identify schools or individuals who could serve as champions, sources of inspiration, leaders, or collegial coaches to others in the IB-PYP network.

These observations will be revisited in light of the findings from the case studies and the second survey.

6. Inside the IB: Case Studies

As previously described, research question 2b was: *How are the literature-based recommendations for attending to the substantive, technical-professional and socio-political perspectives of curriculum development manifested in the work of IB schools and what elements of infrastructure do they have or lack?* To answer this question, a set of online case studies were conducted. Several steps were taken to identify suitable schools. Because the case studies required substantial time and effort from schools, voluntary participation and shared commitment was deemed essential. First, as described in section 5.7, all IB-PYP schools were asked to indicate their interest in learning about ways to further improve their SBCD efforts. Then, all responses were cross-referenced per school to identify schools from which both the school leaders and the IB-PYP coordinator had responded to the survey and also indicated interest in learning more. This resulted in a list of 20 schools. Second, information on the case study process was sent to both the school leaders and IB-coordinator from each of the 20 schools, with the invitation to participate. Six schools expressed interest, but one was not available during the timeframe of the case studies. The remaining 5 schools were included. Table 6.1 provides an overview of the school location, number of learners, and total number of staff involved in the case studies.

Table 6.1 Case study school overview

#	Location	# learners	# staff participating in case study
1	India	100	8
2	UAE	1633	5
3	UAE	1625	7
4	Belgium	120	7
5	Nigeria	300	5

For each case, data were collected via 2 online interviews, 3 online workshops, and document analysis. Each of these data collection methods was carefully structured to yield valued results for both the participants while also answering the research question. First, a 60-minute entry interview was conducted with the school leaders, IB-coordinator and a teacher to understand the nature of current or upcoming SBCD initiatives, as well as contextual factors that influence the SBCD process and outcomes. Then, a series of three 120-minute workshops was conducted. Each workshop focused on the school's capacity to engage in SBCD, each with a different theme. Workshop 1 centered on quality product(s) of SBCD, such as goals, learner activities, resources, etc. Workshop 2 focused on how the development process is shaped, including analyzing, designing, evaluating, and managing the overall trajectory. Workshop 3 devoted attention to communication with stakeholders who are not on the project team, such as parents or policy makers. Thereafter, a 60-minute exit interview was held with the school leaders, IB-coordinator and one teacher to discuss outcomes and consider next steps.

The online activities were held via Microsoft Teams, and interactive exercises (such as polls, quizzes, and ranking exercises) were conducted via Slido®. Data sources consisted of school documents, group discussion during the online activities, and the work products resulting from the workshop exercises. The activities were devised to align with the key insights distilled from the literature review (as summarized in Figure 4.2). Data were analyzed both deductively and inductively. Deductive coding was undertaken on (sub-aspects of) the substantive, technical-professional, and socio-political perspectives, as well as the infrastructure that influences the work (human, material, structural). Inductive coding was

then used to identify patterns within the existing categories. Table 6.2 provides an overview of the case study activities, the focus per session, the variables under investigation (same as those provided in Appendix 5.2) and the relevant data sources.

Table 6.2 Case study data collection overview

Activity	Focus	Variables	Data sources
***Intake interview**: Context*	Nature of the SBCD project	Central subject areas, products-in class, products-shape class, creators, roles, typical/rare	- In-1a: Task sheet (has more than we need at this stage and misses some of these variables – redesign to better fit our variables?) - In-1b: Discussion notes from task sheet
	Influences on the SBCD processes and outcomes	Input, output, change interactions	- In-2: Discussion notes from policy sheet (how to limit time on this?) - In-3: Notes from prompted discussion on change interactions
	Any	Any	- In-0: School documents (optional, primarily for background/context)
***Workshop 1**: Substantive*	Any	Any	- W1-0a: Spider web text entries - W1-0b: Spider web discussion notes
	Product expertise	Expertise types: student needs, teacher concerns, disciplinary, PCK, assessment, graphic design, school vision/profile, characterizing curriculum	- W1-1a: Expertise poll results - W1-1b: Expertise discussion notes
	Artefacts for products	Inspiring examples, ready-made components, reference materials, guidelines, other	- W1-2a: Work products - W1-2b: Discussion notes
	Structures shaping products	Focus on learners, focus on teachers, access to expertise, services for materials, clarify of goals/vision, leadership □ *HS, MS, SS*	- W1-3a: Work products - W1-3b: Discussion notes
***Workshop 2**: Technical professional*	Any	Any	- W2-0a: Designer preferences task results - W2-0b: Designer preferences discussion notes
	Process expertise	Attitudes (beliefs-responsibility; conviction-worthwhile; empathy-users), Knowledge/Skills (analysis, design, construction, evaluation, prep implementation, monitor implementation, project management)	- W2-1a: Work product - W2-1b: Discussion notes
	Artefacts for processes	Resources-understanding, resources-executing	- W2-2a: Work product - W2-2b: Discussion notes
	Structures shaping processes	Leadership, culture, choice, support, access to external expertise	- W2-3a: Work product - W2-3b: Discussion notes
***Workshop 3**: Socio-political*	Any	Any	- W3-0a: Stakeholder task results (revise to only external stakeholders) - W3-0b: Stakeholder task discussion notes
	Stakeholder engagement expertise	Identifying and valuing, communicating and collaborating, curricular leadership	- W3-1a: Work product - W3-1b: Discussion notes
	Artefacts for stakeholder engagement	Communication, boundary objects, spreading vehicles	- W3-2a: Work product - W3-2b: Discussion notes
	Structures shaping stakeholder involvement	Culture of involvement, structures for communication, channels for distribution and spread	- W3-3a: Work product - W3-3b: Discussion notes
***Exit interview**: Check & Next*	Member check	All	- Ex -1: Discussion notes from conversation about school portrait based on data from survey, entry interview and workshop data
	Needs/wishes	How can the IB help them? Other questions the IB might want answered?	- Ex-2a: Ranking of priorities for further action and support - Ex-2b: Notes from discussion of actions, support needs and other issues
	Any	Any	- Ex-0: Any additional documents the school cares to share (optional)

6.1 School 1

6.1.1 Current SBCD work

An essential issue that was raised by the team during the intake interview was that they currently have no curriculum to follow in language and math. This is of concern to them, because although they use the method of Singapore Math, and math and language skills are addressed through the units of inquiry, there is no real continuum or progression line. They are looking for a curriculum that fits the IB, while providing a continuum and consistency. Some of the staff has experience with the British curriculum, but they are not a British school. They feel this curriculum is too rigorous for their needs, and that it does not fit the inquiry-based IB programme. During the workshops, this team worked on developing criteria for a curriculum that they would like to implement. The focus is on the language curriculum, especially reading, because there are not many native speakers in their school and participants feel that students' lack of comprehensive reading skills impedes on the implementation of inquiry learning. Considering the curricular spider web, they had particular attention for the following:

- Focus on language acquisition and reading skills: prerequisite for inquiry-based learning
- Thinking about assessments when students arrive at school (different levels in each classroom)
- Wishes
    - More physical books in the classroom
    - Moderation of work, reflection
    - Monitoring students (language profile, assessment at the start)
    - Collaboration between teachers across grades
    - Structured reading schemes
    - Informal assessment at arrival for basic English skills, phonic screening, reading levels and comprehension
    - Teachers should collaborate and have reflective discussions (regarding assessments)
    - Establish age-related expectations and targets
    - Writing samples from students to pass on to next teacher
    - Time should be allocated to core skills
- Interconnectedness between reading and writing curriculum
- Differentiation; grouping per level
- Drama and theatre integrated into the lesson
- Scaffolding
- Goal: from game-based to exposing to content to skill-based (asking questions)
- Assessment
    - Assessment is seen as a process
    - Building own checklists and assessments
- Build on core skills

6.1.2 SBCD context

The curriculum policy for this school is highly decentralized. The school is not subject to any substantial input or output regulation from the government. There are no fixed attainment targets or school inspections. The staff expresses a need for more structure and guidance in this respect. Although autonomy and freedom are appreciated, they feel this level of

decentralization results in a lack of consistency from year to year. The school is currently growing in terms of students, which increases the need to develop a solid foundation for the curriculum. The school's infrastructure for SBCD is summarized in table 6.2.

Table 6.1 SBCD infrastructure at school 1

Focus		Key findings
Substantive	*Human*	• Focus: building students that are capable of working independently, be IB learners • Involvement of students • Attending to school's vision and profile, characterizing curriculum, addressing student needs defining missions and values in the school • Needed: assessment expertise, focus on life-long learners, assess integral skills • Do not necessarily enjoy assessment but believe it has a significant place: continuity across grade levels, identify gaps • Balance between summative and formative assessment, assessment of different types of skills • Main goal: identify and attend to student needs
	Material	• Experience with British curriculum, but too strict for their needs • Looking at Ontario curriculum • Examples: Ladybird system (4 levels for each class) – used as a reference, Oxford Reading Scheme • K-12 system for content-based resources to create units of inquiry • Underlying methodology of Cambridge System • YouTube videos, workshops, research papers • Elements of pre-made curricula (made by previous employees) • Focus on ready-made components and reference materials • A lot of good resources for i.e. sounds, rhythmic (dr. Seuss) • Children's voice, choice, knowledge, independence and responsibility define materials • Language skills should be addressed and developed through lenses of each subject
	Structural	• Meetings occur, but on ad-hoc basis • Every two weeks discussions concerning students take place, but not for curriculum • Restrictions and requirements are not set • Focusing on differentiation: everyone on the same page, right stuff is being done • Philosophy of the school is like being a family • Pressure/support is perceived from direct leaders but not from indirect leaders (i.e. owner and executive manager) • Clear focus on learner and teacher needs
Technical professional	*Human*	• Deliberative and prototyping approach • Some teachers share a designer profile • Nature of design task: to select and adapt existing materials + limited design of supplementary materials • Analysis: limited number of people • Cyclical design process, extensive and iterative evaluation
	Material	• Learner progression examples sent in chat • Colleagues' experiences with international-mindedness
	Structural	• Transition from PYP-5 to MYP should be the same as for MYP to DP • Base decisions on evidence and data, holistic perspective
Socio-political	*Human*	• Taking realities of homes, family background and support into account (differentiation); communities & backgrounds are diverse • Students require a toolkit on how to use basic skills • External advice is needed, get in touch with other schools, use IB network to get in touch with other teachers in similar roles • Focus on involvement on the team itself in the first stages, others will be involved later on; first a draft is needed
	Material	• Working with examples and moderation, help connecting teaching, learning and assessment practice • Boundary objects: concrete ideas are needed that guide them, need a blueprint and to have more informative discussions
	Structural	• More fine-grained specifics needed when making progressions • Focus on open culture • Existing structures: IB network and network of coordinators • New campus existing structures need to be thought out to allow them to be used immediately

6.1.3 Moving forward

This school values a bottom-up methodology including backward planning. They appreciate working together and seek moderation and decision-making from leadership. They celebrate milestones and value collaboration. The SBCD needs and wishes of this school can be summarized as follows:

- Child development research
- Data from schools around the world
- New scope and sequences
- Structure / guidance

6.2 School 2

6.2.1 Current SBCD work

The school is up for IB review next year and wants to take this project as an opportunity to address feedback from the previous review. The staff wants to develop professional development workshops for teachers, of which the main goal is to educate teachers about transdisciplinary working and inquiry learning, while accomplishing a mindset shift within the community towards seamless transdisciplinary work and interconnectedness. Units of inquiry are the starting point for this project.

Other important aspects are flexibility and adaptiveness of the curriculum in terms of subjects and assessment. Within this school, assessment is not focused on deadlines, but flexible and personalized. In the workshops, teachers would also like to learn how to balance national targets and an international focus, and how to use pedagogical approaches that result in true IB learners. Considering the curricular spider web, they had particular attention for the following:

- Assessment is teacher-centered and book-centered currently
- Pedagogical limitations
- Lack of reflections
- No stand-alone subjects, everything is interwoven
- Mentor: i.e. 3-day workshop, 2 weeks of practice, then revision/review/discuss continuous assessment (as opposed to summative)
- Reflection is key (i.e. learners ask 3 questions and mention 3 things they have learned after each session, for reflection purposes)
- Focus on rich learning experience and life-long learning
- Horizontal and vertical alignment
- Topics of the IB
- Integrated learning / smooth subject integration
- Only English is supported by IB, but need support for other two main languages as well

6.2.2 SBCD context

According to the participants of the intake interview, the role of teachers in India is highly regarded. Parents within the IB are educated, well-traveled and understand the importance of internationalism. They have great aspirations and know the value of future-oriented education. Therefore, participants feel like the parents are generally welcoming and trusting of teachers.

In terms of the curriculum policy regulation, input regulation is minimal. The role of the government is in school regulation and recognition. The government only interferes when it comes to safety of teachers and students, and fair compensation for teachers. Currently, four subjects are mandatory, while the main curriculum is adaptive. The new curriculum is more learner-centered, as opposed to textbook-centered. There are three types of curriculum: the

CBES (primary), ICSE (secondary), and the CIE, IB and Canadian curriculum (tertiary). Beyond that, there are no interferences and staff abides by the school board. Output regulation consists mostly of exams, school inspections and assessment. There is no other body regulating output, and a lot of space is given for 360 degrees assessment. Anything that is learner-centered is appreciated and wanted. This school also serves as an example for other schools in the region. Competencies and KTAs are important aspects to keep in mind. In terms of organizational change, the shift from teacher/textbook-centered to learner-centered pedagogy is an essential part of the context for this project. The school's infrastructure for SBCD is summarized in table 6.2.

Table 6.2 SBCD infrastructure at school 2

Focus		**Key findings**
Substantive	*Human*	• Teach the teacher-style mentorship structure • See the right teaching strategies that are catered to learner needs • Work collaboratively, guided by a mentor • Monitored and guided format • Focus on learners, teachers and content
	Material	• Pilot project from Canadian government as inspiration • Focus on PD and coming up with a plan + finding external expertise to support this process • Introduction of new teachers: flow of tasks would be of help • Materials are available: ATT, micro-lectures, PYP blog • Looking for a document to address the whole of the project ○ Literature, frameworks and guidance related to this specific project • Subject-specific planners
	Structural	• Collaborative community, not just internal but also external • School sometimes feels isolated
Technical professional	*Human*	• Workshop leader: expert in IB + implementation • Design process should involve end users • Bringing learning into real-life connection for conceptual understanding • Students feel proud when they and their work are recognized • Cyclical approach • Project management is important (done by leadership team)
	Material	• Evaluation: refer to PYP elements (handbooks, discussing with colleagues); cross-checking with curriculum in school • Existing frameworks are being used
	Structural	• A lot of planning needed in PYP • Leadership, choice and support most important
Socio-political	*Human*	• Parent participation • School board is main source of decision making • Expertise: student needs are top priority • Subject expertise more important for later years • Keeping in mind the visions and standards of the IB
	Material	• Spreading vehicles more important than worksheets • Boundary objects are most important • Drafts require breaking up and only giving relevant aspects to relevant stakeholders through different channel
	Structural	• Collaboration with other schools is difficult, no IB schools in the region (hard to connect) • Open-mindedness to suggestions and inspiration • Many stakeholders could be involved • A lot happens in meetings (some of which are already planned)

6.2.3 Moving forward

At this school, a transdisciplinary viewpoint is preferred. Also, they prefer to focus on local, regional and global perspectives. The SBCD needs and wishes of this school can be summarized as follows:

- Category 1 workshops provided by the IB through trainings
- Practices and specifics like collaborative planning, program of inquiry and pedagogical approaches adapted to the local context / needs.
- Collaboration with other IB schools (attending conferences, visiting program, events, short PDs).
- Sharing of best practices.
- Develop globalization and international mindedness.
- Parents should be informed about and should understand the assessments.
- External expert that provides feedback and suggestions based on the IB framework, which provides standards and criteria. Provide reassurance. And helps in the cyclical approach of SBCD.
- Identification of gaps (through assessment)

6.3 School 3

6.3.1 Current SBCD work

The project that is to be developed during these workshops is a project that would cater towards strategies and resources for improving learner agency. Currently, the cycle of inquiry in the classroom is decided by the teachers using a structural guidance approach. Although agency is initiated by students, the process is mostly led by teachers. A challenge that teachers are facing is to discover how much choice the children should be given, where the initiation lies and how they can empower them to take the lead in their learning process. The focus is on teaching kindergarten learners up to grade 5. The intended scope of the project is to create a holistic pedagogical approach to be used by the entire school, although the specifics of this approach might be different for various age groups. A design task like this is typical for this school, since teachers and leaders are highly involved. They are guided by inquiry and action research. Considering the curricular spider web, they had particular attention for the following:

6.3.2 SBCD context

This school's PYP programme has been newly accredited by the IB and has received three recommendations in the accreditation process, of which focusing on learner agency was one. Input and output regulation differs per subject type (see Figure 6.3.1.1): there are four mandatory subjects (Arabic, UAE social studies, moral education and Islamic studies), for which there is a relatively strong input and output regulation. However, the school has more autonomy in determining goals and content for the remaining subjects. The school is subjected to national agenda parameters and checks by the UAE, as well as regular inspections by the Dubai School Inspection Bureau. They have received an 'outstanding' assessment for 11 years. The school is largely Indian and prepares children for two separate curriculum trajectories: the IB diploma programme or the CICSE (Indian Certificate of Secondary Education) programme. The base curriculum has been aligned to the international assessment framework TIMSS, and the PYP has been aligned to the IB's scope and sequences documents and transdisciplinary teams. Evidently, this school has many policies that need to be kept in mind and integrated while designing their curriculum, which is challenging in terms of time management. Some fluidity and autonomy in the school comes from the fact that assessment is based on effectiveness, which means that anything that

improves effectiveness is worth exploring. However, the amount of frameworks that they have make it challenging for teachers to decide where the learners can have agency.

6.3.3 Moving forward

This school views the new programs and standards of IB is a great approach, from compliance to development. For example, they mentioned these as great statements from the IB "Shared guardian of the planet" and, "Make children life-long learners." The SBCD needs and wishes of this school can be summarized as follows:

- Vertical student progression from KG to Grade 5
- define the continuum and using that to identify gaps and see connections
- Looking for more opportunities in the team meetings across the grades
- create resources to inform parents
- like to know what agency would look like in each grade (Common understanding among the teachers about learner agency)
- build expertise from teachers and to be able to evaluate the elements of SBCD
- Have an evaluation framework (Assessments and Checklists)
- Pedagogical expertise Professional Development for mainly pedagogy (How teachers can assess and how teachers can help students assess themselves.)
- engage with stakeholders (collaboration and cooperation)
- Have champions teachers and peer-mentoring / reflection
- Training program (in a scientific approach) for a small group of teachers (10 people) for in-house PD.
- Access to the activities.

Table 6.3 SBCD infrastructure at school 3

Focus		**Key findings**
Substantive	*Human*	• Expertise for addressing student needs in the product • Pedagogical (content) expertise related to the SBCD challenge • Assessment expertise • Expertise for attending to school's vision and profile: more of a result than a prerequisite, because student agency leads to action ('every child is a change maker')
	Material	• Inspiring examples (100%) • Ready-made components + reference materials (86%) • Guidelines (71%) • Would like to have examples for learner agency • Amount of information online is overwhelming, need more structure to filter information that is relevant and authentic to the context
	Structural	• Mainly school's clear focus on learners and their needs • Also important: access to (external) expertise and clarity of SBCD goals and vision • Moderately important: pressure or support from the school leadership depends on if pressure is viewed as positive or negative, especially support is important • Less important: clear focus on teachers and their needs, services for material production
Technical professional	*Human*	• Most important: evaluation expertise any change has to be evaluated, check if on the right track • Cycle of self-reflection (analysis, evaluation, feedback) • Regular meetings to collaborate and discuss, share best practices, peer evaluation • Implementation expertise, analysis expertise, expertise to monitor implementation, design expertise (73-62%) • Construction expertise (note: important to keep all grades in mind), the belief that SBCD is our responsibility, the conviction that SBCD is worthwhile, empathy for the learners, project management expertise, other (59-0%)
	Material	• Resources for (conceptual) understanding development activities are most important • School has access to well-equipped bank of resources + library

		• Need to streamline the use of resources • Guiding document: assessment policy document • Need more insight into agency of the learner regarding assessment (formal/informal) • Need to have a progression/continuum through the grades • Many different standards to maintain: i.e. benchmark assessment, IB-PYP scope and sequences regular evaluation/review • Enhanced PYP guide, IB-PYP report after authorization • Many physical resources: outdoor area, sensorial garden and mud pit, Discovery Centre, hands-on activities, books, other learning resources
	Structural	• Most important: culture; then leadership, choice and external expertise • Support: not as important, because the team feels they already have access to most things they require • Need for coherence and alignment across grades and teachers
Socio-political	*Human*	• Expertise for addressing student needs, disciplinary/subject matter expertise, pedagogical content expertise, assessment expertise, expertise for characterizing the curriculum (80%) • Expertise for attending to teachers' concerns and constraints, expertise for attending to school's vision and profile (60%) • Graphic design expertise (20%)
	Material	• Communication tips and guidelines + spreading vehicles are most important (100%); boundary objects are less important (50%)
	Structural	• School's open culture and existing structures are most important (100%), channels for distribution and spread also important (75%)

6.4 School 4

6.4.1 Current SBCD work

During the workshop, the participants of this school focus on a review of the program of inquiry and its interdisciplinary subject integration. The program of inquiry is reviewed on an annual basis, and although it already meets all of the IB's requirements, they want to think about how to improve it beyond meeting the minimum requirements. Their goals are centered around development, progression and improvement. For example, they want to be able to show progression of content over time through units of inquiry. Other factors that they want to incorporate are the ATL (approaches to learning) skills, as well as the sustainable development goals. Each unit of inquiry is connected to one or more sustainable development goals. Lastly, when the IB's renewed scope and sequences document arrives in 2022, they would like to evaluate if the curriculum that has been developed around wellbeing is well-captured inside the program of inquiry, or that it should be more integrated. Considering the curricular spider web, they had particular attention for the following:

- Student agency and differentiation over the learning process
    - Materials to inspire students and that they can choose from
    - Use different thinking routines to engage students and deepen their level of understanding
    - Respect student interests
- Reduce redundant work for teachers
- To be used generally, not for one subject
- Assessment tools that are most approachable for students and provide proper feedback and differentiation
- Teacher's role: have knowledge to be able to students with different tools and applications so that they have options to choose from + multiple approaches for planning and teaching
- Learning activities and content tailored to interest so that students can claim ownership; assessment to find out interests (free inquiry day)
- Design classroom spaces to support learning objectives

- Evidence of student agency in planner
- Inquiry process should be in all subject areas and units of inquiry
- Incorporate numeracy and literacy
- Only Zoom sessions have interaction

6.4.2 SBCD context

This school is not subject to very strict regulations by the government in terms of curriculum development, and has a lot of autonomy (see Figure 6.4.1.1). IB schools in Nigeria have some exemptions from national requirements, as long as they are delivering at the same level or superior to the national curriculum. On a policy level, education is governed by the state, not by the federation. At state level, they do not have much input or output regulation compared to other states in Nigeria. However, the school does sometimes choose to incorporate contents from the national curriculum. Aside from the Nigerian documents and the scope and sequences document, they also compare their curriculum to American or British curriculum documents. These documents serve as sources of inspiration, as well as to ensure that all important topics are covered.

This PYP school was established in 2003, and authorized to run the PYP program in 2008. Most regulation comes from the school itself and the IB. The school will be up for a preliminary review next September. Currently, the IB is moving towards a new evaluation approach. Evaluation is focused on the schools looking inward in terms of program fidelity: how are the schools implementing the PYP according to standards and practices?

6.4.3 Moving forward

In terms of curricular leadership expertise, the PYP Coordinator at this school is more of a pedagogical leader. The deputy head sets direction of school, and notes that leadership is very complex in schools. The school is waiting for more direction and leadership from the IB (including waiting for the new IB curriculum document to be released before making changes). The school is really empowering and a validation for teachers, that they have the power to create the curriculum. There is also a lot of micro-politics of teaching, which impacts on leading the process independently. The SBCD needs and wishes of this school can be summarized as follows:

- Due to the pandemic access to more professional development from the IB itself was limited especially in house or regional workshops. Not as accessible as it has been before.
- Need of someone who can lead through the process, in need of a strong facilitator
- Leadership from the IB should be linked to PD from the IB.
- Expect the IB to provide a framework, to feed the best practices and for latest developments in the field (cutting edge education). Looking for the feed-forwarding process, letting us know! To make it more explicit of what needs to be done. Waiting for guidelines, the focus of specific aspects.
- Resources, newsletters, blog posts, mails (Not enough from the perspective of PYP)
- Get inspiration from IB during global conferences etc.
- Bring new ideas to the table
- Post-Covid extra support is what we are looking for, about all the disruption, something reassuring

Table 6.4 SBCD infrastructure at school 4

Focus		Key findings
Substantive	*Human*	• Focus on student needs in the product • Teachers concerns in mind (reducing workload etc.) • Pedagogical (content) expertise to facilitate learner agency and differentiation • Assessment expertise to track effectiveness and learner progress • Disciplinary/subject expertise: teachers have a lot of expertise already, should not be the focus of this project

	Material	• Inspiring examples
		  ○ Curriculum documents
		  ○ Should be effective, relevant and purposeful
		• Guidelines for interpretation of relevant policies
		• Ready-made components not considered important

	Structural	• Focus on student and teacher needs • Clarity of goals and vision
Technical professional	*Human*	• Most participants show a combination of deliberative and prototyping • Patterns are often more similar when teachers are teaching the same grade level • Knowledge and construction is important (layout needs to be right) • Needs analysis is important: ongoing process, education is always changing; reflect and adjust • Need of feedback from end user to improve
	Material	• Team conducts a lot of research (online, examples, reviewing others' results) • Tools and instruments helpful for making decisions • Templates as inspiration; fine-tune according to needs and aims
	Structural	• Leadership and support: harmonize the goals of the school and the curriculum with student needs • Provide freedom to design team • Leadership and support is in place and appreciated • Feedback should be facilitated, culture of creativity, inquiry and feedback
Socio-political	*Human*	• Buddy system and interaction with other schools was interrupted due to COVID-19 regulations ('survival mode') • Communication with parents is essential; required for creating similar experiences (remote vs. face-to-face) • Real-time communication easier for upper grades • Start with limited amount of teachers, larger design group later to fine-tune and identify glitches • Only internal • Learners are not co-creators, but are necessary for fine-tuning • Changes in the planner are done due to student needs, agency and differentiation • Checking if they are on the right track; use student planner as feedback opportunity + for student voice ○ Students can fill in their views and reflections in the planner
	Material	• Artefacts for getting on the same page (spider's web, workshop) • Use IB unit planner and prototype to create current planner • Would be helpful to have examples

	Structural	• Existing structures
		  ○ Student council
		  ○ Parent-teacher group (not active since COVID-19)
		  ○ Parent webinars
		  ○ Reflection on whole year
		  ○ Newsletters, social media, text message, email
		  ○ School app where parents can log in
		• Communicative atmosphere

6.5 School 5

6.5.1 Current SBCD work

This team of participants is interested in further developing their literacy program. Over the last two to three years, the school has been working on aligning their science program to the national curriculum, as well as the team's standards and assessments. Now, participants have perceived a need to focus on the literacy program, because students are having difficulties with the language within their improved science program. The team believes that improving students' language skills and literacy skills across the whole curriculum will be beneficial in seeing the full benefit of the enhancements of the science program. This change should take place across all grades and units of inquiry. During the workshops on school-based curriculum development, the team would like to focus on written language, starting with writing about learners' own personal experience. Considering the curricular spider web, they had particular attention for the following:

- SMART outcomes for students
- Focus on conversations
- Involvement of all stakeholders
- Content: focus on oral ability and written language gap + handwriting skills
- Differentiation
- Issues around hybrid learning (location)
- Wish: celebration of successes
- Voice, choice, flexible learning spaces
- □ Ability of students to express themselves
- Next steps: connect wish list to Wonders + scopes & sequences
- Focus on learning trajectory, conduct assessment and track data through grade level testing etc. establishing a learning trajectory for each student

6.5.2 SBCD context

The school's curriculum is endorsed by the Ministry of Education in the United Arab Emirates. Furthermore, the school works closely with ADEK (Abu Dhabi's Department of Education and Knowledge). A curriculum cannot be implemented unless it is approved by ADEK. Since the school has chosen to work with the American Common Core Curriculum, they have to make sure standards and learning outcomes are achieved based on this content. Once the curriculum has been approved, little to no problems arise concerning implementation. Private schools like theirs generally have more freedom to adapt the curriculum to the students' needs. The IB program is also an approved and commonly used curriculum in the UAE. Generally speaking, the participants perceive a moderately strong input and output regulation for the mandatory subjects, but a weaker input regulation for their units of inquiry (see Figure 6.5.1.1). For these subjects, the school has been able to select certain sets of standards, like the UAE Social Study standards, that they are then expected to follow – even though these are not mandated. There is a stronger output regulation, since ADEK does conduct inspections with regards to curriculum implementation. There are also rules and guidelines written by the Ministry of Education about cultural sensitivities that the school has to comply with.

The school follows the American Common Core Curriculum and has been working on improving vertical and horizontal articulation of this curriculum. In order to achieve this goal, the school uses the American-based program Wonders by McGraw Hill, which includes all the Common Core standards. The six units in the Wonders curriculum are then aligned with

and integrated into the IB-PYP units of inquiry. However, they have perceived a few gaps that they are now working on improving, of which written language is one. Most of their students are nationals and second language learners, using mostly Arabic as their language of communication at home, while the school is bilingual. Arabic is used for the national curriculum, while English is used as a language of instruction for subjects like science, mathematics and modern education. In terms of roles, the students have separate teachers for Arabic, Islamic studies, UAE social studies, drama and music, and PE. All other units of inquiry are taught by the same teacher. On average, there will be around five teachers working with the program for each class.

6.4.3 Moving forward

At this school, there seemed to be somewhat blurred vision due to problems of communication between overarching campuses. The SBCD needs and wishes of this school can be summarized as follows:

- Every development should start at the school level
- addressing the problems of the local context
- involving parents and students about curriculum, content
- Teachers are the executioners, so they need a voice
- Clear Designation of rules and jobs, to come up with a clear plan and timeframe
- find other materials to supplement existing ones

Table 6.5 SBCD infrastructure at school 5

Focus		**Key findings**
Substantive	*Human*	• Student needs at the center • Need a curriculum that suits the context and caters for students • Pedagogical content expertise to select content that is age-appropriate and suits the level of students • Constructivist approach for learning and teaching (Piaget etc.) • Curriculum as a spiral • Attending to school's profile
	Material	• Online tools: Raz Kids, IXL (in conjunction with Wonders) • Helpful, but these tools don't support the physical act of writing • Wonders is used as a resource, but materials mostly teacher-created • Used as a support to work collaboratively and create resources • Once a week: access to iPads
	Structural	• Clear focus on learner • Focus on teachers to bring the best out of students • Teachers should be observed to see their needs, strengths and weaknesses implement relevant PD accordingly • Clarity of goals is necessary to have a common and shared vision of end outcomes starting point for regular PD sessions in school

Technical professional	*Human*	• Belief that it is worthwhile to get everybody on board (shared vision)
		  ○ Alignment between designers' visions and school's vision
		• Evaluation expertise: feedback is the only way to get the best out of the design and is necessary for implementation (and vice versa)
		• Implementation expertise
		  ○ To see what works
		  ○ To communicate challenges
		  ○ Use feedback to evaluate iteratively
		• Product as a living, working document

	Material	• Wonders as main resource • Aligned to IB documentation • Wonders + IB writing guidelines develop conceptual frameworks for writing • Practical resources for classroom use + IT resources

		○ Websites, Raz Kids, IXL for grammar and sentence structure ● Teacher-created grammar continuum can be used as an example for written language continuum
	Structural	● Large and diverse staff of around 80 teachers from different countries ethos of shared responsibility ● A lot of time is spent planning ● Leaders are needed to guide people (leadership roles) ● Providing teachers with choice and voice motivates them ● Time for implementation + PD is needed (but needs to be allocated) ● Working smarter, not harder ● Using expertise that is already present
Socio-political	*Human*	● Other teachers, parents, curriculum developers, head of school, learning support coordinators, grade coordinators, other schools ● Too many people in the design team makes it big and cluttered; limited number to draft and prototype, then discuss it / exchange ideas, touch base with each other after a year ● Collaborate with all other Emirates National Schools ● Learners as a source of feedback ● Expertise for involvement: important to value existing structures and expertise ● Identify where skills are in order to develop curriculum ● Continued collaboration: group meetings, board meetings, school overarching meetings ● Curricular leadership could develop along the way, less important at start ● Come to consensus about what suits everyone
	Material	● Documents to follow to know what needs to be done ● Having a draft version to start; some concrete examples to give feedback on and to discuss ● Doing a PD out of these outcomes ● Manage expectations ● Teachers participation makes it easier to implement, increases motivation ● Usual spreading vehicles (already in place; meetings, e-mails, face-to-face) ● Work on sense of urgency
	Structural	● School culture ○ Involve everyone in design process ○ Have an open culture of communication ○ Provide opportunities to involve teachers ○ Use staff's different backgrounds ○ Comments are valued ○ Mentor teachers ● Invisible values ○ Opinions are valued ○ Constant reflection on practices ○ Giving feedback ○ Smaller meetings ○ Time allocation for curriculum development needs to be prioritized ● Use existing structures

6.6 Cross-case analysis

6.6.1 Influences on SBCD

Similarities and differences were observed with regard to the nature of the SBCD projects in the cases examined. Learner agency and differentiation appeared as overarching themes that multiple schools were focusing on. The importance of these topics is related to the IB vision and mission, which places importance on student voice and interests to guide the inquiry learning process. The emphasis schools place on students' needs and voice is reflected throughout all perspectives and elements. Furthermore, the schools expressed a need for learner progressions or continua tailored towards the local curriculum with regards to specific topics like learner agency. These learning progressions would help schools to identify student needs, gaps in the curriculum and differentiate between students.

Variation was found in terms of contextual factors which influence the SBCD processes in their outcomes. Input and output regulation differed per school and nationality, which can influence or constrain the autonomy of schools in terms of curriculum development. Most schools have multiple frameworks to adhere to, which, alongside the IB framework, may include their national curriculum, specific curricular products that have been adapted by the school, and other benchmarks or standards. However, within those frameworks, there was often room for autonomous curriculum development and the creation of their own curricular products. From the case studies it became apparent that there is a need for some structure and guidance in terms of the curriculum, either from the IB, the local government or the school itself. In cases where this structure and guidance was lacking, schools felt that achieving a sense of continuity and progress was challenging. Some schools even used or adapted curricula and materials from other countries.

6.6.2 Substantive infrastructure

The types of expertise that influence the product quality in school-based curriculum development differed across cases. However, some notable themes have emerged. For example, all schools had a strong focus on expertise for attending to students and their needs. They utilized a learner-centered approach. Teachers were viewed as the most essential asset in attending to these needs. Therefore, the teachers' concerns and constraints should also be taken into account. In order for the teachers to attend to student needs, they need other types of expertise, like pedagogical content expertise, to identify students' strengths and weaknesses and know how to address them.

All schools have access to an abundant amount of artefacts (materials and resources) which influenced the product quality in their school-based curriculum development. A diverse number of inspiring examples have been discussed. Materials and resources were often based on existing artefacts, but are adapted by teachers to fit their local context. There appears to be a need for more context-specific examples, as well as structure and guidance to streamline the overwhelming amount of resources.

Different structures which influence products for school-based curriculum development were identified. The most important aspect was the necessity for all stakeholders to achieve a shared vision. The goals and rationale of the curriculum development process should be aligned with the IB values, as well as attend to student and teacher needs. These aspects should therefore be clear to all participating parties. According to these schools, getting all stakeholders on board and motivated to work on the product is a key aspect of successful curriculum development. Pressure or support from school leaders, as well as help from

internal and external experts can be helpful to achieve a shared vision and accomplish project goals.

6.6.3 Technical professional infrastructure

Various types of expertise influence the SBCD processes within the schools. For example, project management, design, construction and analysis expertise were important to the teams. However, all schools value evaluation expertise the most. The importance of this type of expertise seems to be intertwined with the cyclical design process that was used across schools. In order to make a design process cyclical, evaluation expertise is required. The staff tend to use mostly deliberative and prototyping design approaches, meaning that they involve end users in the design process and create multiple drafts, which are then tested and evaluated. The end product was seen as a living document that is iteratively improved upon and adapted to changes in the local context.

In order to guide the school-based curriculum development process, different artefacts and materials are used. These resources can be used to inspire new materials or adaptations, as well as to serve as examples for communication with various stakeholders. Resources for the conceptual understanding of development activities were most valued, as opposed to resources for carrying out the development activities. Next to the existing materials, the internal expertise of teachers is key in developing proficient resources. The schools viewed the expertise that is already present within their school as an essential resource itself. However, there is a need for this internal expertise to be identified and coordinated.

In terms of structures which influence school-based curriculum development processes, leadership seems to be the most important. The schools expressed that they need a leader that cares about the project, checks in with the team and reassures them when the design process is going in the right direction. Although teams are often confident and able in their work, they value different perspectives and affirmation. This type of support should come mostly from the leadership team, but can also be provided by external expertise. The leadership team is usually also responsible for the culture within the school and providing teachers with choice. For example, the time and budget to engage in these activities are provided by the school leadership.

6.6.3 Socio-political infrastructure

There are various types of expertise that influence the stakeholder engagement in school-based curriculum development. Expertise for communication and collaborating with stakeholders is an important factor on all levels: from the team level to the school, regional and national level, and in the IB's case, also on the international level. Most teams prefer to start the design process with a smaller team, and involve various stakeholders later on in the process. Students, parents and teachers are seen as core actors during the entire development process, whereas the perceived relevance of other stakeholders is mostly linked to specific parts of the process. Once involvement of other stakeholders outside of the core group is considered, schools have the expertise to identify many different stakeholders that could be involved, varying from external experts on specific topics to institutions such as museums and libraries.

Different artefacts that influence stakeholder engagement in the school-based curriculum development process are already in place in most schools. Schools have access to many different spreading vehicles, such as school reports, online channels (i.e. email, apps, and sharing platforms), and face-to-face meetings (i.e. parent-teacher meetings and conferences).

However, some of these channels were interrupted due to consequences of COVID-19. Boundary objects, like prototypes and drafts, are also seen as important to the communication process. They can be used to clearly communicate the project to stakeholders and provide them with examples.

Various structures or invisible values influence stakeholder engagement in the school-based curriculum development process. Most schools celebrate stakeholder involvement and have a desire to connect to other IB schools. They emphasise including different perspectives in their design teams, including school leaders, coordinators and teachers. In order to facilitate this process, communication and spreading vehicles are key. All schools pride themselves on having an open culture, a communicative atmosphere, and an international mindset.

6.6.4 Perceived needs

Several school needs and wishes for improving their work on school-based curriculum development have been identified. For example, most schools expressed a need for leadership and guidance through general IB workshops, formalised programs and professional development. They conveyed a strong preference for face-to-face workshops and conferences, which has not been possible due to the COVID-19 situation. Networking and meeting with IB experts, teachers, schools and other stakeholders facilitates the sharing of best practises and experiences. Ultimately, schools want to be able to turn to the IB for facilitation, support and guidance when required.

7. Synthesis: Second survey results

Based on the results of the literature review, survey, and especially the cross-case analysis, a final survey was developed to inventory school perceptions of their own support needs related to SBCD, answering question 3a: *How do IB-PYP schools perceive their own needs and wishes for support related to school-based curriculum development?* Appendix 7.1 contains the survey instrument. In addition to describing their SBCD needs and wishes, schools were asked to indicate if they need specific support from the IB. They were also asked to indicate any potential interest to collaborate with other schools. This information is useful for the IB-PYP in general, and especially for shaping recommendations about how to support schools. A Qualtrics online survey was sent to the school leaders and IB coordinators of all 2058 IB-PYP schools worldwide. The survey was open for two weeks and a reminder was sent after one week. Subsequently, 47 principals, 361 IB coordinators, 489 teachers and 69 other personnel responded. In total, 892 individuals and 395 IB-PYP schools were represented, yielding a response rate of 19,2% of schools, which is considered quite high for voluntary surveys. The remainder of this chapter presents the results.

7.1 Findings on the schools and respondents

The first set of questions posed concerned some general information about the number and age of learners in PYP and the respondents (years of in PYP, gender, role and participation in SBCD projects). The number of PYP learners enrolled in the school varied from less than 250 (32%), 250-500 (44%) to over 500 learners (24%). Most (51%) of the respondents were teachers, followed by IB PYP coordinators (37%) and principals (5%). 7% of the respondents described their role as ‘other’. The vast majority of respondents (87%) were female, as opposed to male (13%). Three respondents identified as ‘other’. The age of learners the respondents teach varied from age 3 to 12, with 169 teachers (21%) teaching the age group of 3-5, 131 (16%) teaching the age group 5-7, 223 (27%) teaching the age group 7-9 and 288 (36%) teaching the age group 9-12. In terms of experience, a differentiation was made between experience in PYP and years of experience in primary schools in general (this school as well as other schools). Most respondents (42%) have worked in PYP for 4-10 years, followed by respondents that have worked in PYP for 1-3 years (23%) and 11-20 years (22%). Lastly, 4% of the respondents have worked in PYP for over 20 years. For working in primary schools in general, most respondents had over 15 years of experience (37%), followed by respondents that had 4-10 years of experience (30%). 18% of respondents had 11-15 years of experience, 11% had 1-3 years of experience and 4% had less than 1 year of experience working in primary schools. The general sense is that those who responded to the second survey are mostly experienced teachers, with relevant experience both in teaching PYP and primary years in general.

Table 7.1: Region, gender and years of experience divided by role

	Number	Region			Gender			Years of experience in PYP				
Role		IBA	IBAEM	IBAP	Male	Female	Other	Less than 1	1-3	4-10	11-20	20+
school leader	47	14	15	18	12	35	0	1	6	19	17	4
IB-coordinator	361	127	112	122	54	306	1	5	39	157	135	25
Teacher	489	189	123	176	54	432	2	76	143	201	59	9
Other	69	38	14	17	9	59	0	0	21	29	14	5
Total	966	338	246	306	117	770	3	82	199	373	198	38

As shown in figure 7.1, the survey represents responses from around the world, with most responses coming from Mexico (93), China (89), the United States (81), India (71) and Ecuador (66).

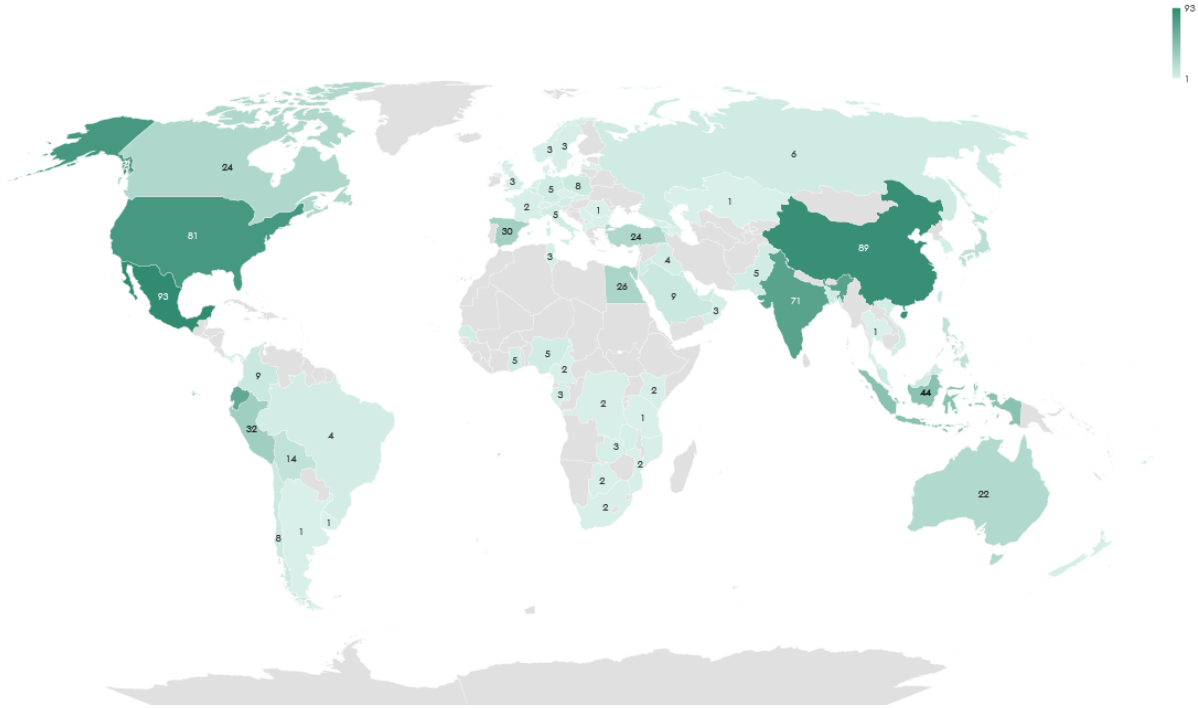

Figure 7.1. Overview of respondent frequency by country.

7.2 Nature of SBCD projects

The next set of questions considered the nature of SBCD projects that the respondents have been involved in. Most teachers have been involved in one or more types of design, including designing programmes of inquiry (25%), designing units of inquiry (33%), designing scope and sequences (25%) and other types of school-based curriculum design (17%). Respondents were also asked to estimate how many hours they have available, followed by how many hours they actually need both for individual work and collective work on school-based curriculum design. Results in Figure 7.2 show that for both individual and collective work, more hours are needed than respondents have available to work on school-based curriculum design.

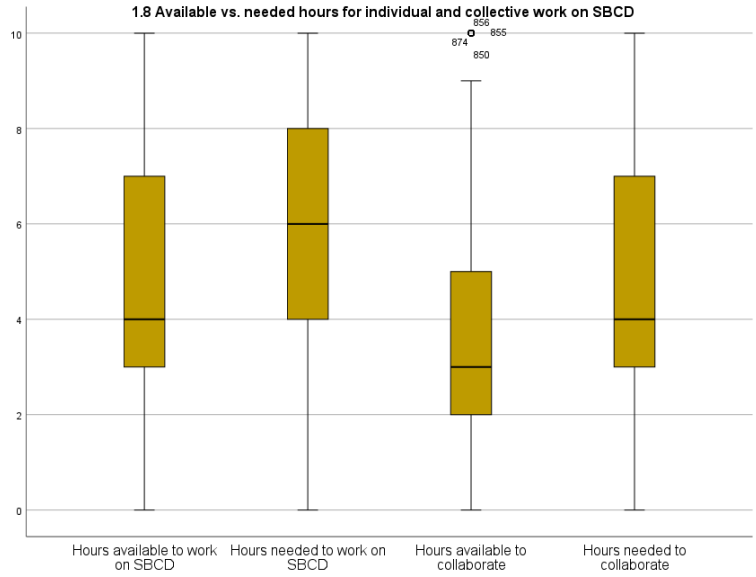

Figure 7.2. Hours available and needed for SBCD work.

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Hours available to work on SBCD	872	10	0	10	4,78	2,724	7,420
Hours needed to work on SBCD	868	10	0	10	6,10	2,670	7,131
Hours available to collaborate	866	10	0	10	3,78	2,582	6,667
Hours needed to collaborate	860	10	0	10	4,93	2,727	7,435
Valid N (listwise)	844						

Figure 7.3. Descriptive Statistics

7.3 Context of the SBCD processes and outcomes

The results for the context of the SBCD processes and outcomes are presented in Figures 7.4 and 7.5. Respondents found learner agency, differentiation, progression/continuum and assessment to be very important in their work. Figure 7.4 shows that most respondents either agree or strongly agree with the statement. Further, respondents mostly agree or strongly agree that attention to the vision of the IB and professional development for teachers are focal points in their work. Nevertheless, respondents agree less that onboarding and professional development for parents is something that they focus on.

Respondents express a commitment to the PYP framework in combination with other curriculum materials and strong focus on subject integration, outlining that the IB framework is strongly adhered to and that alternative resources are used to adapt the curriculum to the local context. Mixed and quite evenly distributed are the responses to whether a school-wide approach to school-based curriculum development is new to our school. The answers outline that SBCD is not yet common across all schools, maybe leading to a need for SBCD professional development courses.

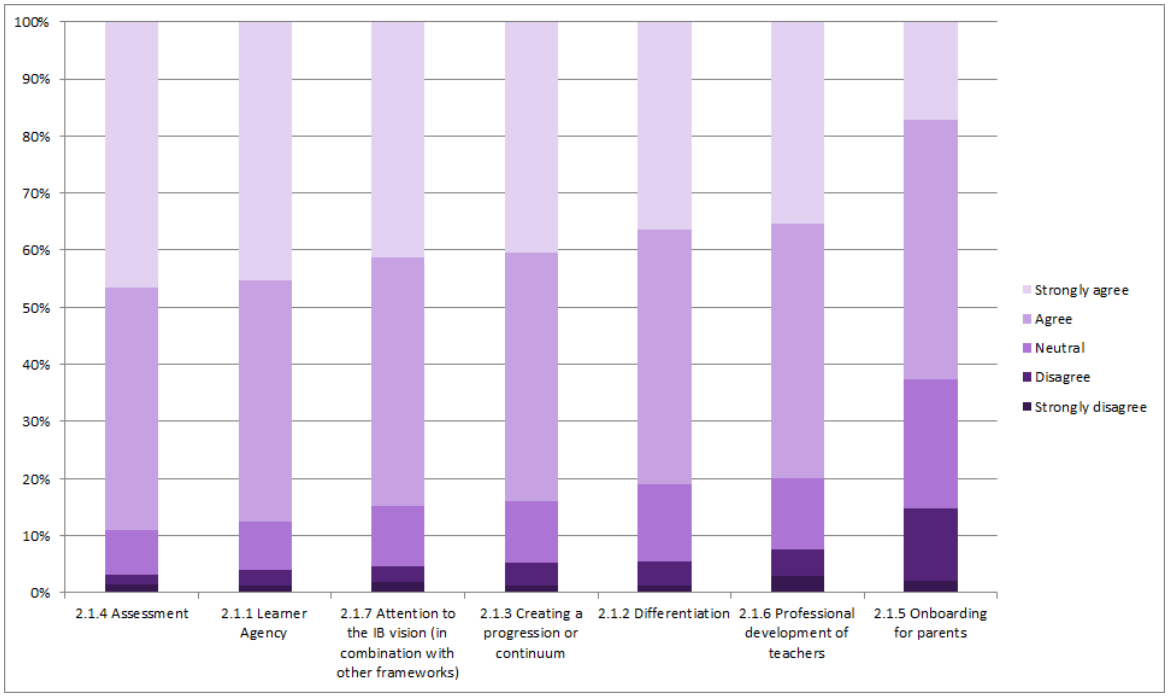

Figure 7.4. Context of the SBCD processes and outcomes

Key factors shaping the SBCD process. It is outlined that most of the respondents adhere to multiple frameworks/curricula in their school-based curriculum development work. Nevertheless, half of the respondents expressed that they utilize curricula from other countries next to the IB and national curriculum.

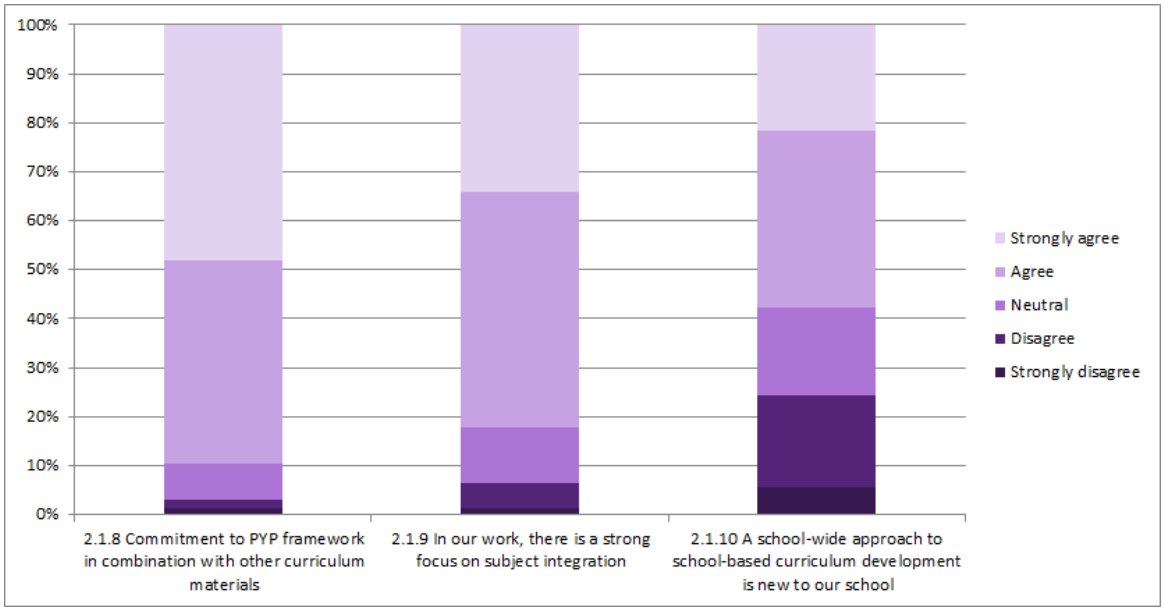

Figure 7.5. Context of the SBCD processes and outcomes --continued

7.4 Substantive perspective

Figure 7.6 shows that respondents found that expertise is required to ensure the quality of the curricular products. Respondents value attending to student and teacher needs and pedagogical content expertise. They express nearly unanimous agreement with the statements. The clear focus on students and student learning is in agreement with what was learned from the case studies. These findings (of the second survey and the case studies)

contrast with the results in the first survey, where surprisingly respondents did not select the option of the importance of a clear focus on learners.

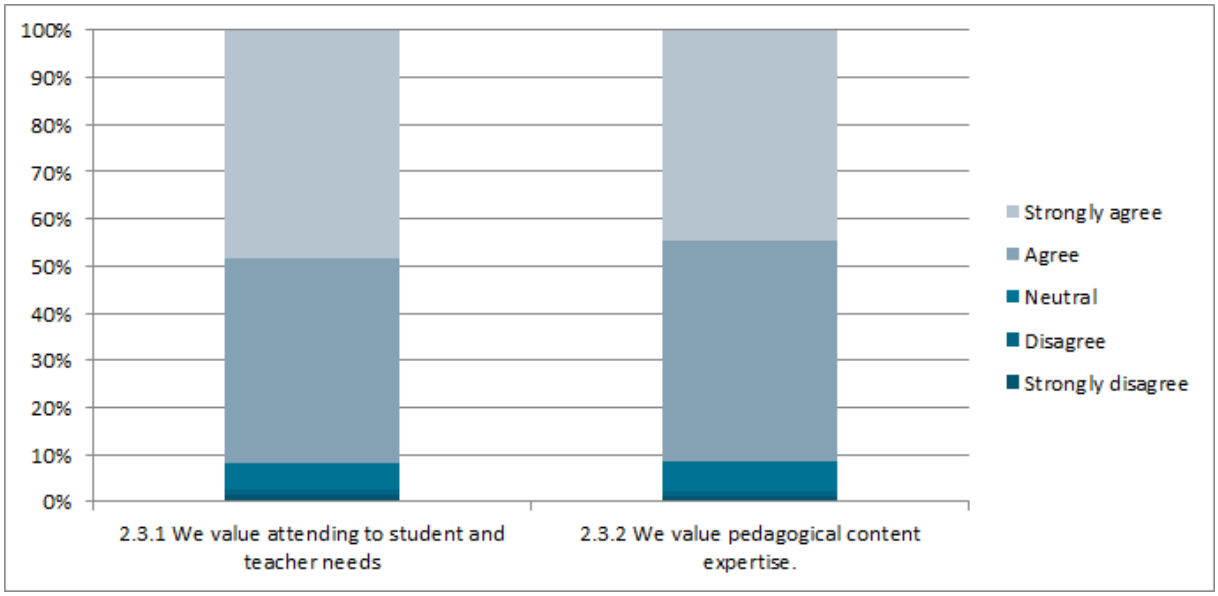

Figure 7.6. Needs and pedagogical content expertise

Regarding support for the substantive perspective (Figure 7.7), respondents mostly agree that there is a rich amount of existing materials, multiple curricula, inspiring examples and guidelines available to them. Mostly all respondents either agreed or strongly agreed that it is important to achieve a shared vision in their SBCD work and that they have a collaborative culture in their school that supports their SBCD efforts. Furthermore, they mostly agree that the support for SBCD comes mostly from their direct leaders (as opposed to indirect or informal leaders).

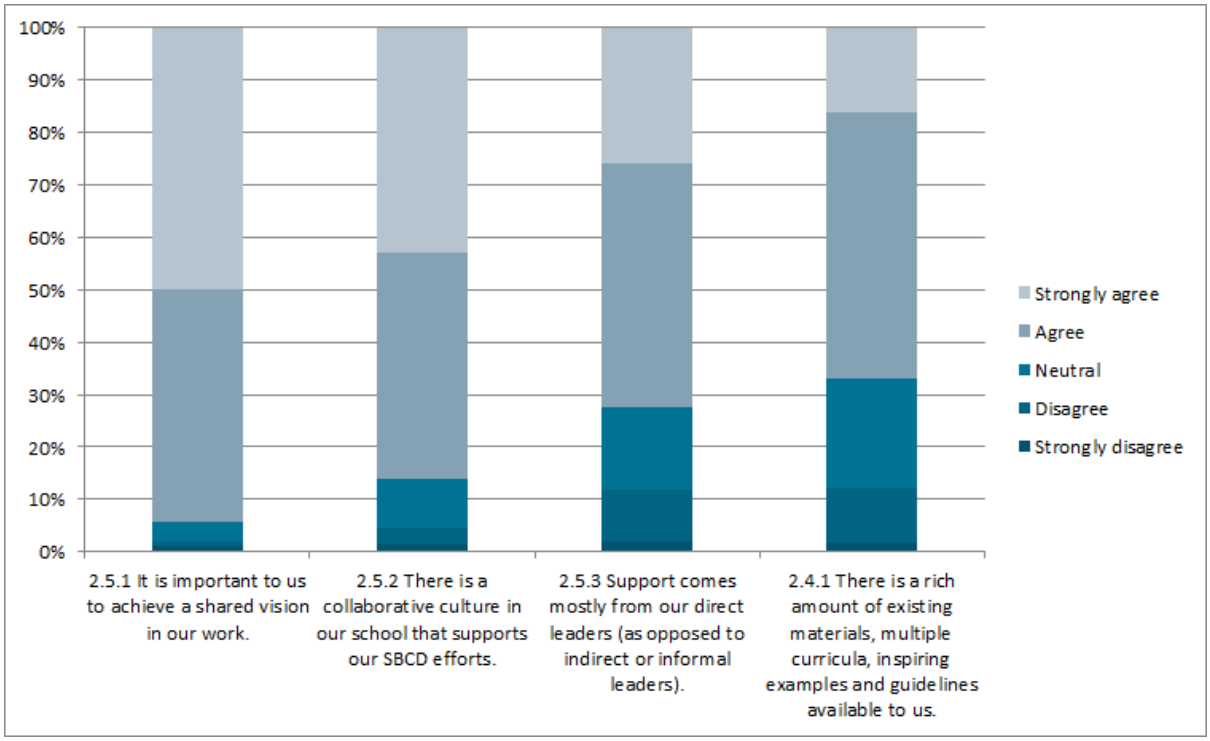

Figure 7.7. Support regarding the substantive aspects

7.5 Technical professional perspective

Figures 7.8 and 7.9 provide the responses with respect to the technical professional aspects of SBCD. Respondents mostly agree that during the development work their team likes to involve the teachers and learners and make use of drafts/prototypes before making the final product. Furthermore, respondents mostly agree that they take a cyclical approach in their design work and nearly all respondents agree or strongly agree that school-based curriculum products as a living, evolving product. Moreover, when communicating with stakeholders, most respondents agree that there is a need for drafts/prototypes and inspiring examples of curriculum materials (including ready-made components) as a communication tool.
Respondents mostly express an agreement or strong agreement when being asked about the value of working with the internal expertise that already exists within our school, that existing frameworks and resources are in place and can inspire new ones, that they use an integrated approach to subjects/units, that they value working with the internal expertise that already exists within our school, that existing frameworks and resources are in place and can inspire new ones and that they use an integrated approach to subjects/units.
In agreement with the first survey and the case studies, the findings show that according to the respondents leadership plays an important role in achieving coherence and alignment, prioritizing the design work, and reassuring when the design work is going in the right direction.
Moreover, findings indicate that respondents communicate with a wide array of stakeholders, that they like to start the design process with a smaller design team, and get other stakeholders on board (for example learners) as the work progresses, that attending to students' voices is important in their school-based curriculum development work and that their team of teachers is heterogeneous and diverse. However, although most respondents agree or strongly agree that parent participation is important in their school-based curriculum development work, the answers are more spread out and many respondents disagreed with the statement.

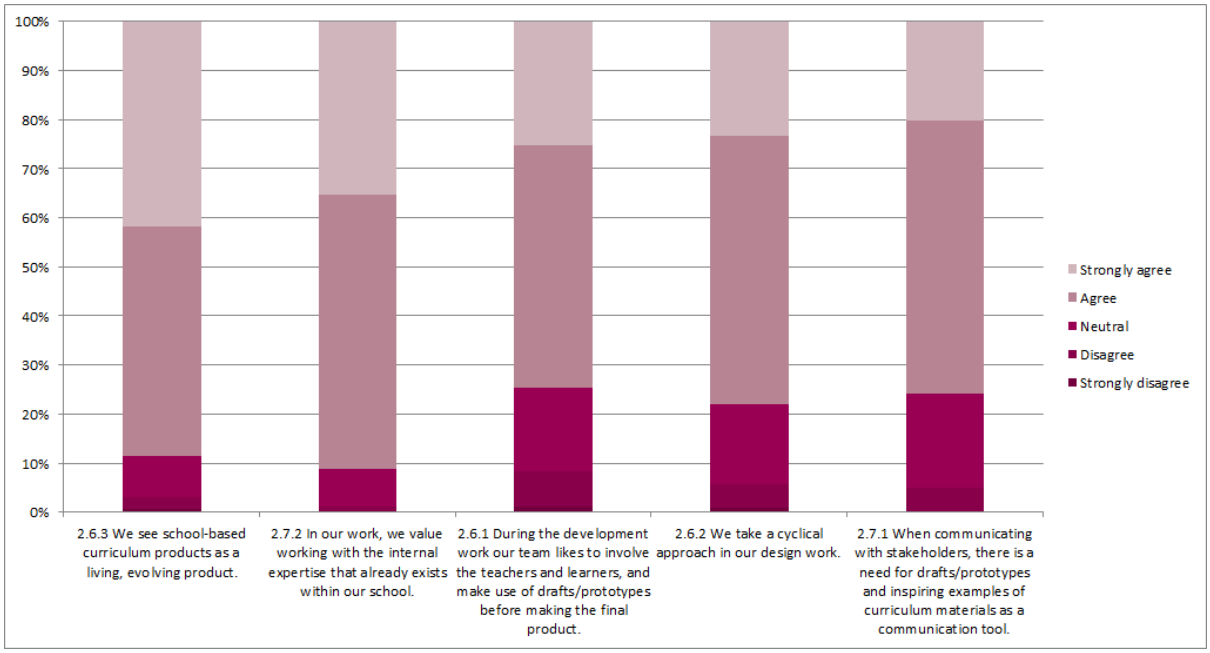

Figure 7.8. Technical professional aspects

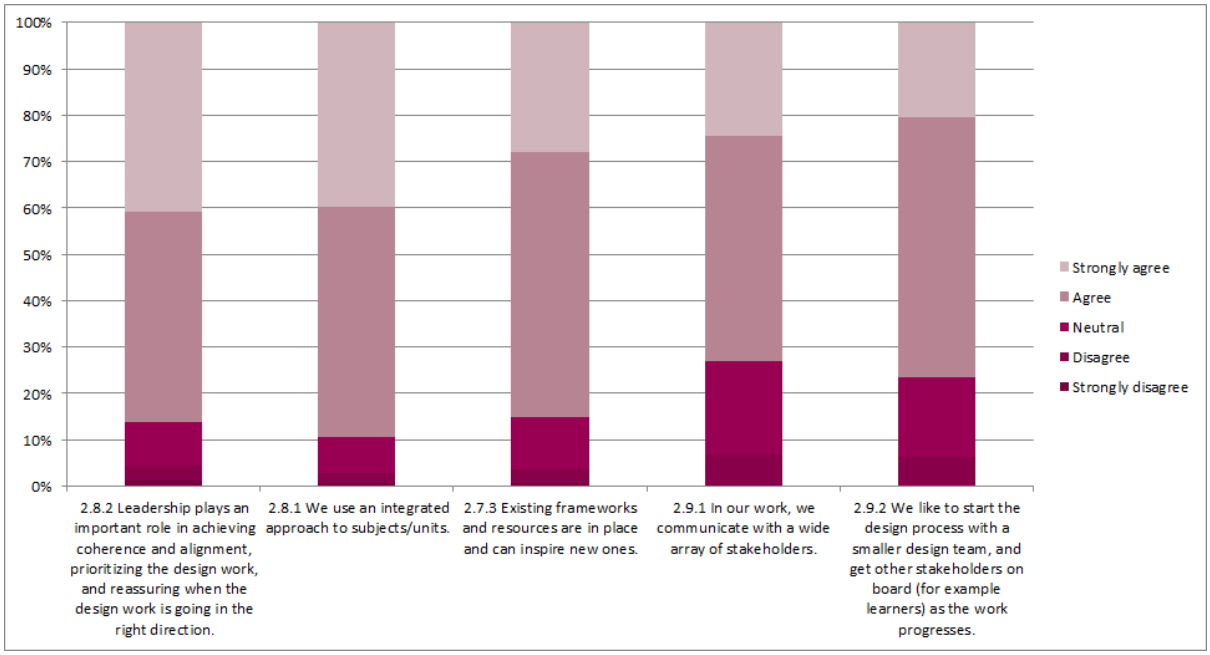

Figure 7.9. Technical professional aspects --continued

7.6 Socio-political perspective

When asked about artefacts and structures for facilitating stakeholder communication, results (Figure 7.10) show that respondents generally feel that communication channels (such as newsletters and websites) are helpful in identifying and communicating with relevant stakeholders. In terms of structures that facilitate stakeholder communication, respondents feel that there are existing communication structures, there is an open culture, communication is key and channels for distribution and spread are an important part of this, and that they celebrate stakeholder involvement in school-based curriculum development work.

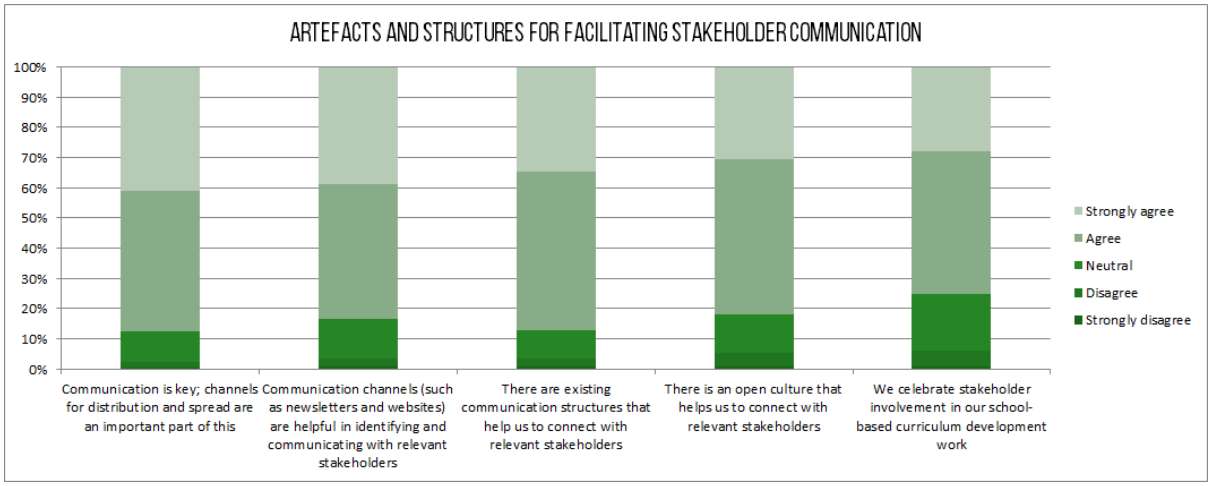

Figure 7.10. Artefacts and Structures for facilitating stakeholder communication

7.7 Specific needs and wishes: closed questions

Respondents were asked about their specific needs and wishes for working on school-based curriculum development. The needs that were addressed in the questions were based on the case study findings. This included needs in terms of clarifying IB concepts and frameworks Figure 7.11), materials used for school-based curriculum development (Figure 7.12), required roles and expertise (Figure 7.13), professional development and networking (Figure 7.14). Furthermore, the respondents were asked about the need for specific help in developing a

continuum of learner progression (Figure 7.15), their need to feel more welcome to turn to the IB for support when needed (Figure 7.16), their need to map national/mandated curriculum against the Program of Inquiry (Figures 7.17 and 7.18) and the importance of interaction with schools in area of curriculum design (Figure 7.19).

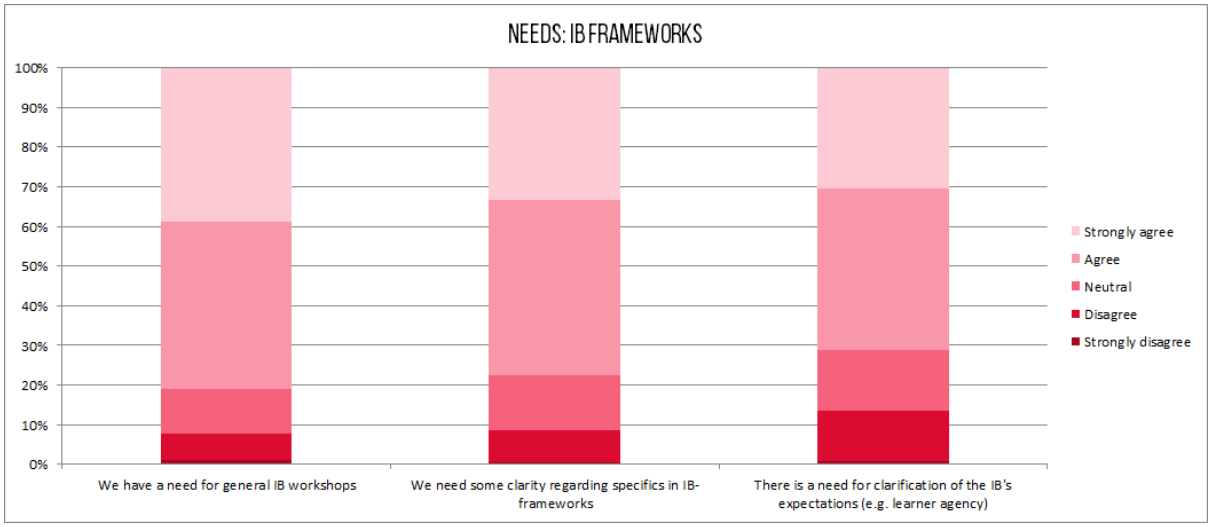

Figure 7.11. Needs: IB Frameworks

Regarding needs in terms of IB frameworks, results show that most respondents either agree or strongly agree that they have a need for general IB workshops, need some clarity regarding specifics in IB-frameworks and that there is a need for clarification of the IB's expectations on certain topics (e.g., learner agency).

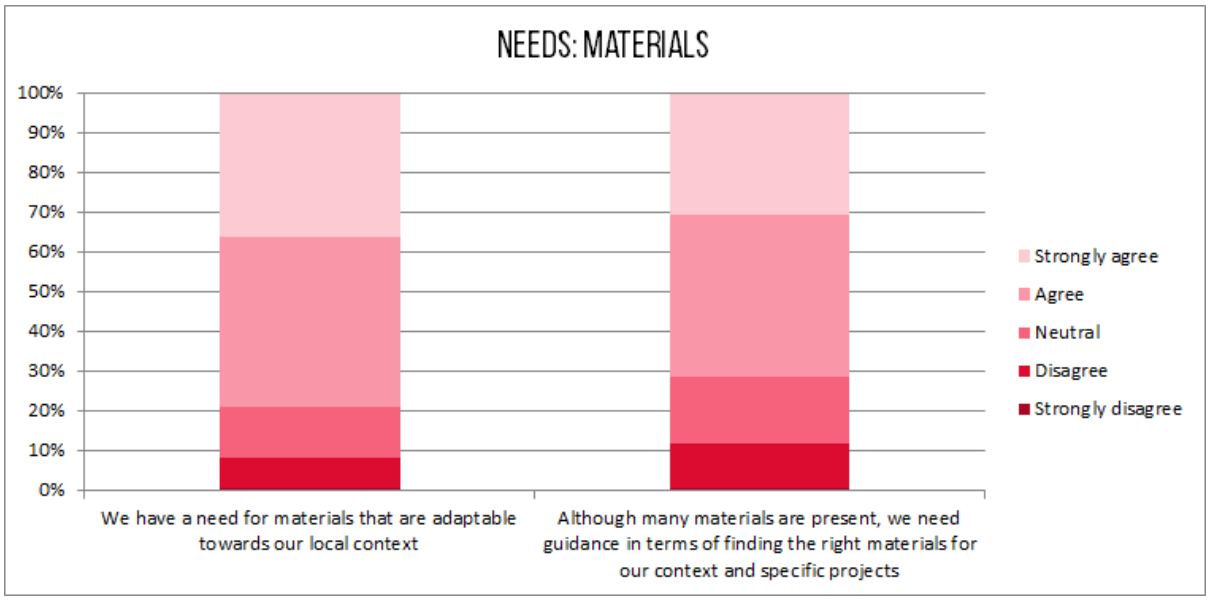

Figure 7.12. Needs: Materials

Most respondents agreed or strongly agreed that, although many materials are present, they need guidance in terms of finding the right materials for their local context and specific projects. Important to note is that they express a need for materials that are adaptable towards their local context, this is in agreement with the finding that respondents seem to prefer following a prototyping approach.

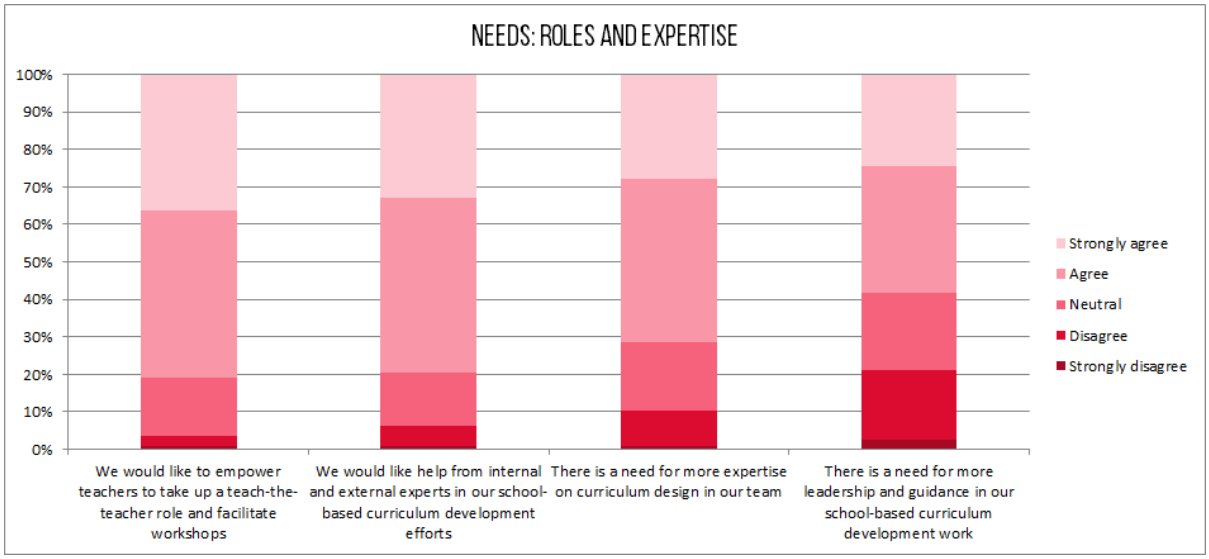

Figure 7.13. Needs: Roles and Expertise

When considering roles and expertise in school-based curriculum development projects, most respondents feel that there is a need for more leadership and guidance in their school-based curriculum development work. This was also found in the first survey and during the case studies. They would like to empower teachers to take up a teach-the-teacher role and facilitate workshops. They feel a need for more expertise on curriculum design in their team. Lastly, they would like help from internal and external experts in their school-based curriculum development efforts.

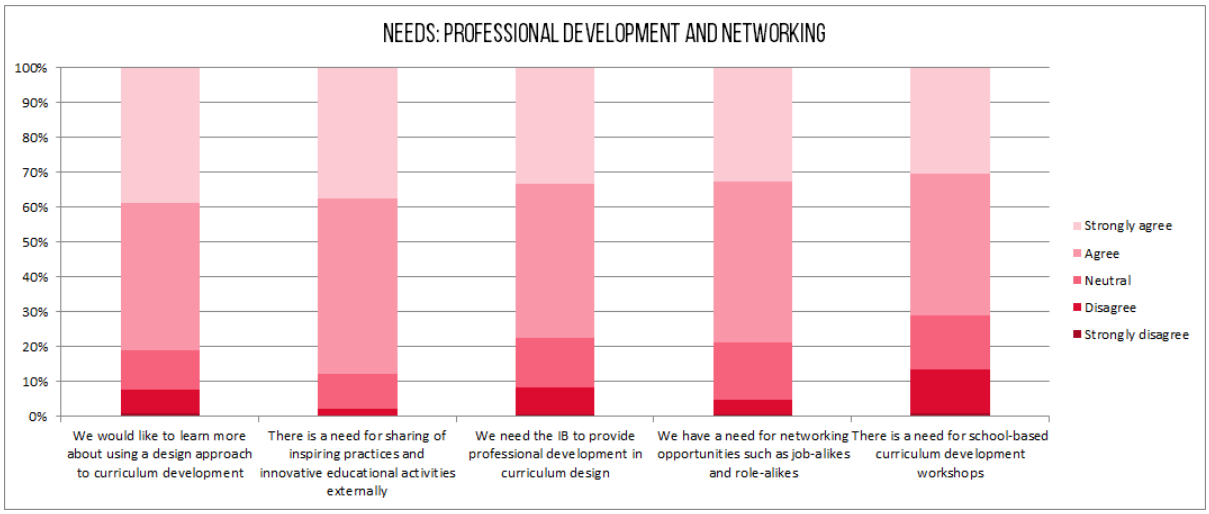

Figure 7.14. Needs: Professional Development and Networking

Needs were also identified in terms of professional development and networking. Results show that the vast majority of respondents would like to learn more about using a design approach to curriculum development. Most respondents feel a need for sharing of inspiring practices and innovative educational activities externally. Furthermore, there is a need for school-based curriculum development workshops and for the IB to provide professional development in curriculum design. From the first survey it was found that the respondents would especially appreciate more analysis, implementation and evaluation expertise. Lastly, respondents agree that they have a need for networking opportunities such as job-alikes and role-alikes.

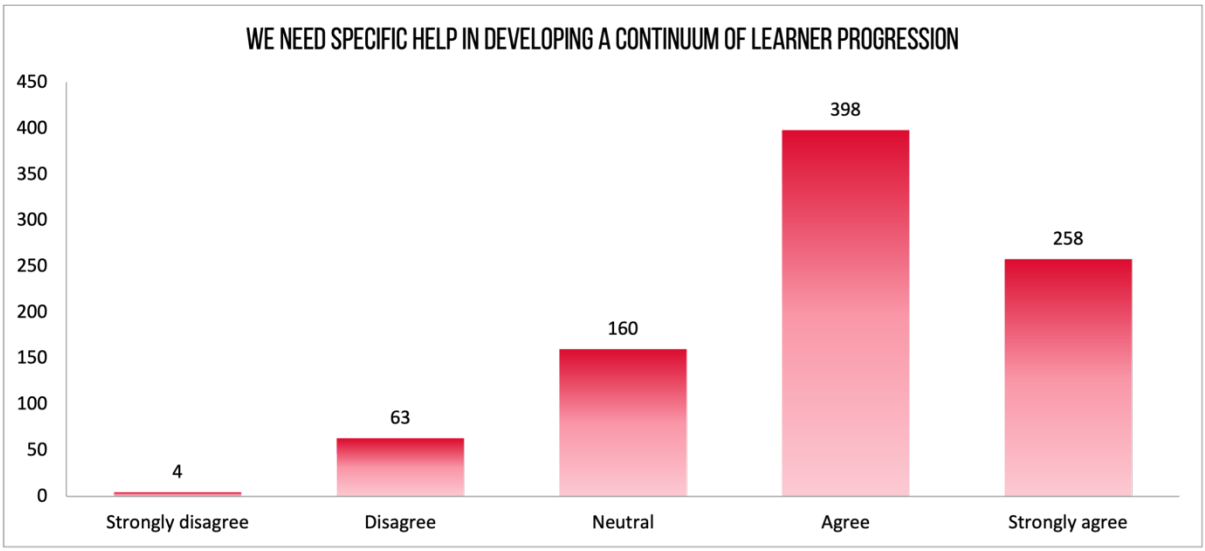

Figure 7.15. Need of specific help in developing a continuum of learner progression

One question specifically addressed the need for help in developing a continuum of learner progression, since this was identified as a recurring theme in the case study workshops. This is reflected in the results of the survey, since most respondents either agree or strongly agree that they need specific help in this subject.

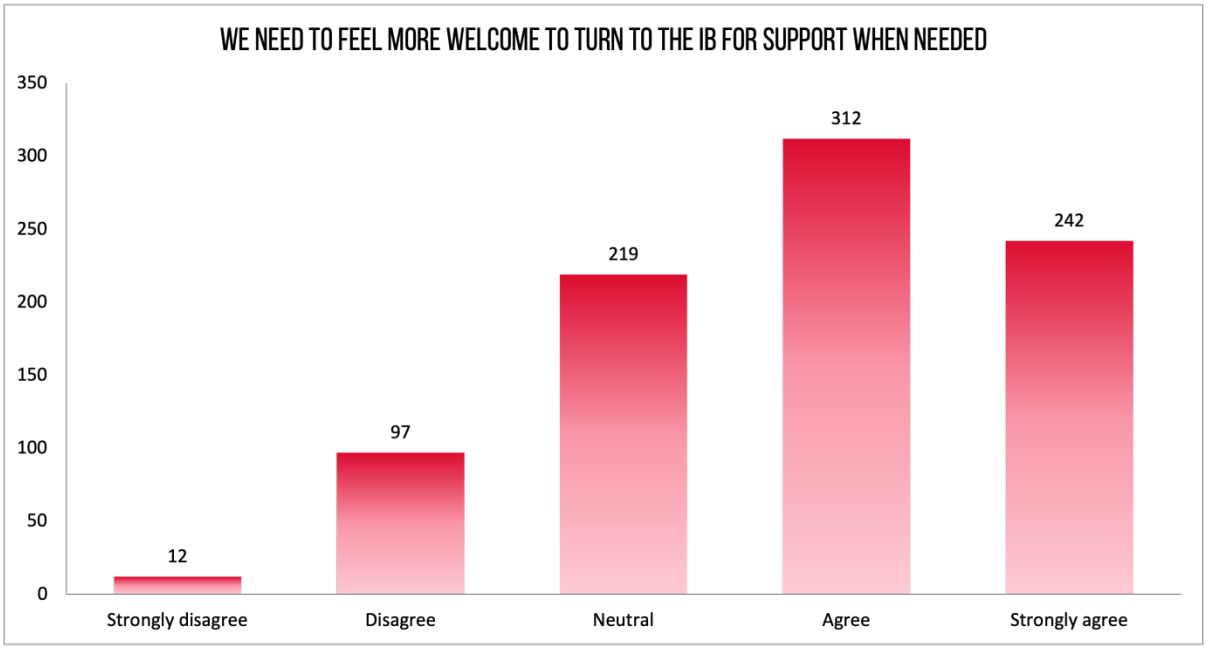

Figure 7.16. Need of feeling more welcome to turn to the IB for support when needed

Most of the respondents either felt neutral, agreed or strongly agreed that they need to feel more welcome to turn to the IB for support when needed.

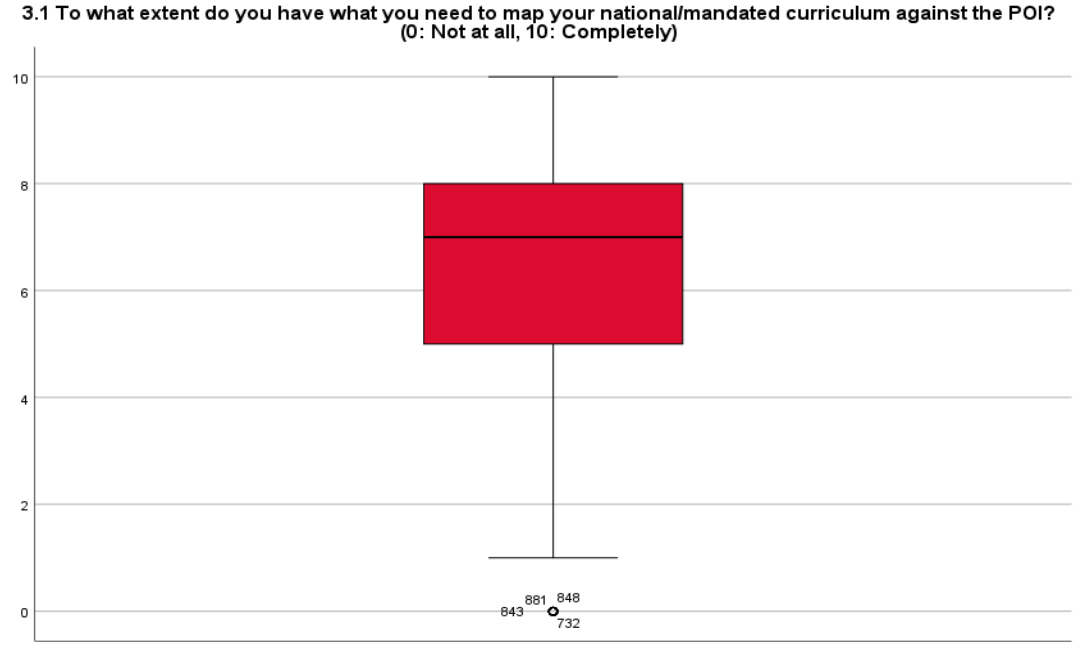

Figure 7.17. Need to map national/mandated curriculum against the Program of Inquiry

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
I have what I need to map our national/mandated curriculum against the POI	891	10	0	10	6,18	2,659	7,069
Valid N (listwise)	891						

Figure 7.18. Descriptive Statistics

Respondents were asked about the extent to which they have what they need to map their national/mandated curriculum against the POI on a scale from 0 (not at all) to 10 (completely). The mean for this response was 6.18, with a standard deviation of 2,659 and a variance of 7,069. Therefore, it seems that on average the respondents do feel that they have what they need to map a national or mandated curriculum against the POI.

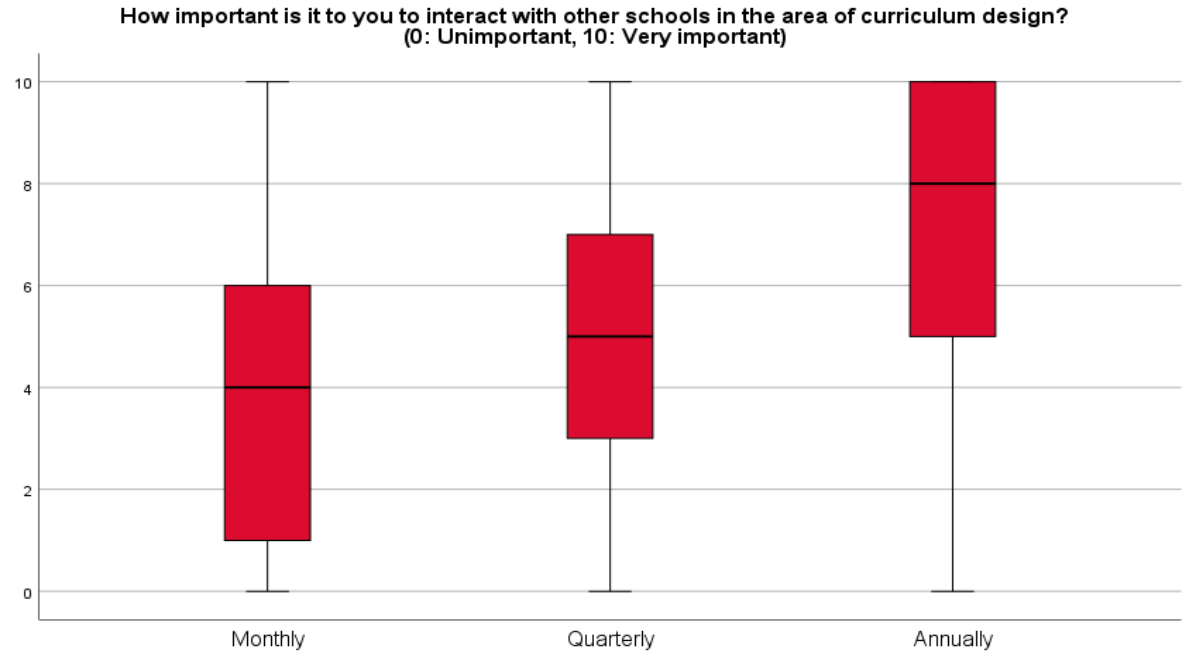

Figure 7.19. Importance of interaction with schools in area of curriculum design

Finally, respondents were asked how important it was to them to interact with other schools in the area of curriculum design on a scale from 0 (unimportant) to 10 (very important) within different time frames: monthly, quarterly, and annually. From monthly to annually, respondents incrementally attribute more importance to this type of interaction, indicating that schools do think it is important to interact with other schools but perhaps not on a monthly or quarterly basis.

7.8 Specific needs and wishes: open-ended questions

Respondents were asked to answer five open-ended questions and replied in their native language, 624 responded in English, 250 responded in Spanish and 17 responded in French.

The first open-ended question was: 'Is there any way that the IB can help you map your national/mandated curriculum against the Programme of Inquiry?' The answers are mapped in a Word Cloud in Figure 7.20. The responses are quite mixed in the sense that a huge number of respondents replied with yes to the statement, but some also replied with no. Many discuss workshops, materials, standards, resources, requirements, especially guidance and examples. Some of the replies have been sampled: "Examples from other school would be helpful", "It would be helpful to have more support or direct feedback from the IB regarding our mapping of our state curriculum to the POI", "A template of some sort that we can plug in our units as well as standards/curriculum", "Curriculum development workshops, examples of mapped curriculums", "Providing more examples", "More resources and examples of implementation", "Providing more specific learning outcomes."

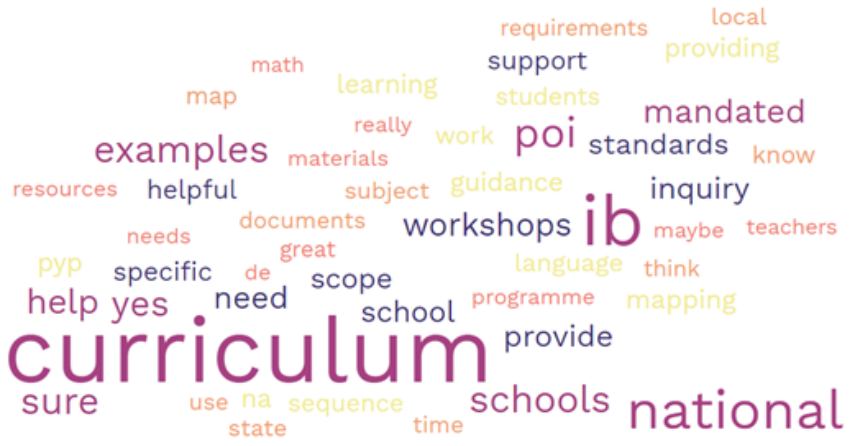

Figure 7.20. Word Cloud: Is there any way that the IB can help you map your national/mandated curriculum against the Programme of Inquiry?

The second open-ended question was: 'How would you like to interact with other schools?' The answers to this question have been summarized in Figure 7.21 and express common themes. Respondents want to share information, have face to face interaction, want to exchange ideas, experiences and resources, further they would like to have a network of schools and collaborate with them. The following sample answer provide an overview of potential collaboration: "annual meetings", "Workshops" "events", "Job alike session", "Virtual", "face to face", "meet-ups", "round table discussion", "shared online forum", "Webinars", "IB Coordinator network", "school visits".

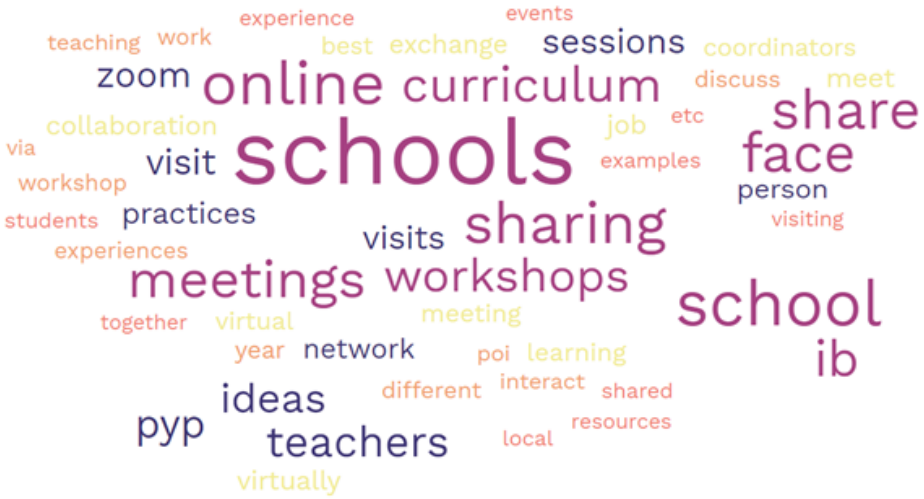

Figure 7.21. Word Cloud: How would you like to interact with other schools?

The third open-ended question was: 'What are success factors or things you are proud of with respect to curriculum development in your school?' The answers have been summarized in a Word Cloud in Figure 7.22. They outline that success factors are the curriculum, teachers "teacher agency", students "student agency", parents "parent interaction" and collaboration "collaboration between students", "collaborative work", "collaboration with teachers", leadership and "team work", development of structures, planning and standards by for example having "flexibility of the curriculum". Another key aspect is "communication".

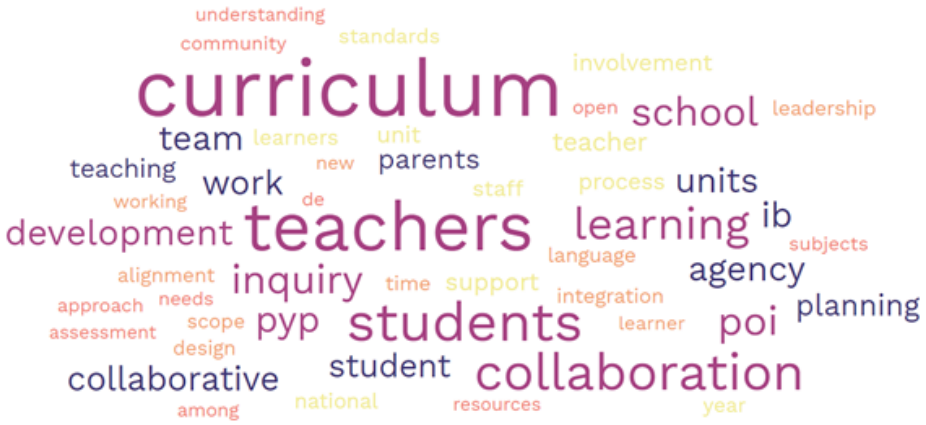

Figure 7.22. Word Cloud: What are success factors or things you are proud of with respect to curriculum development in your school?

The fourth open-ended question was: 'What are struggles or things that need improvement with respect to curriculum development in your school?' Answers have been summarized in Figure 7.23. Respondents focus mainly on time, teachers, planning, differentiation, assessment, collaboration, inquiry, integration and express many needs, such as "dedicated time needed", "development of planners", "workshops provided by the IB", "more time for planning", "creating a continuum of mathematics and languages", "more parent involvement", "clear subject guidance document", "students need to be fully engaged" and "differentiation".

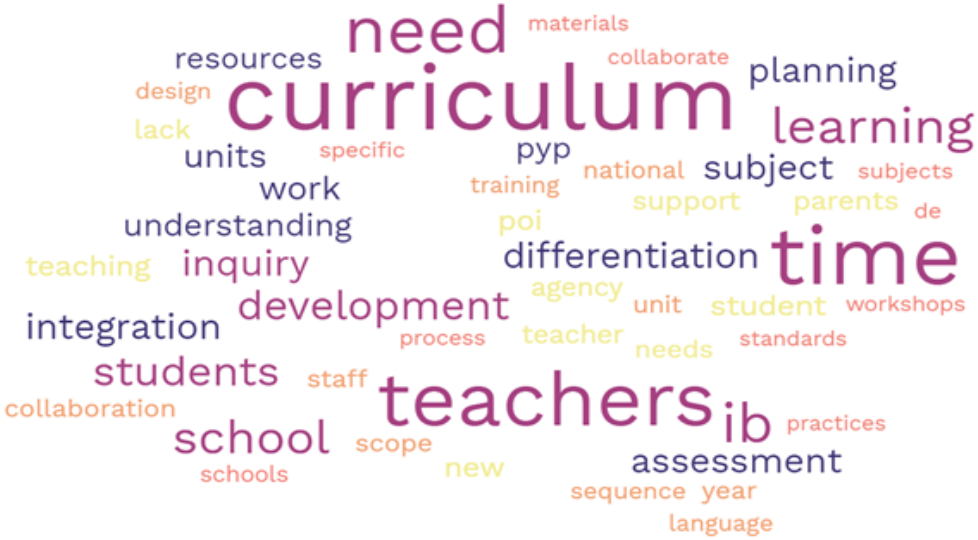

Figure 7.23. Word Cloud: What are struggles or things that need improvement with respect to curriculum development in your school?

Finally, the fifth open-answer question was: 'Please share any thoughts, suggestions or questions you have related to (IB supporting) your SBCD work.' The summary in Figure 7.24 shows that respondents mostly focused on curriculum, teachers, collaboration, schools, development and support. They discuss training, workshops, resources, teams, learning and network. They also focus on the community, collaboration, help, support and guidance. The respondents raised the following themes: "Collaboration with schools through network meetings and others in the same roles, to learn from other schools", "I have collaborated with the Victorian PYP Network to support me with the curriculum development. It would be great for the IB to support schools and provide resources that are easy to locate for

curriculum development." "Turn to IB Coordinators for help", "We need support", "IB needs to give more structure within the framework for PYP", "IB needs support us in this aspect". One question stood out: "How do we balance the friction between the IB framework and mandated curriculums?"

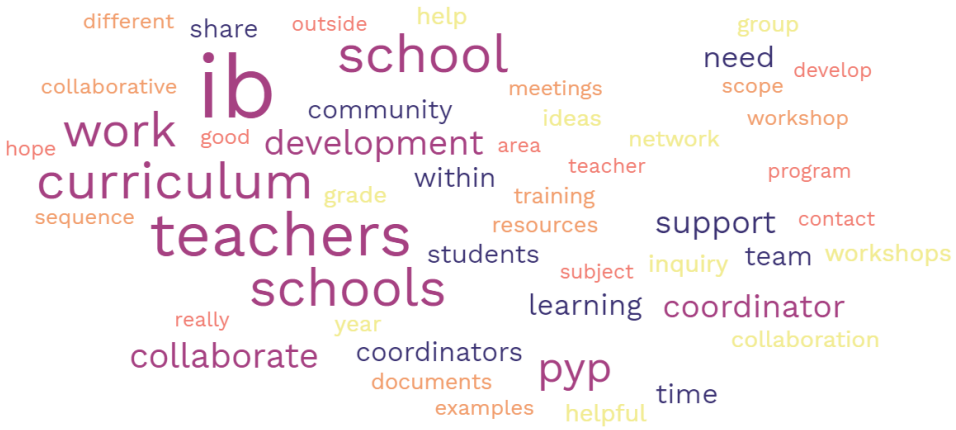

Figure 7.24. Word Cloud: Please share any thoughts, suggestions or questions you have related to (IB supporting) your SBCD work.

8. Synthesis: Conclusions

The study reveals that the majority of schools are not bound to external authorities in terms of goals, content and assessment, other than the IB framework. Therefore, the IB has an important role to play in helping schools to provide a vision, guidance and support for SBCD. The overarching goal of this study was to understand how IB PYP schools develop curriculum in ways that are relevant to their local contexts and how IB might (better) support these local school efforts. Towards this end several interconnected research activities were undertaken: a literature review on school-based curriculum development (SBCD) models, a survey sent to all PYP schools to find out how schools are performing SBCD, in-depth case studies with five PYP schools and a second survey again sent to all PYP schools in order to inventory schools' perceptions regarding their support needs related to SBCD. Synthesis of this rich data set led to answering the final sub-question in the study design (Table 2.1 in chapter 3), *How can the IB better support IB schools and teachers to be curriculum designers?* The answer to the sub-question takes the form of 12 recommendations related to the use of SBCD models, related to SBCD practices in IB schools and related to the SBCD infrastructure.

8.1 Recommendations related to (using) SBCD models

The first set of recommendations relates to school-based curriculum design (SBCD) models and how these models might serve IB schools. These recommendations have been based on the findings of the literature review, the first survey and the case studies.
The study commenced with a theoretical lens that depicts on the one hand three essential perspectives of curriculum development, namely: the substantive, technical-professional and socio-political perspectives, and on the other hand three influencing aspects of the school organizational infrastructure on these three perspectives, namely the human, material, and structural aspects. Based on the literature study this theoretical framework has been elaborated with indicators for portraying school-based curriculum development and has been extended with influences on overall school-based curriculum development efforts, namely the nature of the SBCD endeavor (disciplinary orientation, the nature of the curriculum products, the SBCD actors and their roles) and the nature of the context outside the school (need to adhere to input and/or output regulation and change interactions).

- *Recommendation 1: Use SBCD models to provide structure for the IB guidance*

The resulting SBCD framework appeared to function as a strong foundation for this study, not only as a basis for both surveys, but also in structuring the activities. Based on these fruitful research experiences, it is recommended to the IB PYP team and IB headquarters to continue to use the SBCD framework to structure guidance, support and resources as well as structuring the conversations and engagement with schools.

- *Recommendation 2: Use SBCD models as thinking tools in IB schools*

Moreover, for PYP schools, the framework also proved to be suitable as a thinking tool with IB school coordinators. The case study experiences revealed that they found this a useful way for portraying the school's work, considering how to tackle specific pieces and how to move their local SBCD efforts forward. Moreover, the case studies revealed that teachers and teacher teams at PYP schools can be supported by particular activities based on the framework (as opposed to extensively discussing the elements of the framework itself).

8.2 Recommendations related to SBCD practices in IB schools

The second set of recommendations refers to how the IB can use new knowledge about PYP school SBCD processes to (better) serve schools. These recommendations have been based on the findings of the first survey, the cross-case analysis and the second survey.

The data sources reveal that SBCD experiences are varied across schools (SBCD is not yet common across all schools) but also varied within schools. This variation is difficult if not impossible to predict. It points to differences in experiences, responsibilities, opinions, perspectives, and also expertise. For instance IB coordinators and principals sometimes differed significantly in their expertise towards SBCD.

- *Recommendation 3: Acknowledge the differences across schools*

For the IB PYP team this means that these differences need to be acknowledged and worked on. Within and across IB schools it is clear that one size does *not* fit all. Therefore it is recommended to use common frameworks that provide structure and guidance, but also to provide room for specific or alternative choices and to explain the IB's expectations and the bandwidth of the framework (degrees of freedom). Regarding the use of frameworks and accompanying concepts (e.g. learner agency, differentiation, learning progression, assessment) it is important to note that the use of language needs to be as clear as possible as there is already a lot of IB jargon.

- *Recommendation 4: Acknowledge the differences within schools*

For IB coordinators it is important to see, appreciate and leverage those differences within the school. It is recommended that the IB PYP team supports coordinators in understanding the variations and how to differentiate within their teams. Moreover, the IB coordinators could benefit from being stimulated to gather the colleagues in their different roles (principals, teachers and coordinators) around the table more often. The case study schools valued the opportunity to side-by-side develop their common curriculum as one team and to dovetail the curriculum decisions at the various levels. The collaboration of different colleagues with different responsibilities and experiences also showed the importance of creating dedicated time for sense-making of key concepts and terminology and for full engagement of all stakeholders, including students.

- *Recommendation 5: Engage with clarity, shared focus and concrete product orientation*

When working with teachers in the PYP schools, it is recommended to base the collaboration on activities that generate concrete work products that help maintain the flow, retain a shared focus, and give direction to both conversations and subsequent activities. Regarding sense-making, it is recommended to create and discuss concrete classroom applications of the key concepts and invite teachers to share existing work and examples that relate to these key concepts This helps increasing the clarity of ideas, ownership, and the sense that the goals are within reach (i.e. within the zone of proximal development). Such an approach will also empower teachers to take up a teach-the-teacher role and facilitate design activities within their team. PYP schools showed to have (often quite strong) self-organization capacity and routines for SBCD in their schools. This means that when the IB PYP team will reach out to particular schools and teams, it can in many cases start from these capacities and routines and does not need to micromanage.

8.3 Recommendations related to SBCD infrastructure

The final set of recommendations is geared to how the IB might (better) support schools and teachers through changes to the human, material, or structural resources currently present within the organization. These recommendations have been based on the first survey, the cross-case analysis and the second survey and follow the three aspects of the school infrastructure: the human, material, and structural aspects that support the substantive, technical-professional and socio-political perspective of school-based curriculum development.

8.3.1 Human aspects

First of all regarding the human aspect (referring to the expertise needed for quality SBCD products, processes and stakeholder involvement) the study reveals that the schools' understanding of and activities regarding SBCD products, processes, and stakeholders influence each other. In the case studies, at first, schools seemed to be more able to 'guesstimate' the curriculum products they were aiming for, and were less pronounced on how to create them or how to involve/inform stakeholders. While working with the schools on the aims and nature of the future products, the participants became more clear about what it would take to actually design and evaluate these products and about which stakeholders should be involved in what way.

- *Recommendation 6: Provide guidance on a systematic prototyping approach*

The vast majority of the respondents in the second survey pointed out that they would like to learn more about using a more systematic design and prototyping approach. Based on the previous observation, it is recommended to start these curriculum design conversations from elevating the substantive perspective and continue from there towards the technical-professional and socio-political perspective. Usually it takes several rounds or cycles to get to a clear and complete picture of the product, process and stakeholder involvement. And even after that, the case study participants as well as the respondents in the second survey agreed that, the design work never really ends. They rather appreciate the curriculum making work as a continuing and living process.

- *Recommendation 7: Start from the expertise that is already present in the teams*

Moreover, regarding the human aspect, it is recommended to start from the expertise and experiences that are already present in the heterogeneous and diverse teams of teachers, coordinators and school leaders. Incorporating this resource from the start of the design process is essential, as it shows appreciation of the current practices, increases the ownership of those involved and connects new evolving steps with the situation at hand. It is recommended that the IB PYP team expresses the importance of this key resource to schools and provide guidance in how schools can make use of this throughout their design efforts.

- *Recommendation 8: Promote sharing experiences amongst PYP schools*

Next to the work primarily done within schools, the school teams are also looking for ways to sharing out with other PYP schools and experts, preferably on a quarterly or yearly basis. From the first survey it was found that collaboration with other schools is not common in the majority of schools. Receiving outsiders perspectives of, for instance, fellow schools and teachers who understand from their own experience the ins and outs of SBCD is considered to be supportive in many ways. The IB PYP team can be of help in setting up channels for this type of cooperation. These activities can take a blended format, combining online sessions (webinars, virtual meet ups, shared online forum) with face-to-face activities (job alike sessions, round table discussions, school visits).

8.3.2 Material aspects

The material aspect refers to the artifacts (resources, examples, objects) that influence the quality of the local SBCD products, processes and stakeholder involvement. From this study is became clear that schools are overwhelmed by all the materials that they have to or can work with. Although they express to be happy with the rich sets of resources (from IB as well as from countries around the world), they would benefit from annotated and good examples of products and process guidance that they can adapt to their local needs.

- *Recommendation 9: Celebrate SBCD champions and make local work visible*

Next to resources that are of help in prototyping the SBCD products (like exemplary materials or drafts and process guidance), the schools have access to many online and off-line vehicles that are of help in informing and in getting stakeholders on board. In this respect, also IB is viewed as a stakeholder. It would be valued when IB PYP celebrates SBCD champions and makes visible what these schools do, how they do it, and why it is so productive for learners. An approach that could be considered is the development of a platform where IB Teachers can share their materials with each other, either as a marketplace or as a resource sharing application.

- *Recommendation 10: Provide exemplary materials, guidance and workshops*

Receiving information was important for half of the respondents which highlights the importance of information sharing and the appreciation of the information materials. Furthermore, more than a third of the respondents mentioned that they are interested in workshops. This outlines the need for PD and the exchange of information. Online, face-to-face and hybrid options could be made available to meet the different needs of teachers.

8.3.3 Structural aspects

Finally, the structural aspect refers to the schools' (invisible) values and structures within the schools that influence the quality of the products, processes and stakeholder involvement.

- *Recommendation 11: Provide professional development for curriculum leadership*

The study reveals that the SBCD depends quite strongly on leaders within the school (oftentimes the coordinators) who help in setting out directions, check in with and affirm the work of the teams and safeguard the time and budget for the work to be done. It is recommended that the IB-PYP team reaches out to these curriculum leaders and assist them in this important work for instance by providing curriculum leadership programs (PD) and recommendations on how to create engaging learning environments linked to school culture.

- *Recommendation 12: Conduct SBCD workshops with number of schools on annual basis*

Especially because culture and values regarding SBCD within schools are mostly invisible, it is recommended that (e.g. on an annual basis) the IB PYP team conducts workshops with a small number of schools like those carried out in the case studies of this study and to perform this as a two-way exercise: this shows the workshop facilitators (IB-PYP staff) what is going on in schools also regarding their 'hidden' values, while offering the schools food for thought and recognition for their efforts. By communicating these and other activities with all PYP schools (e.g. on websites, in newsletters), this may also lower the threshold for schools to turn to IB when needed.

9. Epilogue

The overarching research question guiding this study was: *How do (IB-PYP) schools attend to the substantive, technical-professional and socio-political perspectives of curriculum development and how do (human, material and structural) contextual factors shape that work?* By responding to six interconnected sub-questions across three phases of work, answers to this broad question have been given in the preceding chapters. This section contains some final reflections on researcher observations of interactions with IB schools before positioning these experiences in the broader context of SBCD worldwide and concluding with final remarks.

Respondents from both surveys came from all kinds of schools, and all schools were invited to participate in the case studies, but only private schools volunteered. This means that the generalizability of the findings, especially for the case studies, is limited. Nonetheless, our impressions of the interaction with the IB during online sessions and with the IB-PYP schools during the case studies were quite positive: the IB community was consistently passionate to talk about their work, very active in participation, characterized by open and frank attitudes, and clear devotion to the IB principles and the students those are designed to serve. This collaboration between the IB and the research team of the University of Twente has been fruitful in many ways. The work has led to an increase in conceptual and empirical understanding regarding the theme of school-based curriculum development in IB PYP schools and has led to recommendations for future action and support. The case studies, with its two-way methods, led to highly appreciated interactions with the five school teams in different parts of the world. These interactions led to discussions, reflections and concrete plans for action from a substantive, technical-professional and socio-political perspective, as well as provided many opportunities to get to more in-depth understanding of what it takes for schools to perform school-based curriculum development efforts and what roles, processes, affordances and issues are at stake.

At the IB, as elsewhere in the world, much energy is invested in SBCD in the hope of yielding productive outcomes for local educational practices. It would be interesting when more opportunities would come available to share the knowledge and experiences around the world with respect to the aims and the efforts it takes for schools and agencies that support this work to make these efforts as fruitful as possible. Towards this end it would be interesting to pro-actively turn to existing networks, such as the curriculum network of the European Educational Research Association (EERA) and the Consortium of Institutions for Development and Research in Education in Europe (CIDREE). The proposal for an ECER (European Conference on Educational Research) contribution in 2022[2] could be seen as an example towards this end. In a similar vein would it would be interesting to consider contributing to research and practical journals.

There can be no doubt that IB is a very strong organization: high in recognition and reputation by many audiences in policy, research and practice. Throughout this report (and especially in Chapter 8), a number of recommendations have been formulated to even further optimize the work. In the long run, such investments can contribute to the professional development of IB-PYP staff working on institutional level, and to stronger expertise and intrinsic motivation of those involved in SBCD directly. Most likely this will lead to follow-

[2] McKenney, S, Nieveen, N., Hurenkamp, R., Wasserfuhr, V., & Balica, M. (2022). Patterns in school-based curriculum development in primary schools. *Paper to be presented at the ECER 2022*.

up and new questions that require new studies to be undertaken by IB or outsourced. The UT team would be interested in continuing this type of collaboration in the future.

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Grey = sources studied in the literature review

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Appendices

Appendix 5.1: Survey 1

Email for IB-PYP coordinators and school leaders

Dear IB-PYP coordinators and school leaders,

At the IB, we care about the school-based curriculum development efforts of all PYP-schools. We are interested to learn more about your work in this regard, and hope to offer relevant support in the future. I am therefore mailing to kindly invite you to answer the brief anonymous survey.

The survey uses the term **school-based curriculum development (SBCD)** as follows:

- **Curriculum development** refers to the design and development that is carried out within a school to produce curricular products for use during class (e.g. lesson plans, teaching resources, learner materials) and/or outside of class (e.g. resources that guide the educational planning, portray the school vision, outline goals and contents, assessment plans).
- **School-based** refers to direct involvement of teachers and/or school leaders in the actual creation of the aforementioned curricular products.

Responding to the anonymous survey will take **15-20 minutes** and your school data will not be shared in any way. You can access the survey here: <<Insert Qualtrics link here>>

If you have any questions, please do not hesitate to let me know.
Thank you very much for your time.

Kind regards,
Magdalena Balica
International Baccalaureate Primary Years Program School-Based Curriculum Development Study

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Survey welcome page

International Baccalaureate Primary Years Program School-Based Curriculum Development Survey

Welcome to the IB-PYP SBCD Survey!
As a school leader, we hope that reflecting on your school-based curriculum development activities is a useful exercise for you. In any case, your participation will enable the IB to create an initial snapshot of the kind of SBCD that our schools undertake, and to consider how support might be offered.

Throughout this survey, please reflect on *only* your **most recent SBCD-project**. As mentioned in the invitation letter, the survey uses the term **school-based curriculum development (SBCD)** as follows:

- **Curriculum development** refers to the design and development that is carried out within a school to produce curricular products for use during class (e.g. lesson plans, teaching resources, learner materials) and/or outside of class (e.g. resources that guide the educational planning, portray the school vision, outline goals and contents, assessment plans).
- **School-based** refers to direct involvement of teachers and/or school leaders in the actual creation of the aforementioned curricular products.

Thank you for participating! ☺

Click here to begin: <<link to first set of questions>>

First set of questions

1. Please share a little about yourself		
1.1	*What is your primary role within the school:*	○ School leader ○ IB-PYP coordinator ○ Other, namely: ____
1.2	*Which describes you?*	○ Male ○ Female ○ Other
1.3	*What is your age?*	_____
1.4	*How many years have you worked at this school?*	_____
1.5	*Approximately how many SBCD projects have you been involved with at this school?*	_____

Second set of questions

2. Please consider your most recent SBCD project		
2.1	*What **subject areas** were central to your most recent SBCD project?*	☐ Language(s) ☐ Mathematics ☐ Science ☐ Social studies, geography, or history ☐ Arts ☐ Physical education ☐ Other
2.2	*What kinds of **curricular products** did your most recent SBCD project create?*	**Resources for use during class** ☐ Learning resources for use by pupils during class (e.g. during Individual lessons, lesson series, modules, projects) ☐ Teaching resources for use during class (e.g. discussion guides, writing activities, listen-and-read activities, grouping ideas) ☐ Physical or digital learning environment (e.g. project workspaces, classroom lay-out, online environment, outside the school) ☐ Assessment tools (e.g. tests, rubrics, quizzes) ☐ Other, namely: …. **Resources for planning or organizing class time** ☐ School vision or profile (e.g. statements about the values and ambitions of the school) ☐ Syllabus or learning progression (e.g. big-picture view of learning progress in a school subject, learning strands, overview of special projects throughout the year) ☐ Assessment plans (e.g. outline of methods that will be used throughout the school year for evaluating learning results) ☐ Other, namely: ….
2.3	***Who directly created** the curricular products in this project?*	☐ Teacher(s) ☐ School leader(s) ☐ External group(s) ☐ Other, please explain _____
2.4	*What roles did **teachers** have in this SBCD project?*	○ No significant role ○ Proactive (e.g. outlined, created, or revised curricular products) ○ Reactive (e.g. commented on or tested curricular products) ○ Both proactive and reactive
2.5	*What role did the **school leader/principal** have in this SBCD project?*	○ No significant role ○ Proactive (e.g. outlined, created, or revised curricular products) ○ Reactive (e.g. commented on or tested curricular products) ○ Both proactive and reactive
2.6	*What role did **external experts** (e.g. subject matter experts, curriculum experts, pedagogical experts) have in this SBCD project?*	○ No significant role ○ Proactive (e.g. outlined, created, or revised curricular products) ○ Reactive (e.g. commented on or tested curricular products)

		○ Both proactive and reactive
2.7	*Who was most responsible for **determining the goals and content** of the SBCD products?*	○ Others, outside of our school (e.g. IB, municipality, ministry) ○ Our school
2.8	*Who was most responsible for **monitoring the effects** of this SBCD project?*	○ Others, outside of our school (e.g. IB, ministry, external inspectorate) ○ Our school
2.9	*How would you best characterize **interactions** during this SBCD project?*	○ Top-down: IB defined what needed to be done and shaped work during development ○ Bottom-up: Teachers or school leaders defined what needed to be done and shaped work during development) ○ Push-and-release: After the IB defined what needed to be done, teachers or school leaders shaped work during development ○ Side-side: IB schools took initiative to collaborate with other IB schools
2.10	*How would you characterize this most recent project as **compared to other SBCD projects** at your school?*	○ Typical ○ Rare

Third set of questions

3. Please consider the curricular product(s) you made in your most recent SBCD project:		
3.1	*What kinds of **expertise** clearly influenced the quality of the curricular **products** in this SBCD project?*	☐ Expertise for addressing student needs in the product ☐ Expertise for attending to teachers' concerns and constraints when using the product ☐ Disciplinary/subject matter expertise ☐ Pedagogical (content) expertise related to the SBCD challenge ☐ Assessment expertise ☐ Graphic design expertise ☐ Expertise for attending to school's vision and profile - IB-related or school or each? ☐ Expertise for characterizing the curriculum (skills-, knowledge-based, systematic teaching) ☐ Other, namely: _____
3.2	*What kinds of **artefacts** clearly influenced the quality of the curricular **products** in this SBCD project?*	☐ Inspiring examples of externally created curriculum elements (e.g. instructional resources, test examples) ☐ Ready-made components of the new curriculum (existing tests, visualizations, movies found in (online) repositories ☐ Reference materials for public use (e.g. handbooks on subject matter, pedagogical content knowledge) ☐ Guidelines specifically for interpretation of relevant policies (e.g. IB-related, country-related) ☐ Other, namely: _____
3.3	*What **visible structures or invisible values** clearly influenced the quality of the curricular **products** in this SBCD project?*	☐ School's clear focus on learners and their needs ☐ School's clear focus on teachers and their needs ☐ Access to (external) expertise or potential users, especially teachers and students (e.g. professional learning communities) ☐ Services for materials production (e.g. graphic design, publishing, online hosting) ☐ Clarity of SBCD goals and vison (e.g. within communication by IB and/or school) ☐ Pressure or support from the school leadership ☐ Other, namely: _____

Fourth set of questions

4. Please consider the development processes in your most recent SBCD project:		
4.1	*What kinds of **expertise** clearly influenced the development **processes** in this SBCD project?*	☐ The belief that SBCD is our responsibility ☐ The conviction that the SBCD project is worthwhile ☐ Empathy for the learners and/or teachers that it served ☐ Analysis expertise (e.g. problem and needs analysis) ☐ Design expertise (e.g. prototyping, making draft versions) ☐ Construction expertise (e.g. writing the materials, graphic design, lay-out) ☐ Evaluation expertise (e.g. asking for feedback, performing test runs) ☐ Implementation expertise (e.g. understanding and facilitating the actual use, actively attending to product clarity) ☐ Expertise to monitor the curriculum implementation (e.g. through observation and feedback) ☐ Project management expertise (e.g. planning, organizing, directing the completion of the project within time, budget, and scope) ☐ Other, namely: _____
4.2	*What kinds of **artefacts** clearly guided the development **processes** in your SBCD project?*	☐ Resources for (conceptual) understanding development activities (e.g. handbooks, guides, principles, models, frameworks) ☐ Resources for carrying out development activities (e.g. job aids, templates, tools, instruments) ☐ Other, namely: _____
4.3	*What **visible structures or invisible values** clearly enabled personnel to be involved in SBCD project **processes**?*	☐ Leadership (e.g. school leader monitors, reassures, and also grants freedom to design team) ☐ Culture (e.g. engagement with and eagerness for design work is present in the school atmosphere) ☐ Choice (e.g. teacher-designers have access to resources such as time, budget, or scheduling assistance and have the authority to decide how they are allocated ☐ Support (e.g. active endorsement of or communication about SBCD goals, processes, or results) ☐ Access to external expertise (e.g. formal or informal communications with experts or experienced colleagues outside of school) ☐ Other, namely: _____

Fifth set of questions

5. Please consider stakeholders not on staff (e.g. students, parents, school board) in your most recent SBCD project:		
5.1	*What kind of **expertise** was clearly used to stimulate **stakeholder** engagement in this SBCD project?*	☐ Identifying and valuing relevant stakeholders (e.g. students, teachers, principals, alumni, school board, external providers) ☐ Communicating and collaborating with relevant stakeholders (e.g. engaging them to participate and interact, discussing draft versions) ☐ Curricular leadership expertise (e.g. setting direction, addressing conflicting intentions and expectations) ☐ Other, namely: _____
5.2	*What kinds of **artefacts** were used to engage **stakeholders** in this SBCD project?*	☐ Communication tips and guidelines (e.g. books, articles, job aids, work sheets) ☐ Boundary objects (e.g. prototypes, draft versions, examples of proposed product) ☐ Spreading vehicles (e.g. newsletters, websites, mail, social media) ☐ Other, namely: _____
5.3	*What **visible structures or invisible values** influenced **stakeholder** engagement in this SBCD project?*	☐ School's open culture to welcome and involve stakeholders ☐ Existing structures (e.g. meetings) for facilitating stakeholder communication (e.g. student committees, parent advisory boards, teacher networks) ☐ Channels for distribution and spread ☐ Other, namely: _____

Sixth set of questions

6. Please share your perspectives on the SBCD at <u>your school</u>		
6.1	*How satisfied are **you** with the SBCD practices at your school?*	○ Very satisfied, the main goal is maintaining quality ○ Somewhat satisfied, but improvements might be possible ○ Not satisfied, major improvements are needed
6.2	*How satisfied is **the team at your school** with the SBCD practices at your school?*	○ Very satisfied, the main goal is maintaining quality ○ Somewhat satisfied, but improvements might be possible ○ Not satisfied, major improvements are needed
6.3	*How do you currently perceive the **guidance received from the IB** for your SBCD?*	○ Very satisfied, the main goal should be maintaining it ○ Somewhat satisfied, but improvements might be possible ○ Not satisfied, major improvements are needed
6.4	*Would you **like to learn** about ways to further improve SBCD efforts?*	○ Yes, please send me written information ○ Yes, please invite my school to participate in 3 online workshops ○ No, we are fine, thank you
6.5	*If you answered yes to 6.4, please provide your **email***	_____
6.6	*Approximately **how many learners** attend your primary school?*	_____
6.7	*Do you want to share any **comments** about SBCD at your school, or this survey?*	_____

Survey submit page

International Baccalaureate Primary Years Program School-Based Curriculum Development Survey

You have answered all of the questions in this survey.

If you are ready to submit the survey, click here: <<Submit button>>

Submission confirmation page

International Baccalaureate Primary Years Program School-Based Curriculum Development Survey

Thank you for talking the time to complete this survey!

Your response has been recorded.
Click here if you would like to download a copy of your responses: <<Download button (if possible)>>

Appendix 5.2: Color Coded Items-Variables-Values for Survey 1

Item	V-ID	V-Description	Values
		Meta data excluded from any cluster analysis	
		Respondents	
1.1	R1	Primary role within the school	1= School leader 2=IB-PYP coordinator 3=Other
1.1	R1-O	If other then namely	Text
1.2	R2	Gender	1=Male 2=Female 3=Other
1.3	R3	Age	#
1.4	R4	Years working at this school	#
1.5	R5	Number of SBCD projects respondent did at this school	#
6.6	R6	Number of learners at school	#
		Needs	
6.1	N1	How satisfied are you with the SBCD practices at your school?	1=Very satisfied 2=Somewhat satisfied 3=Not satisfied
6.2	N2	How satisfied is the team at your school with the SBCD practices at your school?	1=Very satisfied 2=Somewhat satisfied 3=Not satisfied
6.3	N3	How do you currently perceive the guidance received from the IB for your SBCD?	1=Very satisfied 2=Somewhat satisfied 3=Not satisfied
6.4	N4	Would you like to learn about ways to further improve SBCD efforts?	1=Yes-info only 2=Yes-info+workshops 3=No
6.5	N4-E	If you answered yes to 6.4, please provide your email	Text
6.7	N5	Do you want to share any comments about SBCD at your school, or this survey?	Text
		Meta data + potential cluster predictors	
		Nature of the SBCD project	
2.1	P1a	Central subject areas: Language	0=No 1=Yes
2.1	P1b	Central subject areas: Mathematics	0=No 1=Yes
2.1	P1c	Central subject areas: Science	0=No 1=Yes
2.1	P1d	Central subject areas: Social studies, geography, history	0=No 1=Yes
2.1	P1e	Central subject areas: Arts	0=No 1=Yes
2.1	P1f	Central subject areas: Physical education	0=No 1=Yes
2.1	P1g	Central subject areas: Other	0=No 1=Yes
2.2	P2a	Products-in class: Learning resources	0=No 1=Yes
2.2	P2b	Products-in class: Teaching resources	0=No 1=Yes
2.2	P2b	Products-in class: Teaching resources	0=No 1=Yes
2.2	P2c	Products-in class: Environment	0=No 1=Yes
2.2	P2d	Products-in class: Assessment	0=No 1=Yes
2.2	P2e	Products-in class: Other	0=No

			1=Yes
2.2	P2e-O	Products-in class: If other then namely	Text
2.2	P3a	Products-shape class: School vision or profile	0=No 1=Yes
2.2	P3b	Products-shape class: Syllabus or learning progression	0=No 1=Yes
2.2	P3c	Products-shape class: Assessment plans	0=No 1=Yes
2.2	P3d	Products-shape class: Other	0=No 1=Yes
2.2	P3d-O	Products-shape class: If other then namely	Text
2.3	P4a	Creators: Teacher(s)	0=No 1=Yes
2.3	P4b	Creators: School leader(s)	0=No 1=Yes
2.3	P4c	Creators: External group(s)	0=No 1=Yes
2.3	P4d	Creators: Other	0=No 1=Yes
2.3	P4-O	Creators: If other then namely	Text
2.4	P5a	Teachers roles	1=No significant role 2=Proactive 3=Reactive 4=Both proactive and reactive
2.5	P5b	School leader/principal roles	1=No significant role 2=Proactive 3=Reactive 4=Both proactive and reactive
2.6	P5c	External expert roles	1=No significant role 2=Proactive 3=Reactive 4=Both proactive and reactive
2.10	P6	Compared to other SBCD projects at your school?	1=Typical 2=Rare
		Influences on the SBCD processes and outcomes	
2.7	I1	Input regulation	1=Others 2=Our school
2.8	I2	Output regulation	1=Others 2=Our school
2.9	I3	Change interactions	1=Top-down 2=Bottom-up 3=Push-and-release 4=Side-side
		Infrastructure data for cluster analysis	
		Substantive	
3.1	HS1	Product expertise: Student needs	0=No 1=Yes
3.1	HS2	Product expertise: Teachers' concerns	0=No 1=Yes
3.1	HS3	Product expertise: Disciplinary	0=No 1=Yes

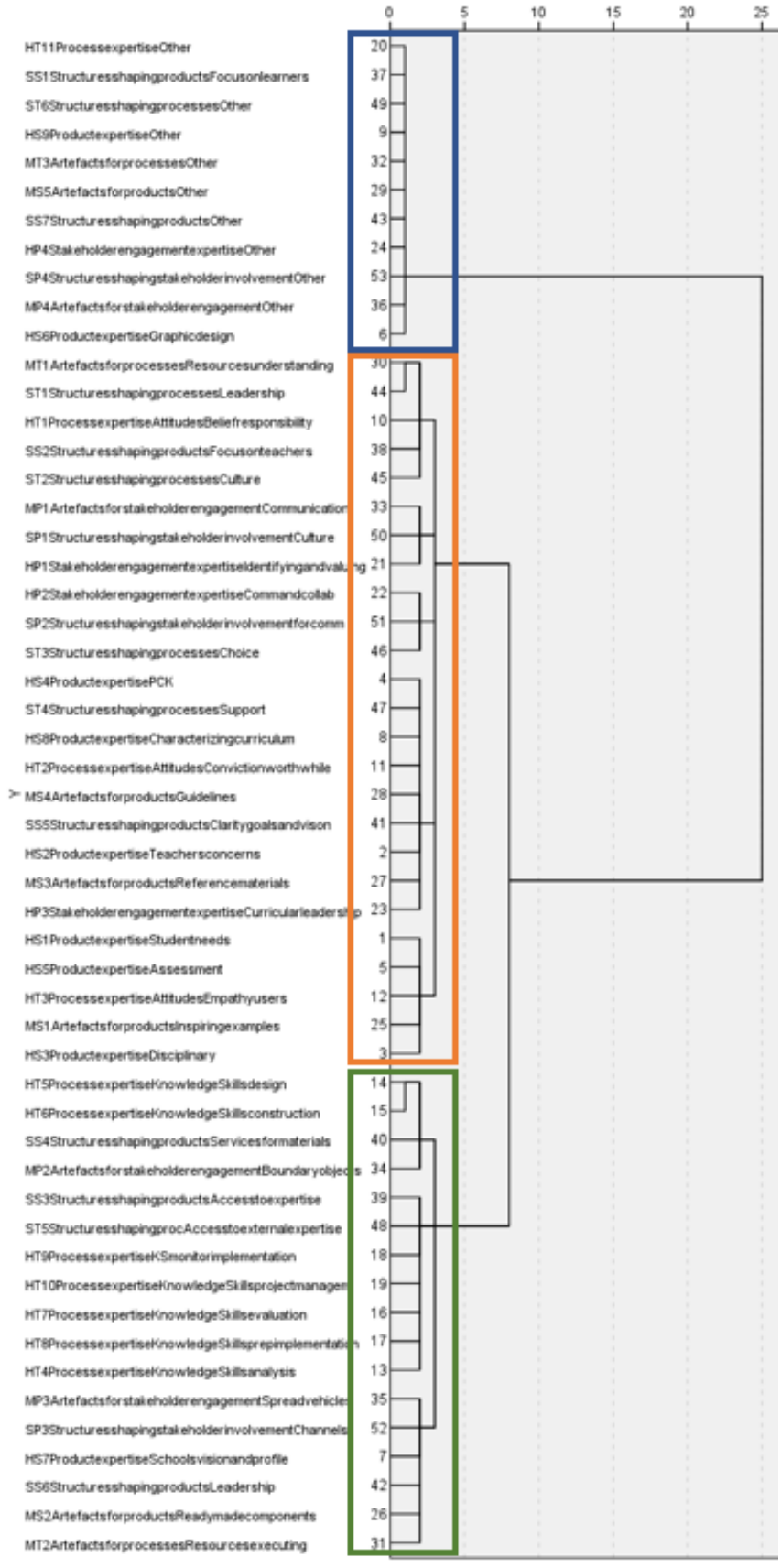
3.1	HS4	Product expertise: P(C)K	0=No 1=Yes
3.1	HS5	Product expertise: Assessment	0=No 1=Yes
3.1	HS6	Product expertise: Graphic design	0=No 1=Yes
3.1	HS7	Product expertise: School's vision and profile	0=No 1=Yes
3.1	HS8	Product expertise: Characterizing curriculum	0=No 1=Yes
3.1	HS9	Product expertise: Other	0=No 1=Yes
3.1	HS9-O	Product expertise: If other then namely	Text
3.2	MS1	Artefacts for products: Inspiring examples	0=No 1=Yes
3.2	MS2	Artefacts for products: Ready-made components	0=No 1=Yes
3.2	MS3	Artefacts for products: Reference materials	0=No 1=Yes
3.2	MS4	Artefacts for products: Guidelines	0=No 1=Yes
3.2	MS5	Artefacts for products: Other	0=No 1=Yes
3.2	MS5-O	Artefacts for products: If other then namely	Text
3.3	SS1	Structures shaping products: Focus on learners	0=No 1=Yes
3.3	SS2	Structures shaping products: Focus on teachers	0=No 1=Yes
3.3	SS3	Structures shaping products: Access to expertise	0=No 1=Yes
3.3	SS4	Structures shaping products: Services for materials	0=No 1=Yes
3.3	SS5	Structures shaping products: Clarity goals and vison	0=No 1=Yes
3.3	SS6	Structures shaping products: Leadership	0=No 1=Yes
3.3	SS7	Structures shaping products: Other	0=No 1=Yes
3.3	SS7-O	Structures shaping products: If other then namely	Text
		Technical-professional	
4.1	HT1	Process expertise: Attitudes/Belief-responsibility	0=No 1=Yes
4.1	HT2	Process expertise: Attitudes/Conviction-worthwhile	0=No 1=Yes
4.1	HT3	Process expertise: Attitudes/Empathy-users	0=No 1=Yes
4.1	HT4	Process expertise: Knowledge/Skills-analysis	0=No 1=Yes
4.1	HT5	Process expertise: Knowledge/Skills-design	0=No 1=Yes
4.1	HT6	Process expertise: Knowledge/Skills-construction	0=No 1=Yes
4.1	HT7	Process expertise: Knowledge/Skills-evaluation	0=No 1=Yes
4.1	HT8	Process expertise: Knowledge/Skills- prep implementation	0=No 1=Yes
4.1	HT9	Process expertise: Knowledge/Skills- monitor implementation	0=No 1=Yes
4.1	HT10	Process expertise: Knowledge/Skills- project management	0=No 1=Yes
4.1	HT11	Process expertise: Other	0=No 1=Yes
4.1	HT11-O	Process expertise: If other then namely	Text
4.2	MT1	Artefacts for processes: Resources-understanding	0=No 1=Yes

4.2	MT2	Artefacts for processes: Resources-executing	0=No 1=Yes
4.2	MT3	Artefacts for processes: Other	0=No 1=Yes
4.2	MT3-O	Artefacts for processes: If other then namely	Text
4.3	ST1	Structures shaping processes: Leadership	0=No 1=Yes
4.3	ST2	Structures shaping processes: Culture	0=No 1=Yes
4.3	ST3	Structures shaping processes: Choice	0=No 1=Yes
4.3	ST4	Structures shaping processes: Support	0=No 1=Yes
4.3	ST5	Structures shaping processes: Access to external expertise	0=No 1=Yes
4.3	ST6	Structures shaping processes: Other	0=No 1=Yes
4.3	ST6-O	Structures shaping processes: If other then namely	Text
		Socio-political	
5.1	HP1	Stakeholder engagement expertise: Identifying and valuing	0=No 1=Yes
5.1	HP2	Stakeholder engagement expertise: Communicating and collaborating	0=No 1=Yes
5.1	HP3	Stakeholder engagement expertise: Curricular leadership	0=No 1=Yes
5.1	HP4	Stakeholder engagement expertise: Other	0=No 1=Yes
5.1	HP4-O	Stakeholder engagement expertise: if other then namely	Text
5.2	MP1	Artefacts for stakeholder engagement: Communication	0=No 1=Yes
5.2	MP2	Artefacts for stakeholder engagement: Boundary objects	0=No 1=Yes
5.2	MP3	Artefacts for stakeholder engagement: Spreading vehicles	0=No 1=Yes
5.2	MP4	Artefacts for stakeholder engagement: Other	0=No 1=Yes
5.2	MP4-O	Artefacts for stakeholder engagement: If other then namely	Text
5.3	SP1	Structures shaping stakeholder involvement: Culture of involvement	0=No 1=Yes
5.3	SP2	Structures shaping stakeholder involvement: Structures for communication	0=No 1=Yes
5.3	SP3	Structures shaping stakeholder involvement: Channels for distribution and spread	0=No 1=Yes
5.3	SP4	Structures shaping stakeholder involvement: Other	0=No 1=Yes
5.3	SP4-O	Structures shaping stakeholder involvement: If other then namely	Text

Appendix 5.3: Chi Squared Contingency Table

Question	ID	Item	IB	Headmast.	Total	IB	XP Value IB	Difference	Chi Squared	Headmast.	XP Value Headmast.	Difference	Chi Squared	P-Value	Group frequency higher than XP	Group Chi-Squared	Group P-Value
3.1 What kinds of expertise clearly influenced the quality of the curricular products in this SBCD project?																	
	HS1	Product expertise: Student needs	343	202	545	343	348,37	-5,37	0,08	202	196,63	5,37	0,15	0,63		9,87	**0,27**
	HS2	Product expertise: Teachers' concerns	260	162	422	260	269,75	-9,75	0,35	162	152,25	9,75	0,62	0,32			
	HS3	Product expertise: Disciplinary	281	150	431	281	275,50	5,50	0,11	150	155,50	-5,50	0,19	0,58			
	HS4	Product expertise: P(C)K	295	196	491	295	313,85	-18,85	1,13	196	177,15	18,85	2,01	0,08	*Headmasters ++*		
	HS5	Product expertise: Assessment	269	178	447	269	285,73	-16,73	0,98	178	161,27	16,73	1,74	0,10	*Headmasters ++*		
	HS6	Product expertise: Graphic design	42	24	66	42	42,19	-0,19	0,00	24	23,81	0,19	0,00	0,96			
	HS7	Product expertise: School's vision and profile	184	118	302	184	193,04	-9,04	0,42	118	108,96	9,04	0,75	0,28			
	HS8	Product expertise: Characterizing curriculum	330	197	527	330	336,87	-6,87	0,14	197	190,13	6,87	0,25	0,53			
	HS9	Product expertise: Other	19	7	26	19	16,62	2,38	0,34	7	9,38	-2,38	0,60	0,33			
3.2 What kinds of artefacts clearly influenced the quality of the curricular products in this SBCD project?																	
	MS1	Artefacts for products: Inspiring examples	309	181	490	309	313,22	-4,22	0,06	181	176,78	4,22	0,10	0,69		4,91	**0,30**
	MS2	Artefacts for products: Ready-made components	182	126	308	182	196,88	-14,88	1,12	126	111,12	14,88	1,99	0,08	*Headmasters ++*		
	MS3	Artefacts for products: Reference materials	313	159	472	313	301,71	11,29	0,42	159	170,29	-11,29	0,75	0,28			
	MS4	Artefacts for products: Guidelines	329	180	509	329	325,36	3,64	0,04	180	183,64	-3,64	0,07	0,74			
	MS5	Artefacts for products: Other	17	12	29	17	18,54	-1,54	0,13	12	10,46	1,54	0,23	0,55			
3.3 What visible structures or invisible values clearly influenced the quality of the curricular products in this SBCD project?																	
	SS1	Structures shaping products: Focus on learners	0	0	0	0	0,00	0,00	0,00	0	0,00	0,00	0,00	1,00		7,98	**0,24**
	SS2	Structures shaping products: Focus on teachers	349	224	573	349	366,27	-17,27	0,81	224	206,73	17,27	1,44	0,13	*Headmasters ++*		
	SS3	Structures shaping products: Access to expertise	247	147	394	247	251,85	-4,85	0,09	147	142,15	4,85	0,17	0,61			
	SS4	Structures shaping products: Services for materials	88	64	152	88	97,16	-9,16	0,86	64	54,84	9,16	1,53	0,12	*Headmasters ++*		
	SS5	Structures shaping products: Clarity goals and vison	242	151	393	242	251,21	-9,21	0,34	151	141,79	9,21	0,60	0,33			
	SS6	Structures shaping products: Leadership	193	127	320	193	204,55	-11,55	0,65	127	115,45	11,55	1,16	0,18	*Headmasters ++*		
	SS7	Structures shaping products: Other	24	11	35	24	22,37	1,63	0,12	11	12,63	-1,63	0,21	0,57			
4.1 What kinds of expertise clearly influenced the development processes in this SBCD project?																	
	HT1	Process expertise: Attitudes/Belief-responsibility	406	228	634	406	405,26	0,74	0,00	228	228,74	-0,74	0,00	0,95		18,35	**0,05**
	HT2	Process expertise: Attitudes/Conviction-worthwhile	258	191	449	258	287,01	-29,01	2,93	191	161,99	29,01	5,19	0,00	*Headmasters ++*		
	HT3	Process expertise: Attitudes/Empathy-users	309	179	488	309	311,94	-2,94	0,03	179	176,06	2,94	0,05	0,78			
	HT4	Process expertise: Knowledge/Skills-analysis	232	162	394	232	251,85	-19,85	1,56	162	142,15	19,85	2,77	0,04	*Headmasters ++*		
	HT5	Process expertise: Knowledge/Skills-design	141	84	225	141	143,82	-2,82	0,06	84	81,18	2,82	0,10	0,70			
	HT6	Process expertise: Knowledge/Skills-construction	142	80	222	142	141,91	0,09	0,00	80	80,09	-0,09	0,00	0,99			
	HT7	Process expertise: Knowledge/Skills-evaluation	209	144	353	209	225,64	-16,64	1,23	144	127,36	16,64	2,17	0,07	*Headmasters ++*		
	HT8	Process expertise: Knowledge/Skills- prep implementation	268	163	431	268	275,50	-7,50	0,20	163	155,50	7,50	0,36	0,45			
	HT9	Process expertise: Knowledge/Skills- monitor implementation	254	159	413	254	264,00	-10,00	0,38	159	149,00	10,00	0,67	0,31			
	HT10	Process expertise: Knowledge/Skills- project management	218	134	352	218	225,00	-7,00	0,22	134	127,00	7,00	0,39	0,44			
	HT11	Process expertise: Other	6	3	9	6	5,75	0,25	0,01	3	3,25	-0,25	0,02	0,86			
4.2 What kinds of artefacts clearly guided the development processes in your SBCD project?																	
	MT1	Artefacts for processes: Resources-understanding	415	234	649	415	414,85	0,15	0,00	234	234,15	-0,15	0,00	0,99		0,50	**0,78**
	MT2	Artefacts for processes: Resources-executing	261	143	404	261	258,24	2,76	0,03	143	145,76	-2,76	0,05	0,78			
	MT3	Artefacts for processes: Other	12	9	21	12	13,42	-1,42	0,15	9	7,58	1,42	0,27	0,52			
4.3 What visible structures or invisible values clearly enabled personnel to be involved in SBCD project processes?																	
	ST1	Structures shaping processes: Leadership	388	237	625	388	399,51	-11,51	0,33	237	225,49	11,51	0,59	0,34		5,41	**0,37**
	ST2	Structures shaping processes: Culture	356	224	580	356	370,75	-14,75	0,59	224	209,25	14,75	1,04	0,20	*Headmasters ++*		
	ST3	Structures shaping processes: Choice	268	147	415	268	265,27	2,73	0,03	147	149,73	-2,73	0,05	0,78			
	ST4	Structures shaping processes: Support	299	194	493	299	315,13	-16,13	0,83	194	177,87	16,13	1,46	0,13	*Headmasters ++*		
	ST5	Structures shaping processes: Access to external expertise	167	103	270	167	172,59	-5,59	0,18	103	97,41	5,59	0,32	0,48			
	ST6	Structures shaping processes: Other	9	5	14	9	8,95	0,05	0,00	5	5,05	-0,05	0,00	0,98			
5.1 What kind of expertise was clearly used to stimulate stakeholder engagement in this SBCD project?																	
	HP1	Stakeholder engagement expertise: Identifying and valuing	292	159	451	292	288,29	3,71	0,05	159	162,71	-3,71	0,08	0,72		4,28	**0,23**
	HP2	Stakeholder engagement expertise: Communicating and collaborating	302	197	499	302	318,97	-16,97	0,90	197	180,03	16,97	1,60	0,11	*Headmasters ++*		
	HP3	Stakeholder engagement expertise: Curricular leadership	249	158	407	249	260,16	-11,16	0,48	158	146,84	11,16	0,85	0,25	*Headmasters ++*		
	HP4	Stakeholder engagement expertise: Other	20	9	29	20	18,54	1,46	0,12	9	10,46	-1,46	0,20	0,57			
5.2 What kinds of artefacts were used to engage stakeholders in this SBCD project?																	
	MP1	Artefacts for stakeholder engagement: Communication	297	174	471	297	301,07	-4,07	0,06	174	169,93	4,07	0,10	0,70		2,73	**0,44**
	MP2	Artefacts for stakeholder engagement: Boundary objects	149	100	249	149	159,16	-10,16	0,65	100	89,84	10,16	1,15	0,18	*Headmasters ++*		
	MP3	Artefacts for stakeholder engagement: Spreading vehicles	286	170	456	286	291,48	-5,48	0,10	170	164,52	5,48	0,18	0,59			
	MP4	Artefacts for stakeholder engagement: Other	35	16	51	35	32,60	2,40	0,18	16	18,40	-2,40	0,31	0,48			
5.3 What visible structures or invisible values influenced stakeholder engagement in this SBCD project?																	
	SP1	Structures shaping stakeholder involvement: Culture of involvement	307	198	505	307	322,80	-15,80	0,77	198	182,20	15,80	1,37	0,14	*Headmasters ++*	14,35	**0,00**
	SP2	Structures shaping stakeholder involvement: Structures for communication	295	192	487	295	311,30	-16,30	0,85	192	175,70	16,30	1,51	0,12	*Headmasters ++*		
	SP3	Structures shaping stakeholder involvement: Channels for distribution and spread	167	121	288	167	184,09	-17,09	1,59	121	103,91	17,09	2,81	0,04	*Headmasters ++*		
	SP4	Structures shaping stakeholder involvement: Other	29	6	35	29	22,37	6,63	1,96	6	12,63	-6,63	3,48	0,02	*IB++*		

Appendix 5.4: Custer Analysis Dendrogram



Appendix 5.5: Cluster Membership Analysis

	Unconvential Cluster	PeopleLeader Cluster	Technical Cluster	No Cluster
Cluster Membership				
TOTAL ALL (n=765)	13	677	66	6
Distribution IB (100%)	1,84%	87,73%	9,41%	1,02%
Distribution Headmasters (100%)	1,45%	89,86%	7,25%	0,36%
Total IB (n=489)	9	429	46	5
Expected IB	8,31	432,75	42,19	3,84
Chi Squared	0,05	0,03	0,32	0,27
Total Headmasters (n=276)	4	248	20	1
Expected Headmasters	4,69	244,25	23,81	2,16
Chi Squared	0,12	0,06	0,73	1,36
Clustermembership differences				
P-Value difference IB vs. Headmasters	0,68	0,76	0,31	0,20
	(not significant)	*(not significant)*	*(not significant)*	*(not significant)*

Appendix 6.1: School 1 Full Case Study Report

6.1.1 Intake interview

Four participants were present for the intake interview: the school leader, the IB-PYP coordinator and two teachers.

Current or upcoming project (what-how-who)

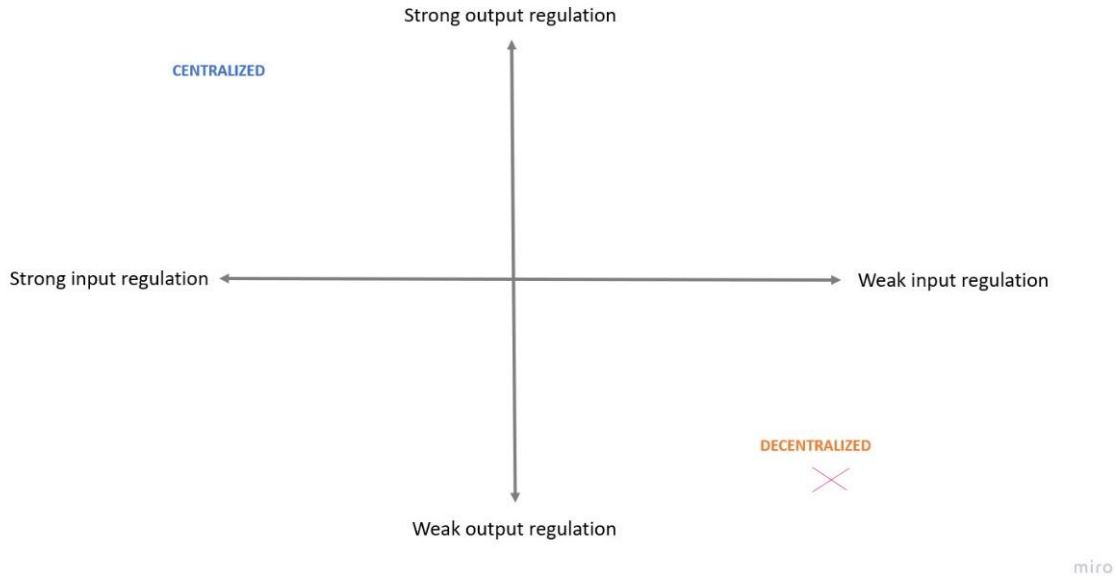
An essential issue that was raised by the team during the intake interview was that they currently have no curriculum to follow in language and math. This is of concern to them, because although they use the method of Singapore Math, and math and language skills are addressed through the units of inquiry, there is no real continuum or progression line. They are looking for a curriculum that fits the IB, while providing a continuum and consistency. Some of the staff has experience with the British curriculum, but they are not a British school. They feel this curriculum is too rigorous for their needs, and that it does not fit the inquiry-based IB programme. During the workshops, this team worked on developing criteria for a curriculum that they would like to implement. The focus is on the language curriculum, especially reading, because there are not many native speakers in their school and participants feel that students' lack of comprehensive reading skills impedes on the implementation of inquiry learning.

Policy (regulation, roles, organizational change)

The curriculum policy for this school is highly decentralized (see Figure 6.1.1.1). The school is not subject to any substantial input or output regulation from the government. There are no fixed attainment targets or school inspections. The staff expresses a need for more structure and guidance in this respect. Although autonomy and freedom are appreciated, they feel this level of decentralization results in a lack of consistency from year to year. The school is currently growing in terms of students, which increases the need to develop a solid foundation for the curriculum.

Figure 6.1.1.1

Input and output regulation as described by participants.



6.1.2 Workshop 1: Substantive perspective

Eight participants were present for workshop 1: the school leader, the IB-PYP coordinator and six teachers. However, not all attendees participated in the polls.

Document analysis

Products created during the warm-up task

During this workshop, participants listed their wishes for a potential new reading curriculum at their school (see Figure 6.1.2.1). One of the major goals of the new curriculum would be to make learning expectations more explicit in order to establish continuity across year levels, raise reading levels and identify gaps in the curriculum. The team also proposed to conduct an informal assessment of students' reading levels before admission in order to gauge their starting levels. Another helpful practice, according to the participants, would be to create a language profile for each learner. Resources are also an important factor: teachers express they would like more physical books in the classroom and would like to use a structured reading scheme like the Ladybird System or the Oxford Reading Scheme. Furthermore, the staff values collaboration and reflection. They would like to have more time to pass information from one grade to the next, preferably accompanied by learner writing samples that can be handed over to the new teacher. They want to reflect on units at the end of the school year, as well as have a reflective discussion about the previous year at the beginning of the next. Moderation of work is another wish for the teachers. Furthermore, the staff values a sense of community in which learners are active members, and wherein parents are also included. In terms of differentiation, the team suggested to collaborate in conducting screenings in order to create collaborative, leveled reading groups. Lastly, one of the staff members suggests employing drama and theater to enhance spoken and written vocabulary.

Figure 6.1.2.1

Wishes for the reading curriculum, as discussed in the spider web activity during workshop 1.

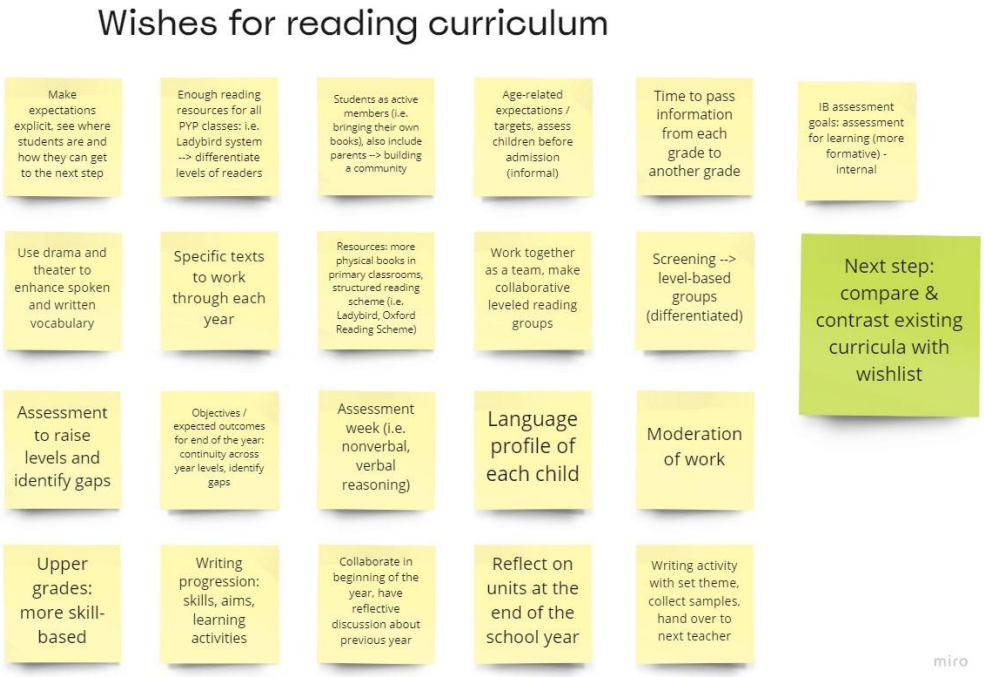
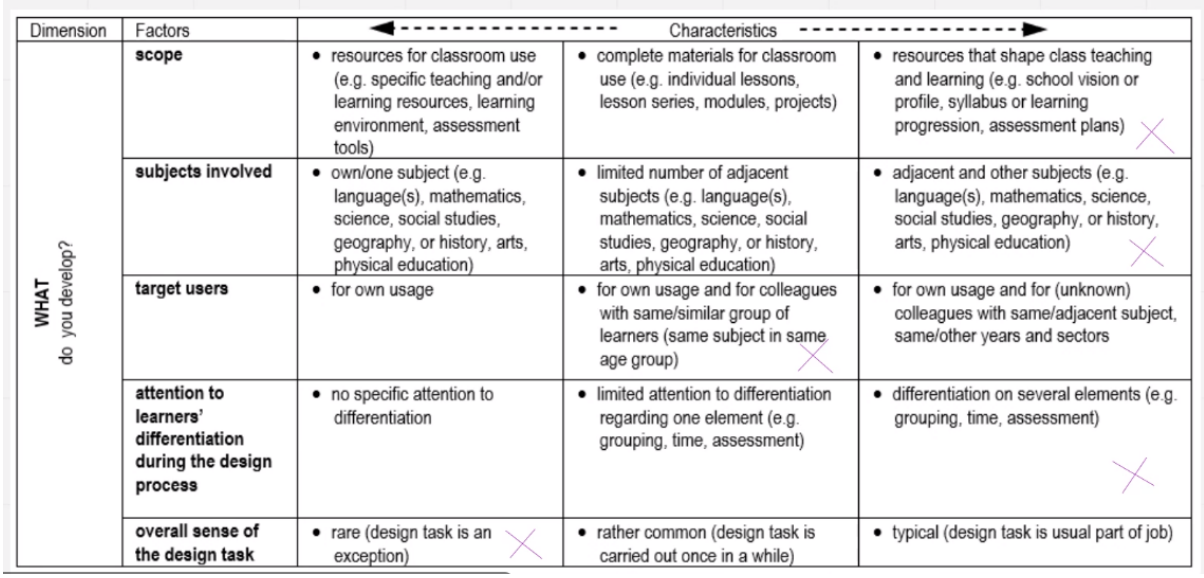


Figure 6.1.2.2

Overview of factors and characteristics of the developed product.



Dimension	Factors	◄---------- Characteristics ----------►		
WHAT do you develop?	**scope**	• resources for classroom use (e.g. specific teaching and/or learning resources, learning environment, assessment tools)	• complete materials for classroom use (e.g. individual lessons, lesson series, modules, projects)	• resources that shape class teaching and learning (e.g. school vision or profile, syllabus or learning progression, assessment plans)
	subjects involved	• own/one subject (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• limited number of adjacent subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• adjacent and other subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)
	target users	• for own usage	• for own usage and for colleagues with same/similar group of learners (same subject in same age group)	• for own usage and for (unknown) colleagues with same/adjacent subject, same/other years and sectors
	attention to learners' differentiation during the design process	• no specific attention to differentiation	• limited attention to differentiation regarding one element (e.g. grouping, time, assessment)	• differentiation on several elements (e.g. grouping, time, assessment)
	overall sense of the design task	• rare (design task is an exception)	• rather common (design task is carried out once in a while)	• typical (design task is usual part of job)

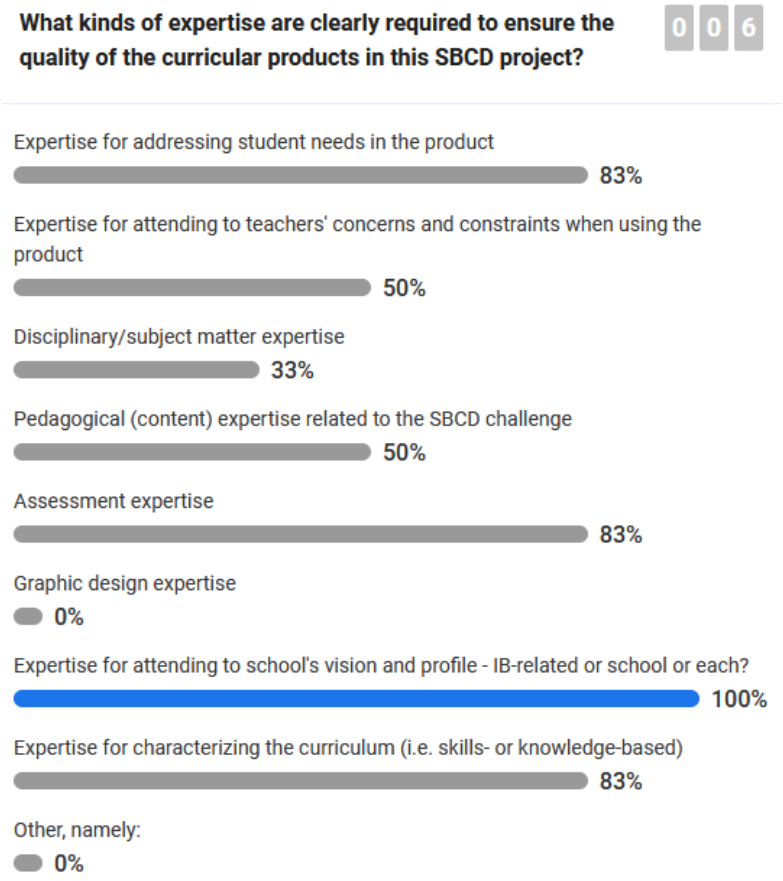
Factors and characteristics of the developed product were discussed (see Figure 6.1.2.2). The scope of the current project is wide and includes resources that shape class teaching and learning. Although the project focuses on reading, the participants emphasize the importance of subject integration, which is why all subjects are involved. The target users are the team itself and direct colleagues. Differentiation should take place on several elements and is a key part of the design. It is rare for this team to work on a design task like this.

Discussion

Human-substantive perspective

The kinds of expertise required to ensure the quality of the curricular products in this SBCD project were discussed using a poll (see Figure 6.1.2.3). Poll results show that all participants believe expertise for attending to the school's vision and profile is required. Other important factors are expertise for addressing student needs in the product, assessment expertise, and expertise for characterizing the curriculum (83%; 5 out of 6 participants). Three out of six (50%) of the participants think expertise for attending to teachers' concerns and constraints when using the product, and pedagogical (content) expertise related to the SBCD challenge are also important. Only 33%, or 2 out of 6 participants think disciplinary or subject matter expertise is essential, while none of the participants chose to select graphic design expertise.

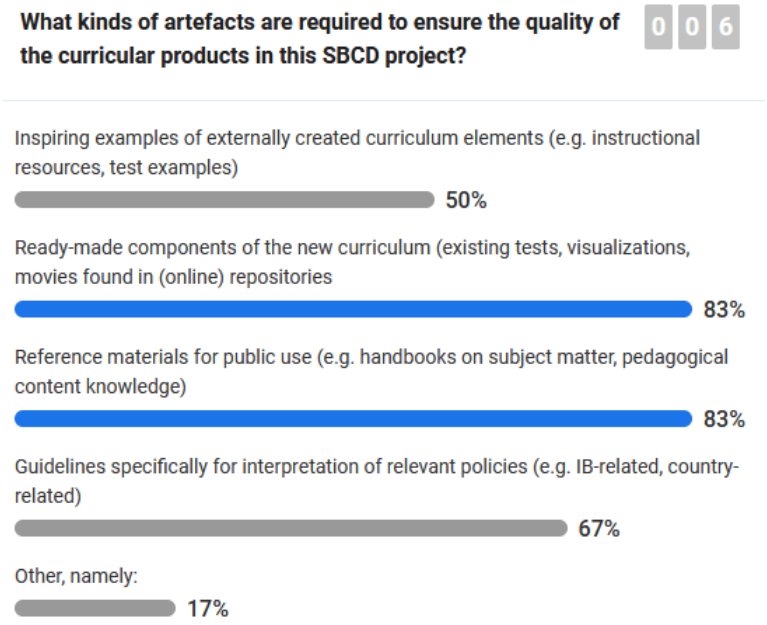
Figure 6.1.2.3
Poll results from workshop 1, question 1 regarding the human-substantive perspective.



Material-substantive perspective

The artefacts required to ensure the quality of the curricular products in this SBCD project were discussed (see Figure 6.1.2.4). Most participants (83%; 5 out of 6) value ready-made components and reference materials as artefacts that help ensure the quality of the curricular products. Guidelines for interpretation of relevant policies are considered helpful by 67% (4 out of 6) participants, whereas 50% (3 out of 6) participants believe that inspiring examples are required. 1 out of 6 participants (17%) selected the answer option ‘other’.

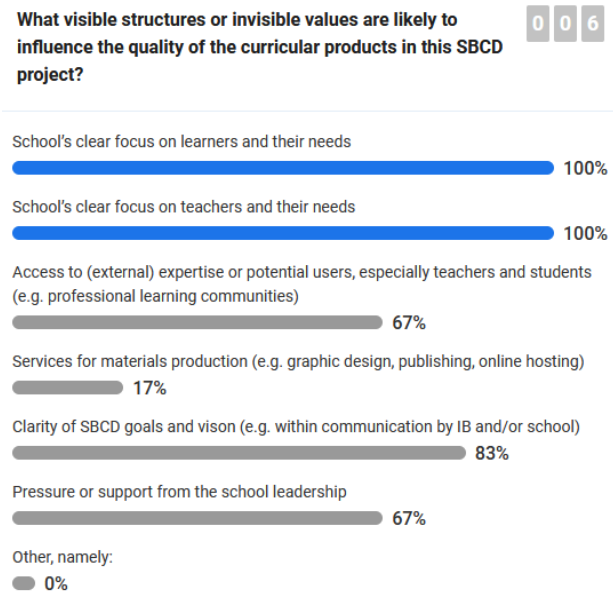
Figure 6.1.2.4
Poll results from workshop 1, question 2 regarding the material-substantive perspective.



Structural-substantive perspective

The visible structures and invisible values that are likely to influence the quality of the curricular products in this SBCD project were discussed (see Figure 6.1.2.5). In terms of, the participants unanimously voted for the importance of the school's clear focus on learners and their needs, as well as teachers and their needs. The clarity of SBCD goals and vision are considered important by 83% (5 out of 6) of the participants, whereas access to (external) expertise or potential users was selected as an important factor by 4 out of 6 participants (67%). Lastly, one of the participants (17%) also thought services for materials production were valuable.

Figure 6.1.2.5
Poll results from workshop 1, question 3 regarding the structural-substantive perspective.



Reflection

Human-substantive perspective

The value the staff places on expertise for attending to the school's vision or profile is evident in their search of a fitting curriculum. Staff members are experienced in working with various curricula but have mentioned that they do not feel that these curricula fit the needs and philosophy of an IB school. The importance of assessment is also reflected in the product created during the workshop: teachers express that although they do not always enjoy the process of assessment, they believe it has a significant place in making sure there is continuity across grade levels, and that gaps in the curriculum are identified. They also express that there should be a good balance between formative and summative assessment, as well as assessment of different types of skills (i.e., inquiry vs. math and language). Similarly, the need for expertise for characterizing the curriculum can be related to their expression of wanting a more defined and explicit curriculum or reading progression. The main goal is to identify and attend to student needs in terms of their reading level.

Material-substantive perspective

The staff showed that they are reviewing ready-made components, such as existing curricula and products created by previous employees. Examples of reference materials are content-based resources related to the K-12 system this school uses, which are used to inspire units of inquiry. Another example is that, even though the school does not have access to the complete Ladybird collection, they still use the Ladybird system as a reference to match their own library books to the levels used in this system. They also use the underlying methodology of systems like the Cambridge System, as well as other resources like YouTube videos, workshops or research papers.

Structural-substantive perspective

The focus on teachers' and learners' needs is reflected in the philosophy of the school, which is that they view their school as a family. External expertise can be an important source of reassurance for the teachers that they are on the right track and help them substantiate their choices, especially in instances of disagreement. Pressure or support from the school leadership is considered helpful and staff feels support from their direct leaders, but there may be some perceived distance between the teachers and the overall leadership of the school, such as the owner and executive manager of the school.

6.1.3 Workshop 2: Technical professional perspective

Ten participants were present for workshop 2: the school leader, the IB-PYP coordinator and eight teachers.

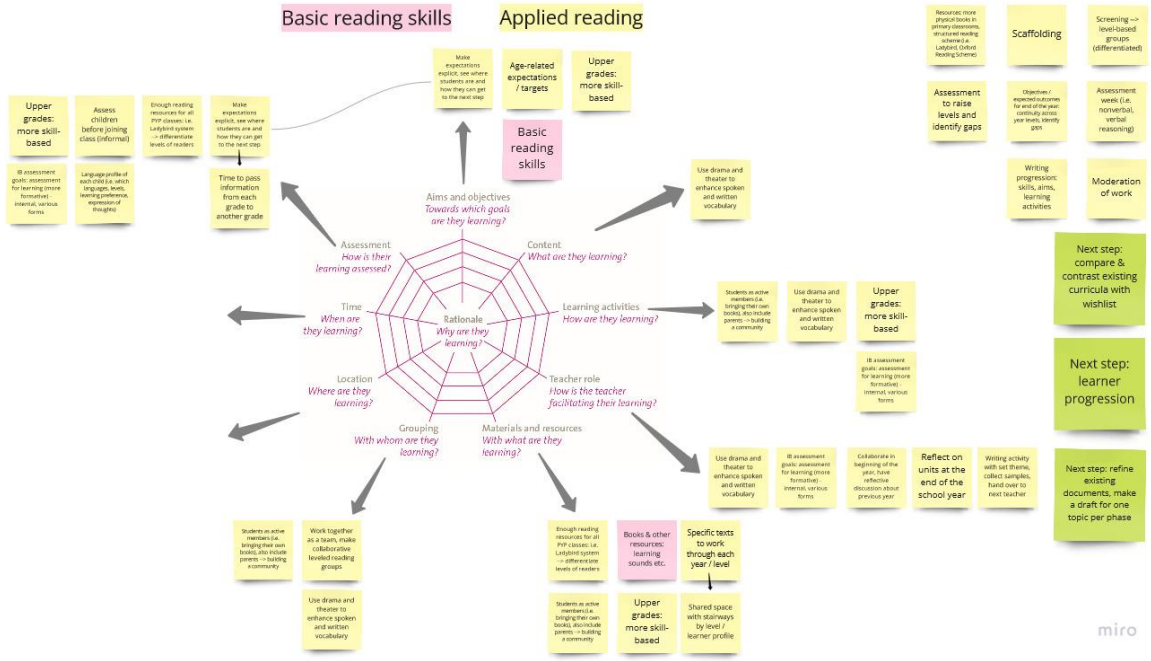
Document analysis

Products created during the warm-up task

During the second workshop, the wishes established in the previous session were connected to the spider's web (see Figure 6.1.3.1). The participants also noted that there is a distinction between the learners' development of basic and applied reading skills, which are integrated into the units of inquiry. The aims and objectives are to improve basic reading skills, establish age-related expectations and make these expectations explicit. Therefore, a need was expressed to allocate specific time slots to focusing on core skills (like phonics, but also in other subject areas, like mathematics). An example of an idea that participants have in terms of content, is to use drama and theater to enhance spoken and written vocabulary. This idea can also be considered a learning activity. When considering learning activities, participants feel that it is important that learners are active members. These activities should

become more skill-based towards the upper grades, as opposed to game-based experiences or experiences from home in the early years. The role of the teacher in a project like this is to consider the IB's assessment goals, which are focused on assessment for learning. They would like to partake in reflective activities and increase alignment between teachers across grades, for example by collecting student writing samples to hand over to the next teacher. The materials and resources that are needed include physical books and other resources, which are leveled and attuned to various learner profiles. During the workshop, various existing reading lists were shared among the teachers, as well as examples for learning progressions. In terms of grouping, the team would like to implement collaborative, leveled reading groups. In terms of assessment, a need was expressed for assessing students' reading level before they join the class, or to establish language profiles for each child. These assessments are meant for differentiation purposes. Student language profiles could include the languages that the students speak, at which levels, what their learning preferences are, and how clearly they are able to express their thoughts. The next steps for this project are to compare and contrast existing curricula with their wish list and establishing a learner progression.

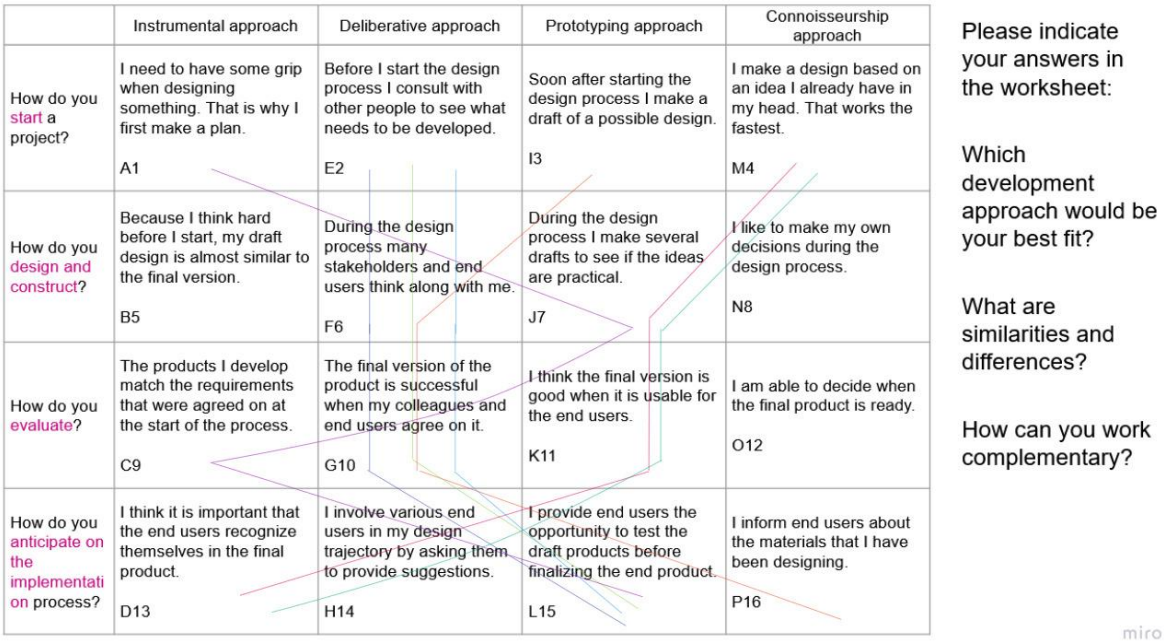
Figure 6.1.3.1
A refined version of the spider web activity, as discussed during workshop 2.



The designer game (see Figure 6.1.3.2) revealed that three out of seven teachers show a similar designer profile. They take a deliberative approach during the first three phases of the design work, and move towards a prototyping approach when anticipating on the implementation process. Two others also shared a profile: they start a project by making an idea they already have in their head (connoisseurship approach), and then move towards the prototyping approach in the next two phases of designing and constructing, and evaluating the project. During these phases, they make several drafts and consider the final version is good when it is usable for the end users. During anticipation on the implementation process, they take an instrumental approach: they believe that the end users should recognize themselves in the final project. Lastly, two participants followed a different path from the others. One participant combined the instrumental and prototyping approach, whereas

another used the deliberative, prototyping and connoisseurship approach. Generally, the deliberative and prototyping approach were most often used among the participants.

Figure 6.1.3.2
An overview of the team's designer profiles.



	Instrumental approach	Deliberative approach	Prototyping approach	Connoisseurship approach
How do you start a project?	I need to have some grip when designing something. That is why I first make a plan. A1	Before I start the design process I consult with other people to see what needs to be developed. E2	Soon after starting the design process I make a draft of a possible design. I3	I make a design based on an idea I already have in my head. That works the fastest. M4
How do you design and construct?	Because I think hard before I start, my draft design is almost similar to the final version. B5	During the design process many stakeholders and end users think along with me. F6	During the design process I make several drafts to see if the ideas are practical. J7	I like to make my own decisions during the design process. N8
How do you evaluate?	The products I develop match the requirements that were agreed on at the start of the process. C9	The final version of the product is successful when my colleagues and end users agree on it. G10	I think the final version is good when it is usable for the end users. K11	I am able to decide when the final product is ready. O12
How do you anticipate on the implementation process?	I think it is important that the end users recognize themselves in the final product. D13	I involve various end users in my design trajectory by asking them to provide suggestions. H14	I provide end users the opportunity to test the draft products before finalizing the end product. L15	I inform end users about the materials that I have been designing. P16

Factors and characteristics of the development process were discussed (see Figure 6.1.3.3). The nature of this design task is to select and adapt existing materials, as well as limited design of supplementary materials where needed. An analysis will take place of the current situation in a limited number of subjects, and with the input of a limited number of perspectives and people. The design guidelines need to be clarified during a cyclical design process. Evaluation should be extensive and iterative.

Figure 6.1.3.3
Overview of factors and characteristics of the development process.

Dimension	Factors	◄ Characteristics ►		
HOW do you develop?	**nature of the design task**	• especially selecting and adapting lesson materials	• selecting and adapting existing materials + • limited design of supplementary materials	• especially designing new and supplementary materials
	analysis	• limited, informal analysis of current situation • own perspective	• analysis of current situation in limited number of subjects • input of limited number perspectives/people involved	• analysis of current situation as complte as possible • input of several perspectives (also literature review, colleagues, experts)
	design/ development	• design guidelines have been clear from the start	• design guidelines have resulted from the analysis	• design guidelines need to be clarified during the cyclical design process
	evaluation of the design	• informal, mainly oral (eg. conversation)	• limited number of ways • limited number of people involved • once and a while	• in many ways • with more groups and people involved • multiple times • formative and summative

Discussion

Human-technical professional perspective

Through the poll (see Figure 6.1.3.4), participants express that many types of expertise are important to the process, but especially the belief that SBCD is our responsibility (100%), analysis expertise (100%) and expertise to monitor the curriculum implementation (100%). Two out of five respondents (50%) also thought the conviction that SBCD is worthwhile, empathy for the learners and/or teachers, construction expertise and implementation expertise are important. Answers that were not selected by any of the participants (0%) were design expertise, evaluation expertise and project management expertise.

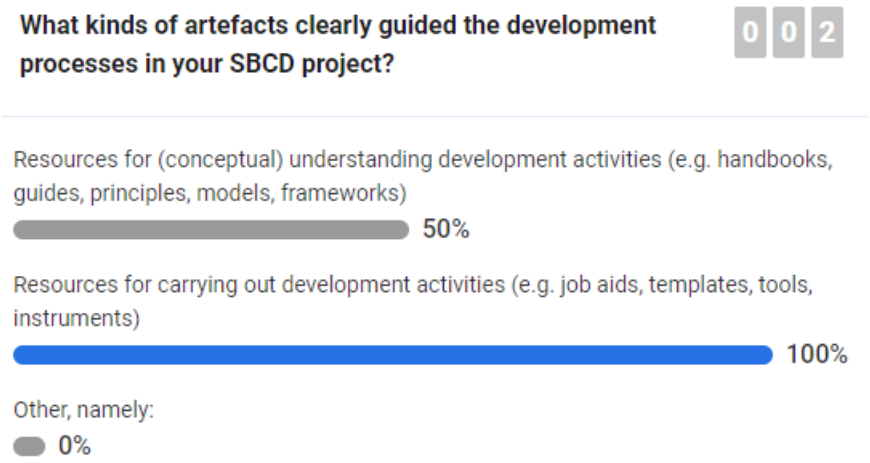
Figure 6.1.3.4

Poll results from workshop 2, question 1 regarding the human-technical professional perspective.

Material-technical professional perspective

The poll results (see Figure 6.1.3.5) show that both participants agreed that resources for carrying out development activities are important to guide the development process. One out of two participants (50%) thought resources for (conceptual) understanding development activities is also influential.

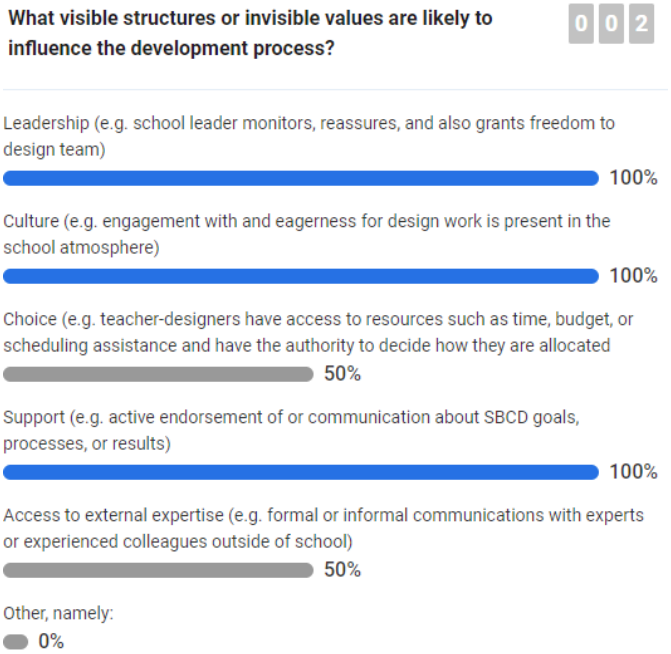
Figure 6.1.3.5
Poll results from workshop 2, question 2 regarding the material-technical professional perspective.



Structural-technical professional perspective

The poll results (see Figure 6.1.3.6) show that, according to these two participants (100%), leadership, culture and support are the most important visible structures or invisible values that are likely to influence the development process. Choice and access to external expertise is important according to one out of two participants (50%).

Figure 6.1.3.6
Poll results from workshop 2, question 3 regarding the structural-technical professional perspective.



Reflection

Human-technical professional perspective

The team attends to the IB's assessment goals and their vision on assessment for learning. The goal of assessment is not only to test the children's skills, but also for differentiation purposes. It is important to the team to show learners that they have a voice, choice, knowledge, independence and responsibility. Assessment is seen as a process that is important to many elements of the design. For example, it may be used to find out what children are interested in, what their learning preference are, or to determine aims and objectives, learning activities or content. It is also part of the role of the teacher.

Material-technical professional perspective

Many resources are already available to the team. For example, one participant stated that there are many resources on the topic of animal sounds, rhythm and phonetics. However, they would like to allocate specific time slots to focus on core skills like phonics and mathematics. It is not only important that the resources are present, but also that they are shared amongst each other. During the design process, the team would like to use these existing resources rather than starting from scratch.

Structural-technical professional perspective

For the current project, the efforts of this team are mainly focused on establishing collaboration amongst themselves. However, they would also like to receive input from others during later parts of the design process.

6.1.4 Workshop 3: Socio-political perspective

Seven participants were present for workshop 1: the IB-PYP coordinator and six teachers. The school leader could not be present for this session.

Document analysis

Products created during the warm-up task

During the warm-up task, stakeholders and their reason for involvement, as well as communication channels, were discussed (see Figure 6.1.4.1). Important stakeholders for this project are fellow teachers across grades, coordinators, other schools, publishers and learning support coordinators. Parents can be involved in a limited manner. The main roles for coordinators would be to ask for advice, as well as asking for comments or to discuss. These coordinators are usually reached through a TeachMeet meeting, which unfortunately are not being organized anymore, but a similar informal gathering would be preferred. When it comes to involving parents, the team agrees that there first should be a first draft or skeleton concept. That way, the parents' contribution is the most valuable and will not complicate the first stages of the design process. Professional development led by specialists would be very valuable, according to the team. Experts may be reached by contacting them from their own network. Discussing and asking for comments from other IB schools would also be useful. There is an IB network in place that would facilitate connecting with other IB schools.

Figure 6.1.4.1

An overview of stakeholders, their reasons for involvement and communication channels.

	WHY? (reasons for involvement)						
WHO? (stakeholders)	**To ask for advice**	**To ask for comments/to discuss**	**To inform**	**To ask for commitment**	**To ask for approval**	**To ask for support**	**HOW? (channels)**
Coordinators	X						Teachmeet
Parents			X				
PD/experts	X						Contact from own network
Other IB schools		X					Use IB network

Factors and characteristics of the design team were discussed (see Figure 6.1.4.2). Generally, there is a focus on involvement of the team itself in the first stages of the design process, while others would be involved later on when there is already a first draft in place. The scope of the design team is therefore limited. The team consists of teachers across various student groups, but they are focused on PYP. Organizational tuning should take place with a limited number of external partners, who will be involved mostly later on in the project. This team does not think students should play a major role in this design process, at least not in the beginning stages.

Figure 6.1.4.2

Overview of factors and characteristics of the design team.

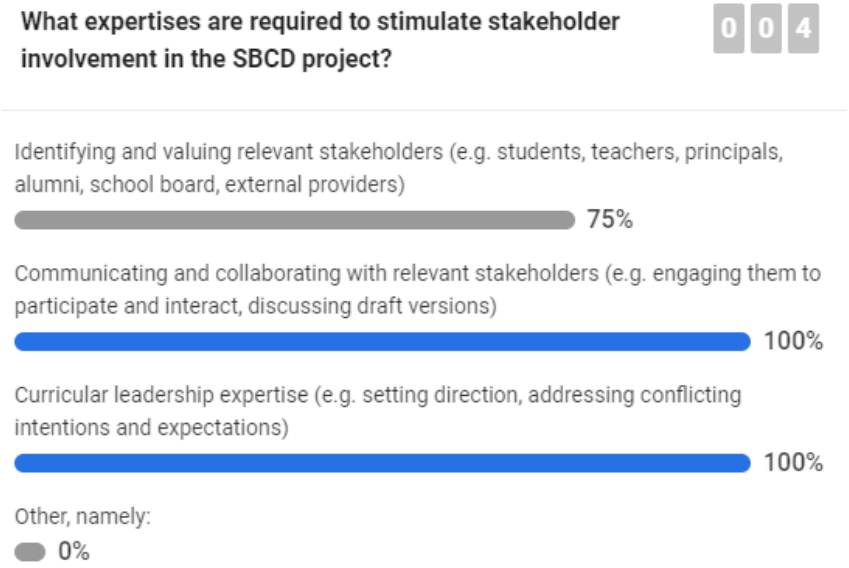
Dimension	Factors	◄---------- Characteristics ----------►		
WITH WHOM do you develop?	**scope of design team**	• individual teacher or school leader (or other external person)	• with limited number of teachers and/or school leaders and/or other external persons	• with a large design team of teachers and/or school leaders and/or other external groups
	heterogeneity of colleagues involved	• design with colleague(s) of same student group	• design with colleagues of various student groups	• design with colleagues of (a combination of) more than one student group/subject//school
	need for tuning with external partners	• no or limited tuning neccesary	• organizational tuning with limited number of external partners (e.g. other school, cultural organization, company)	• organizational and substantive tuning with external partners (e.g. other schools, cultural organizations, companies)
	learners' /students' involvement during design	• learners/students do not contribute during the design process	• learners/students contribute incidentally during the design process (e.g. deciding in the theme)	• learners/students are co-designers

Discussion

Human-political perspective

The poll results (see Figure 6.1.4.3 show that all four participants (100%) agreed that communicating and collaborating with relevant stakeholders, as well as curricular leadership expertise, are required to stimulate stakeholder involvement in the SBCD project. Three out of four participants (75%) also thought identifying and valuing relevant stakeholders is important.

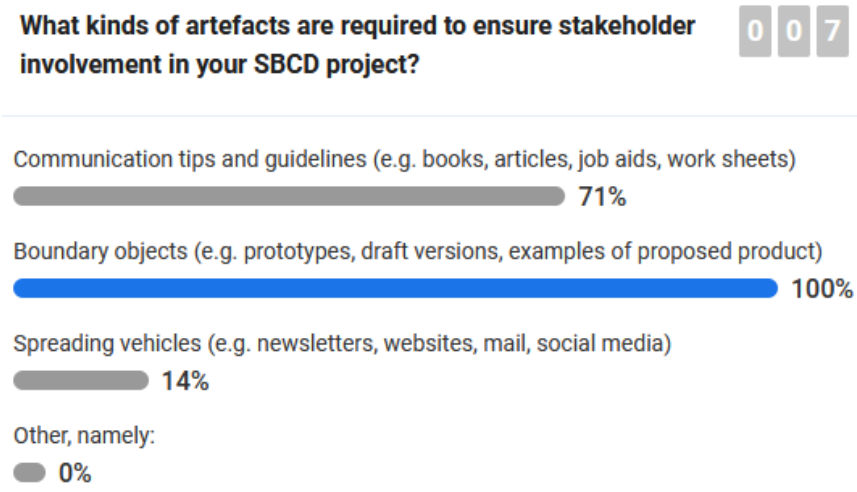
Figure 6.1.4.3
Poll results from workshop 3, question 1 regarding the human-sociopolitical perspective.



Material-sociopolitical perspective

The poll (see Figure 6.1.4.4) revealed that when ensuring stakeholder involvement in the SBCD project, the team unanimously agrees that boundary objects, like prototypes or examples, are the most helpful (100%). Communication tips and guidelines are also important, according to five out of seven participants (71%). The focus on spreading vehicles seems to be less essential in this school, since this option was only selected by one out of seven participants (14%).

Figure 6.1.4.4
Poll results from workshop 3, question 2 regarding the material-sociopolitical perspective.

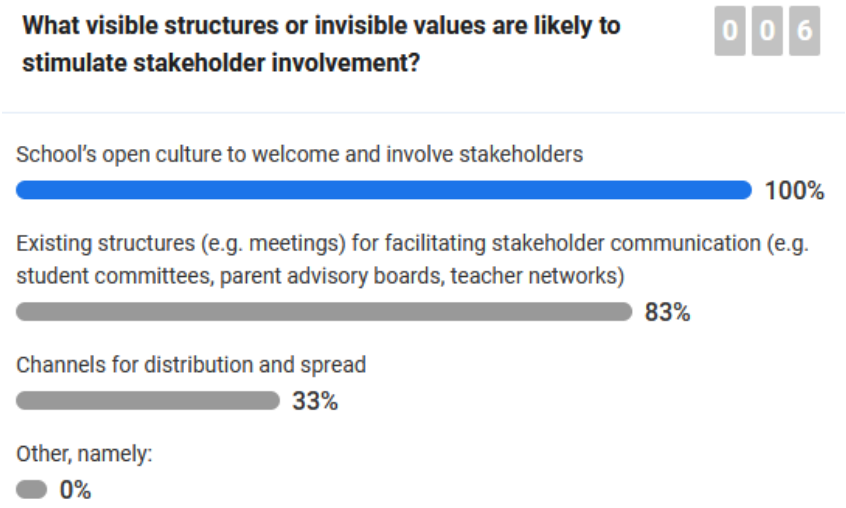


Structural-sociopolitical perspective

Visible structures or invisible values that are likely to influence stakeholder involvement were discussed (see Figure 6.1.4.5). School's open culture to welcome and involve stakeholders is essential, according to all participating staff members (100%). Most participants (five out of six; 83%) also feel that existing structures for facilitating stakeholder

communication are likely to stimulate stakeholder involvement. Lastly, channels for distribution and spread are seen as important by two out of six, or 33% of participants.

Figure 6.1.4.5
Poll results from workshop 3, question 3 regarding the structural-sociopolitical perspective.



Reflection

Human-sociopolitical perspective

The participants believe that collaborating and communicating is key, and that leadership should also be involved in the school-based curriculum development process. It is important to the team that they continue to work together and communicate after these workshops. The team feels that teachers need to be informed about the feasibility of certain goals, and how to achieve them. However, they are lacking data suggesting that there are concerns, and if so, what those concerns are. They would like to take and gather samples from students, and engage in moderation exercises.

Material-sociopolitical perspective

In order to connect teaching, learning and assessment practices, the staff feels that there is a need to acquire work samples and moderation practices. Boundary objects are important to gain concrete ideas that guide the team. There is a need for a blueprint, as well as to have more informative discussions.

Structural-sociopolitical perspective

All staff agrees that there should be, and is, an open culture in the school to involve stakeholders. There are existing structures in place, like the IB network and the network of coordinators. Something to note is that the school will be moving to a new campus soon. Therefore, the existing structures for stakeholder engagement need to be examined and transported to the new campus.

6.1.5 Exit interview

Five participants were present for workshop 1: the school leader, the IB-PYP coordinator and three teachers.

During the exit interview, a summary of the data analysis from previous workshops was presented (see Figure 6.1.5.1). Participants confirmed that this summary represents their school well. They mentioned that the summary mirrored a lot of the topics discussed during the workshops and includes their ideas and concerns. The summary is helpful to the team in giving the school an identity regarding the curriculum, and can be used as a guideline.

Figure 6.1.5.1

The data analysis summary presented during the exit interview. Note: the needs were discussed during the exit interview itself.

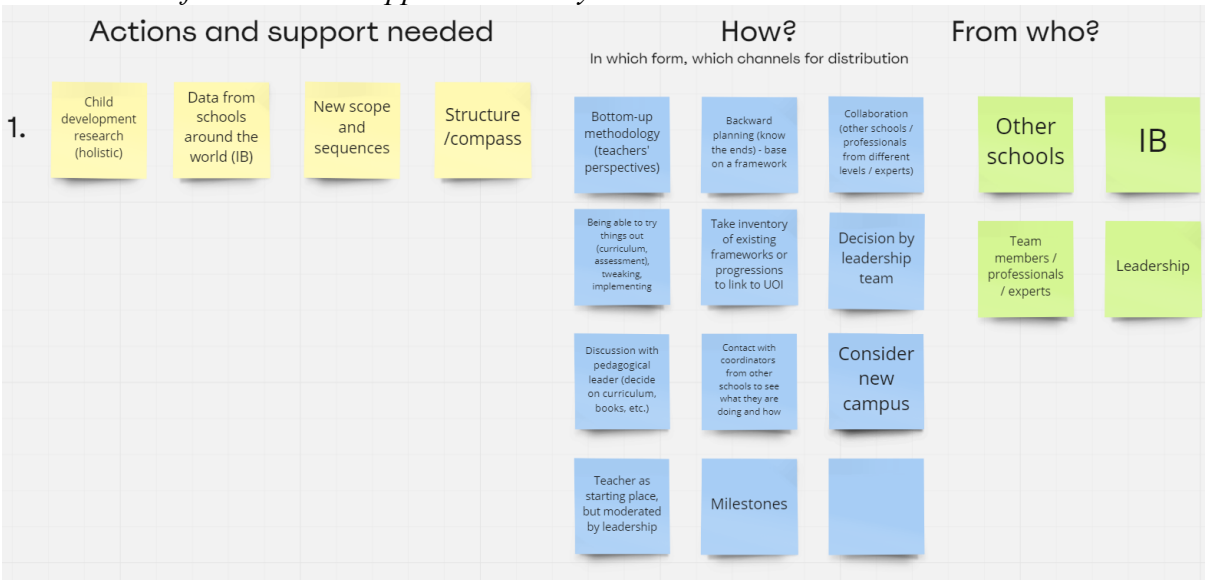
Current project: **Writing curriculum / progression** + informal assessment criteria			
Policy: **Input regulation** weak; **Output regulation** weak; need for **structure**, **continuity** and **guidance**			
	Human	**Material**	**Structural**
Substantive	Clear focus on identifying and attending to **student needs** (language skills), **assessment** as a support	**Inspiring examples:** Ontario Curriculum, Ladybird System, K-12 system. Focus on **ready-made components** and **pre-made curricula**	Focus on **learner** and **teacher needs. Pressure/support** mostly from direct leaders. **Philosophy**: school is like a family.
Technical-professional	**Deliberative** and **prototyping** approach; **cyclical design process**	**Learner progression examples** and using **colleagues' experiences**	**Holistic perspective**, focus on **transition through grades**
Socio-political	Consider **diversity** and **context** in school. **First draft** is needed before acquiring feedback from other stakeholders	**Examples** and **artefacts**: connecting teaching, learning and assessment practices.	**Open culture, existing structures** (IB network and network of coordinators); consider new campus.
Needs: Child development **research** and **data** from other IB schools. **Collaboration** and **communication** within the school and with other schools. **Bottom-up methodology** and **backward planning**. A **framework for SBCD** from the IB. There is a need for **structure** and **guidance**.			

The actions and support the school needs in order to continue their work in school-based curriculum development (see Figure 6.1.5.2) revolve largely around research, documents and guidelines. For example, one participant expressed that knowledge about and access to child development research is needed to be able to view their learners in a holistic way, which is important to develop a curriculum. The team wishes to build on data from schools around the world regarding the curricula they use and its effectiveness. Furthermore, curriculum development expertise is required in order to test drafts, prototypes and ideas. Another document that would help guide their further development process is the new scope and sequences document that the IB is working on. Generally, the school is in need of a structure or 'compass' to guide them through the project. This support could come from the IB, inside the school or from other schools. Methods in which the team would like to work on similar

projects were also discussed. First of all, the principal values a bottom-up methodology that takes into account the teachers' perspectives. However, the teachers also mention that they need the leadership team to take final decisions. Therefore, a solution in which teachers are the starting point, but where the leadership takes on a moderating role might be the most fitting. It is also important to the principal to celebrate milestones and value the team's efforts. In terms of process, the team likes to use a backward planning method where the curriculum content is based on the goals that need to be reached by the end of a grade. They would like to inventory existing frameworks or progressions which can be linked to the units of inquiry. A cyclical approach is required, where teachers are able to try out the curriculum and various assessment methods and tweak them before implementing them. Another essential part of the process is communication and collaboration: the team stresses that sharing of experiences and ideas needs to take place with several stakeholders, such as the pedagogical leader, coordinators from other schools, experts and professionals from different levels. Lastly, it is also important to keep in mind that there will be a new campus, and that the efforts of this process need to be transferred.

Figure 6.1.5.2

An overview of actions and support needed by the school.



6.1.6 Summary

Focus		**Key findings**
Context	*Current project*	● No current curriculum in language and math ○ School uses Singapore math, and skills are addressed through UOI, but no real progression statement ○ Singapore math is too much ● Goals for new curriculum: fits the IB, provide continuum (linearity) and consistency ● Project: developing criteria for language curriculum (reading) ● Not many native speakers (many French and international students), lack of comprehensive reading skills impedes on implementation of inquiry learning
	Policy	● Highly decentralized ● No substantial input or output regulation from the government ● No fixed attainment targets or inspections ● Need for more structure and guidance ● Freedom and autonomy to design lessons, but lack of consistency from year to year, causes a lot of repetition ● NIESC and IB-PYP ● Using rubrics to look at children more holistically
Spiderweb		● Focus on language acquisition and reading skills: prerequisite for inquiry-based learning ● Thinking about assessments when students arrive at school (different levels in each classroom) ● Wishes ○ More physical books in the classroom ○ Moderation of work, reflection ○ Monitoring students (language profile, assessment at the start) ○ Collaboration between teachers across grades ○ Structured reading schemes ○ Informal assessment at arrival for basic English skills, phonic screening, reading levels and comprehension ○ Teachers should collaborate and have reflective discussions (regarding assessments) ○ Establish age-related expectations and targets ○ Writing samples from students to pass on to next teacher ○ Time should be allocated to core skills ● Interconnectedness between reading and writing curriculum ● Differentiation; grouping per level ● Drama and theatre integrated into the lesson ● Scaffolding ● Goal: from game-based to exposing to content to skill-based (asking questions) ● Assessment ○ Assessment is seen as a process ○ Building own checklists and assessments ● Build on core skills
Substantive *(What do you develop?)*	*Human*	● Focus: building students that are capable of working independently, be IB learners ● Involvement of students ● Attending to school's vision and profile, characterizing curriculum, addressing student needs defining missions and values in the school ● Needed: assessment expertise, focus on life-long learners, assess integral skills ● Do not necessarily enjoy assessment but believe it has a significant place: continuity across grade levels, identify gaps ● Balance between summative and formative assessment, assessment of different types of skills ● Main goal: identify and attend to student needs
	Material	● Experience with British curriculum, but too strict for their needs ● Looking at Ontario curriculum ● Examples: Ladybird system (4 levels for each class) – used as a reference, Oxford Reading Scheme ● K-12 system for content-based resources to create units of inquiry ● Underlying methodology of Cambridge System ● YouTube videos, workshops, research papers ● Elements of pre-made curricula (made by previous employees) ● Focus on ready-made components and reference materials ● A lot of good resources for i.e. sounds, rhythmic (dr. Seuss)

		• Children's voice, choice, knowledge, independence and responsibility define materials • Language skills should be addressed and developed through lenses of each subject
	Structural	• Meetings occur, but on ad-hoc basis • Every two weeks discussions concerning students take place, but not for curriculum • Restrictions and requirements are not set • Focusing on differentiation: everyone on the same page, right stuff is being done • Philosophy of the school is like being a family • Pressure/support is perceived from direct leaders but not from indirect leaders (i.e. owner and executive manager) • Clear focus on learner and teacher needs
Technical professional *(How do you develop?, Designer Game)*	*Human*	• Deliberative and prototyping approach • Some teachers share a designer profile • Nature of design task: to select and adapt existing materials + limited design of supplementary materials • Analysis: limited number of people • Cyclical design process, extensive and iterative evaluation
	Material	• Learner progression examples sent in chat • Colleagues' experiences with international-mindedness
	Structural	• Transition from PYP-5 to MYP should be the same as for MYP to DP • Base decisions on evidence and data, holistic perspective
Socio-political *(With whom do you develop?, Stakeholders)*	*Human*	• Taking realities of homes, family background and support into account (differentiation); communities & backgrounds are diverse • Students require a toolkit on how to use basic skills • External advice is needed, get in touch with other schools, use IB network to get in touch with other teachers in similar roles • Focus on involvement on the team itself in the first stages, others will be involved later on; first a draft is needed
	Material	• Working with examples and moderation, help connecting teaching, learning and assessment practice • Boundary objects: concrete ideas are needed that guide them, need a blueprint and to have more informative discussions
	Structural	• More fine-grained specifics needed when making progressions • Focus on open culture • Existing structures: IB network and network of coordinators • New campus existing structures need to be thought out to allow them to be used immediately
Other	*Needs/wishes*	• Child development research • Data from schools around the world • New scope and sequences • Structure / guidance
	Varied	• Bottom-up methodology • Moderation and decision-making by leadership • Celebrating milestones • Collaboration • Backward planning

Appendix 6.2: School 2 Full Case Study Report

6.2.1 Intake interview

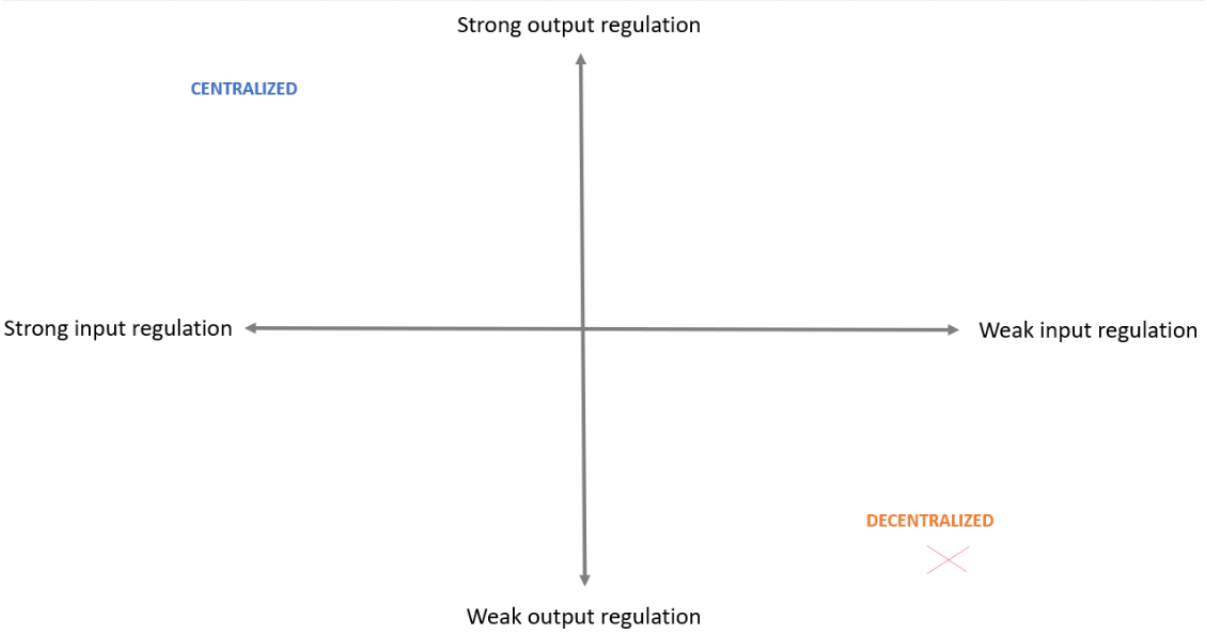
Three participants were present for the intake interview: the head of pedagogical leadership, the IB-PYP coordinator for sciences and languages, and the head of PYP grade mathematics.

Current or upcoming project (what-how-who)

The school is up for IB review next year and wants to take this project as an opportunity to address feedback from the previous review. The staff wants to develop professional development workshops for teachers, of which the main goal is to educate teachers about transdisciplinary working and inquiry learning, while accomplishing a mindset shift within the community towards seamless transdisciplinary work and interconnectedness. Units of inquiry are the starting point for this project. Other important aspects are flexibility and adaptiveness of the curriculum in terms of subjects and assessment. Within this school, assessment is not focused on deadlines, but flexible and personalized. In the workshops, teachers would also like to learn how to balance national targets and an international focus, and how to use pedagogical approaches that result in true IB learners.

Figure 6.2.1.1

Input and output regulation as described by participants.



Policy (regulation, roles, organizational change)

According to the participants of the intake interview, the role of teachers in India is highly regarded. Parents within the IB are educated, well-traveled and understand the importance of internationalism. They have great aspirations and know the value of future-oriented education. Therefore, participants feel like the parents are generally welcoming and trusting of teachers.

In terms of the curriculum policy regulation (see Figure 6.2.1.1), input regulation is minimal. The role of the government is in school regulation and recognition. The government only interferes when it comes to safety of teachers and students, and fair compensation for teachers. Currently, four subjects are mandatory, while the main curriculum is adaptive. The new curriculum is more learner-centered, as opposed to textbook-centered. There are three types of curriculum: the CBES (primary), ICSE (secondary), and the CIE, IB and Canadian curriculum (tertiary). Beyond that, there are no interferences and staff abides by the school board. Output regulation consists mostly of exams, school inspections and assessment. There is no other body regulating output, and a lot of space is given for 360 degrees assessment. Anything that is learner-centered is appreciated and wanted. This school also serves as an example for other schools in the region. Competencies and KTAs are

important aspects to keep in mind. In terms of organizational change, the shift from teacher/textbook-centered to learner-centered pedagogy is an essential part of the context for this project.

6.2.2 Workshop 1: Substantive perspective

Five participants were present for workshop 1: the school leader, the IB-PYP coordinator, the head of PYP grade mathematics, and two teachers. However, one teacher was not present for the entire workshop due to connection issues.

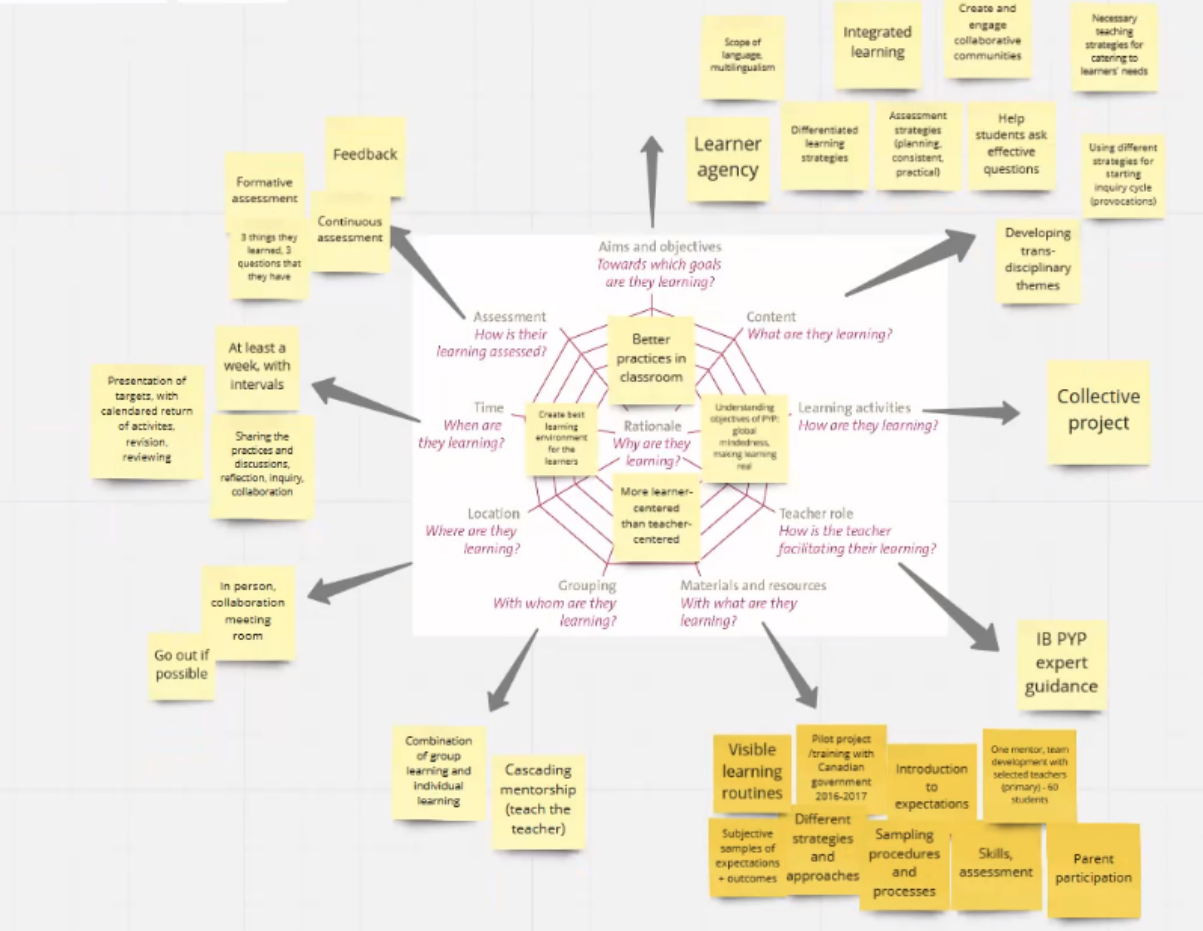
Document analysis

Products created during the warm-up task

During the first workshops, participants are working on a professional development course for teachers on developing transdisciplinary work and learner agency. The goal of this course is to help staff members understand the objectives of the IB's PYP programme. These objectives are focused on global mindedness, creating an optimal learning environment and the development of effective classroom practices. By doing these workshops, they aim to educate the teachers to provide rich learning experiences that contribute to learners' life-long learning. The main learning strategy is learning by doing or inquiry, which calls for different teaching and thinking strategies.

The elements of the spider web were discussed during the first workshop (see Figure 6.2.2.1). Regarding the organization of these professional development workshops, participants stressed the importance of it being a combination of group learning and individual learning. It should be a mostly collective project, which would preferably take place in person, possibly even outside of the school. The duration of the course should be at least one week's worth of professional development, with intervals between each session in order to be able to develop, review and revise what they have worked on. Participants want to be able to share their practices and discuss amongst themselves, reflect on their progress, and use inquiry and collaboration in their learning process. Guidance is also important to the staff. They would like to implement a cascading, 'teach the teacher'-style, mentorship structure, where professionals are educated by experts to provide workshops for their colleagues. An example that serves as inspiration for this project comes from a year-long pilot project executed by the Canadian government from 2016 to 2017. Over the course of this project, a team of selected teachers worked on a curriculum development project under the guidance of a mentor. The mentor provided the team with support, managed expectations by showing samples of earlier results in an introductory session, and shared possible approaches with the team.

Figure 6.2.2.1
The spider web activity from workshop 1.



Factors and characteristics of the developed product were also discussed (see Figure 6.2.2.2). The scope of this project is wide and includes resources that shape class teaching and learning. All subjects are involved in the project, and the target users include all colleagues within the school. Differentiation is an important factor on several elements. This type of design work is typical for this team.

Figure 6.2.2.2
Overview of factors and characteristics of the developed product.

Dimension	Factors	◄ Characteristics ►		
WHAT do you develop?	**scope**	• resources for classroom use (e.g. specific teaching and/or learning resources, learning environment, assessment tools)	• complete materials for classroom use (e.g. individual lessons, lesson series, modules, projects)	• resources that shape class teaching and learning (e.g. school vision or profile, syllabus or learning progression, assessment plans) X
	subjects involved	• own/one subject (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• limited number of adjacent subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• adjacent and other subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education) X
	target users	• for own usage	• for own usage and for colleagues with same/similar group of learners (same subject in same age group)	• for own usage and for (unknown) colleagues with same/adjacent subject, same/other years and sectors X
	attention to learners' differentiation during the design process	• no specific attention to differentiation	• limited attention to differentiation regarding one element (e.g. grouping, time, assessment)	• differentiation on several elements (e.g. grouping, time, assessment) X
	overall sense of the design task	• rare (design task is an exception)	• rather common (design task is carried out once in a while)	• typical (design task is usual part of job) X

Discussion

Human-substantive perspective

In terms of expertise required to ensure the quality of products in this SBCD project (see Figure 6.2.2.3), all participants agreed on the importance of addressing student needs in the product, as well as disciplinary/subject expertise, pedagogical (content) expertise, assessment expertise and expertise for characterizing the curriculum. Four out of five participants also felt that expertise for attending to the school's vision and profile, and attending to teachers' concerns and constraints are also important. Graphic design expertise was deemed important by two out of five participants.

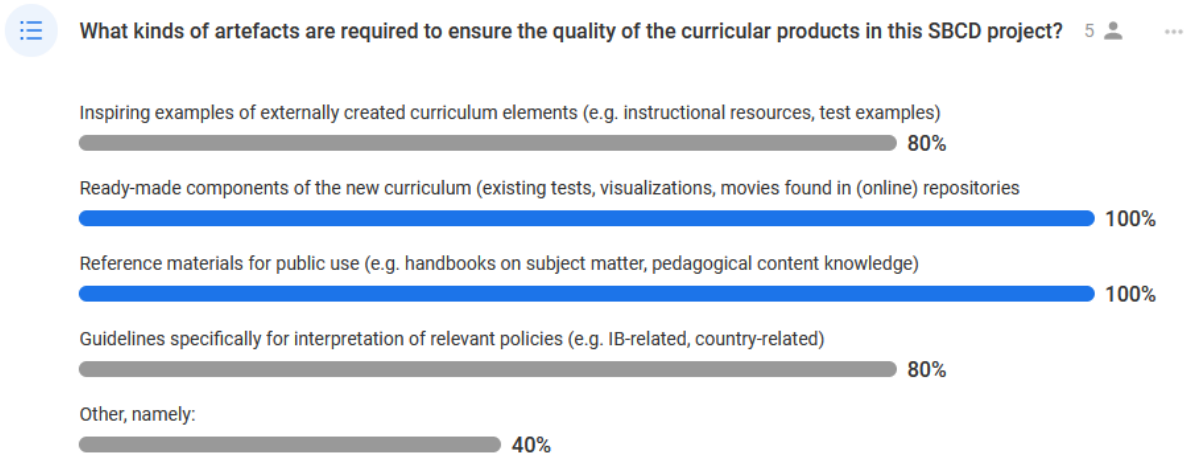
Figure 6.2.2.3

Poll results from workshop 1, question 1 regarding the human-substantive perspective.

Material-substantive perspective

The poll results (see Figure 6.2.2.4) showed that, according to the participants, artefacts are important in ensuring the quality of the curricular products. Ready-made components and reference materials are thought to be required by all respondents, whereas guidelines and inspiring examples were indicated as important by four out of five respondents. Although they indicated that there are many helpful resources available, like the PYP blog and micro-lectures, participants expressed that they have a need for templates, flow diagrams or materials that outline essential elements, as well as the flow of curriculum design. They also expressed a need for literature focused on this particular project to help develop the curricular products.

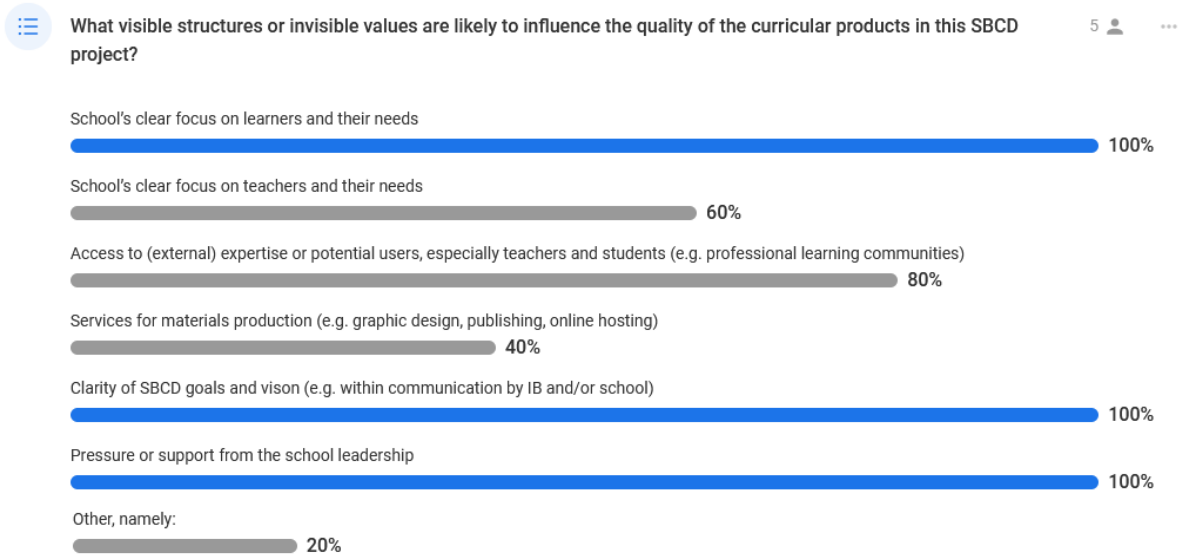
Figure 6.2.2.4
Poll results from workshop 1, question 2 regarding the material-substantive perspective.



Structural-substantive perspective

The visible structures and invisible values that are likely to influence the quality of the curricular products in this SBCD project were discussed (see Figure 6.2.2.5). The school's clear focus on learners and their needs, clarity of SBCD goals and vision, and pressure and support from the leadership were unanimously deemed of importance when considering the quality of the curricular products. Four out of five respondents also indicated that the access to (external) expertise or potential users was likely to influence the quality. The school's clear focus on teachers and their needs was considered important by three out of five respondents, whereas services for materials production was considered important by two out of five respondents. One participant selected the option 'other', and indicated that they think it is important to develop a collaborative community, not just the learners' community inside of the school but also externally. Earlier in the session, participants expressed that they sometimes feel isolated in the sense that they are the only IB school in the region. Therefore, they are not working with the same frameworks as other schools, which complicates collaboration outside of the school. This is further emphasized by COVID-19 regulations, which prevent them from traveling. They would like to have more interaction with other schools around the world, in order to learn together and from each other's experiences.

Figure 6.2.2.5
Poll results from workshop 1, question 3 regarding the structural-substantive perspective.



Reflection

Human-substantive perspective

From these workshops, it became clear that participants from this school prefer collaborative learning of teachers guided by a mentor. The expertise they feel is required for ensuring product quality is focused on learners, teachers and content. The importance of addressing the student needs is clearly visible in the end goal of the professional development course they want to develop, which is to enable teachers to provide rich learning experiences that contribute to the students' life-long learning. In order to reach this goal, they focus on disciplinary/subject expertise, pedagogical (content) expertise and assessment expertise for teachers. Their attention to the school's vision and profile is demonstrated by their efforts to develop the teachers' ability to understand and implement IB- and school-related frameworks.

Material-substantive perspective

The participants discussed their appreciation and need for several different types of materials that help them guide their curriculum development process. Although multiple existing sources of inspiration and information were discussed, such as their earlier experience with the Canadian government's pilot project, as well as the PYP blog and micro-lectures, there is still a need for literature, frameworks and guidance related to this specific project.

Structural-substantive perspective

In terms of structural-substantive elements, participants clearly expressed a desire for an active collaborative community, inside and outside of their own school. While discussing the product, it already became clear that this school emphasizes the importance of collaborative learning. However, due to the lack of other IB schools in their environment, combined with COVID-19 regulations, they sometimes feel isolated and unable to relate to other schools. Their collaboration takes place within the school, but they have a desire to learn from others and their learning processes. Therefore, they feel that a collaborative community would be of help.

6.2.3 Workshop 2: Technical-professional perspective

Three participants were present for workshop 2: the head of PYP grade mathematics and two teachers. The IB-PYP coordinator and school leader could not be present for this session.

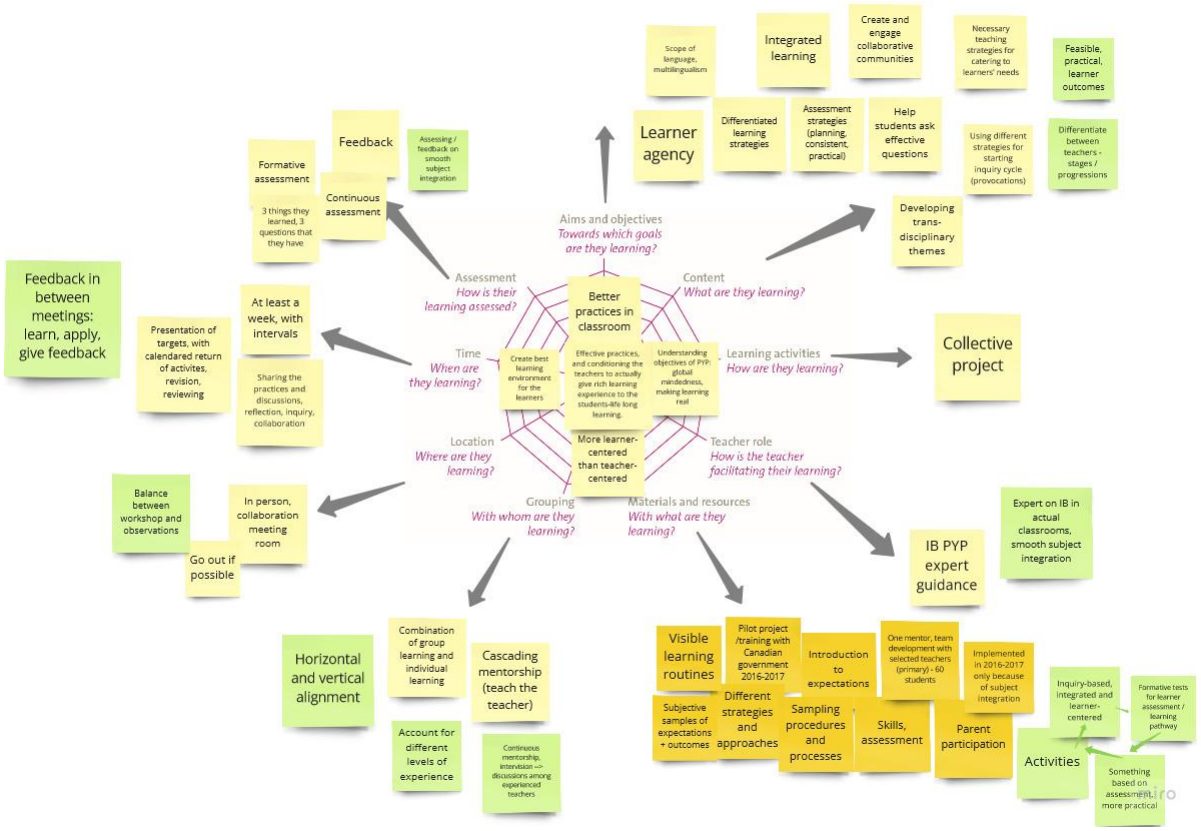
Document analysis

Products created during the warm-up task (designer game)

Further discussion of the planned professional development course revealed important design criteria for this course (see Figure 6.2.3.1). The school wants to design a school-wide workshop. The curriculum should be horizontally as well as vertically aligned: teachers across content areas and grade levels should be collaborating and coordinating learning activities together. This should not be a one-off activity, but rather an integrated program. The workshop leader needs to be an expert in the IB in general as well as its implementation in the classroom. Teachers generally prefer not to be observed for longer periods of time. The activities should be learner-centered, focused on classroom engagement and integrated learning, and use a lot of exemplary materials. Concerns and constraints are time, context, practicality and feasibility in the classroom, as well as learner profiles and attitudes.

Figure 6.2.3.1

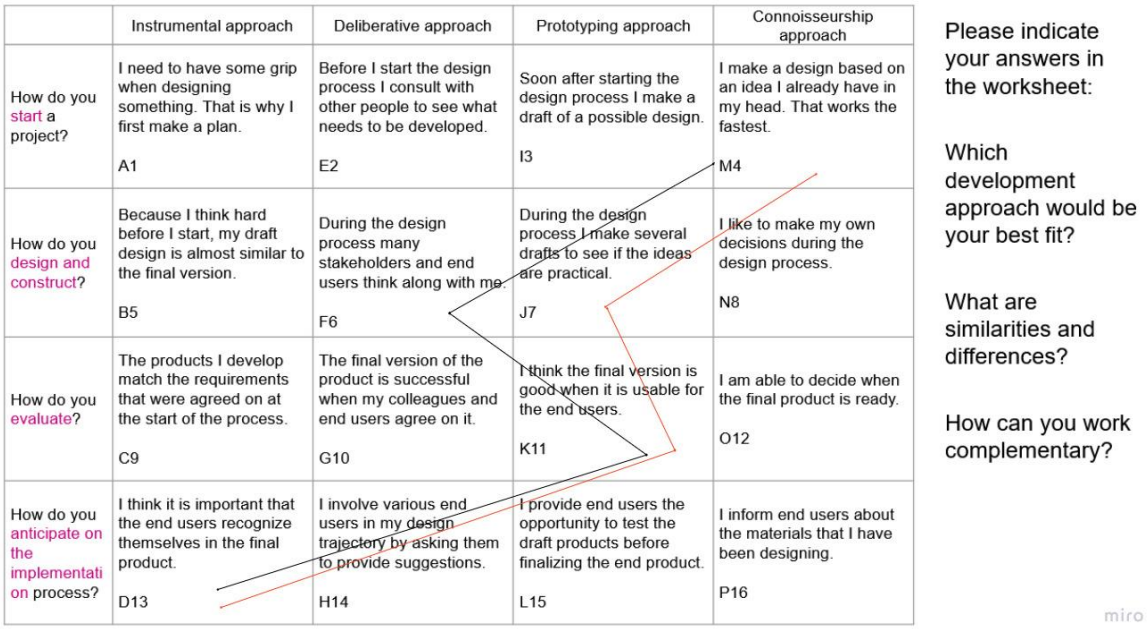
A refined version of the spider web activity, as discussed during workshop 2.



Both participants of the second workshop showed a similar designer profile. When starting a project, the participants fell into the category ‘connoisseurship approach’, meaning that they make a design based on an idea they already have in their minds. It is not always possible for them to discuss with students when planning curriculum activities; this also depends on the age of the learners. They test out their products and see what the outcomes are, and iterate

based on those outcomes. When designing and constructing, one of the participants takes a deliberative approach, having many stakeholders and end users think along during the design process. The other participant likes to make several drafts to see if the ideas are practical, constituting a prototyping approach. Discussing with other teachers is not always an option because of time constraints and different classroom teachings. Both participants take a prototyping approach when evaluating projects: they think the final version is good when it is usable for the end users. In anticipating on the implementation process, they take an instrumental approach, which means they prioritize that the end users recognize themselves in the final product. The participants believe they are more involved in the activities when they have created them themselves. They believe that connection between real life and learning improves ;earners' conceptual understanding, and that learners feel proud when they and their work are recognized. Overall, the team takes a cyclical approach, which involves reflecting and adapting, as well as designing new supplementary materials.

Figure 6.2.3.2
An overview of the team's designer profiles.



Factors and characteristics of the development process were discussed (see Figure 6.2.3.3). The nature of the design task includes selecting and adapting lesson materials, as well as designing new and supplementary materials. The analysis of the current situation should be as complete as possible and include several perspectives. The design guidelines need to be clarified during the cyclical design process. Evaluation of the design will be elaborate: in many ways, with more groups and people involved, multiple times, formative and summative.

Figure 6.2.3.3
Overview of factors and characteristics of the development process.

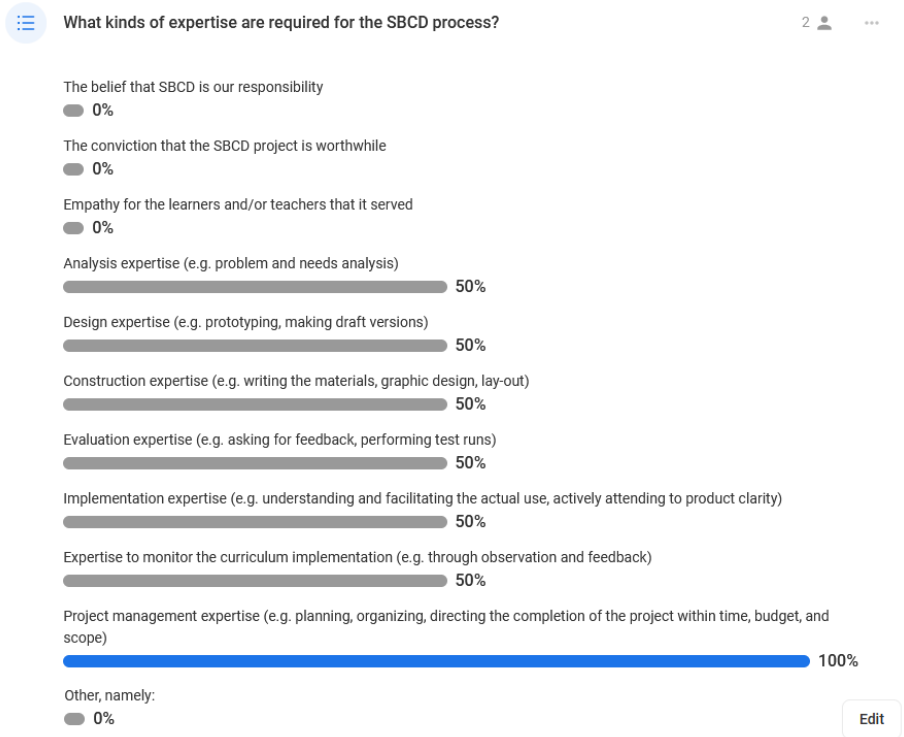
Dimension	Factors	◄ Characteristics ►		
HOW do you develop?	**nature of the design task**	• especially selecting and adapting lesson materials	• selecting and adapting existing materials + • limited design of supplementary materials	• especially designing new and supplementary materials
	analysis	• limited, informal analysis of current situation • own perspective	• analysis of current situation in limited number of subjects • input of limited number perspectives/people involved	• analysis of current situation as complte as possible • input of several perspectives (also literature review, colleagues, experts)
	design/ development	• design guidelines have been clear from the start	• design guidelines have resulted from the analysis	• design guidelines need to be clarified during the cyclical design process
	evaluation of the design	• informal, mainly oral (eg. conversation)	• limited number of ways • limited number of people involved • once and a while	• in many ways • with more groups and people involved • multiple times • formative and summative

Discussion

Human-technical professional perspective

A poll was taken by participants regarding the kinds of expertise that are required for the SBCD process (see Figure 6.2.3.4). Project management expertise was considered an essential type of expertise for the SBCD process by both participants. The following answer options were selected by one of the two participants: analysis expertise, design expertise, construction expertise, evaluation expertise, implementation expertise and expertise to monitor the curriculum implementation.

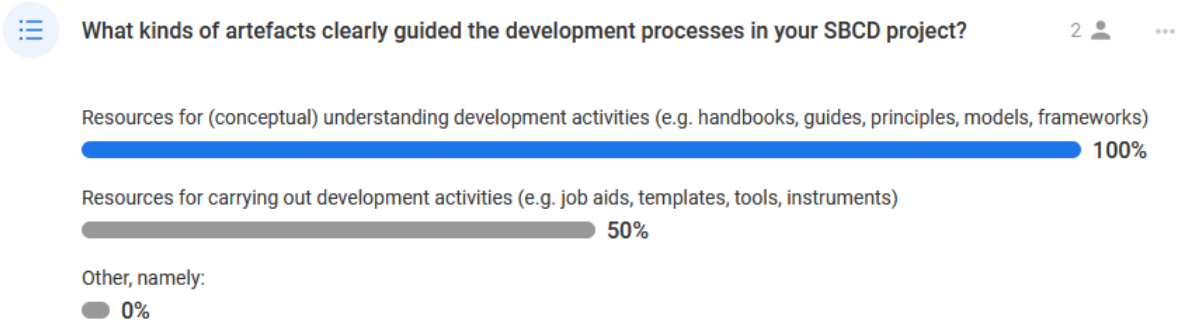
Figure 6.2.3.4
Poll results from workshop 2, question 1 regarding the human-technical professional perspective.



Material-technical professional perspective

The poll results (see Figure 6.2.3.5) show that participants both agreed that resources for (conceptual) understanding development activities clearly guide the SBCD process. One out of two participants also thought resources for carrying out development activities were important. No other types of artefacts were mentioned.

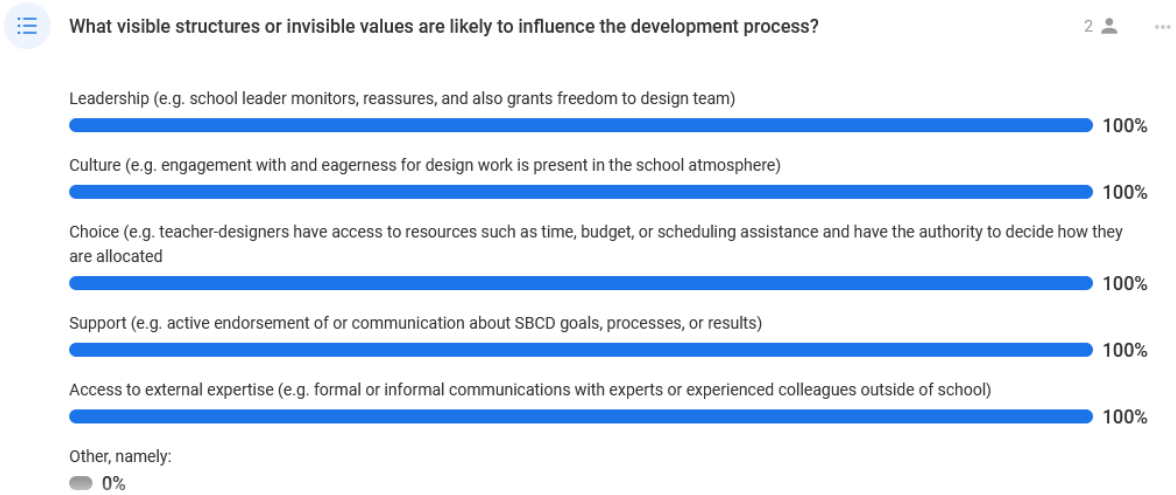
Figure 6.2.3.5
Poll results from workshop 2, question 2 regarding the material-technical professional perspective.



Structural-technical professional perspective

In terms of visible structures and invisible values (see Figure 6.2.3.6), the participants believe all aspects are essential to the development process. This includes leadership, culture, choice, support and access to external expertise.

Figure 6.2.3.6
Poll results from workshop 2, question 3 regarding the structural-technical professional perspective.



Reflection

Human-technical professional perspective

Project management was clearly most important to the participants in terms of expertise that guides the SBCD process. In order to improve project management for this particular development activity, participants believe the leadership team should lead the professional development course. Planning and organization should be done in a collaborative manner. The planning and organization depends on budget and scope, which is to be done by the leadership team.

Material-technical professional perspective

In the discussion, participants expressed that they make use of existing frameworks during the design process. Examples of these resources are PYP elements like the handbook, which is cross-checked against the school curriculum. The IB, the school and the national curriculum provide plenty of frameworks for the school to use. Aside from the use of ready-made resources, they also discuss with colleagues in order to gain resources and input, after which they evaluate progress with teachers and leadership.

Structural-technical professional perspective

The PYP program requires a lot of planning. Therefore, all visible structures and invisible values that contributes to the process are important to the participants. Upon further discussion, the participants feel that leadership choice and support are the most important factors in the development process.

6.2.4 Workshop 3: Socio-political perspective

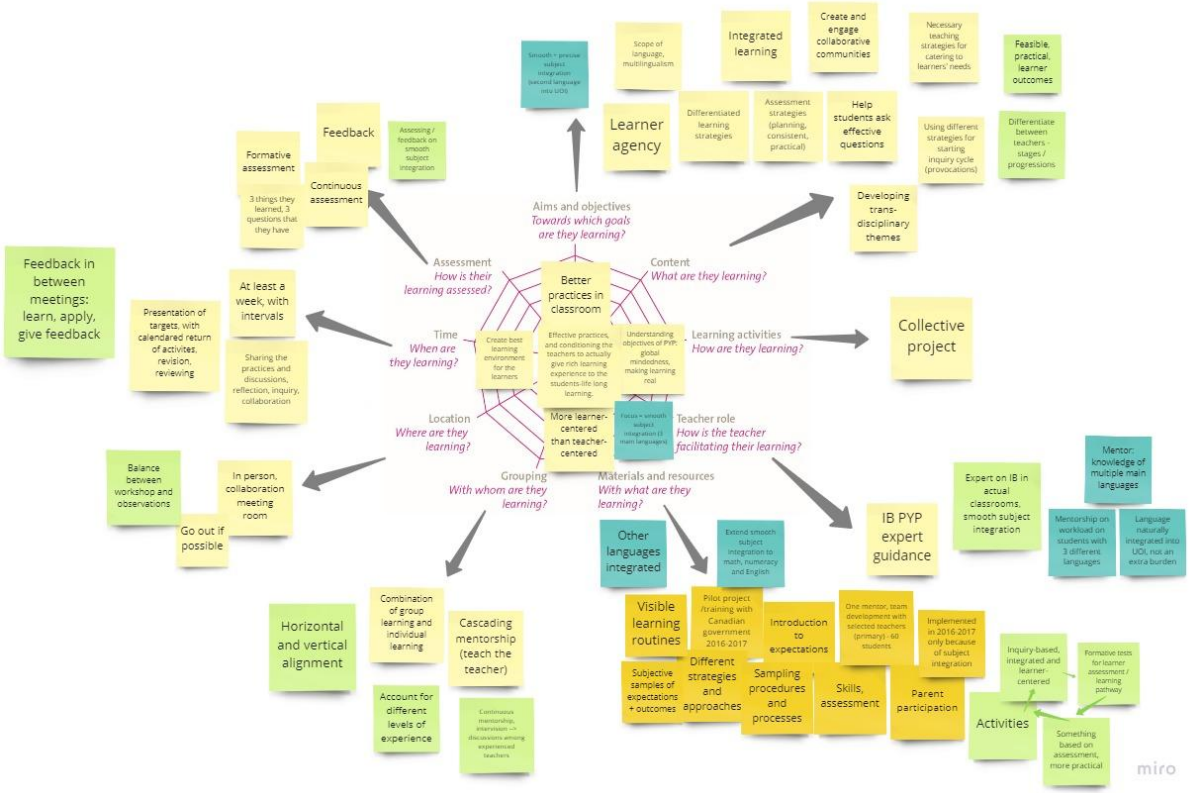
Four participants were present for workshop 3: the PYP coordinator, the head of PYP grade mathematics and two teachers. The school leader could not be present for this session.

Document analysis

Products created during the warm-up task

During this workshop, participants further elaborated on the spider's web (see Figure 6.2.4.1). The emphasis was on subject integration, especially in the languages. In their school, three mandatory languages are used that are all considered to be main languages. Therefore, it is important that these languages are smoothly integrated into other subjects, in order to ensure that they support the unit of inquiry instead of being an extra burden for their students. However, the support given by the IB focuses only on the English language.

Figure 6.2.4.1
Elaboration on the spider web activity during workshop 3.



Factors and characteristics of the design team were discussed (see Figure 6.2.4.2). The scope of this design team is limited, since the design work is mainly being done within their core group. The colleagues involved are heterogeneous. Organizational tuning is needed with a limited number of external partners: mostly, there is a need for expertise from a mentor to create and lead the professional development. They also feel that it might be a good idea to involve other IB schools. The team agrees that it is too early for their students to contribute to a design process like this. However, they might decide to involve them later on in the process.

Figure 6.2.4.2
Overview of factors and characteristics of the design team.

Dimension	Factors	◄ Characteristics ►		
WITH WHOM do you develop?	**scope of design team**	• individual teacher or school leader (or other external person)	• with limited number of teachers and/or school leaders and/or other external persons	• with a large design team of teachers and/or school leaders and/or other external groups
	heterogeneity of colleagues involved	• design with colleague(s) of same student group	• design with colleagues of various student groups	• design with colleagues of (a combination of) more than one student group/subject//school
	need for tuning with external partners	• no or limited tuning neccesary	• organizational tuning with limited number of external partners (e.g. other school, cultural organization, company)	• organizational and substantive tuning with external partners (e.g. other schools, cultural organizations, companies)
	learners' /students' involvement during design	• learners/students do not contribute during the design process	• learners/students contribute incidentally during the design process (e.g. deciding in the theme)	• learners/students are co-designers

During the warm-up task, stakeholders and their reason for involvement, as well as communication channels, were discussed (see Figure 6.2.4.3).There are many stakeholders that could be involved in this process: the team specifically named fellow teachers, coordinators, counselors, the schedule or roster maker, the school board, parents, other schools, teacher educators, publishers and curriculum developers. The role of the school board is very important in this school. The board provides the main source of decision making. One participant also emphasized the importance of the PR team to broadcast the teachers' activities and professional development.

Figure 6.2.4.3
An overview of stakeholders, their reasons for involvement and communication channels.

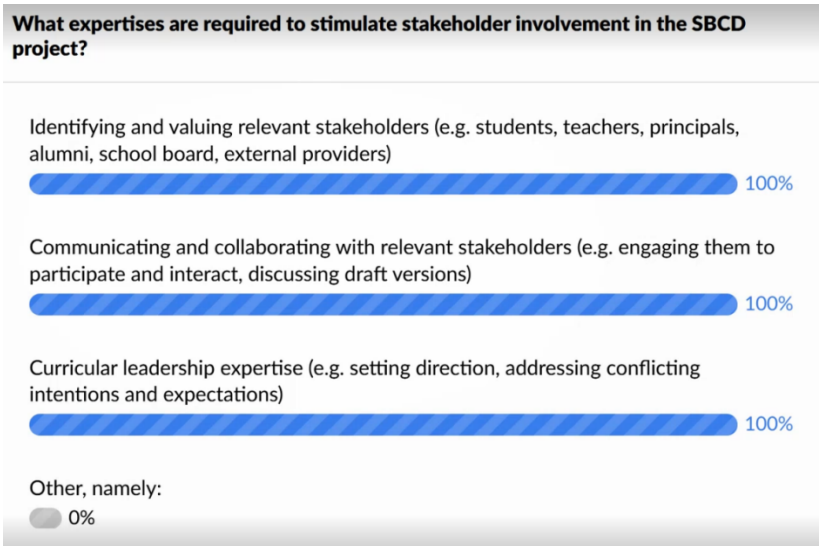
	WHY? (reasons for involvement)						
WHO? (stakeholders)	**To ask for advice**	**To ask for comments/to discuss**	**To inform**	**To ask for commitment**	**To ask for approval**	**To ask for support**	**HOW? (channels)**
Fellow teachers	X	X			X	X	Workshops, discussions, weekly collaborations
Parents			X			X	Discussion platforms, parent teacher meet, open forum
Head of school						X	Include in meetings
Roster maker	X	X	X				Consult each other, discuss in between sessions
School board	X				X	X	During planned meetings
Teacher mentors	X	X				X	Weekly channel / discussions / meetings
Remedial teachers	X	X		X		X	During planned meetings, comments and notes
Other schools	X	X					Plan workshops, share ideas
School's PR			X			X	Emails, phone calls, instant meetings

Discussion

Human-political perspective

The poll results (see Figure 6.2.4.4) show that all participants agree that many types of expertise are required to stimulate stakeholder expertise.

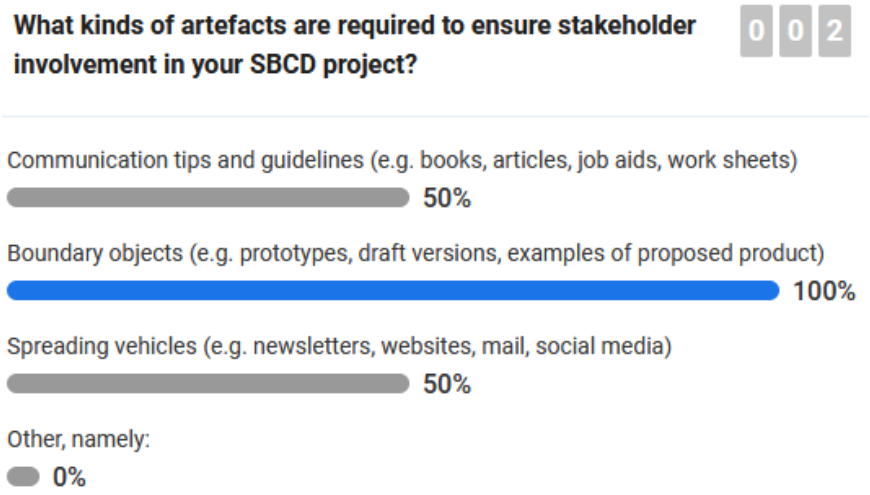
Figure 6.2.4.4
Poll results from workshop 3, question 1 regarding the human-sociopolitical perspective.



Material-sociopolitical perspective

As shown by the poll results (see Figure 6.2.4.5), both participants (100%) feel that boundary objects are essential to ensure stakeholder involvement, whereas communication tips and guidelines and spreading vehicles are thought to be important by one out of two participants (50%).

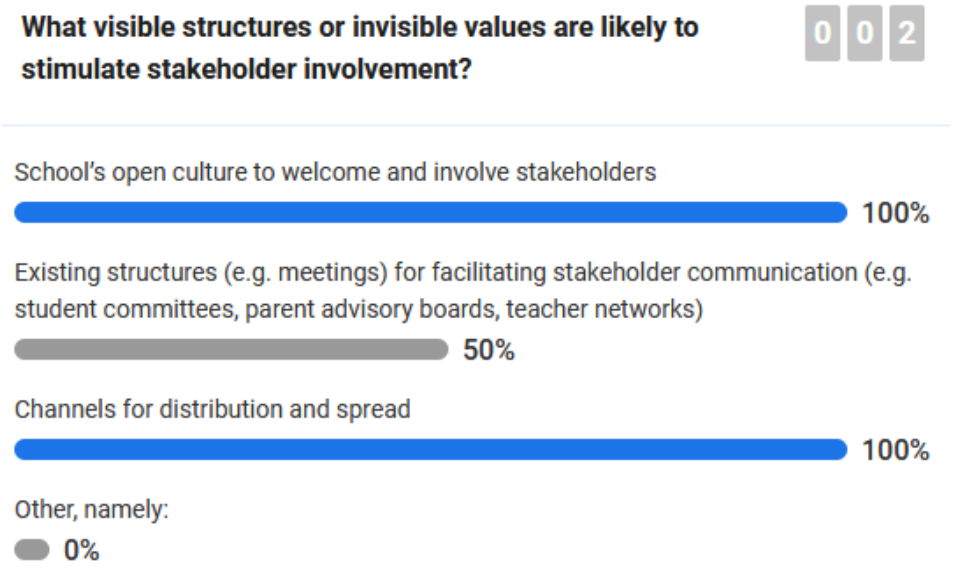
Figure 6.2.4.5
Poll results from workshop 3, question 2 regarding the material-sociopolitical perspective.



Structural-sociopolitical perspective

Visible structures or invisible values that are likely to influence stakeholder involvement were discussed (see Figure 6.2.4.6). Both participants agree that the school's open culture, as well as channels for distribution and spread, are important (in)visible structures or values to stimulate stakeholder involvement. One out of two participants also felt that existing structures for facilitating stakeholder communication are required.

Figure 6.2.4.6
Poll results from workshop 3, question 3 regarding the structural-sociopolitical perspective.



Reflection

Human-sociopolitical perspective

During the discussion, it was emphasized that learners are the school's top priority and that they drive all decision-making within the school. Secondly, the teachers are also crucial. The team feels that the importance of subject expertise becomes more clear for higher grade levels, but not so much in the PYP grades. They also require expertise to attend to the vision and the IB standards. This forms the base for teacher learning, which is then transferred onto the students. Therefore, it is important to keep these visions and standards in mind.

Material-sociopolitical perspective

One participant mentioned that they prioritize spreading vehicles over work sheets, but that the boundary objects are most important. The spider's web serves as a framework for the first draft. Next tasks include reaching out to stakeholders and planning. They feel like a draft should be categorized into separate parts, which are then offered to specific stakeholders, so that they can provide feedback and insights on the parts that are most relevant to them.

Structural-sociopolitical perspective

Participants believe that the team is open-minded, and willing to receive suggestions or inspiration. This is an important part of their school culture. Communication to external stakeholders, like parents, mainly occurs through regular meetings with the head of the school and head of pedagogical leadership. This is their main source of knowledge on external stakeholders.

6.2.5 Exit interview

Two participants were present for workshop 2: the head of PYP grade mathematics and the school leader.

During the exit interview, a summary of the data analysis from previous workshops was presented (see Figure 6.2.5.1). Participants confirmed that this summary represents their school well.

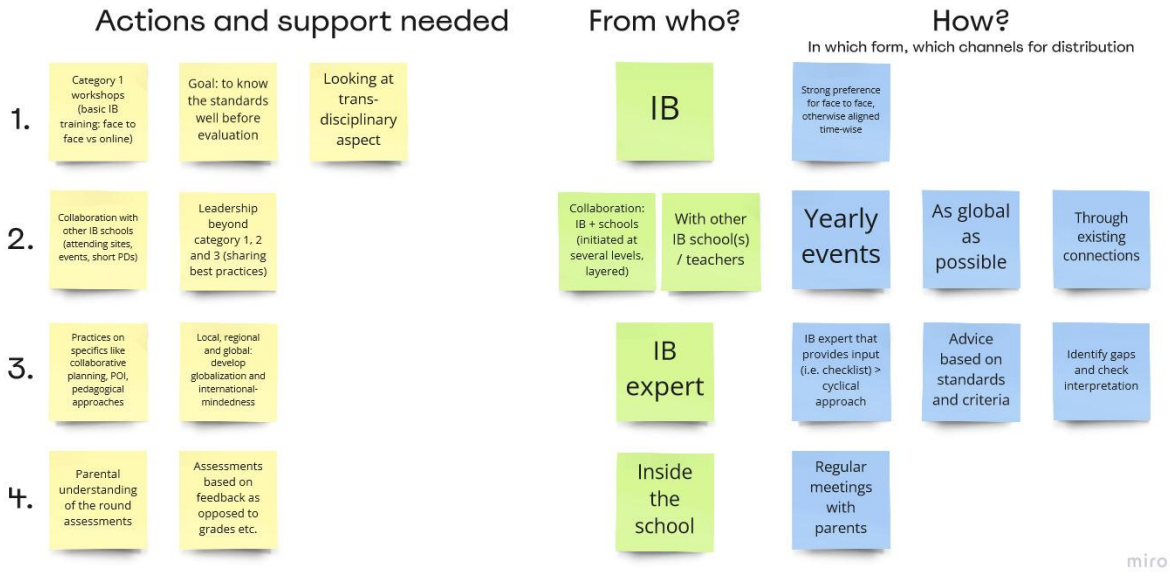
Figure 6.2.5.1
The data analysis summary presented during the exit interview. Note: the needs were discussed during the exit interview itself.

Current project: **Professional development** focused on **learner agency, inquiry learning and transdisciplinary working**			
Policy: **Input regulation** weak; **Output regulation** weak; **culture** is important, space for **360° assessment** **Curricula:** CBES (primary), ISCE (secondary) and CIE; IB; Canadian curriculum (tertiary)			
	Design team (expertise)	**Materials and resources**	**(In)visible structures and values**
Substantive	Focus on **learners, teachers** and **content;** working **collaboratively**, **guided** by a mentor/leader	**Inspiring examples:** pilot project Canadian government, **materials** are present; need for an all-encompassing **guiding document**	Focus on **internal** and **external collaboration**
Technical-professional	**Cyclical approach**; **project management** by leadership team; design process should involve **end users**	**Existing frameworks** are in place; focus on **evaluation** of PYP elements	A lot of **planning** is required for PYP; focus on **leadership, choice** and **support**
Socio-political	**Parent participation**; focus on **student needs**; decision making by **school board**; attend to **visions and standards** of IB	Focus on **boundary objects** and **spreading vehicles**	**Open-mindedness** to suggestions and inspiration; **structures** in place; wish to connect to **other IB schools**
Needs	Category 1 **workshops** by IB (preferably face-to-face); **Collaboration** with other IB schools (sharing best practices) through yearly events; Practices on **specifics** (i.e. pedagogical approaches, transdisciplinarity, globalisation, international-mindedness, standards, onboarding); **Parental understanding** of 360 degree **assessments** (developmental perspective) through regular meetings with parents (internal).		

The school's needs and wishes for future work on school-based curriculum development projects were discussed in the exit interview (see Figure 6.2.5.2). First, participants expressed a need for category 1 workshops, focusing on the IB philosophy and implementation, that are conducted by the IB. Due to the pandemic, these workshops could not take place in their regular form, but took place online instead. The timing of these online workshops did not always align well with the school planning. If possible, the team feels that it would be helpful to reinstate these workshops in their original form (face-to-face). An evaluation of the school, based on IB standards, will also take place in their school soon, which further extends the need for professional development provided by the IB. They express a need to know the standards well before evaluation and take a closer look at the transdisciplinary aspect of IB schools. Support for these wishes and needs should come mostly from the IB itself.
Second, the team would also like to collaborate with other IB schools by attending school sites, events or short professional development courses. Yearly events, like Job-A-Likes, are highly appreciated in this regard. These events are usually organized in a layered manner, and initiated by stakeholders from different organizational levels (i.e. the IB itself, coordinators, team members). They prefer these types of events to be as global as possible in order to share experiences with many different people and schools. The leadership team should receive

training beyond category 1, 2 and 3 IB workshops: they would like to share best practices amongst themselves and other schools.
Third, the team would like to share practices on specifics, like collaborative planning, the program of inquiry, and pedagogical approaches with IB experts. Other essential topics include globalization and international-mindedness. The goal of this type of support from an IB expert is to check IB standards and interpretation of these standards, identify gaps and receive advice based on these standards and criteria.
Lastly, the team expresses a need to hold regular meetings with parents in order to improve parental understanding of the round assessments that take place within the school. This is a need that can be supported from inside the school.

Figure 6.2.5.2
An overview of actions and support needed by the school.



6.2.6 Summary

Focus		Key findings
Context	*Current project*	• Goal: to develop a professional development for inquiry-based learning, transdisciplinary working and learner agency ○ Shape classroom teaching • Flexibility and adaptiveness (curriculum, subjects and assessment) • Accepting learning and breaking old mindsets (mindset shift) • Seamless transdisciplinary work and interconnectedness • Based on units of inquiry • School-wide

	Policy	• Role of teachers in India is highly regarded
		• Input and output regulation minimal (decentralized)
		  ○ Output regulation: exams, school inspections, assessments
		  ○ Lot of space for 360 degree assessment
		  ○ Learner-centered = wanted
		• Mentoring national schools
		• Three types of curriculum: CBES (primary), ISCE (secondary) and CIE; IB; Canadian curriculum (tertiary)
		• Government only interferes in safety of learners and teachers
		• Culture is important
		• All 3 languages are mandatory (Punjabi, Hindi, English) – all main languages; multi-lingual basis in the school
		• School board is main source of decision making

Spiderweb		• Assessment is teacher-centered and book-centered currently • Pedagogical limitations • Lack of reflections • No stand-alone subjects, everything is interwoven • Mentor: i.e. 3-day workshop, 2 weeks of practice, then revision/review/discuss continuous assessment (as opposed to summative) • Reflection is key (i.e. learners ask 3 questions and mention 3 things they have learned after each session, for reflection purposes) • Focus on rich learning experience and life-long learning • Horizontal and vertical alignment • Topics of the IB • Integrated learning / smooth subject integration • Only English is supported by IB, but need support for other two main languages as well
Substantive *(What do you develop?)*	*Human*	• Teach the teacher-style mentorship structure • See the right teaching strategies that are catered to learner needs • Work collaboratively, guided by a mentor • Monitored and guided format • Focus on learners, teachers and content
	Material	• Pilot project from Canadian government as inspiration • Focus on PD and coming up with a plan + finding external expertise to support this process • Introduction of new teachers: flow of tasks would be of help • Materials are available: ATT, micro-lectures, PYP blog • Looking for a document to address the whole of the project ○ Literature, frameworks and guidance related to this specific project • Subject-specific planners
	Structural	• Collaborative community, not just internal but also external • School sometimes feels isolated
Technical professional *(How do you develop?,*	*Human*	• Workshop leader: expert in IB + implementation • Design process should involve end users • Bringing learning into real-life connection for conceptual understanding • Students feel proud when they and their work are recognized

Designer Game)		• Cyclical approach • Project management is important (done by leadership team)
	Material	• Evaluation: refer to PYP elements (handbooks, discussing with colleagues); cross-checking with curriculum in school • Existing frameworks are being used
	Structural	• A lot of planning needed in PYP • Leadership, choice and support most important
Socio-political *(With whom do you develop?, Stakeholders)*	*Human*	• Parent participation • School board is main source of decision making • Expertise: student needs are top priority • Subject expertise more important for later years • Keeping in mind the visions and standards of the IB
	Material	• Spreading vehicles more important than worksheets • Boundary objects are most important • Drafts require breaking up and only giving relevant aspects to relevant stakeholders through different channel
	Structural	• Collaboration with other schools is difficult, no IB schools in the region (hard to connect) • Open-mindedness to suggestions and inspiration • Many stakeholders could be involved • A lot happens in meetings (some of which are already planned)
Other	*Needs/wishes*	• Category 1 workshops provided by the IB through trainings • Practices and specifics like collaborative planning, program of inquiry and pedagogical approaches adapted to the local context / needs. • Collaboration with other IB schools (attending conferences, visiting program, events, short PDs). • Sharing of best practices. • Develop globalization and international mindedness. • Parents should be informed about and should understand the assessments. • External expert that provides feedback and suggestions based on the IB framework, which provides standards and criteria. Provide reassurance. And helps in the cyclical approach of SBCD. • Identification of gaps (through assessment)
	Varied	• Transdisciplinary viewpoint is preferred. • Focusing on local, regional and global perspectives

Appendix 6.3: School 3 Full Case Study Report

6.3.1 Intake interview

There were five participants present for the intake interview: the head of school, the teaching and learning coach, the dean of curriculum, the head of kindergarten, and a teacher.

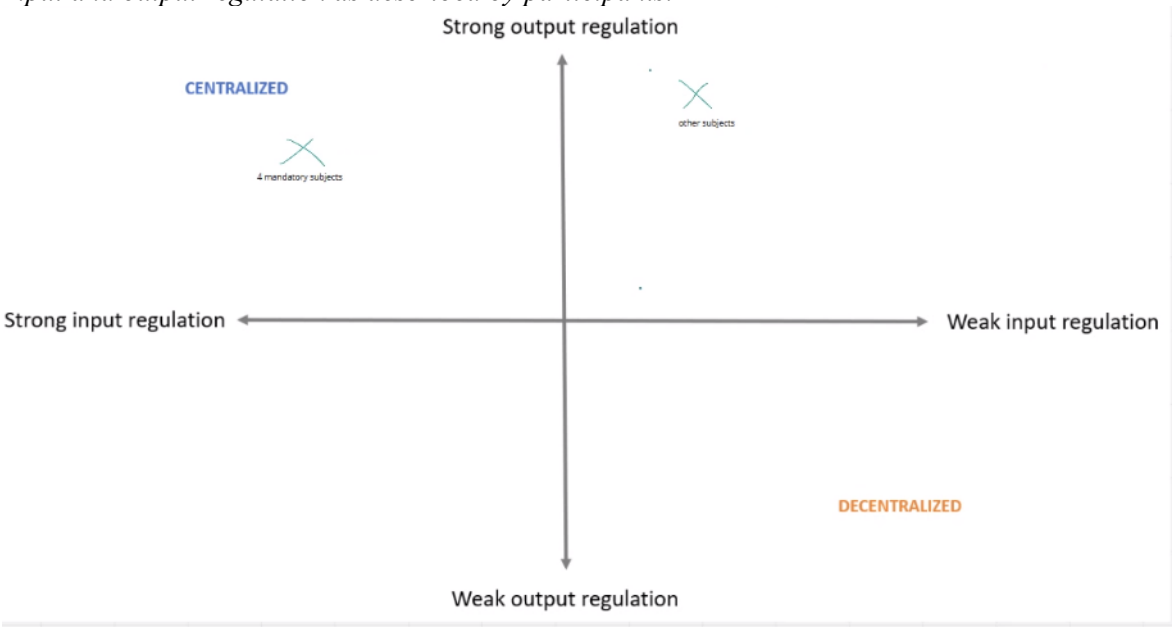
Current or upcoming project (what-how-who)

The project that is to be developed during these workshops is a project that would cater towards strategies and resources for improving learner agency. Currently, the cycle of inquiry in the classroom is decided by the teachers using a structural guidance approach. Although agency is initiated by students, the process is mostly led by teachers. A challenge that teachers are facing is to discover how much choice the children should be given, where the initiation lies and how they can empower them to take the lead in their learning process. The focus is on teaching kindergarten learners up to grade 5. The intended scope of the project is to create a holistic pedagogical approach to be used by the entire school, although the specifics of this approach might be different for various age groups. A design task like this is typical for this school, since teachers and leaders are highly involved. They are guided by inquiry and action research.

Policy (regulation, roles, organizational change)

This school's PYP programme has been newly accredited by the IB and has received three recommendations in the accreditation process, of which focusing on learner agency was one. Input and output regulation differs per subject type (see Figure 6.3.1.1): there are four mandatory subjects (Arabic, UAE social studies, moral education and Islamic studies), for which there is a relatively strong input and output regulation. However, the school has more autonomy in determining goals and content for the remaining subjects. The school is subjected to national agenda parameters and checks by the UAE, as well as regular inspections by the Dubai School Inspection Bureau. They have received an 'outstanding' assessment for 11 years. The school is largely Indian and prepares children for two separate curriculum trajectories: the IB diploma programme or the CICSE (Indian Certificate of Secondary Education) programme. The base curriculum has been aligned to the international assessment framework TIMSS, and the PYP has been aligned to the IB's scope and sequences documents and transdisciplinary teams. Evidently, this school has many policies that need to be kept in mind and integrated while designing their curriculum, which is challenging in terms of time management. Some fluidity and autonomy in the school comes from the fact that assessment is based on effectiveness, which means that anything that improves effectiveness is worth exploring. However, the amount of frameworks that they have make it challenging for teachers to decide where the learners can have agency.

Figure 6.3.1.1
Input and output regulation as described by participants.



6.3.2 Workshop 1: Substantive perspective

Seven participants were present for workshop one, including the dean of curriculum, the teaching and learning coach, and five teachers and/or supervisors.

Document analysis

This para focuses on HS, based on the products created during the warm-up task

Factors and characteristics of the developed product were discussed (see Figure 6.3.2.1). Participants aim to design an onboarding program for new and present teachers and learners with regards to learner agency. Parents should also be included in this program in order to support the process. The scope of this curriculum design task is wide: the participants want to create resources that shape class teaching and learning. The focus of the task is on learner agency, for which a new PYP framework exists. The goal is to improve learner agency across units and subjects. Although learner agency in the mandated subjects is not possible content-wise, since the content of these subjects is fixed by national curriculum guidelines, it could be possible on the level of pedagogical approaches. The target group includes about five teachers per grade, but the project is meant for use by teachers across years. A design task like this is a very common practice in this school.

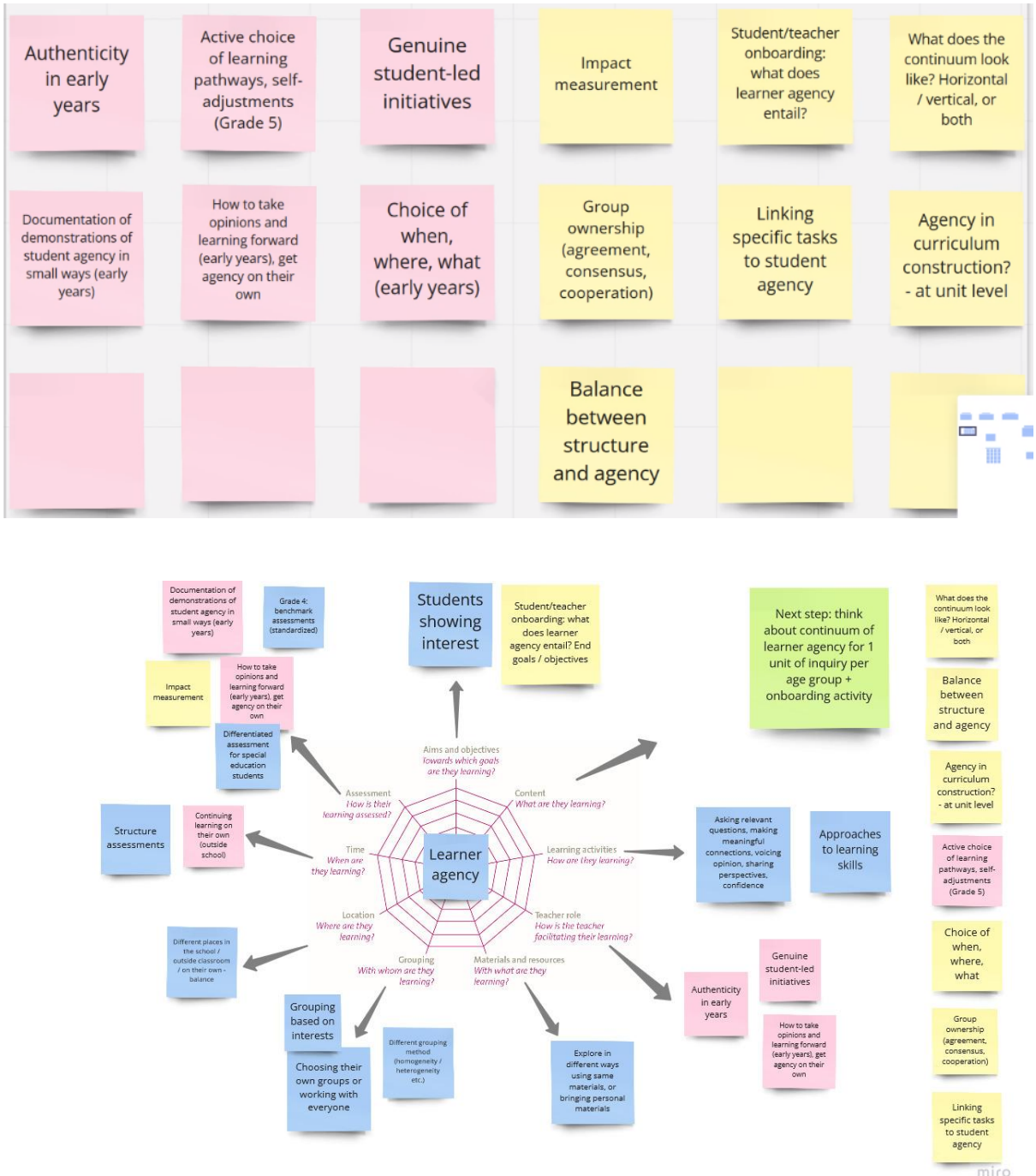
Figure 6.3.2.1
Overview of factors and characteristics of the developed product.

Dimension	Factors	Characteristics		
WHAT do you develop?	**scope**	• resources for classroom use (e.g. specific teaching and/or learning resources, learning environment, assessment tools)	• complete materials for classroom use (e.g. individual lessons, lesson series, modules, projects)	• resources that shape class teaching and learning (e.g. school vision or profile, syllabus or learning progression, assessment plans)
	subjects involved	• own/one subject (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• limited number of adjacent subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• adjacent and other subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)
	target users	• for own usage	• for own usage and for colleagues with same/similar group of learners (same subject in same age group)	• for own usage and for (unknown) colleagues with same/adjacent subject, same/other years and sectors
	attention to learners' differentiation during the design process	• no specific attention to differentiation	• limited attention to differentiation regarding one element (e.g. grouping, time, assessment)	• differentiation on several elements (e.g. grouping, time, assessment)
	overall sense of the design task	• rare (design task is an exception)	• rather common (design task is carried out once in a while)	• typical (design task is usual part of job)

Various elements of the curriculum spider web (van den Akker, 2003) were discussed (see Figure 6.3.2.2). A main goal of the design task is to answer questions about the implementation of learner agency. Participants would like to gain clarity on the way that students can voice their opinion and choose activities: for example, could learner agency also take place in groups in the form of agreement, consensus and collaboration? They would like to investigate which areas have the best opportunities for students to gain agency, how they demonstrate learner agency, if learner agency is appropriate for all age groups, what it is that students would like to learn and how they can best take their choices forward. Another aspect to investigate is how exactly this should be documented (i.e.: should it be documented on both the vertical and the horizontal axis?). One of the main concerns that participants have is to find the balance between required structure and learner agency.

In this SBCD project, participants feel that the learners' continuation of learning outside of the school should be supported. Learners could be allowed and even be stimulated to explore topics their own way with existing or other materials, or by bringing materials of their own to class. Students could be grouped by similar interests or be allowed to choose their own groups. Some age groups could also be permitted to choose the location where learning takes place, but this may prove to be difficult for learners in kindergarten. In terms of time, it is important for participants that assignments and tasks are finished by all learners at the same time in order for assessment to continue. However, there is room for concessions for certain learners.

Figure 6.3.2.2
Elements of the curriculum spider web as discussed in workshop 1.



Discussion

Human-substantive perspective

The conducted poll (see Figure 6.3.2.3) shows that all six participants believe that expertise for addressing student needs in the product, pedagogical (content) expertise related to the SBCD challenge and assessment expertise are important areas of expertise to ensure the quality of the curricular products. Expertise for attending to teachers' concerns and constraints when using the product is also required, according to five out of six participants (83%). Three out of six (50%) of the participants believe expertise for attending to school's

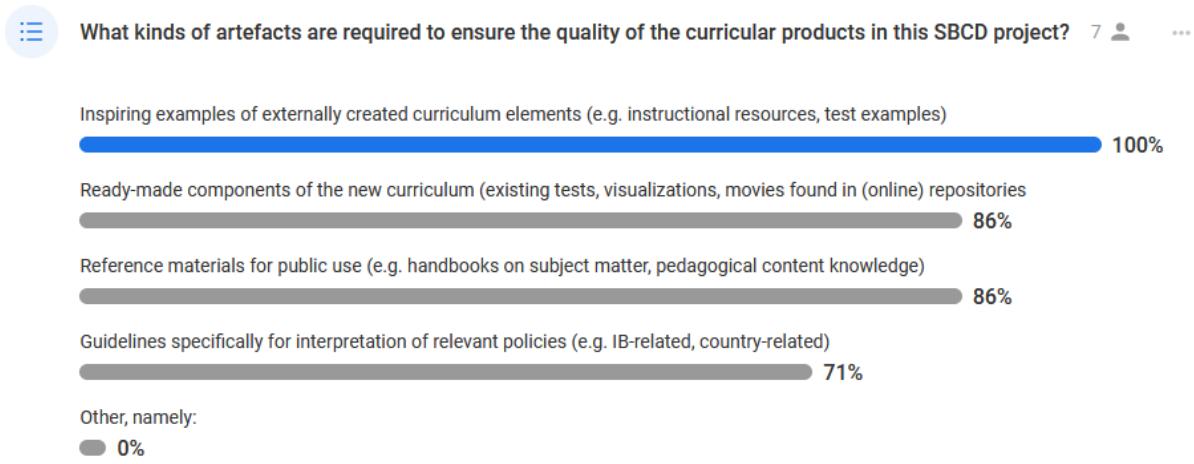
vision and profile, and expertise for characterizing the curriculum are important. Only one participant (17%) selected the option ‘disciplinary/subject expertise’. Lastly, graphic design expertise was not selected by any of the participants.

Figure 6.3.2.3
Poll results from workshop 1, question 1 regarding the human-substantive perspective.

Material-substantive perspective

As shown by the poll results (see Figure 6.3.2.4), all participants believe that inspiring examples of externally created curriculum elements are required to ensure the quality of the curricular products in this SBCD project. Most (86%; six out of seven) also think ready-made components of the new curriculum and reference materials for public use are essential. Guidelines specifically for interpretation of relevant policies are thought to be required by five out of seven (76%) of the participants.

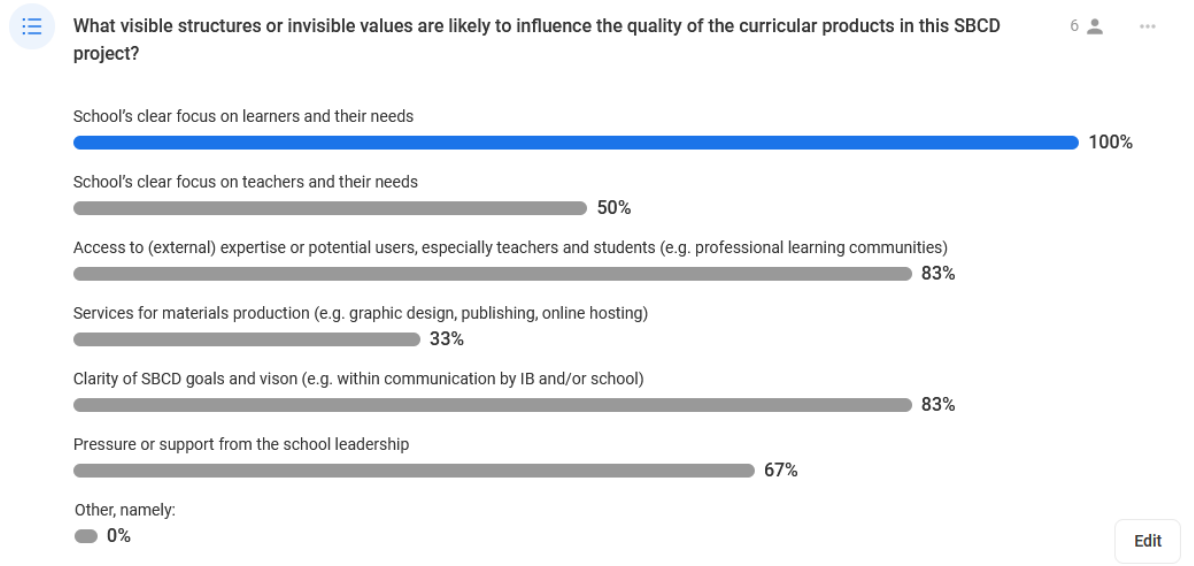
Figure 6.3.2.4
Poll results from workshop 1, question 2 regarding the material-substantive perspective.



Structural-substantive perspective

When asked about the visible structures or invisible values that are likely to influence the quality of the curricular products (see Figure 6.3.2.5), participants unanimously voted for the importance of the school's clear focus on learners and their needs. Other important aspects are access to (external) expertise or potential users, and clarity of SBCD goals and vision (both 83%). Pressure or support from the school leadership was thought to be influential by four out of six (67%) of the respondents. Three out of six (50%) of respondents think the school's clear focus on teachers and their needs influences the quality of the curricular products. Lastly, services for materials production were deemed important by two out of six (33%) respondents.

Figure 6.3.2.5
Poll results from workshop 1, question 3 regarding the structural-substantive perspective.



Reflection

Human-substantive perspective

The three main types of expertise considered important for this project are expertise for addressing student needs, pedagogical (content) expertise and assessment expertise. This is unsurprising, since learner agency is especially focused on student needs, while pedagogical (content) expertise and assessment expertise are essential ways to establish and evaluate learner agency. The disciplinary/subject matter expertise was deemed least important in this phase. One participant noted that attending to the school's vision and profile could be considered an expected long-term outcome instead of a prerequisite, since they believe student agency leads to action, which is a part of the school's vision and profile.

Material-substantive perspective

Inspiring examples are considered most helpful by this team of designers. Currently, they rely on visiting other schools from their own network for examples. Ready-made components and reference materials are also important, but one participant noted that the amount of information available online is overwhelming and difficult to filter for their context.

Structural-substantive perspective

In terms of visible structures or invisible values, it is clear that a focus on learners and their needs is important to all participants. One of the participants expressed surprise that 67% of the participants believe that pressure or support from the school leadership is an influential factor. Other participants clarified that they chose this answer mainly because of the importance of support, and not necessarily because of perceived negative pressure. They believe that support is especially important, because this allows the teachers to meet and plan for this project, and provide them with resources and support. The participants that selected this answer furthermore expressed that they viewed pressure in this context as a positive aspect that incites movement in a project.

6.3.3 Workshop 2: Technical-professional perspective

For workshop two, the group consisted of 29 participants, including the teaching and learning coach and the dean of curriculum. The discussion was mostly led by the supervisors.

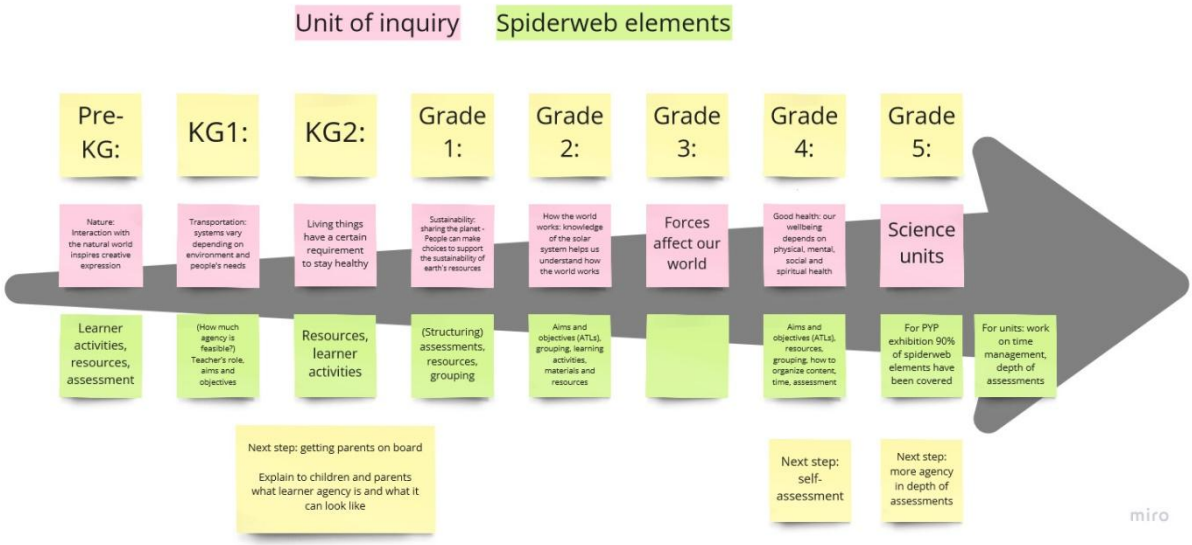
Document analysis

Products created during the warm-up task

During workshop 2, a learner agency continuum was established by the participants by focusing on one of their units of inquiry (see Figure 6.3.3.1). For each grade level, they chose one unit of inquiry as a reference point, and discussed which of the elements of the spider web would allow for learner agency. The creation of this continuum revealed that learner agency progression already takes place in their school. For example, in pre-kindergarten, learner agency is mostly accomplished by letting learners choose activities, resources and assessment. Later, learners also gain agency over other components, like the aims and objectives and the structure of assessment. According to the teachers, about 90% of the spider web elements allow for learner agency by the time the students reach grade 5. In this grade, teachers feel that some progress can still be made in terms of the depth of the assessments, as well as self-assessment and the learners' time management. Although all grades are demonstrating learner agency in some of the spider web elements, the overall continuum shows a clear progression from a more teacher-led to a more student-led approach.

Figure 6.3.3.1

Continuum of learner agency by grade and unit of inquiry



The design task showed that various designer approaches are represented in this team of teachers (see Figure 6.3.3.2). Some show a more deliberate approach, whereas others fall more into the prototyping or connoisseurship approach category. Most participants cover multiple approaches in their answers. Generally, most participants consider the end users, and like to use an iterative approach in one or more parts of the process. However, they are also able to trust and act on their own ideas and decisions.

Figure 6.3.3.2
An overview of the team's designer profiles.

	Instrumental approach	Deliberative approach	Prototyping approach	Connoisseurship approach
How do you start a project?	I need to have some grip when designing something. That is why I first make a plan. A1	Before I start the design process I consult with other people to see what needs to be developed. E2	Soon after starting the design process I make a draft of a possible design. I3	I make a design based on an idea I already have in my head. That works the fastest. M4
How do you design and construct?	Because I think hard before I start, my draft design is almost similar to the final version. B5	During the design process many stakeholders and end users think along with me. F6	During the design process I make several drafts to see if the ideas are practical. J7	I like to make my own decisions during the design process. N8
How do you evaluate?	The products I develop match the requirements that were agreed on at the start of the process. C9	The final version of the product is successful when my colleagues and end users agree on it. G10	I think the final version is good when it is usable for the end users. K11	I am able to decide when the final product is ready. O12
How do you anticipate on the implementation process?	I think it is important that the end users recognize themselves in the final product. D13	I involve various end users in my design trajectory by asking them to provide suggestions. H14	I provide end users the opportunity to test the draft products before finalizing the end product. L15	I inform end users about the materials that I have been designing. P16

Please indicate your answers in the worksheet:

Which development approach would be your best fit?

What are similarities and differences?

How can you work complementary?

miro

Factors and characteristics of the development process were discussed (see Figure 6.3.3.3). The nature of the design tasks that this school undertakes most often consists of selecting and adapting existing materials, with limited design of supplementary materials. Participants

underpinned that they have many helpful resources available, but make their own resources when required. The analysis of the current situation takes place across multiple subjects and involves different perspectives and stakeholders. The design process is cyclical, during which the design guidelines are clarified. Lastly, the evaluation of the design takes place multiple times, in many ways, with more groups and multiple people involved, and in a formative as well as a summative manner. Design activities take place on many different levels, from the overall progression to the unit design and individual lesson design.

Figure 6.3.3.3

Overview of factors and characteristics of the development process.

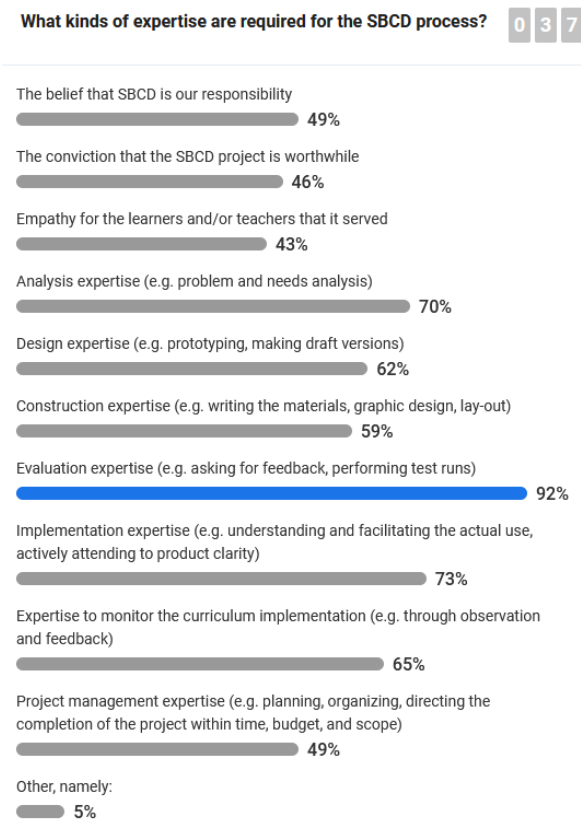
Dimension	Factors	◄---------- Characteristics ----------►		
HOW do you develop?	**nature of the design task**	• especially selecting and adapting lesson materials	• selecting and adapting existing materials + • limited design of supplementary materials	• especially designing new and supplementary materials
	analysis	• limited, informal analysis of current situation • own perspective	• analysis of current situation in limited number of subjects • input of limited number perspectives/people involved	• analysis of current situation as complte as possible • input of several perspectives (also literature review, colleagues, experts)
	design/ development	• design guidelines have been clear from the start	• design guidelines have resulted from the analysis	• design guidelines need to be clarified during the cyclical design process
	evaluation of the design	• informal, mainly oral (eg. conversation)	• limited number of ways • limited number of people involved • once and a while	• in many ways • with more groups and people involved • multiple times • formative and summative

Discussion

Human-technical professional perspective

As shown by the poll (see Figure 6.3.3.4), these participants expressed that evaluation expertise is essential to the curriculum development process. 92% (34 out of 37) chose this answer. Other important factors are implementation expertise (73%), analysis expertise (70%), and expertise to monitor curriculum implementation (65%).

Figure 6.3.3.4
Poll results from workshop 2, question 1 regarding the human-technical professional perspective.



Material-technical professional perspective

The poll results (see Figure 6.3.3.5) revealed that participants mostly value resources for the (conceptual) understanding of development activities. However, according to a slight majority (58%; out of 31) resources for carrying out development activities are also required.

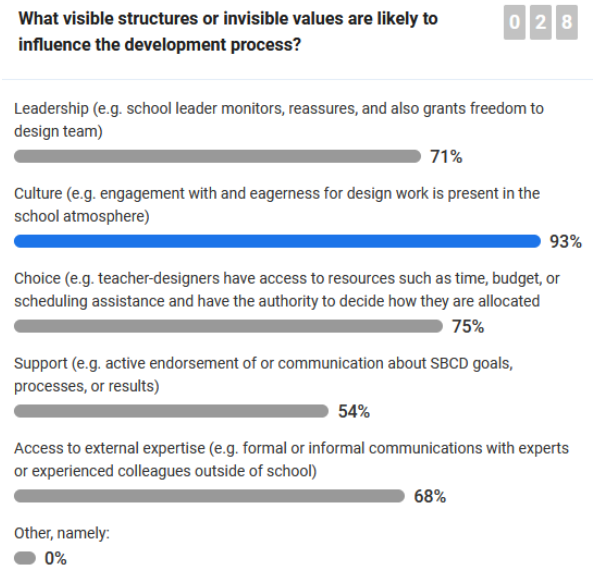
Figure 6.3.3.5
Poll Results for Workshop 2, Question 1 (Material-Technical Professional)

Structural-technical professional perspective

Visible or invisible values that are likely to influence the development process were discussed through the final poll in this workshop (see Figure 6.3.3.6). Most (26 out of 28; 93%) of participants agree that culture is very influential in terms of the development process. Choice (75%; 21 out of 28) and choice (71%; 20 out of 28) are deemed important by most of the participants, whereas a slightly smaller majority (68%; 19 out of 28) also feels that access to external expertise is essential. Notably, support was only chosen by 54% (15 out of 28) of the participants.

Figure 6.3.3.6

Poll results from workshop 2, question 3 regarding the structural-technical professional perspective.



Reflection

Human-technical professional perspective

Evaluation expertise is essential. Participants agree that any change or developmental process that the staff wants to put in place has to be evaluated. The goal of the evaluation is to check if they are on the right track. They view the process as a self-reflection process: they have meetings to collaborate and get feedback from others, as well as to discuss assessments. For example, in kindergarten 1, all teachers meet and discuss after each day, share best practices, engage in peer evaluation and frequent dialogues. The staff also expresses a need for analysis and implementation expertise. When issues arise, the staff engages in a cycle of self-reflection, problem analysis, evaluation and feedback. Furthermore, one participant emphasized the importance of construction expertise, in which all grades have to be kept in mind.

Material-technical professional perspective

The school has access to a well-equipped bank of resources and a library, but there is a need to streamline the use of resources in the planning process. The assessment policy document is their guiding document. There are standards they have to maintain, such as the national standards as well as the benchmark assessment and the IB-PYP scope and sequences. For this purpose, many different documents and guidelines are reviewed regularly and taken into

account. Another example of a resource used is the enhanced PYP guide, where agency was brought into focus, as well as the IB-PYP report that was created after authorization took place. There are also other, physical resources in play. Examples of there are the outdoor area, sensorial garden and mud pit, as well as the Discovery Centre. Every classroom also has access to hands-on activities, books and other learning resources.

Structural-technical professional perspective

The poll results and discussion on visible structures and invisible values revealed that the team thinks culture is the most important factor when it comes to the development process. Other factors, such as leadership, choice and external expertise are also important. Most notably, support was only pointed out as a significant factor by slightly over half of the participants; one teacher expressed that the team already has access to most things they require.

6.3.4 Workshop 3: Socio-political perspective

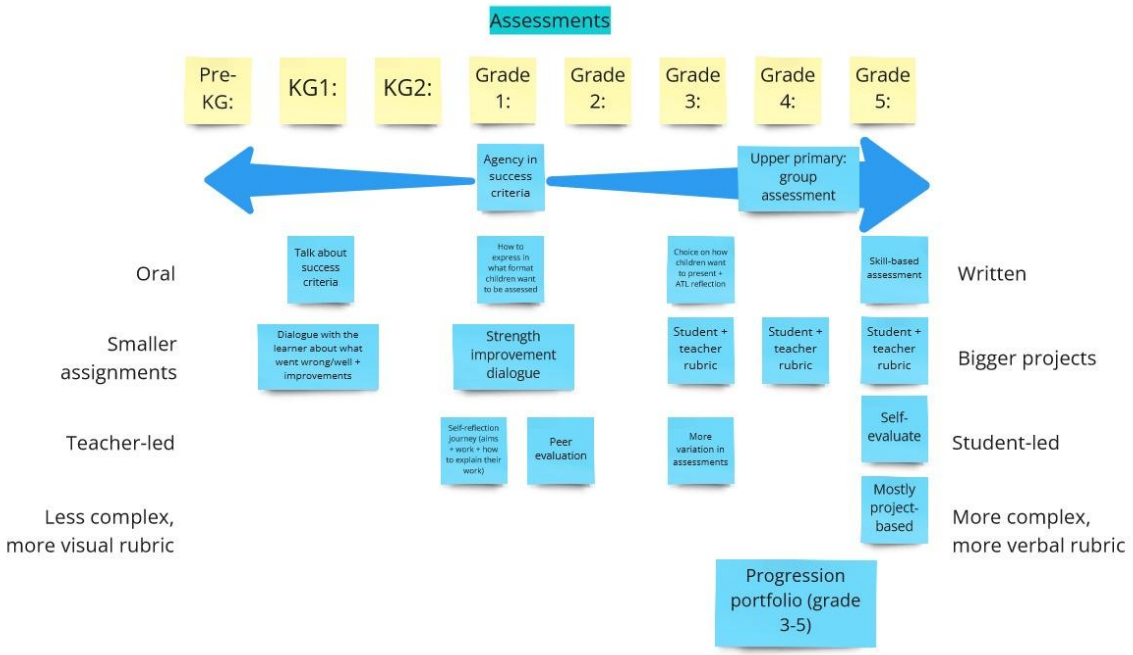
For workshop three, the group consisted of 41 participants, including the teaching and learning coach and the dean of curriculum. The discussion was mostly led by the supervisors.

Document analysis

Products created during the warm-up task

During this workshop, the team elaborated on the previously established continuum of learner agency (see Figure 6.3.4.1). The element of learner agency in assessment was explored, because this appeared to be a point of improvement in the previous session. Again, a clear progression from pre-kindergarten to grade 5 emerged. Across grades, students have agency in determining their own success criteria. In earlier grades, learners tend to express their wishes and thoughts on their success criteria through discussion (conversation-based), whereas this takes a more written form in the later grades. They gain more agency over the way they present their work and are expected to take part in self-assessment around grade 3. The rubrics students use evolve from being less complex, and more visual (i.e. using emoticons, thumbs up or down) to more complex, and more verbal. The assignments start as smaller projects, moving into bigger projects with each grade level. Towards grade 5, a self-assessment journey is established in terms of their work, assessment and understanding of tasks, and attempts towards peer evaluation are made. Generally, the assessment process is more teacher-led in pre-kindergarten, and becomes more student-led towards grade 5.

Figure 6.3.4.1
Elaboration on the continuum of learner agency for assessment, as discussed during workshop 3



The school employs a backward design approach, starting with determining what should be learned, and ending with how they can build up the student to have agency over their own assessments. A multitude of assessments is used across grades. There is a need for group assessment, especially in upper primary grades. Differentiation between students is another factor that is taken into account; for example, in upper primary grades students can assign their own role, and are asked what kind of responsibility they would like to have. Overall, there is coherence and alignment across grades and teachers.

Factors and characteristics of the design team were discussed (see Figure 6.3.4.2). The scope of the design team is wide: they are working with a large design team of teachers, school leaders and others. Since colleagues across all grades and subjects are involved, the group is heterogeneous. There is a need to tune in with external partners, especially other schools and cultural organizations. Since learner agency is the focus, learners and students are co-designers during this process.

Figure 6.3.4.2

Overview of factors and characteristics of the design team.

Dimension	Factors	Characteristics		
WITH WHOM do you develop?	**scope of design team**	• individual teacher or school leader (or other external person)	• with limited number of teachers and/or school leaders and/or other external persons	• with a large design team of teachers and/or school leaders and/or other external groups
	heterogeneity of colleagues involved	• design with colleague(s) of same student group	• design with colleagues of various student groups	• design with colleagues of (a combination of) more than one student group/subject//school
	need for tuning with external partners	• no or limited tuning neccesary	• organizational tuning with limited number of external partners (e.g. other school, cultural organization, company)	• organizational and substantive tuning with external partners (e.g. other schools, cultural organizations, companies)
	learners' /students' involvement during design	• learners/students do not contribute during the design process	• learners/students contribute incidentally during the design process (e.g. deciding in the theme)	• learners/students are co-designers

Stakeholders and their reason for involvement, as well as communication channels, were discussed (see Figure 6.3.4.3). Important stakeholders include pupils, teachers, parents, counselors (such as remedial teachers), test developers, other schools, the Ministry of Education and external companies or institutes like museums and libraries. Parents are considered an essential part of the learning community, as well as teachers and students. Counselors and remedial teachers play a role in providing advice and support regarding behavioral issues, social needs and emotional well-being. The school would also like to collaborate with museums and libraries, in order to align the curriculum to communication programs, and find out how and where they can get more information for their students. The Ministry of Education is important in defining curriculum outlines and expectations, providing approval and advice, and sharing information about major changes. Pupils are the center of the curriculum development process for this school; they gain a lot of information from pupils' perspective by engaging in regular dialogue, and involving them in the planning process. This helps teachers to identify missing content and inform reformations. Communication with other schools happens through visits by the leadership of the school, contact between teachers, e-mail and social media. This helps the team gain different perspectives, share experiences, ask for support or feedback, and draw inspiration from each other. Lastly, test developers play an advisory role in the developing and implementation phase. They help staff when deciding which new tools to use, developing new platforms or providing specifications to support the learning purposes.

Figure 6.3.4.3

An overview of stakeholders, their reasons for involvement and communication channels.

	WHY? (reasons for involvement)						
WHO? (stakeholders)	**To ask for advice**	**To ask for comments/to discuss**	**To inform**	**To ask for commitment**	**To ask for approval**	**To ask for support**	**HOW? (channels)**
Pupils		X	X				
Teachers							
Parents		X	X			X	
Counselors	X						
Test developers	X						
Ministry of Education	X	X	X		X		
External companies or institutes						X	
Other schools	X	X				X	Visit by school leadership, contact between teachers, e-mail, social media

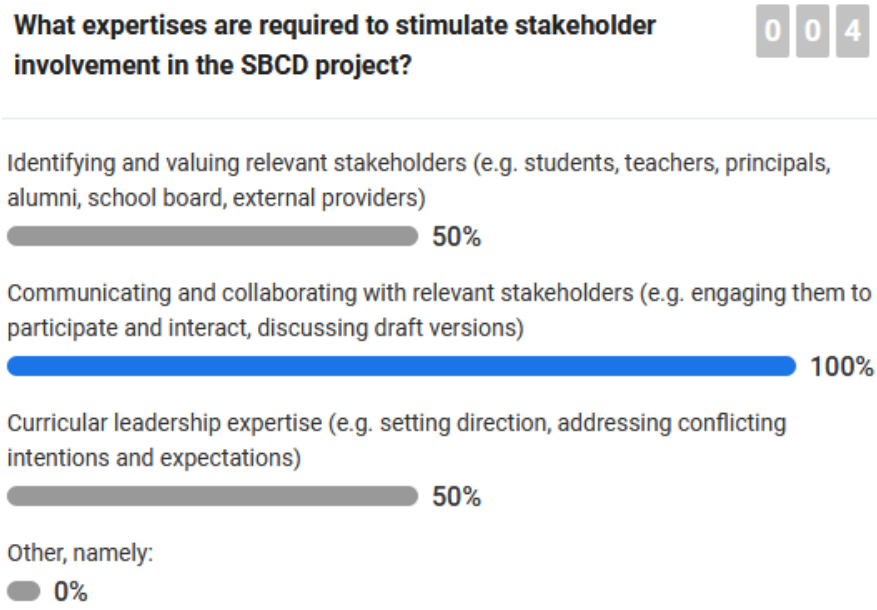
Discussion

Human-political perspective

A poll was conducted regarding the expertise required to stimulate stakeholder involvement (see Figure 6.3.4.4). All participants (100%) agree that communicating and collaborating with relevant stakeholders is the most important type of expertise to stimulate stakeholder involvement. Two out of four (50%) think that identifying and valuing relevant stakeholders, as well as curricular leadership expertise, are also important types of expertise.

Figure 6.3.4.4

Poll results from workshop 3, question 1 regarding the human-sociopolitical perspective.

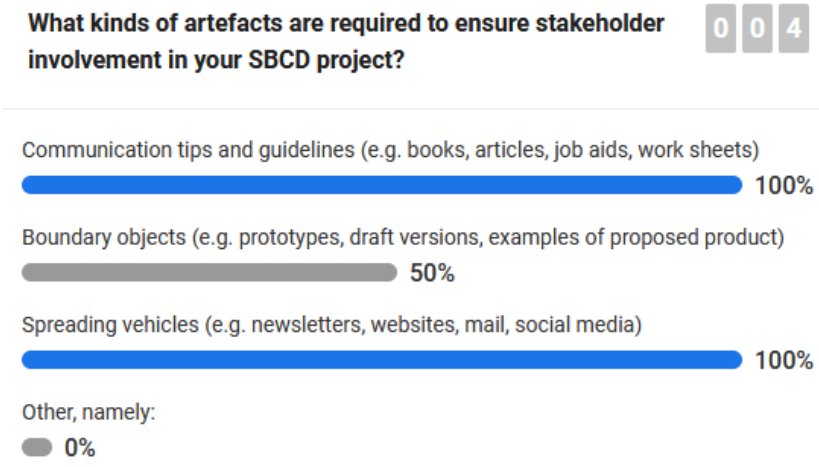


Material-sociopolitical perspective

The next poll addressed the artefacts required to ensure stakeholder involvement (see Figure 6.3.4.5). The artefacts that are required to ensure stakeholder involvement are mostly communication tips and guidelines, as well as spreading vehicles, according to all four participants. Two out of four participants also feel that boundary objects are of importance.

Figure 6.3.4.5

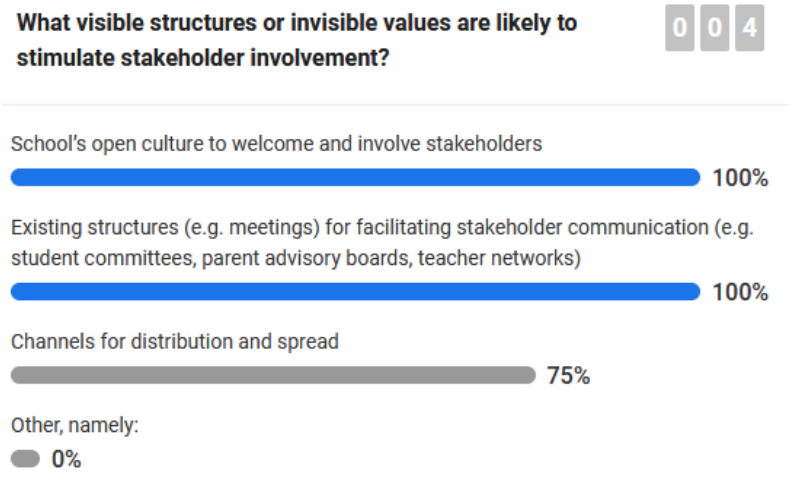
Poll results from workshop 3, question 2 regarding the material-sociopolitical perspective.



Structural-sociopolitical perspective

Lastly, the visible structures or invisible values that are likely to stimulate stakeholder involvement were discussed (see Figure 6.3.4.6). The school's open culture to welcome and involve stakeholders, as well as existing structures for facilitating stakeholder communication are important structures to stimulate stakeholder involvement, according to all four participants. Three out of four participants (75%) also feel that channels for distribution and spread are likely to influence stakeholder involvement.

Figure 6.3.4.6
Poll results from workshop 3, question 3 regarding the structural-sociopolitical perspective.



Reflection

Human-sociopolitical perspective

The focus of this school is on communicating and collaborating with stakeholders. It seems that there is already a clear view on relevant stakeholders. The team expresses that they do not only want to communicate with stakeholders, but truly engage them in the process.

Material-sociopolitical perspective

Communication tips and guidelines, as well as spreading vehicles, are of importance to this school when considering stakeholder involvement. Not all participants agree that boundary objects are required, even though inspiring examples were deemed helpful when considering the quality of the product. Possibly, participants have varying ideas of when and in which manner stakeholders should be involved – for example, if they should be involved in reviewing drafts and revisions.

Structural-sociopolitical perspective

In terms of visible structures and invisible values, most factors seem to be of importance to this school; school's open culture to welcome and involve stakeholders and existing structures were unanimously agreed upon, whereas channels for distribution and spread was deemed not as important by only one participant.

6.3.5 Exit interview

Five participants attended the exit interview, including the head of school and the teaching and learning coach.

During the exit interview, a summary of the data analysis from previous workshops was presented (see Figure 6.3.5.1). Participants confirmed that this summary represents their school well. They expressed that the workshops have been helpful to bring the team together across grades, and investigate the vertical student progression from kindergarten to grade 5.

Figure 6.3.5.1

The data analysis summary presented during the exit interview. Note: the needs were discussed during the exit interview itself.

Current project: **progression for learner agency** + **onboarding program** for students, teachers and parents			
Policy: **Input regulation** strong for mandatory subjects, weak for other subjects; **Output regulation** strong; Many different **policies and frameworks** to adhere to			
	Human	**Material**	**Structural**
Substantive	Clear focus on **student needs**, in order to achieve this other types are needed (i.e. **pedagogical content expertise**, **assessment expertise**)	Many resources in place, but overwhelming: **structure** would help to link the right resources to the context.	Focus on **learners** and their needs; access to **external expertise** + clear **goals and vision** greatly appreciated. Positive **pressure or support** can be helpful.
Technical-professional	**Collaborative** + **cyclical** design process focused on **self-reflection** (analysis, evaluation, feedback); **various design approaches**, consideration of **users** + **iterative** approach, also **connoisseurship**	School is well equipped. Many standards to maintain means many resources. Existing resources are useful, but the use of them needs to be **streamlined.**	A lot of the staff's requirements are taken care of, but there is a need for **coherence and alignment** across grades and teachers.
Socio-political	**Large and heterogeneous** group, organizational + substantive **tuning** with external partners, **learners/students are co-designers**	**Communication tips and guidelines** + **spreading vehicles** are considered most important	School's **open culture** and **existing structures** are most important, **channels for distribution and spread** essential too. Not only identify but **engage** with stakeholders.
Needs: Reach a **common understanding** of learner agency; Define **continuum; Data** collection, analysis and evaluation; **Professional development** on pedagogical expertise **from IB**; Champion teachers and **peer mentoring.** Training in **scientific approach** to SBCD			

The school's needs and wishes for future work on school-based curriculum development projects were discussed in the exit interview (see Figure 6.3.5.2).
First, the school expresses a need to create a common understanding of learner agency among teachers. They need to establish a shared vision on what learner agency is exactly, defined in the context of the school and the times. Helpful channels for distribution would be the pedagogical leadership team, IB support materials, planned lessons around agency and conversations with teachers.

Second, the team would like to further define the continuum of learner agency by doing reflective exercises. This continuum can be used to identify gaps and see connections between elements and across grades. They prefer to work on this through regular interactions between teams. Age-appropriateness should also be considered, by looking at developmental stages and relate those to the continuum. Another essential factor in establishing the continuum, and the learners' places within the continuum, is assessment.
Third, the school also expresses a need for the collection, analysis and interpretation of data, which is used for evaluation and further improvement. Lastly, professional development is an important need for this school. The team expresses that there is mainly a need for professional development with regards to pedagogy, which can support assessment by teachers as well as students. Generally, participants expressed that they would like for around 40% of the support for these needs to come from within the school, and 60% from outside of the school (i.e. from the IB, and from professionals, practitioners and other schools in the network). Preferred methods are to identify champion teachers inside and outside of the school, as well as to use peer assessment and reflective exercises.

Figure 6.3.5.2
An overview of actions and support needed by the school

6.3.6 Summary

Focus		Key findings
Context	*Current project*	• Theme: Learner agency • Move from teacher-led to more student-led • Design part is common: 'part of their DNA' • A lot of expertise in SBCD projects (following inquiry and action research)
	Policy	• CISCE (Council For The Indian School Certificate Examinations) accreditation • Long history of PYP, but newly accredited in IB (2021 with 3 recommendations) • Checks by UAE • Inspections by the Dubai School Inspection Bureau • TIMMS assessment framework • Students follow both PYP and ICSC, later they can choose between ICS or IB-DP • Transdisciplinary teams • Mapping programme of inquiry (grade by grade) • Local country requirements limit the way learner agency can take place • Four mandatory subjects: strong input and output regulation • Non-mandatory subjects: weak input and strong output regulation
Substantive	*Human*	• Expertise for addressing student needs in the product • Pedagogical (content) expertise related to the SBCD challenge

(What do you develop?, Spiderweb)		• Assessment expertise • Expertise for attending to school's vision and profile: more of a result than a prerequisite, because student agency leads to action ('every child is a change maker')
	Material	• Inspiring examples (100%) • Ready-made components + reference materials (86%) • Guidelines (71%) • Would like to have examples for learner agency • Amount of information online is overwhelming, need more structure to filter information that is relevant and authentic to the context
	Structural	• Mainly school's clear focus on learners and their needs • Also important: access to (external) expertise and clarity of SBCD goals and vision • Moderately important: pressure or support from the school leadership depends on if pressure is viewed as positive or negative, especially support is important • Less important: clear focus on teachers and their needs, services for material production
Technical professional *(How do you develop?, Designer Game)*	*Human*	• Most important: evaluation expertise any change has to be evaluated, check if on the right track • Cycle of self-reflection (analysis, evaluation, feedback) • Regular meetings to collaborate and discuss, share best practices, peer evaluation • Implementation expertise, analysis expertise, expertise to monitor implementation, design expertise (73-62%) • Construction expertise (note: important to keep all grades in mind), the belief that SBCD is our responsibility, the conviction that SBCD is worthwhile, empathy for the learners, project management expertise, other (59-0%)
	Material	• Resources for (conceptual) understanding development activities are most important • School has access to well-equipped bank of resources + library • Need to streamline the use of resources • Guiding document: assessment policy document • Need more insight into agency of the learner regarding assessment (formal/informal) • Need to have a progression/continuum through the grades • Many different standards to maintain: i.e. benchmark assessment, IB-PYP scope and sequences regular evaluation/review • Enhanced PYP guide, IB-PYP report after authorization • Many physical resources: outdoor area, sensorial garden and mud pit, Discovery Centre, hands-on activities, books, other learning resources
	Structural	• Most important: culture; then leadership, choice and external expertise • Support: not as important, because the team feels they already have access to most things they require • Need for coherence and alignment across grades and teachers
Socio-political *(With whom do you develop?, Stakeholders)*	*Human*	• Expertise for addressing student needs, disciplinary/subject matter expertise, pedagogical content expertise, assessment expertise, expertise for characterizing the curriculum (80%) • Expertise for attending to teachers' concerns and constraints, expertise for attending to school's vision and profile (60%) • Graphic design expertise (20%)
	Material	• Communication tips and guidelines + spreading vehicles are most important (100%); boundary objects are less important (50%)
	Structural	• School's open culture and existing structures are most important (100%), channels for distribution and spread also important (75%)
Other	*Needs/wishes*	• Vertical student progression from KG to Grade 5 • define the continuum and using that to identify gaps and see connections

		● Looking for more opportunities in the team meetings across the grades ● create resources to inform parents ● like to know what agency would look like in each grade (Common understanding among the teachers about learner agency) ● build expertise from teachers and to be able to evaluate the elements of SBCD ● Have an evaluation framework (Assessments and Checklists) ● Pedagogical expertise Professional Development for mainly pedagogy (How teachers can assess and how teachers can help students assess themselves.) ● engage with stakeholders (collaboration and cooperation) ● Have champions teachers and peer-mentoring / reflection ● Training program (in a scientific approach) for a small group of teachers (10 people) for in-house PD. ● Access to the activities.
	Varied	● New programs and standards of IB is a great approach, from compliance to development ● "Shared guardian of the planet." – great statement from the IB ● "Make children life-long learners." – Great statement from the IB

Appendix 6.4: School 4 Full Case Study Report

6.4.1 Intake interview

Three participants were present for the intake interview: the deputy head of school, the school leader and the PYP coordinator.

Current or upcoming project (what-how-who)

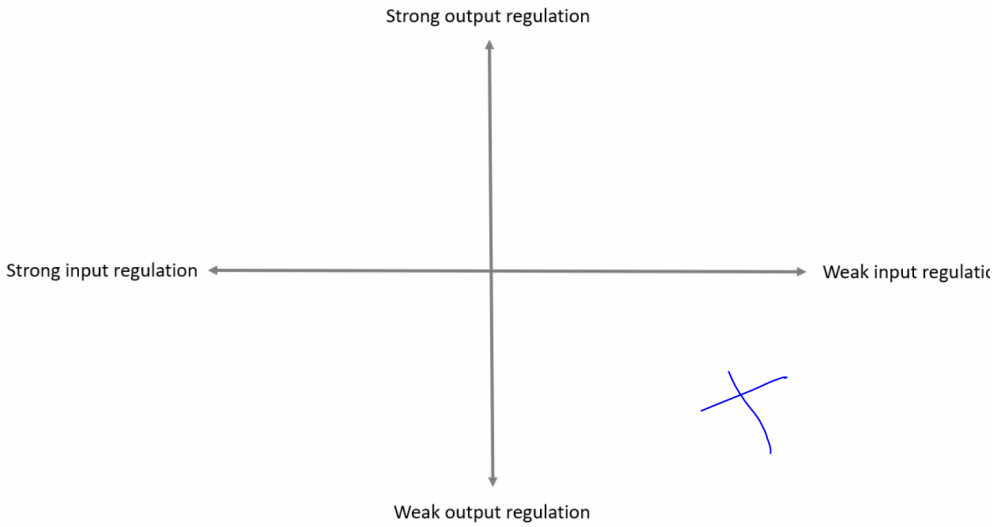
During the workshop, the participants of this school focus on a review of the program of inquiry and its interdisciplinary subject integration. The program of inquiry is reviewed on an annual basis, and although it already meets all of the IB's requirements, they want to think about how to improve it beyond meeting the minimum requirements. Their goals are centered around development, progression and improvement. For example, they want to be able to show progression of content over time through units of inquiry. Other factors that they want to incorporate are the ATL (approaches to learning) skills, as well as the sustainable development goals. Each unit of inquiry is connected to one or more sustainable development goals. Lastly, when the IB's renewed scope and sequences document arrives in 2022, they would like to evaluate if the curriculum that has been developed around wellbeing is well-captured inside the program of inquiry, or that it should be more integrated.

Policy (regulation, roles, organizational change)

This school is not subject to very strict regulations by the government in terms of curriculum development, and has a lot of autonomy (see Figure 6.4.1.1). IB schools in Nigeria have some exemptions from national requirements, as long as they are delivering at the same level or superior to the national curriculum. On a policy level, education is governed by the state, not by the federation. At state level, they do not have much input or output regulation compared to other states in Nigeria. However, the school does sometimes choose to incorporate contents from the national curriculum. Aside from the Nigerian documents and the scope and sequences document, they also compare their curriculum to American or British curriculum documents. These documents serve as sources of inspiration, as well as to ensure that all important topics are covered.

Figure 6.4.1.1

Input and output regulation as described by participants.



This PYP school was established in 2003, and authorized to run the PYP program in 2008. Most regulation comes from the school itself and the IB. The school will be up for a preliminary review next September. Currently, the IB is moving towards a new evaluation approach. Evaluation is focused on the schools looking inward in terms of program fidelity: how are the schools implementing the PYP according to standards and practices?

6.4.2 Workshop 1: Substantive perspective

Seven participants were present for workshop one, including the PYP coordinator and six teachers.

Document analysis

Products created during the warm-up task

Like most schools worldwide, this school has had to make sudden changes, switching from to online or hybrid teaching, due to coronavirus regulations. This increased workload caused the focus to shift towards knowledge delivery. Soft elements, like learner agency and differentiation, lost emphasis in the planners, which are used to provide evidence of their work on these elements. Currently, teachers use an individual planner for the remote learning programs as well as the unit planner. This combination becomes tedious and increases the workload. Therefore, their aim is to create a hybrid planner that emphasizes learner agency and differentiation, while reducing the pressure on teachers.

Factors and characteristics of the developed product were discussed (see Figure 6.4.2.1). This planner is to be used generally and not specific to one subject, is to shape class teaching and learning. The target users are colleague teachers across all years and sectors. There is attention to learners' differentiation on several elements. This task is a typical task for this school.

Figure 6.4.2.1

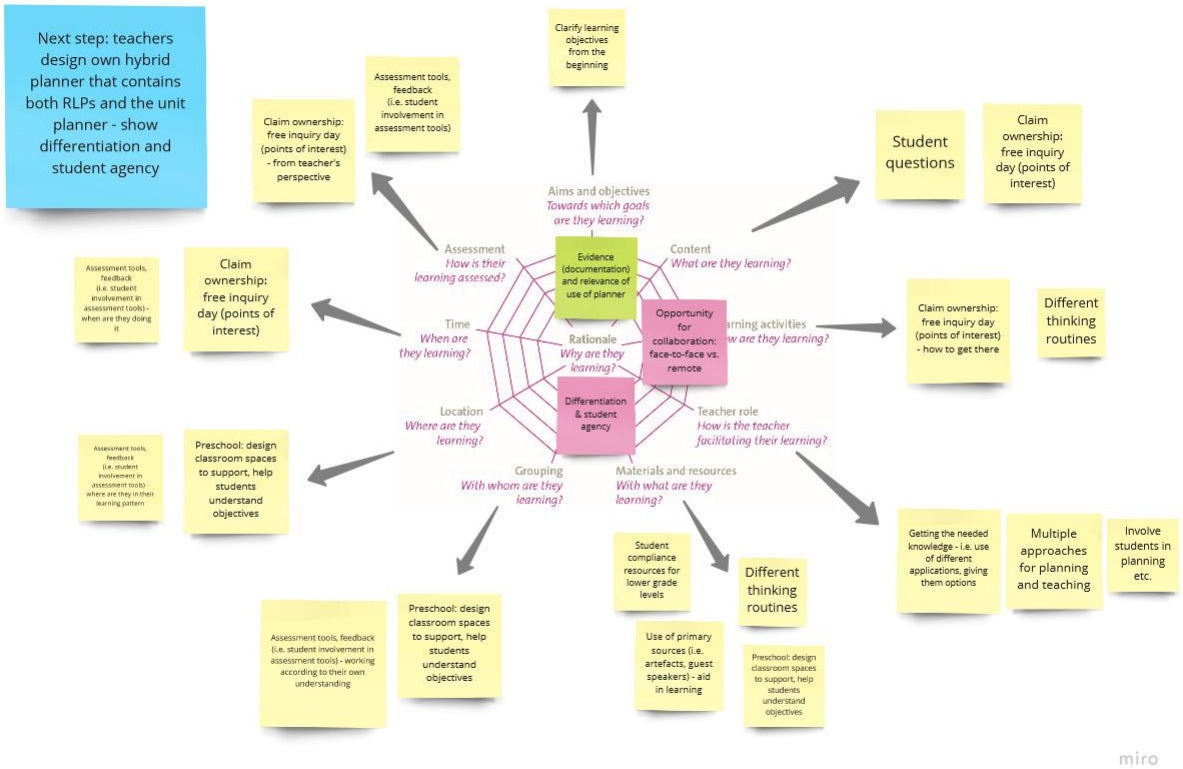
Overview of factors and characteristics of the developed product.

Dimension	Factors	◄---------- Characteristics ----------►		
WHAT do you develop?	**scope**	• resources for classroom use (e.g. specific teaching and/or learning resources, learning environment, assessment tools)	• complete materials for classroom use (e.g. individual lessons, lesson series, modules, projects)	• resources that shape class teaching and learning (e.g. school vision or profile, syllabus or learning progression, assessment plans) X
	subjects involved	• own/one subject (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• limited number of adjacent subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• adjacent and other subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education) X
	target users	• for own usage	• for own usage and for colleagues with same/similar group of learners (same subject in same age group)	• for own usage and for (unknown) colleagues with same/adjacent subject, same/other years and sectors X
	attention to learners' differentiation during the design process	• no specific attention to differentiation	• limited attention to differentiation regarding one element (e.g. grouping, time, assessment)	• differentiation on several elements (e.g. grouping, time, assessment) X
	overall sense of the design task	• rare (design task is an exception)	• rather common (design task is carried out once in a while)	• typical (design task is usual part of job) X

Various elements of the project were discussed (see Figure 6.4.2.1) using the framework of the curricular spider's web (van den Akker, 2003). In order to achieve the goals of learner agency and differentiation, teachers feel that it is important to ensure that the learning objectives are clear to all learners from the start. Learners should have the opportunity to ask questions and claim ownership of their learning. One method that the school already uses is a free inquiry day, where learners are allowed to select topics, methods and goals based on their points of interest. Learners are encouraged to use different thinking routines to increase

their understanding. The role of the teacher in this process is to have the knowledge to be able to provide learners with different tools and applications, so that they have options to choose from. They involve learners in the planning process and use multiple approaches for teaching and planning themselves. Some materials and resources that are needed include learner compliance resources for lower grade levels, classroom spaces designed to support the learners in understanding the learning objectives, and the use of primary sources like artefacts and guest speakers to aid in learning. Assessment tools are used in multiple ways by the teacher: to assess results, but also to determine learners' points of interest, as well as the place, time and location of their learning process. The free inquiry day is also used as a method to assess learners' points of interest.

Figure 6.4.2.1
Discussion of various project elements using the spider web activity during workshop 1.

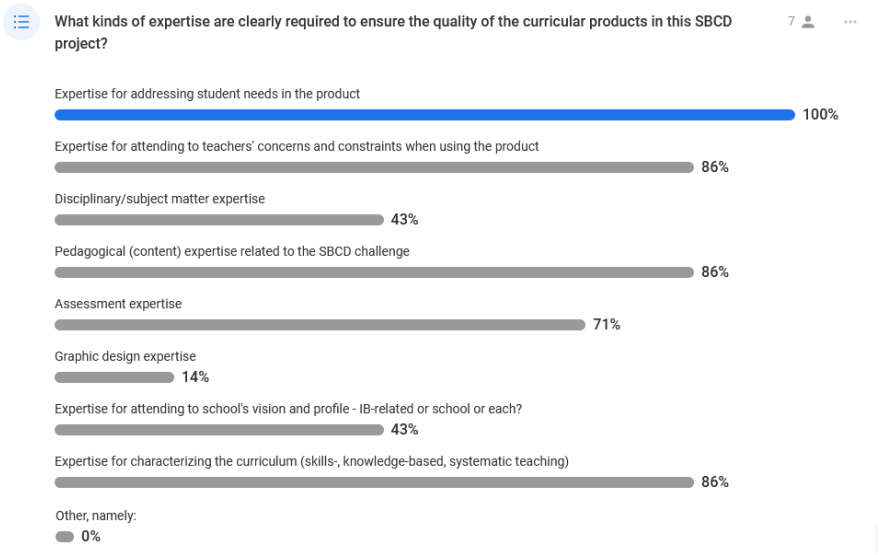


Discussion

Human-substantive perspective

In the poll conducted during the workshop (see Figure 6.4.2.2), all teachers indicated that expertise for addressing student needs in the product is essential for this project. Other types of expertise that are clearly required according to six out of the seven respondents are those of attending to teachers' concerns and constraints when using the product, pedagogical (content) expertise and expertise for characterizing the curriculum – and, according to five out of seven respondents, assessment expertise. Less importance was placed on disciplinary/subject expertise and expertise for attending to the school's vision or profile; this answer was chosen by three out of seven respondents. Only one teacher indicated that graphic design expertise was an important factor in this project.

Figure 6.4.2.2
Poll results from workshop 1, question 1 regarding the human-substantive perspective.

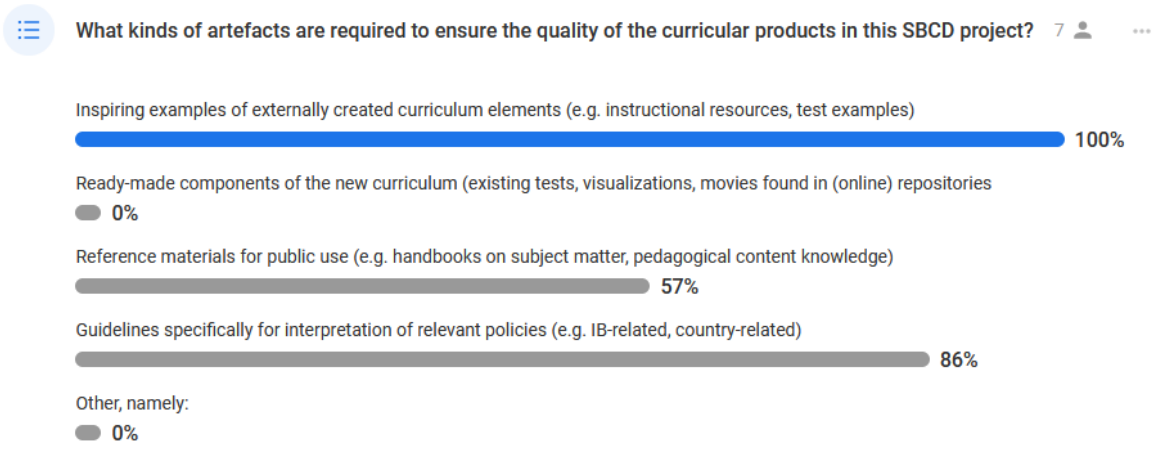


Material-substantive perspective

When asked about the artefacts required to ensure the quality of the curricular products (see Figure 6.4.2.4), participants all agreed that inspiring examples are required to ensure the quality of the curricular products in this SBCD project. Guidelines for interpretation of relevant policies are also considered useful by six out of seven participants. Reference materials for public use were thought to be of importance by four out of seven respondents. None of the respondents chose ready-made components of the new curriculum or other artefacts in their response.

Figure 6.4.2.3

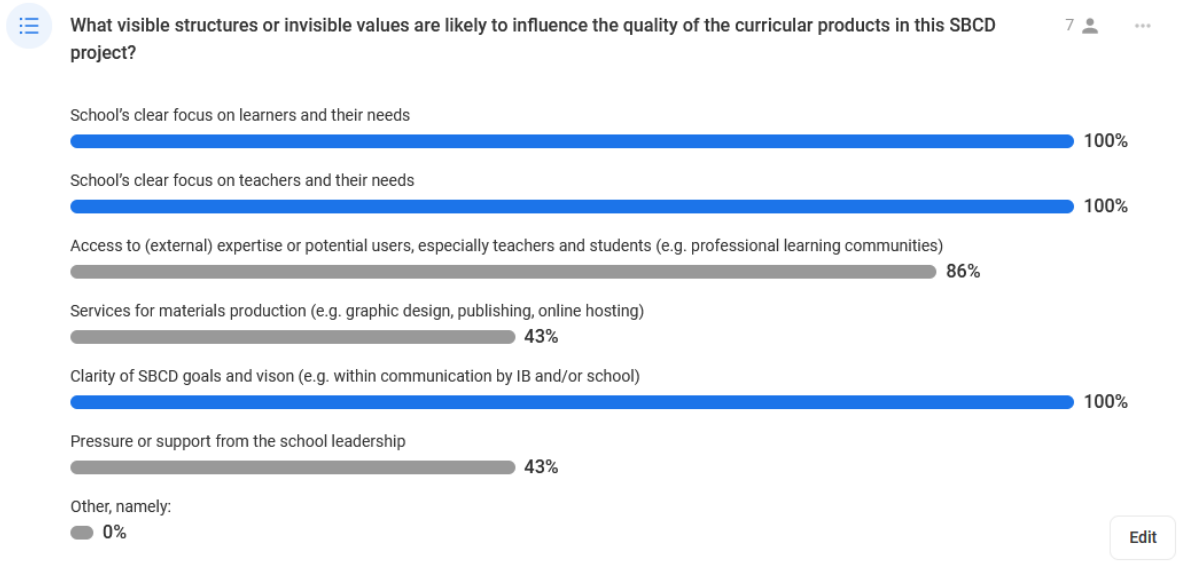
Poll results from workshop 1, question 2 regarding the material-substantive perspective.



Structural-substantive perspective

Some visible structures or invisible values that are likely to influence the quality of the curricular product in this SBCD project are, according to all seven participants (see Figure 6.4.2.4): the school's clear focus on learners and their needs, the school's clear focus on teachers and their needs, and clarity of SBCD goals and vision. Access to (external) expertise or potential users is another influential factor, according to six out of seven participants. Less commonly chosen were services for materials production and pressure or support from the school leadership (three out of seven respondents).

Figure 6.4.2.4
Poll results from workshop 1, question 3 regarding the structural-substantive perspective.



Reflection

Human-substantive perspective

This school shows a clear focus on student needs. This is evident in the poll answers as well as the focus of this project: learner agency and differentiation. Teachers' concerns and constraints are also clearly important, since one of the main goals for the product created in this workshop is to reduce stress and workload for teachers while maintaining their high level of quality assurance. Participants explained that they believe pedagogical (content) knowledge is also essential for this project, since this knowledge is needed to facilitate learner agency and differentiation. Assessment is required to track effectiveness and learning progress. Although poll responses suggest that not all participants think expertise for attending to the school's vision or profile is an essential element, earlier discussions show that there is careful consideration for the IB's regulation and vision. The staff takes pride in their school's status and high level of quality. Participants are actively seeking ways to improve their program of inquiry beyond meeting the IB's minimum requirements, as well as ensuring that the IB's vision and values are well captured within their program of inquiry. During the discussion, teachers indicated that although they felt that disciplinary/subject matter expertise was indeed important, they felt that this type of expertise was already covered well by their colleagues and should therefore not be the focus of this project. Lastly, graphic design is not considered to be an essential element by most of the participants.

Material-substantive perspective

Participants from this school have shown to make good use of inspiring examples. In the intake session, it was already mentioned that they use curriculum documents from different countries as inspiration, as well as to ensure that all essential elements are covered within their curriculum. Guidelines for interpretation of relevant policies are also thought to be required - the school's use of these documents is also evident in their ambition to not only meet, but surpass policy requirements. Some, but not all teachers think that reference materials for public use are required. Lastly, the poll reflected that participants do not consider ready-made components to be required. One possible explanation for this might be

the school is not subjected to high levels of rules and regulations on a national level. Therefore, they have a lot of freedom to design their own curriculum materials, as opposed to government-mandated materials.

Structural-substantive perspective

The poll showed that the school's clear focus on student, as well as teacher needs. This corresponds to the earlier findings on the human-substantive level. Another important social-political element, according to the poll, is the clarity of the SBCD goals and vision. This seems slightly discrepant to the poll response indicating that attending to the school's vision or profile is not considered required by all participants, but stands to reason when considering their ambition to continuously improve and develop various parts of their curriculum. The fact that pressure or support from the school leadership is considered likely to influence the quality of curricular products by less than half of the respondents might be correlated to the high level of autonomy that the staff experiences.

6.4.3 Workshop 2: technical-professional perspective

Six participants were present for workshop one, including the PYP coordinator and five teachers.

Document analysis

Products created during the warm-up task

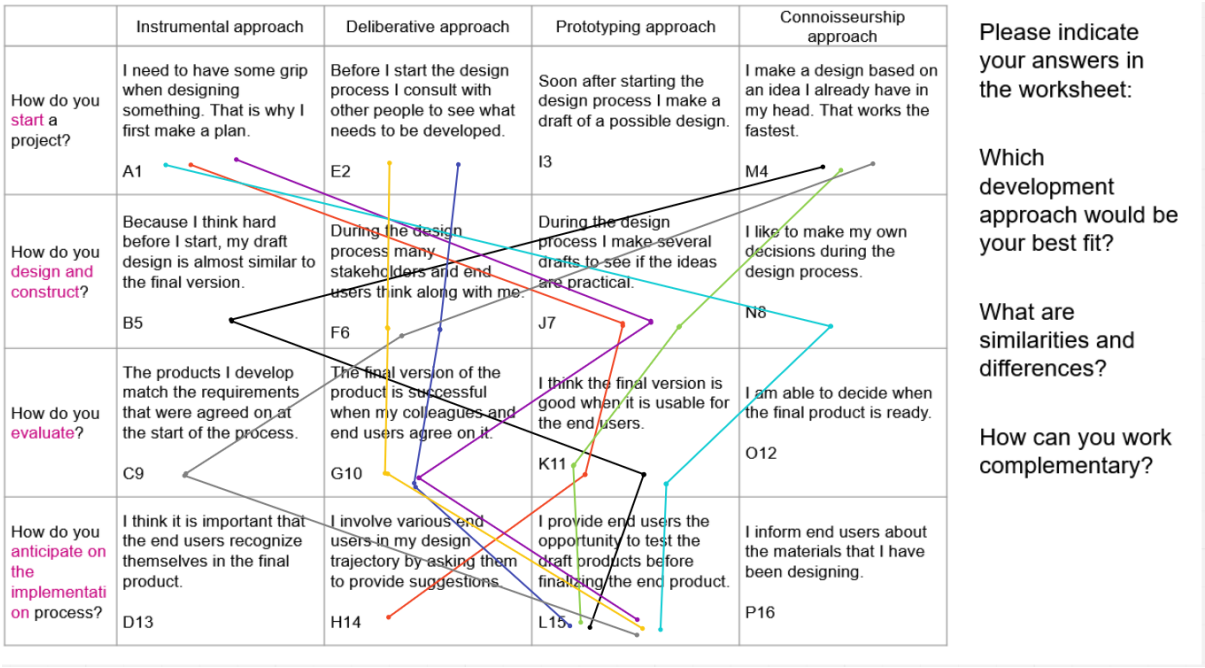
Design criteria for the planner were established during this workshop (see Figure 6.4.3.1). After reflection on the activities of workshop 1, the team decided that they would like to work towards a singular planner where the units will be the focus, while numeracy and literacy will also be incorporated. They would prefer to reflect on the students' progress and learning objectives on a weekly basis. For this planner, it is essential that it is feasible for the teachers and does not create an unnecessary workload. The hybrid program will likely continue for the foreseeable future. The goal is that the program for remote and face-to-face learners become more similar than they currently are, and to ensure that learner differentiation is evident throughout the planner. Communication with students and parents is essential, especially for remote students. Real-time communication is easier for upper elementary grades than the lower and pre-school grades. In terms of creating similar experiences for both remote and face-to-face learners, parent participation is required. This remains a challenge, since many parents lack time, resources and expertise. Therefore, the planner should include aspects that are of importance for the parents and that help them create a learning environment that is more similar to the classroom experience.

Figure 6.4.3.1

Design criteria for planner as discussed in workshop 2.

When discussing designer approaches with the eight participants, varied patterns emerged (see Figure 6.4.3.2). Three participants like to start projects by making a plan first [A1]. Two consult with other people to see what needs to be developed [E2], and three make a design based on an idea that they already have in their head [M4]. None of the participants selected the option 'Soon after starting the design process I make a draft of a possible design'. When designing and constructing a product, one participant likes to think hard before they start, resulting in a final version that is almost similar to the draft design [B5]. Three participants make use of stakeholders and end users to think along with them [F6], while three others make several drafts to see if the ideas are practical [J7]. One participant likes to make their own decisions during the design process [N8]. In terms of evaluation of the product, one participant evaluates by matching the developed product to the requirements that were agreed on at the start of the process [C9]. Three participants perceive their final version to be successful when colleagues and end users agree on it [G10], whereas three others think the final version is good when it is usable for the end users [K11]. None of the participants selected the option 'I am able to decide when the final product is ready' [O12]. Lastly, when considering anticipation on the implementation process, seven out of eight participants answered that they provide end users the opportunity to test the draft products before finalizing the end product [L15]. The other participant selected the option 'I involve various end users in my design trajectory by asking them to provide suggestions' [H14]. This activity showed that generally, most participants tend to use a combination of the deliberative or prototyping approach. The instrumental and connoisseurship approach are often outliers that are only selected once in a designer's profile. Noteworthy is that patterns are often more similar when teachers are teaching the same grade level. This could be helpful in their collaborative approach, but could also limit the scope of their work.

Figure 6.4.3.2
An overview of the team's designer profiles.



Factors and characteristics of the development process were discussed (see Figure 6.4.3.3). This design task consists of selecting and adapting existing materials, as well as limited design of supplementary materials. A limited number of perspectives will be involved in the analysis phase. The design guidelines need to be clarified during the cyclical design process. Evaluation will take place, but the amount of methods, frequency and people involved will be limited.

Figure 6.4.3.3
Overview of factors and characteristics of the development process.

Dimension	Factors	◄ Characteristics ►		
HOW do you develop?	**nature of the design task**	• especially selecting and adapting lesson materials	• selecting and adapting existing materials + • limited design of supplementary materials	• especially designing new and supplementary materials
	analysis	• limited, informal analysis of current situation • own perspective	• analysis of current situation in limited number of subjects • input of limited number perspectives/people involved	• analysis of current situation as complte as possible • input of several perspectives (also literature review, colleagues, experts)
	design/ development	• design guidelines have been clear from the start	• design guidelines have resulted from the analysis	• design guidelines need to be clarified during the cyclical design process
	evaluation of the design	• informal, mainly oral (eg. conversation)	• limited number of ways • limited number of people involved • once and a while	• in many ways • with more groups and people involved • multiple times • formative and summative

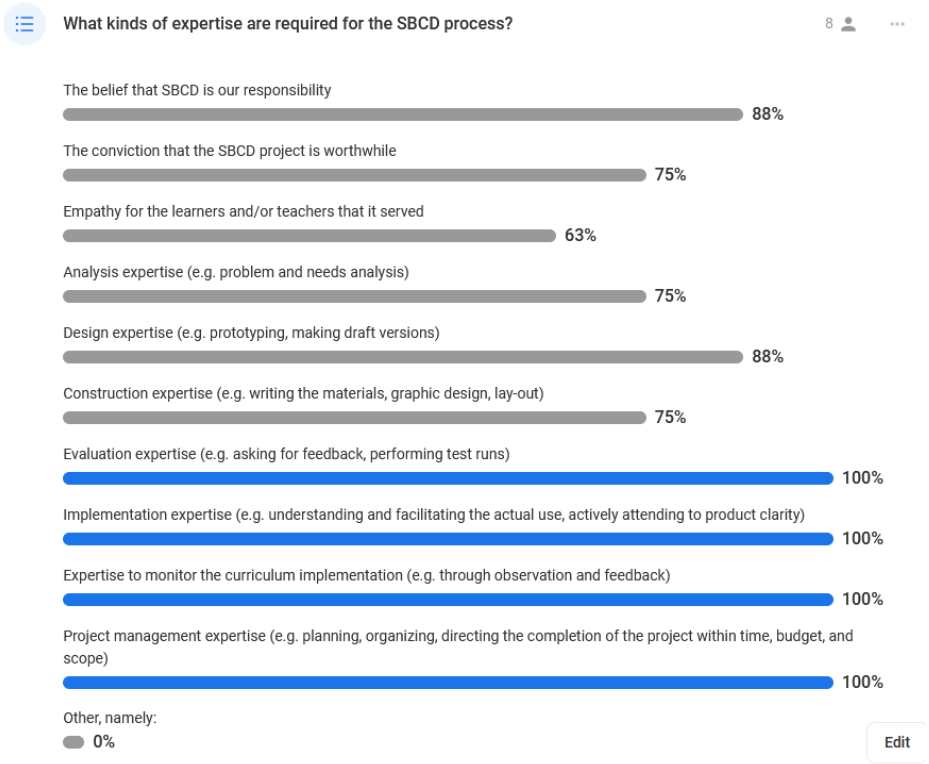
Discussion

Human-technical professional perspective

Most kinds of expertise were considered important for the SBCD process, according to the participants (see Figure 6.4.3.4). All participants agreed that evaluation expertise, implementation expertise, expertise to monitor the curriculum implementation and project management expertise were essential to the process. Seven out of eight (88%) also agreed that the belief that SBCD is their responsibility and design expertise are important. Six participants (75%) felt that the conviction that the SBCD project is worthwhile, as well as

analysis expertise and construction expertise, are required. Empathy for the learners and/or teachers that it served was selected by five out of eight participants (63%).

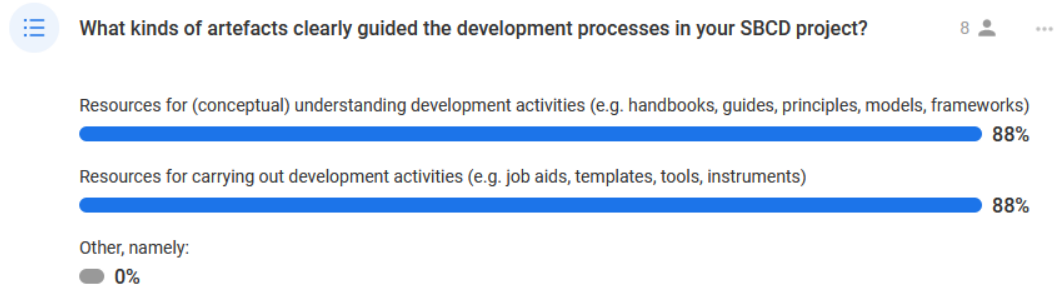
Figure 6.4.3.4
Poll results from workshop 2, question 1 regarding the human-technical professional perspective.



Material-technical professional perspective

In the next poll, artefacts that guided the development process were discussed (see Figure 6.4.3.5). Both resources for (conceptual) understanding of development activities and resources for carrying out development activities are considered important by seven out of eight participants (88%). One participant did not select either option.

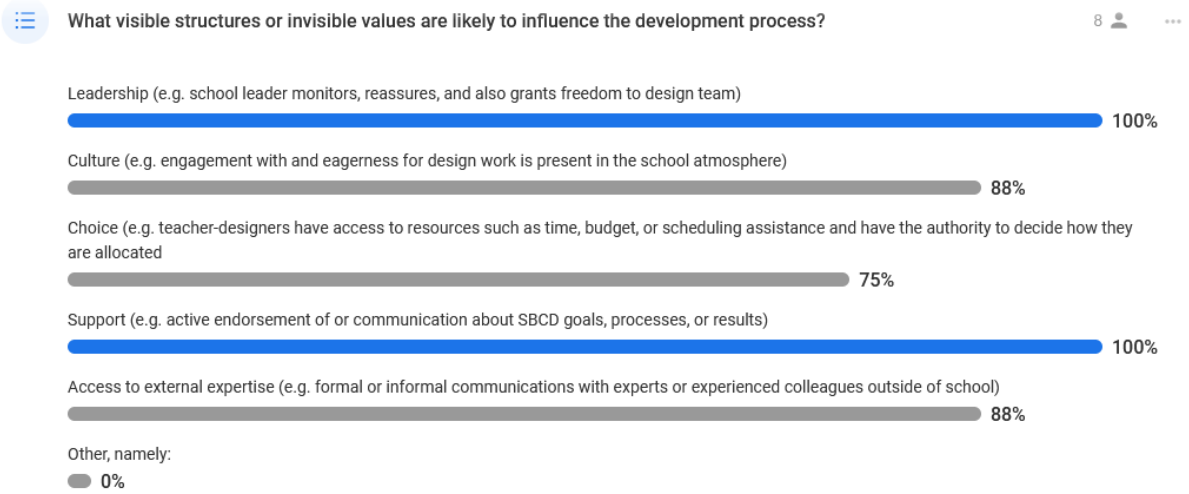
Figure 6.4.3.5
Poll results from workshop 2, question 2 regarding the material-technical professional perspective.



Structural-technical professional perspective

The main visible structures or invisible values that are likely to influence the development process, according to all eight respondents (see Figure 6.4.3.6), are leadership and support. This is closely followed by access to external expertise and culture, which was chosen by seven out of eight respondents (88%). Six out of eight respondents (75%) also feel that choice of influence.

Figure 6.4.3.6
Poll results from workshop 2, question 3 regarding the structural-technical professional perspective.



Reflection

Human-technical professional perspective

While discussing the poll results, participants expressed that they think that aspects of knowledge and construction are important. The layout of the product needs to be right. The reason that empathy for the learners and/or teachers was not selected by all participants is that needs analysis is always an essential part of the process, since education is constantly changing. When the end users use the product, their feedback is needed to improve on a draft before completing the final product. This is ongoing and not specific to this task only.

Material-technical professional perspective

When planning a project, the team conducts a lot of research, including online research, looking for examples and reviewing others' results of the implementation of the product in order to see in which contexts the solution has worked before. They then decide as a team if the solution will work for them. Tools and instruments can be of help while making these decisions. Teachers use templates to serve as inspiration and then fine-tune these templates according to their needs and aims.

Structural-technical professional perspective

The respondents feel that leadership and support are the most important. Leadership and support help to harmonize the goals of the school and the curriculum with the students' needs. Choice and input is important, since the teachers are the users and the ones implementing the product. The team feels that they do receive this leadership and support from the school management and express appreciation for this.

6.4.4 Workshop 3: socio-political perspective

Seven participants were present for workshop one, including the PYP coordinator and six teachers.

Document analysis

Products created during the warm-up task

During this workshop, it was discussed that changes were made to the existing remote learning planner. Repetitive aspects were removed, as well as some of the checklists and detailed descriptions. These detailed descriptions were replaced with straight-forward directions that are more clear to the parents. Significant progress was made in terms of the time that is required to fill out the planners. Before the workshops, this process could take several hours, which has now been cut down to 30 minutes. The planner is still a work in progress; they are testing the planner in a small group of teachers to receive feedback, and a comparison will be made between the old and new planner. Interviews will also take place among a small selection of parents with remote learning children. In these interviews, the team will investigate what parents' experiences were with the previous planner, and if these issues have now been addressed. They will also ask if there are any changes that were made that should be reverted. The goal of interviewing the parents is to gain different perspectives and evaluate the product. Eventually, the students should be able to use the learning planner to guide their learning.

Factors and characteristics of the design team were discussed (see Figure 6.4.4.1). The core design team is heterogeneous, consisting of teachers for several age groups and with various types of expertise; however, the design team is fully internal. As ideas expand, they will likely bring in a larger design team to gain more ideas and fine-tune their work. This part of the process is always evolving, according to the participants. Learner involvement will mostly be of importance during the later stages of the design process, once the survey is conducted. Their feedback could enhance the design process and improve effectiveness. They are mainly seen as co-creators during the fine-tuning process.

Figure 6.4.4.1

Overview of factors and characteristics of the design team.

Dimension	Factors	Characteristics		
WITH WHOM do you develop?	**scope of design team**	• individual teacher or school leader (or other external person)	• with limited number of teachers and/or school leaders and/or other external persons	• with a large design team of teachers and/or school leaders and/or other external groups
	heterogeneity of colleagues involved	• design with colleague(s) of same student group	• design with colleagues of various student groups	• design with colleagues of (a combination of) more than one student group/subject//school
	need for tuning with external partners	• no or limited tuning neccesary	• organizational tuning with limited number of external partners (e.g. other school, cultural organization, company)	• organizational and substantive tuning with external partners (e.g. other schools, cultural organizations, companies)
	learners' /students' involvement during design	• learners/students do not contribute during the design process	• learners/students contribute incidentally during the design process (e.g. deciding in the theme)	• learners/students are co-designers

Furthermore, stakeholders and their reason for involvement, as well as communication channels, were discussed (see Figure 6.4.4.2). Stakeholders include the staff (consisting of teachers, school leader, coordinator and curriculum developers), as well as parents and students. Communication with these stakeholders will mainly happen through informal channels, such as regular meetings, chat and e-mail. The parents and pupils will also be interviewed as a part of the evaluation process for the new planner.

Figure 6.4.4.2

An overview of stakeholders, their reasons for involvement and communication channels.

	WHY? (reasons for involvement)						
WHO? (stakeholders)	**To ask for advice**	**To ask for comments/to discuss**	**To inform**	**To ask for commitment**	**To ask for approval**	**To ask for support**	**HOW? (channels)**
Pupils (grade 4, 5, 6)		X	X				1-on-1 interviews, Google Classroom
Parents	X	X			X		Surveys, e-mail, chat / meeting groups, interview
Fellow teachers	X	X	X			X	Face to face meetings, sharing documents, reflection

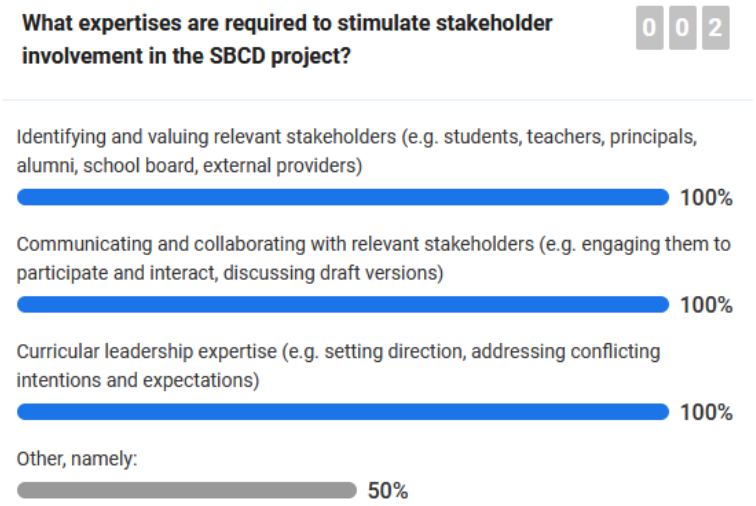
Discussion

Human-sociopolitical perspective

The poll results (see Figure 6.4.4.3) show that all types of expertise are considered important by these two participants. Furthermore, one of the participants also selected the option 'other'.

Figure 6.4.4.3

Poll results from workshop 3, question 1 regarding the human-sociopolitical perspective.

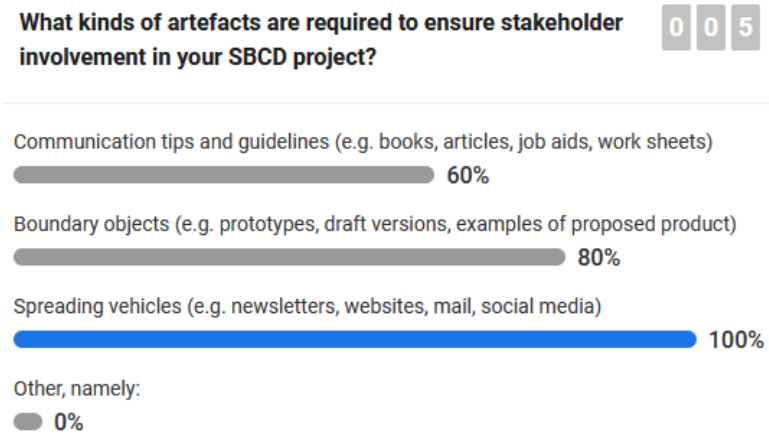


Material-sociopolitical perspective

The poll on artefacts required to ensure stakeholder involvement (see Figure 6.4.4.4) revealed that spreading vehicles are considered to be most essential to the project by all five participants (100%). Four out of five participants (80%) also think boundary objects are required to ensure stakeholder involvement. Lastly, communication tips and guidelines were thought to be of importance by three out of five participants (60%).

Figure 6.4.4.4

Poll results from workshop 3, question 2 regarding the material-sociopolitical perspective.



Structural-sociopolitical perspective

Lastly, visible structures and invisible values were examined (see Figure 6.4.4.5). All six participating staff members (100%) agree that all visible structures and invisible values are important; the school's open culture, existing structures for facilitating stakeholder communication and channels for distribution and spread.

Figure 6.4.4.5
Poll results from workshop 3, question 3 regarding the structural-sociopolitical perspective.

Reflection

Human-sociopolitical perspective

The main reason for changing the current planner is to attend to student needs. They especially want to focus on learner agency and differentiation. Therefore, student needs have to be taken into consideration. The remote learning planner had to be developed quickly in order to ensure that remote learning could still take place during the first COVID-19 outbreak. Therefore, these elements had been de-emphasized, and should be brought forward again. Learners in grades 4, 5 and 6 are able to give more feedback and use the planner to follow a learning structure and determine their tasks for the day. They would like for the learners to have more opportunities to express their views and reflections in the new planner. This helps the team in evaluating if they are on the right track, and look for potential issues.

Material-sociopolitical perspective

The team expresses that artefacts like the spider's web and the workshops aided in the process of getting everyone on the same page in terms of this specific project. Other examples that have been helpful are the IB unit planner and another planner prototype.

Structural-sociopolitical perspective

In terms of structures and values, there are many channels and ways to distribute information, as well as receive feedback from stakeholders. Stakeholders are contacted through formal and informal channels. For example, parents might be contacted through newsletters, social media pages, or text messages. The school also has an app that parents can log in to. Generally, the school provides a communicative atmosphere. Other examples of structures are the student council, which represents the voice of students. Events are held by older students who then involve the students from lower years. There is also a parent teacher group, but it has not been active since the start of COVID-19 regulations. Furthermore, the school organizes webinars for parents, where they can reflect on the school year, address areas of concern and suggest improvements.

6.4.1 Exit interview

Two participants were present for the intake interview: the deputy head of school and the PYP coordinator. The school leader could not be present for this session.

During the exit interview, a summary of the data analysis from previous workshops was presented (see Figure 6.4.1.1). Participants confirmed that this summary represents their school well.

Figure 6.4.1.1

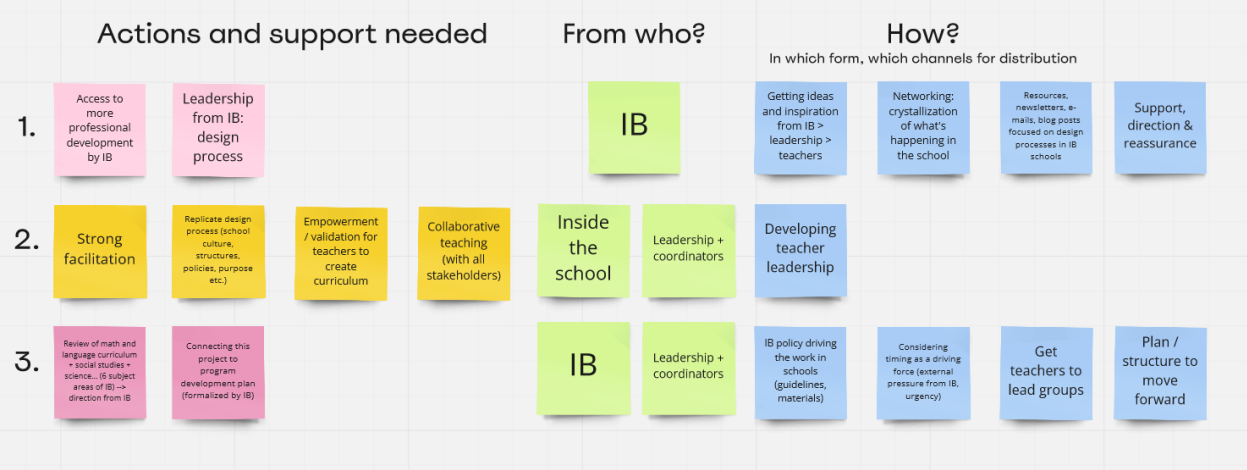
The Data analysis Summary Presented During the Exit Interview

Current project: **Hybrid planner** focused on **learner agency** and **differentiation**			
Policy: **Input regulation** weak; **Output regulation** weak; **experienced and stable** team			
	Design team (expertise)	**Materials and resources**	**(In)visible structures and values**
Substantive	Clear focus on **student needs**, reducing **teacher workload**	**Inspiring examples:** curriculum documents and **guidelines** for interpretation of relevant policies	Focus on **student** and **teacher needs**; **clarity of goals and vision**
Technical-professional	**Deliberative** and **prototyping** approach; **knowledge** and **construction** is important; focus on **needs analysis** and **feedback**	Lots of **research,** using **tools and instruments** (i.e. fine-tuning templates)	**Leadership** and **support** is in place**; freedom for design team**; culture of **creativity**, **inquiry** and **feedback**
Socio-political	Communication with **parents; small design team**; **learners** not co-creators but necessary for fine-tuning	**Examples** and **artefacts** are helpful to get on the same page and inspire**.**	Strong **existing structures**, **communicative** atmosphere.
Needs: Get access to more **PD** and **leadership** by IB (i.e. conferences, resources, guidance). **Strong facilitation** to **empower** teachers and replicate the **design process**. Next step: **review** 6 subject areas of IB. Need from IB is for a **formalized program development plan**.			

The school's needs and wishes for future work on school-based curriculum development projects were discussed in the exit interview (see Figure 6.4.1.2). First, the team expressed that there are a lot of structures already in place, but that access to professional development has been more limited due to the pandemic. For example, they would like to get ideas and inspiration that moves from the IB to the leadership and eventually the teachers. Networking through global conferences (preferably face-to-face) is considered to be a meaningful way to crystallize what happens within the schools through discussions and conversations with other teachers. Resources, newsletters, e-mails, and blog posts focused on design processes in IB schools would also be considered helpful. In order to fulfill this need, they need support, direction and reassurance. The team thinks this type of support should come from the IB.
Second, there is a need for strong facilitation. Although the team is doing the school-based curriculum development work, and has the required expertise and knowledge, they appreciate someone leading them through the process. They would like to replicate this type of design process and feel empowered knowing that they have the skills and expertise to work on curriculum design. Collaborative teaching is another important element to this need. This need can be addressed by developing teacher leadership and this type of support should come from inside the school, mainly the leadership and coordinators.
Lastly, the team wants to conduct a thorough review of all subject areas of the IB, and would like to get direction from the IB in order to do this. They would like to connect this project to the program development plan and program evaluation. The leadership and coordinators should also play a role in this review process. The team considers the IB policy to be a driving force for the work in schools through guidelines and materials, and express that external pressure and urgency through evaluations or benchmarks from the IB can help move

a project forward. For example, they are currently waiting for the scope and sequences documents which is being reviewed by the IB in order to guide them further. In general, what this school needs most from the IB is direction, support, resources and guidelines.

Figure 6.4.1.2
An overview of actions and support needed by the school.



6.4.6 Summary

Focus		**Key findings**
Context	*Current project*	● Review program of inquiry and its interdisciplinary subject integration ○ Reviewed on an annual basis ○ Improve beyond IB's minimum requirements ● Goals: development, progression and improvement ● Show progression of content over time through units of inquiry ● Incorporate ATL (Approaches to Learning) skills + sustainable development goals ● Project: hybrid planner with more emphasis on 'soft' parts (emphasis got lost due to COVID-19 regulations 'survival mode') ○ Student agency and differentiation ○ Reflect on students' progress and learning objectives on a weekly basis (not daily) ○ Reduce unnecessary workload ○ Bridge gap between face-to-face and remote learners ○ Parent participation □ Ideal solution: one planner for all students, remote learning needs to be more structured, parents need to be on board, inquiry-based approach ● After workshop 2, workload was reduced from hours to 30 minutes ○ Details and checklist were reduced to gain back time to focus on relevant tasks
	Policy	● Authorized in 2008 for PYP ● In third evaluation phase with a "new" approach ○ Evaluation is focused on looking inward in terms of program fidelity ('how are the schools implementing the PYP according to standards and practices?') ● Not much turnover in staff, stable leadership ● Active member of IBAN (consulting with other roles and workshop leaders) ● Knowledgeable PYP educators ● Not many benchmarks in their state, a lot of autonomy (compared to other states in Nigeria) ● Private school, independent, privately owned by a foundation ● Required to comply to minimum level of quality of Nigerian curriculum ● Education is governed by the state, not by federation

Spiderweb		• Student agency and differentiation over the learning process
		  ○ Materials to inspire students and that they can choose from
		  ○ Use different thinking routines to engage students and deepen their level of understanding
		  ○ Respect student interests
		• Reduce redundant work for teachers
		• To be used generally, not for one subject
		• Assessment tools that are most approachable for students and provide proper feedback and differentiation
		• Teacher's role: have knowledge to be able to students with different tools and applications so that they have options to choose from + multiple approaches for planning and teaching
		• Learning activities and content tailored to interest so that students can claim ownership; assessment to find out interests (free inquiry day)
		• Design classroom spaces to support learning objectives
		• Evidence of student agency in planner
		• Inquiry process should be in all subject areas and units of inquiry
		• Incorporate numeracy and literacy
		• Only Zoom sessions have interaction

Substantive *(What do you develop?)*	*Human*	• Focus on student needs in the product • Teachers concerns in mind (reducing workload etc.) • Pedagogical (content) expertise to facilitate learner agency and differentiation • Assessment expertise to track effectiveness and learner progress • Disciplinary/subject expertise: teachers have a lot of expertise already, should not be the focus of this project

	Material	• Inspiring examples
		  ○ Curriculum documents
		  ○ Should be effective, relevant and purposeful
		• Guidelines for interpretation of relevant policies
		• Ready-made components not considered important

	Structural	• Focus on student and teacher needs • Clarity of goals and vision
Technical professional *(How do you develop?, Designer Game)*	*Human*	• Most participants show a combination of deliberative and prototyping • Patterns are often more similar when teachers are teaching the same grade level • Knowledge and construction is important (layout needs to be right) • Needs analysis is important: ongoing process, education is always changing; reflect and adjust • Need of feedback from end user to improve
	Material	• Team conducts a lot of research (online, examples, reviewing others' results) • Tools and instruments helpful for making decisions • Templates as inspiration; fine-tune according to needs and aims
	Structural	• Leadership and support: harmonize the goals of the school and the curriculum with student needs • Provide freedom to design team • Leadership and support is in place and appreciated • Feedback should be facilitated, culture of creativity, inquiry and feedback
Socio-political *(With whom do you develop?, Stakeholders)*	*Human*	• Buddy system and interaction with other schools was interrupted due to COVID-19 regulations ('survival mode') • Communication with parents is essential; required for creating similar experiences (remote vs. face-to-face) • Real-time communication easier for upper grades • Start with limited amount of teachers, larger design group later to fine-tune and identify glitches • Only internal • Learners are not co-creators, but are necessary for fine-tuning • Changes in the planner are done due to student needs, agency and differentiation • Checking if they are on the right track; use student planner as feedback opportunity + for student voice ○ Students can fill in their views and reflections in the planner
	Material	• Artefacts for getting on the same page (spider's web, workshop) • Use IB unit planner and prototype to create current planner • Would be helpful to have examples

	Structural	● Existing structures
		  ○ Student council
		  ○ Parent-teacher group (not active since COVID-19)
		  ○ Parent webinars
		  ○ Reflection on whole year
		  ○ Newsletters, social media, text message, email
		  ○ School app where parents can log in
		● Communicative atmosphere

Other	*Needs/wishes*	● Due to the pandemic access to more professional development from the IB itself was limited especially in house or regional workshops. Not as accessible as it has been before. ● Need of someone who can lead through the process, in need of a strong facilitator ● Leadership from the IB should be linked to PD from the IB. ● Expect the IB to provide a framework, to feed the best practices and for latest developments in the field (cutting edge education). Looking for the feed-forwarding process, letting us know! To make it more explicit of what needs to be done. Waiting for guidelines, the focus of specific aspects. ● Resources, newsletters, blog posts, mails (Not enough from the perspective of PYP) ● Get inspiration from IB during global conferences etc. ● Bring new ideas to the table ● Post-Covid extra support is what we are looking for, about all the disruption, something reassuring
	Varied	● In terms of curricular leadership expertise, the PYP Coordinator is more of a pedagogical leader. Deputy head sets direction of school. Leadership is very complex in schools. ● Waiting for more direction and leadership from the IB. New IB curriculum document to be released before making changes. ● Really empowering and a validation for teachers, that they have the power to create the curriculum ● A lot of micro-politics of teaching, that impact on leading the process independently

Appendix 6.5: School 5 Full Case Study Report

6.5.1 Intake interview

Three participants were present for the intake interview: the school leader , the IB-PYP coordinator and a teacher.

Current or upcoming project (what-how-who)

This team of participants is interested in further developing their literacy program. Over the last two to three years, the school has been working on aligning their science program to the national curriculum, as well as the team's standards and assessments. Now, participants have perceived a need to focus on the literacy program, because students are having difficulties with the language within their improved science program. The team believes that improving students' language skills and literacy skills across the whole curriculum will be beneficial in seeing the full benefit of the enhancements of the science program. This change should take place across all grades and units of inquiry. During the workshops on school-based curriculum development, the team would like to focus on written language, starting with writing about learners' own personal experience.

Policy (regulation, roles, organizational change)

The school's curriculum is endorsed by the Ministry of Education in the United Arab Emirates. Furthermore, the school works closely with ADEK (Abu Dhabi's Department of Education and Knowledge). A curriculum cannot be implemented unless it is approved by ADEK. Since the school has chosen to work with the American Common Core Curriculum, they have to make sure standards and learning outcomes are achieved based on this content. Once the curriculum has been approved, little to no problems arise concerning implementation. Private schools like theirs generally have more freedom to adapt the curriculum to the students' needs. The IB program is also an approved and commonly used curriculum in the UAE. Generally speaking, the participants perceive a moderately strong input and output regulation for the mandatory subjects, but a weaker input regulation for their units of inquiry (see Figure 6.5.1.1). For these subjects, the school has been able to select certain sets of standards, like the UAE Social Study standards, that they are then expected to follow – even though these are not mandated. There is a stronger output regulation, since ADEK does conduct inspections with regards to curriculum implementation. There are also rules and guidelines written by the Ministry of Education about cultural sensitivities that the school has to comply with.

The school follows the American Common Core Curriculum and has been working on improving vertical and horizontal articulation of this curriculum. In order to achieve this goal, the school uses the American-based program Wonders by McGraw Hill, which includes all the Common Core standards. The six units in the Wonders curriculum are then aligned with and integrated into the IB-PYP units of inquiry. However, they have perceived a few gaps that they are now working on improving, of which written language is one. Most of their students are nationals and second language learners, using mostly Arabic as their language of communication at home, while the school is bilingual. Arabic is used for the national curriculum, while English is used as a language of instruction for subjects like science, mathematics and modern education. In terms of roles, the students have separate teachers for Arabic, Islamic studies, UAE social studies, drama and music, and PE. All other units of inquiry are taught by the same teacher. On average, there will be around five teachers working with the program for each class.

Figure 6.5.1.1
Input and output regulation as described by participants.

6.5.2 Workshop 1: Substantive perspective

Five participants were present for workshop 1, including the school leader , IB-PYP coordinator and three teachers.

Document analysis

Products created during the warm-up task

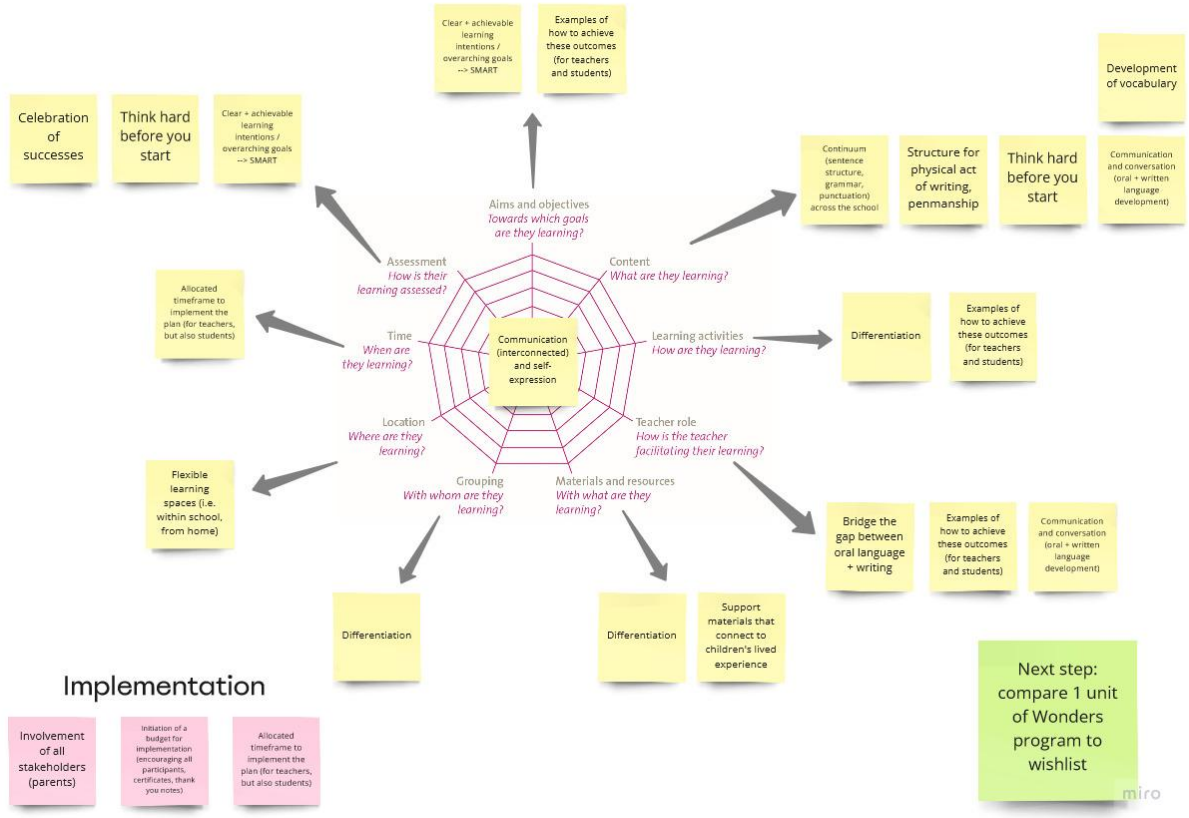
Factors and characteristics of the developed product were discussed (see Figure 6.5.2.1). The product developed will have a wide scope, since it will be similar to a learning progression. Although the main focus will be focused on written language, the participants emphasize that there should be a smooth integration with all other subjects. Target users are all teachers within the school, and differentiation will take place on several elements. A design task like this is fairly typical for this school.

Figure 6.5.2.1
Overview of factors and characteristics of the developed product.

Dimension	Factors	◄---------- Characteristics ----------►		
WHAT do you develop?	**scope**	• resources for classroom use (e.g. specific teaching and/or learning resources, learning environment, assessment tools)	• complete materials for classroom use (e.g. individual lessons, lesson series, modules, projects)	• resources that shape class teaching and learning (e.g. school vision or profile, syllabus or learning progression, assessment plans)
	subjects involved	• own/one subject (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• limited number of adjacent subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)	• adjacent and other subjects (e.g. language(s), mathematics, science, social studies, geography, or history, arts, physical education)
	target users	• for own usage	• for own usage and for colleagues with same/similar group of learners (same subject in same age group)	• for own usage and for (unknown) colleagues with same/adjacent subject, same/other years and sectors
	attention to learners' differentiation during the design process	• no specific attention to differentiation	• limited attention to differentiation regarding one element (e.g. grouping, time, assessment)	• differentiation on several elements (e.g. grouping, time, assessment)
	overall sense of the design task	• rare (design task is an exception)	• rather common (design task is carried out once in a while)	• typical (design task is usual part of job)

During the first brainstorm session, a wish list for the new written language progression was developed, which was then connected to the elements of the spider's web (see Figure 6.5.2.2). The rationale for this product is focused on communication and self-expression. In terms of aims and objectives, the staff values clear and achievable (SMART) learning goals, as well as examples of how to achieve these outcomes (for teachers as well as for learners). They would like to develop a learning continuum covering various elements of writing, such as sentence structure, grammar, punctuation, vocabulary and penmanship across the school. Other skills that are important are communication and conversation, as well as for the students to learn to 'think hard before they start'. The learning activities should be differentiated. The role of the teacher is to bridge the gap between oral language and writing, as well as teach communication and conversation skills. Materials should be differentiated and linked to the learners' lived experience. Groups should be based on differentiation and the location where learning takes place should be flexible (i.e. within the school, or at home). In terms of time, the staff emphasizes that they mostly need an allocated timeframe to implement this plan (for teachers, but also learners). Assessment is viewed mostly as a celebration of successes, and should be linked to the SMART learning goals. The staff also mentioned their needs for implementation: they would like all stakeholders (including parents) to be involved, and need a budget for implementation. For example, the principal mentioned that certificates for the students and thank you-notes for participating stakeholders might be helpful in celebrating successes. Frameworks like CIPP are used to evaluate if the process is on the right track. In order to get to the next step, the team will compare one unit of their program Wonders to their wish list.

Figure 6.5.2.2
Wish list for the new written language progression, as established in workshop 1.

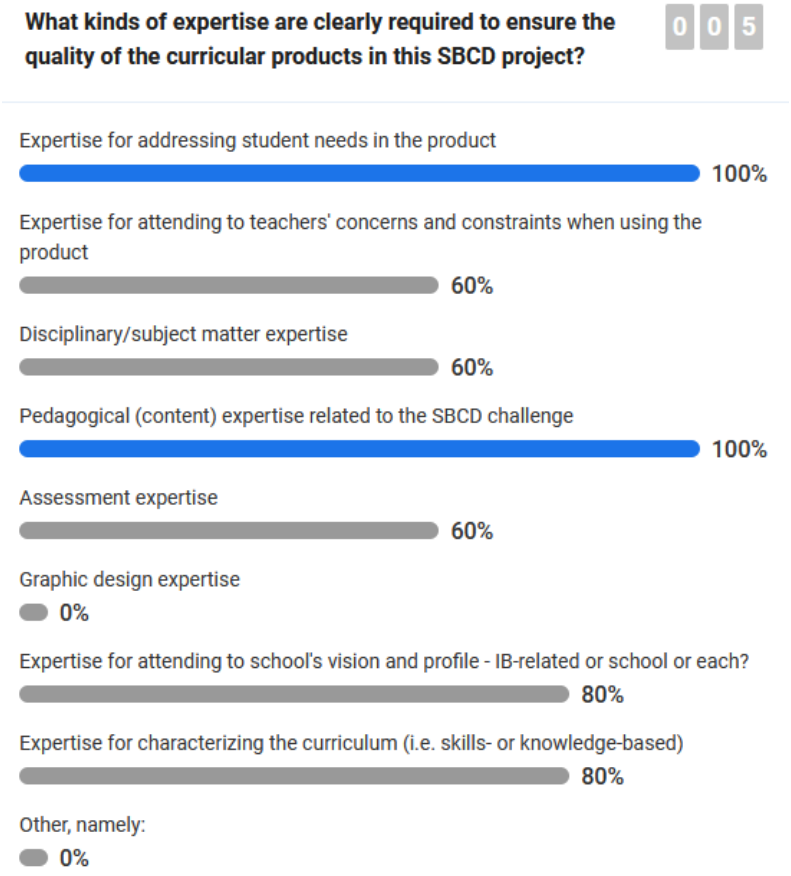


Discussion

Human-substantive perspective

A poll was conducted regarding expertise required to ensure the quality of curricular products (see Figure 6.5.2.3). According to five out of five participants, expertise for addressing student needs in the product and pedagogical (content) expertise related to the SBCD challenge are required to ensure the quality of the curricular products. Other important factors, selected by four out of five (80%) of the participants, are expertise for attending to the school's vision and profile, and expertise for characterizing the curriculum. Three out of five participants (60%) believed expertise for attending to teachers' concerns and constraints when using the product, disciplinary/subject matter expertise, and assessment expertise were also of importance.

Figure 6.5.2.3
Poll results from workshop 1, question 1 regarding the human-substantive perspective.

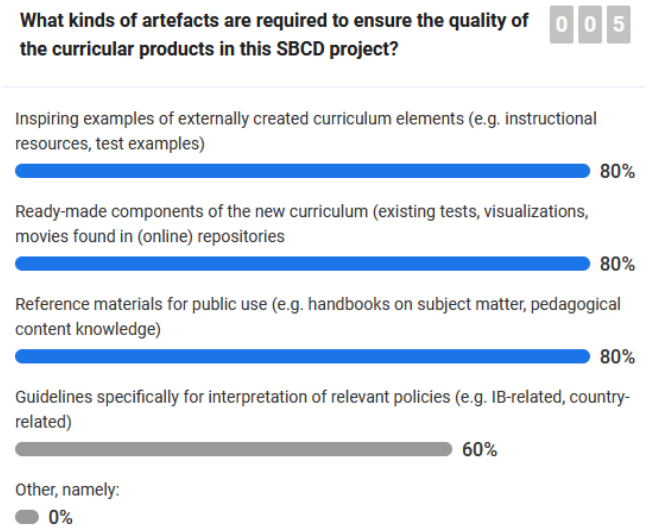


Material-substantive perspective

The following poll addressed artefacts required to ensure the quality of the curricular products (see Figure 6.5.2.4). Four out of five participants (80%) agreed that inspiring examples, ready-made components and reference materials are helpful in ensuring the quality of the curricular products. Three out of five participants (60%) also believe guidelines for interpretation of relevant policies are required.

Figure 6.5.2.4

Poll results from workshop 1, question 2 regarding the material-substantive perspective.

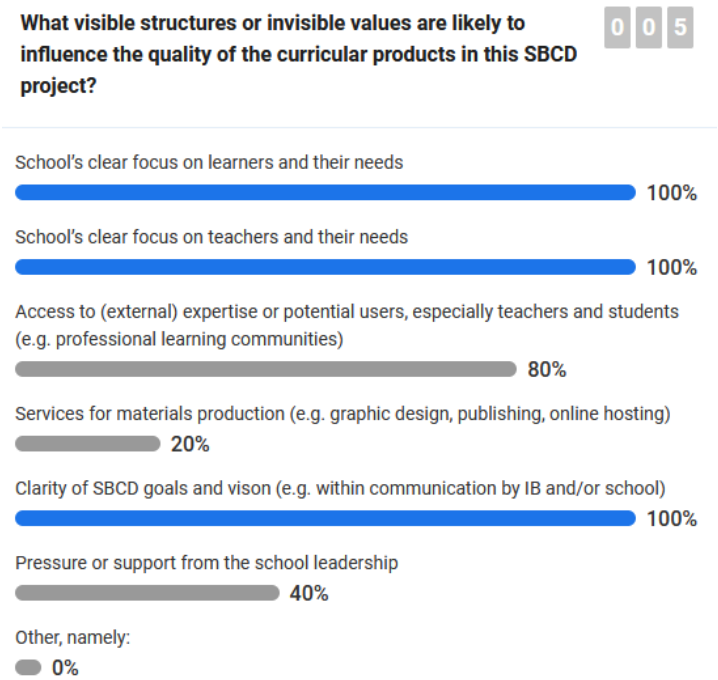


Structural-substantive perspective

Lastly, visible structures and invisible values that are likely to influence the quality of the curricular products were discussed (see Figure 6.5.2.5). All participants believe that the school's clear focus on learners, as well as teachers and their needs are important. Equally important is the clarity of SBCD goals and vision. Four out of five participants (80%) believe access to external expertise or potential users is another essential factor. Pressure or support from the school leadership was selected by two out of five participants (40%), whereas services for materials production was only selected by one participant (20%).

Figure 6.5.2.5

Poll Results for Workshop 1, Question 3 (Structural-Substantive)



Reflection

Human-substantive perspective

During the discussion, participants stressed that student needs are always in the center of focus for an IB school. Pedagogical content expertise is believed to be essential to select content that is age-appropriate and suits the level of students. They take a constructivist approach to learning and teaching, meaning that learning elements should build upon each other. In order to construct a curriculum that suits this concept, pedagogical content expertise is required.

Material-substantive perspective

Some inspiring examples that were mentioned during the discussion of the material-substantive perspective were the Wonders curriculum itself, as well as Raz (a K-5 literacy program with leveled resources based on differentiated instruction) and IXL (a comprehensive K-12 curriculum). However, both Raz and IXL are digital-based and thus don't focus on physical writing activities. When teachers want to work on writing skills, they often connect it to the current unit of inquiry, and work collaboratively in pulling resources that suit this unit and create their own resources. In that sense, Wonders is used as a resource, but the materials are mostly teacher-created. They would like to learn about how to get the most out of their current library, especially in terms of leveled books that could be used for writing purposes. Lastly, technological resources such as iPads and whiteboards are used to inspire children in their writing.

Structural-substantive perspective

Teachers reiterate that the focus on learners and their needs stems from the idea that learners are at the center of everything they do. The teachers are their best assets and should therefore be given everything they need in order to get the most out of their skills and expertise. This then helps teachers to bring out the best in their students. According to the participants, these two values go hand in hand. The school can be of help by observing and evaluating teachers' needs, strengths and weaknesses, and implementing professional development accordingly. The staff mentions that it is important for the teachers to be on the same page and have shared goals and vision, which should be supported by professional development provided by the school.

6.5.3 Workshop 2: Technical-professional perspective

For this workshop, five participants were present: the school leader , the IB-PYP coordinator and three teachers.

Document analysis

Products created during the warm-up task

During this workshop, elements of the spider's web were compared to the Wonder curriculum (see Figure 6.5.3.1). This activity revealed that the aims and objectives, content and learning activities of the Wonders activity are useful, and that it is a content-heavy programme. Therefore, it can very well be used as a resource. However, the teachers feel that the programme does need some adjustments. For example, they would like to know more about how to use these materials and resources. Wonders does not address assessment; this is inferred by the teachers using the goals and objectives. This means a general assessment model is used, which is similar to that of the rest of the school's network. The team feels that the build-up in writing content and writing levels is not always a good match for their students. They would like to organize the content according to themes, not only in terms of

topic but also in terms of writing skills. Grouping of students, differentiation and planning are other elements that are missing from the Wonders curriculum. The staff also thinks the programme lacks clear and achievable learning intentions. For grammar, a continuum was created to match to the Wonders programme to solve this issue. Generally, the staff feels that the Wonders programme is a great resource to use, but is not tailored to their students. The ELL (English Language Users) resource for Wonders is used as a main resource to cater to the context and needs of their students.

Figure 6.5.3.1
Comparison between elements of the spider's web and the Wonders curriculum

The designer game (see Figure 6.5.3.2) revealed a common factor in all participating teachers: they like to take a deliberative approach during the start of a project, by consulting with other people to see what needs to be developed. Three out of five participants also take a deliberative approach in the design and construction phase, by having many stakeholders and end users think along with them. Others take the instrumental approach by thinking hard before they start, or make several drafts to see if the ideas are practical, which falls under the prototyping approach. In the evaluation phase, the same profiles (though in a different composition) emerge: three participants take the deliberative approach and think the final version of the product is successful when colleagues and end users agree on it. Others take an instrumental approach: developing products that match the requirements that were agreed on at the start of the process, or the prototyping approach: determining that the final version is good when it is usable for the end users. Lastly, while anticipating on the implementation

process, two approaches are present among this group: the deliberative approach, selected by two out of five participants that involve various end users in their design trajectory, and the prototyping approach, selected by three out of five participants that provide end users the opportunity to test the draft products before finalizing the end product. Notably, none of the participants chose the connoisseurship approach in any of the stages of development, and each participant chose the deliberative approach in at least one of the stages. Two out of five teacher share the same pattern in their design approach.

Figure 6.5.3.2

An overview of the team's designer profiles.

	Instrumental approach	Deliberative approach	Prototyping approach	Connoisseurship approach
How do you start a project?	I need to have some grip when designing something. That is why I first make a plan. A1	Before I start the design process I consult with other people to see what needs to be developed. E2	Soon after starting the design process I make a draft of a possible design. I3	I make a design based on an idea I already have in my head. That works the fastest. M4
How do you design and construct?	Because I think hard before I start, my draft design is almost similar to the final version. B5	During the design process many stakeholders and end users think along with me. F6	During the design process I make several drafts to see if the ideas are practical. J7	I like to make my own decisions during the design process. N8
How do you evaluate?	The products I develop match the requirements that were agreed on at the start of the process. C9	The final version of the product is successful when my colleagues and end users agree on it. G10	I think the final version is good when it is usable for the end users. K11	I am able to decide when the final product is ready. O12
How do you anticipate on the implementation process?	I think it is important that the end users recognize themselves in the final product. D13	I involve various end users in my design trajectory by asking them to provide suggestions. H14	I provide end users the opportunity to test the draft products before finalizing the end product. L15	I inform end users about the materials that I have been designing. P16

Please indicate your answers in the worksheet:

Which development approach would be your best fit?

What are similarities and differences?

How can you work complementary?

miro

Factors and characteristics of the development process were also discussed (see Figure 6.5.3.3). The nature of the design task consists of mainly selecting and adapting existing materials, plus limited design of supplementary materials. An analysis of the current situation is to take place in a limited number of subjects, involving input of a limited number of perspectives/people involved. The design guidelines need to be clarified during the cyclical design process. The design should be evaluated extensively (in many ways, with more groups and people involved, multiple times, formative and summative).

Figure 6.5.3.3
Overview of factors and characteristics of the development process.

Dimension	Factors	◄---------- Characteristics ----------►		
HOW do you develop?	**nature of the design task**	• especially selecting and adapting lesson materials	• selecting and adapting existing materials + • limited design of supplementary materials	• especially designing new and supplementary materials
	analysis	• limited, informal analysis of current situation • own perspective	• analysis of current situation in limited number of subjects • input of limited number perspectives/people involved	• analysis of current situation as complte as possible • input of several perspectives (also literature review, colleagues, experts)
	design/ development	• design guidelines have been clear from the start	• design guidelines have resulted from the analysis	• design guidelines need to be clarified during the cyclical design process
	evaluation of the design	• informal, mainly oral (eg. conversation)	• limited number of ways • limited number of people involved • once and a while	• in many ways • with more groups and people involved • multiple times • formative and summative

Discussion

Human-technical professional perspective

The first poll discussed expertise required for the school-based curriculum development process (see Figure 6.5.3.4). According to four out of five participants (80%), four kinds of expertise are required for the SBCD process: the conviction that the SBCD project is worthwhile, empathy for the learners and/or teachers that it served, evaluation expertise and implementation expertise. Three out of five participants (60%) also thought the belief that SBCD is their responsibility, empathy for analysis expertise, design expertise, expertise to monitor the curriculum implementation and project management expertise were of the essence. Lastly, two out of five participants (40%) selected construction expertise as an essential part of the SBCD process.

Figure 6.5.3.4
Poll results from workshop 2, question 1 regarding the human-technical professional perspective.

Material-technical professional perspective

The next poll addressed artefacts that clearly guide the development processes (see Figure 6.5.3.5). Most participants (four out of five; 80%) agreed that resources for the (conceptual) understanding of development activities, as well as resources for carrying out development activities were important.

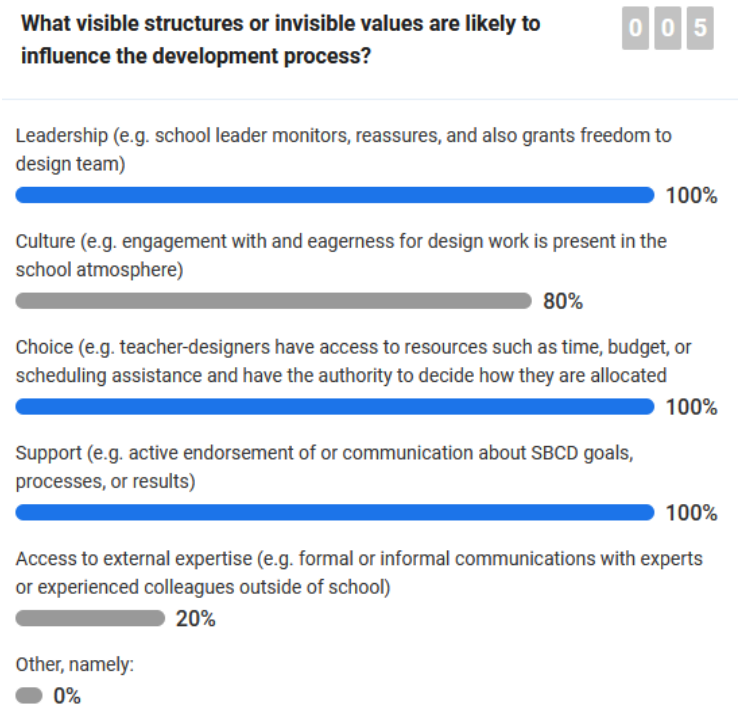
Figure 6.5.3.5
Poll results from workshop 2, question 2 regarding the material-technical professional perspective.

Structural-technical professional perspective

The final poll during this workshop examined participants' views on visible structures or invisible values that are likely to influence the development process (see Figure 6.5.3.6). Leadership, choice and support are unanimously selected by all participants as important factors. Culture is also an important factor, according to four out of five participants (80%). Only one out of five participants (20%) believes that access to external expertise is necessary.

Figure 6.5.3.6

Poll results from workshop 2, question 3 regarding the structural-technical professional perspective.



Reflection

Human-technical professional perspective

During the discussion, participants expressed that they believe goals can only be reached if everyone is on board, and thinks that the work is worthwhile. This is required in order to achieve a clear vision, as well as alignment between the designer's own vision and the school's vision. Empathy for the learners and/or teachers that it served is reflected in the staff's design approaches, which showed that usefulness to others is an important factor to this team. They view the product as a living, working document, and believe that feedback from others is the only way to ensure that the product best serves the learners. Therefore, evaluation is essential. Implementation expertise is related to the evaluation expertise: there is no worthwhile way to evaluate if a product is not implemented.

Material-technical professional perspective

The Wonders curriculum is used as a main resource. Meanwhile, teachers also ensure that what they are doing is aligned to the IB documentation. Both the Wonders curriculum and the writing guidelines from the IB documentation are used in order to develop conceptual frameworks for their writing. In their day-to-day classroom practice, there are also more practical resources that are mainly used for implementation. The school's IT resources are seen as a strong point by this team, granting them access to online websites and databases.

Examples of these websites are Raz Kids, which houses books and other resources, and IXL, which addresses subjects like grammar and sentence structure. Lastly, the school already uses a teacher-created grammar continuum, which can be used as an example for the written language continuum.

Structural-technical professional perspective

The primary school consists of a large and diverse staff of around 80 teachers from different countries. According to the teachers, there is an ethos of shared responsibility when it comes to developing products. They feel that, when teachers are provided with choice, this improves motivation among the staff. Although teachers feel that they are provided with freedom, they also need time and resources in order to get this done, which could be provided by the school leadership. They can also help guide the staff, clarify grey areas, and evaluate the process. Therefore, a steering committee consisting of various stakeholders might be of help. Support is also required to further the project. Generally, the staff feels that they are offered a generous amount of time for professional development, which could be allocated to a project like this.

6.5.4 Workshop 3: Socio-political perspective

For this workshop, four participants were present: the IB-PYP coordinator and three teachers. The school leader was unable to join this session.

Document analysis

Products created during the warm-up task

Factors and characteristics of the design team were discussed (see Figure 6.5.4.1).The team prefers to start the design process with a small team, in order to prevent the project getting cluttered and disorganized. Helpful partners might be other national schools, which could be involved in a later part of the process. Organizational tuning should be limited: they would like to work with a limited number of colleagues in order to draft a prototype, discuss amongst each other and exchange ideas, and touch base with the other schools after about a year. Learners are mostly seen as a source of feedback.

Figure 6.5.4.1
Overview of factors and characteristics of the design team.

Dimension	Factors	Characteristics ◄----------		----------►
WITH WHOM do you develop?	**scope of design team**	• individual teacher or school leader (or other external person)	• with limited number of teachers and/or school leaders and/or other external persons	• with a large design team of teachers and/or school leaders and/or other external groups
	heterogeneity of colleagues involved	• design with colleague(s) of same student group	• design with colleagues of various student groups	• design with colleagues of (a combination of) more than one student group/subject//school
	need for tuning with external partners	• no or limited tuning neccesary	• organizational tuning with limited number of external partners (e.g. other school, cultural organization, company)	• organizational and substantive tuning with external partners (e.g. other schools, cultural organizations, companies)
	learners' /students' involvement during design	• learners/students do not contribute during the design process	• learners/students contribute incidentally during the design process (e.g. deciding in the theme)	• learners/students are co-designers

During the warm-up task, stakeholders and their reason for involvement, as well as communication channels, were discussed (see Figure 6.5.4.2). The stakeholders that are important to this team are teachers (from the same as well as other years), the head of school, coordinators, parents, other schools, internal curriculum developers and the learning support coordinator. Teachers are asked for advice, comments and discussion, commitment and support. They meet once every two weeks within grade level pods consisting of 3 to 4 teachers, and also have regular meetings per grade, which includes around 14 teachers per grade. Parents are asked for comments and discussion, informed, and asked for commitment. This is done through regular meetings and professional development. The school also has (internal) curriculum developers that could be involved in the process. They could be asked for advice, asked for comments and to discuss, informed, asked for approval and asked for support. This can also be done through meetings and professional development. The head of school can be reached through existing school channels. There is a bottom-up approach within the school, meaning that the head of school can be reached by teachers through grade coordinators and then vice principals. The head of school can be involved by being asked for advice, approval and support. Learning support coordinators and grade coordinators can be asked for advice, for comments and to discuss, for commitment and support. A similar bottom-up channel is in place; for example, to reach the learning support coordinator, a teacher would first contact a learning support teacher, who would then talk to the learning support coordinator. Lastly, other schools could be asked for advice and for comments or to discuss. There are sounding board meetings, which take place every two weeks, and where teachers from schools within the network can talk amongst each other.

Figure 6.5.4.2
An overview of stakeholders, their reasons for involvement and communication channels.

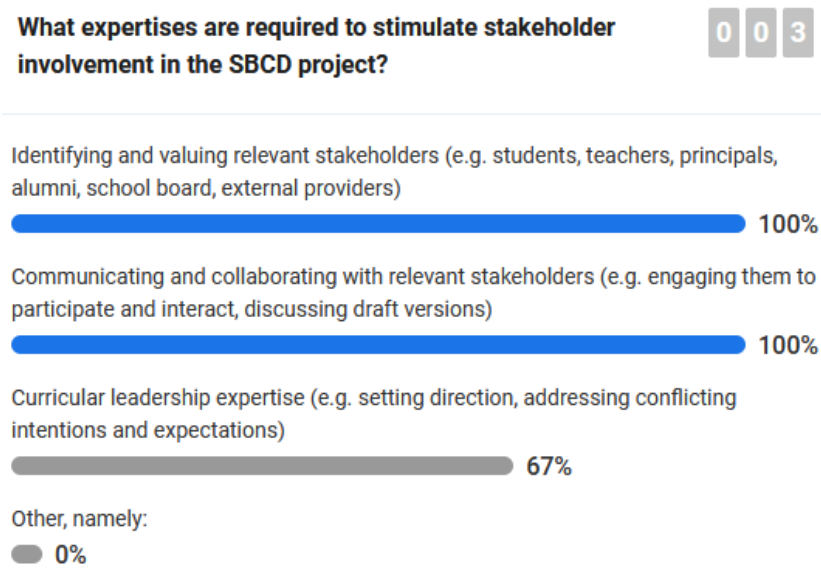
	WHY? (reasons for involvement)						
WHO? (stakeholders)	**To ask for advice**	**To ask for comments/to discuss**	**To inform**	**To ask for commitment**	**To ask for approval**	**To ask for support**	**HOW? (channels)**
Fellow teachers	X	X	X	X		X	Within grade level pods (once per two weeks), 3 or 4 teachers per pod
Teachers (same year)	X	X	X	X		X	Per grade – 14 teachers per grade
Parents		X	X	X			Meet & discuss through PD
Curriculum developers	X	X	X		X	X	Through meetings & PD
Head of school	X				X	X	Normal school channels (through grade coordinators, vice principals, head of school)
Learning support coordinator	X	X		X		X	Normal school channels (learning support teacher > learning support coordinator)
Grade coordinator	X	X		X		X	Normal school channels
Other schools	X	X					Sounding board meeting (every 2 weeks), talk amongst each other

Discussion

Human-political perspective

Expertises required to stimulate stakeholder involvement were discussed in the first poll (see Figure 6.5.4.3). Identifying and valuing relevant stakeholders, as well as communicating and collaborating with those stakeholders, are important types of expertise to ensure stakeholder involvement according to all three participating staff members. Out of those three, two participants (67%) feel that curricular leadership expertise is also important.

Figure 6.5.4.3
Poll results from workshop 3, question 1 regarding the human-sociopolitical perspective.

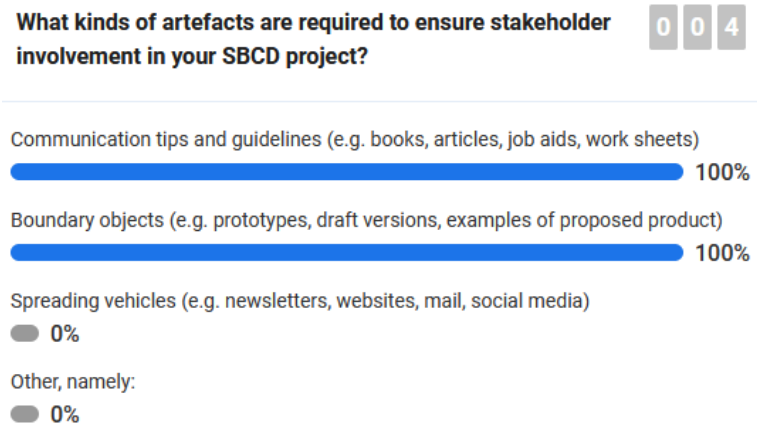


Material-sociopolitical perspective

The next poll discussed artefacts that are required to ensure stakeholder involvement (see Figure 6.5.4.4). According to the participants, the required artefacts are mostly communication tips and guidelines, as well as boundary objects. Both answers were selected by all four participants. None of the participants selected spreading vehicles as an important artefact.

Figure 6.5.4.4

Poll results from workshop 3, question 2 regarding the material-sociopolitical perspective.



Structural-sociopolitical perspective

Lastly, a poll was conducted on visible structures or invisible values that are likely to stimulate stakeholder involvement (see Figure 6.5.4.5). Existing structures for facilitating stakeholder communication are valued by all participants. Two out of four participants (50%) also think the school's open culture to welcome and involve stakeholders, as well as channels for distribution and spread, are likely to stimulate stakeholder involvement.

Figure 6.5.4.5

Poll results from workshop 3, question 3 regarding the structural-sociopolitical perspective.

Reflection

Human-sociopolitical perspective

It is important to the team to value the existing structures and available expertise. In order to develop the curriculum product, there is a need to identify skills that are already there. Making sure that continued collaboration happens is essential to the process. This is done through group meetings, board meetings and overarching meetings with the entire school. In terms of curricular leadership expertise, participants feel that this can be developed along the way, and is not as important at the start of the project. Teachers are managing people every day, and consensus needs to be establish to find out what fits everyone.

Material-sociopolitical perspective

Artefacts are mostly needed in order to know what needs to be done. Before the team enters a discussion with other stakeholders, they would like to have a draft version in place. This enables them to show something concrete, and provide examples for feedback and discussion. Based on these outcomes, professional development should take place. It is important to test products and manage expectations. The staff believes that involving teachers in the process will make the product easier to implement and increase teacher motivation to do so. The progression scheme might help develop a sense of urgency on the topic of written language. In terms of spreading vehicles, there are systems in place, such as online or face-to-face meetings or e-mail, which are sufficient according to the team.

Structural-sociopolitical perspective

The staff agrees that their opinions are valued within the school and that they have an impact on how the curriculum is shaped. Within the school there is a culture of collaboration and constant reflection. Often, the staff collaborates within grades: for example, they come together to discuss and reflect at the end of a unit. If input from stakeholders is required, there are channels in place to ask and suggest changes. Giving feedback mostly happens in smaller meetings. Every year, there is turnover of staff, which means changes occur in each grade level. New staff comes with different backgrounds and experiences, which ensures new input and ideas. At the beginning of the year, teachers are provided with a mentor teacher. They also collaborate in pods of 3 or 4 teachers. The time to work on projects like these is there, it just needs to be allocated to this specific project. Each week, two hour and one hour meetings take place with the entire school. It is necessary that all levels and all stakeholders are committed. The head of school and coordinator of the PYP programme take part in professional development every week. Lastly, the campus director communicates with the board and other stakeholders. There are many structures in place in this school, and communication channels are clear for the staff members.

6.5.5 Exit interview

For the exit interview, three participants were present: the school leader , the IB-PYP coordinator and one teacher.

During the exit interview, a summary of the data analysis from previous workshops was presented (see Figure 6.5.5.1). Participants confirmed that this summary represents their school well.

Figure 6.5.5.1

The data analysis summary presented during the exit interview. Note: the needs were discussed during the exit interview itself.

Current project: Developing a **literacy progression**			
Policy: Input regulation strong for mandatory subjects, weak for other subjects; **Output regulation** strong; **Wonders curriculum**			
	Human	**Material**	**Structural**
Substantive	Clear focus on **student needs**, **pedagogical content expertise** is required; constructivist approach, appropriate to context	Resources used: Raz Kids, IXL, Wonders. Materials are mostly **teacher-created**	Focus on **learners and their needs**; use of internal expertise (focus on **teacher's role**); **shared vision** for outcomes
Technical-professional	**Shared vision** is important; **evaluation** and **implementation** go hand in hand (cyclical process)	**Main resource:** Wonders + alignment to IB. **Existing grammar continuum** can be used to inspire writing continuum	**Large and diverse staff;** guidance and structure is needed (and in place). Focus on **leadership**. Work smarter, not harder.
Socio-political	**Collaborations:** other ENS schools (after drafting and prototyping in smaller team). Learners as source of **feedback**. Value **existing structures and expertise**.	Need for **concrete examples and prototypes**, more **guiding materials** to develop products**.**	School's **open culture** and **existing structures** are most important, **channels for distribution and spread** essential too. Need for **time allocation**.
Needs: Clear **plan**, **role division** + **leadership** required; **Research teams** to identify existing and new materials; **Professional development** from IB; Consider **centralization** (6 campuses); Support from **central admin** and **IB**			

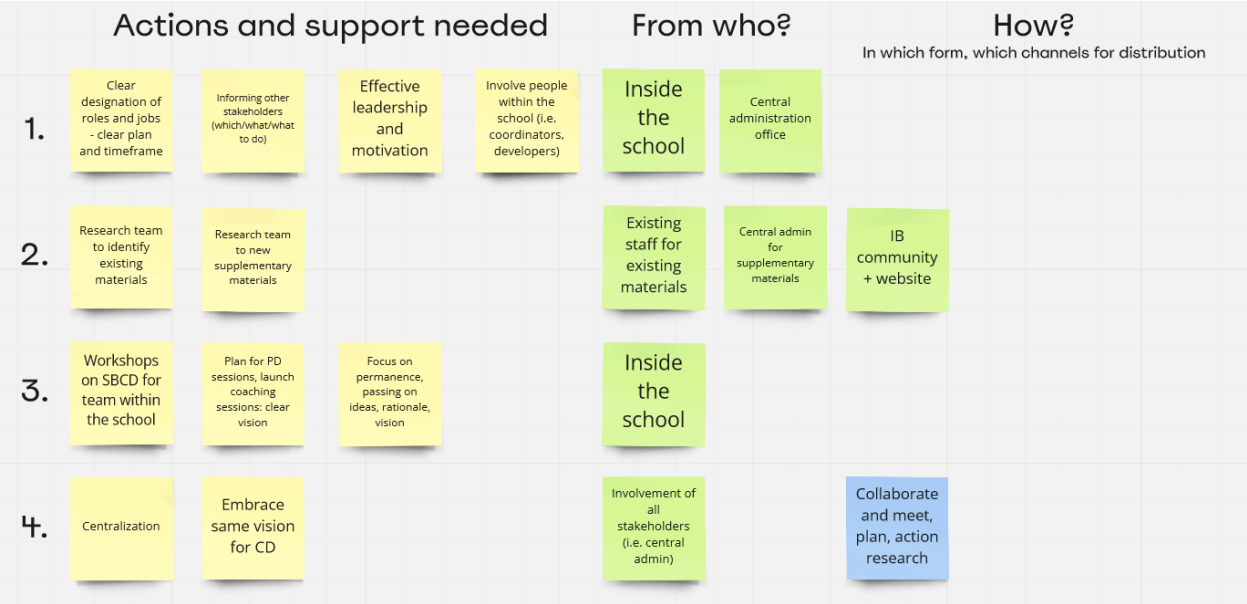
The school's needs and wishes for future work on school-based curriculum development projects were discussed in the exit interview (see Figure 6.5.5.2). First, the team expresses a need for a clear designation of roles and jobs, as well as a clear plan and timeframe. Other stakeholders need to be identified and informed, as well as people within the school (i.e. coordinators, developers). Effective leadership and motivation is an essential part of this need. Support for this need could come from inside of the school, as well as from the central administration office.

Second, the team would like to appoint a research team in order to investigate existing, as well as new, supplementary materials. The research team that investigates existing materials could consist of existing staff members, while the team that investigates new, supplementary materials could come from the central administration. The IB community and website could be helpful resources during this process.

Third, the school would like to organize workshops on school-based curriculum development within the school. They would want to develop a plan for professional development sessions and launch coaching sessions in order to establish a clear vision among the staff. Since there is significant turnover within the school, the focus of these workshops would be on passing

on existing ideas, rationales and visions within the school to new staff members and future generations.
Finally, a concern for the team is that there are six campuses that fall under the same school network, which causes centralization. This can sometimes be limiting in terms of context-specificity of certain elements, such as evaluation, and result in solutions that are not well-fitted. The team feels that they should start developing solutions within the school, and then be supported in connecting and communicating with other campuses.

Figure 6.5.5.2
An overview of actions and support needed by the school.



6.5.6 Summary

Focus		**Key findings**
Context	*Current project*	• Developing literacy program • Have been aligning the science program to the national curriculum • Improve literacy to improve science understanding, especially writing skills across grades • Informal assessment at the start of the year • Current curriculum: Wonders programme (American) compared to staff's wishes + connect to UOI • Inductive (as opposed to deductive) approach
	Policy	• Private school • 96% of students are second language learners • School follows the American Core Curriculum + IB • Contents have been approved and endorsed by Ministry of Education • Books and subject attainment targets are decided by Ministry of Education • Within the curriculum, they have a lot of freedom in choosing content • School inspections on how curricula are implemented • Close collaboration with ADEK (Abu Dhabi's Department of Education and Knowledge) • Long list of regulations (i.e. culturally appropriate) • UAE advocate for tolerance, open-mindedness and openness for other cultures; high sensitivity for primary school children
Spiderweb		• SMART outcomes for students • Focus on conversations

		• Involvement of all stakeholders • Content: focus on oral ability and written language gap + handwriting skills • Differentiation • Issues around hybrid learning (location) • Wish: celebration of successes • Voice, choice, flexible learning spaces ☐ Ability of students to express themselves • Next steps: connect wish list to Wonders + scopes & sequences • Focus on learning trajectory, conduct assessment and track data through grade level testing etc. establishing a learning trajectory for each student Products: Wish list + spiderweb
Substantive *(What do you develop?)*	*Human*	• Student needs at the center • Need a curriculum that suits the context and caters for students • Pedagogical content expertise to select content that is age-appropriate and suits the level of students • Constructivist approach for learning and teaching (Piaget etc.) • Curriculum as a spiral • Attending to school's profile
	Material	• Online tools: Raz Kids, IXL (in conjunction with Wonders) • Helpful, but these tools don't support the physical act of writing • Wonders is used as a resource, but materials mostly teacher-created • Used as a support to work collaboratively and create resources • Once a week: access to iPads
	Structural	• Clear focus on learner • Focus on teachers to bring the best out of students • Teachers should be observed to see their needs, strengths and weaknesses implement relevant PD accordingly • Clarity of goals is necessary to have a common and shared vision of end outcomes starting point for regular PD sessions in school

Technical professional *(How do you develop?, Designer Game)*	*Human*	• Belief that it is worthwhile to get everybody on board (shared vision)
		  ○ Alignment between designers' visions and school's vision
		• Evaluation expertise: feedback is the only way to get the best out of the design and is necessary for implementation (and vice versa)
		• Implementation expertise
		  ○ To see what works
		  ○ To communicate challenges
		  ○ Use feedback to evaluate iteratively
		• Product as a living, working document

	Material	• Wonders as main resource • Aligned to IB documentation • Wonders + IB writing guidelines develop conceptual frameworks for writing • Practical resources for classroom use + IT resources ○ Websites, Raz Kids, IXL for grammar and sentence structure • Teacher-created grammar continuum can be used as an example for written language continuum
	Structural	• Large and diverse staff of around 80 teachers from different countries ethos of shared responsibility • A lot of time is spent planning • Leaders are needed to guide people (leadership roles) • Providing teachers with choice and voice motivates them • Time for implementation + PD is needed (but needs to be allocated) • Working smarter, not harder • Using expertise that is already present

Socio-political *(With whom do you develop?, Stakeholders)*	*Human*	• Other teachers, parents, curriculum developers, head of school, learning support coordinators, grade coordinators, other schools • Too many people in the design team makes it big and cluttered; limited number to draft and prototype, then discuss it / exchange ideas, touch base with each other after a year • Collaborate with all other Emirates National Schools • Learners as a source of feedback • Expertise for involvement: important to value existing structures and expertise • Identify where skills are in order to develop curriculum • Continued collaboration: group meetings, board meetings, school overarching meetings • Curricular leadership could develop along the way, less important at start • Come to consensus about what suits everyone
	Material	• Documents to follow to know what needs to be done • Having a draft version to start; some concrete examples to give feedback on and to discuss • Doing a PD out of these outcomes • Manage expectations • Teachers participation makes it easier to implement, increases motivation • Usual spreading vehicles (already in place; meetings, e-mails, face-to-face) • Work on sense of urgency

	Structural	• School culture
		  ○ Involve everyone in design process
		  ○ Have an open culture of communication
		  ○ Provide opportunities to involve teachers
		  ○ Use staff's different backgrounds
		  ○ Comments are valued
		  ○ Mentor teachers
		• Invisible values
		  ○ Opinions are valued
		  ○ Constant reflection on practices
		  ○ Giving feedback
		  ○ Smaller meetings
		  ○ Time allocation for curriculum development needs to be prioritized
		• Use existing structures

Other	*Needs/wishes*	• Every development should start at the school level • addressing the problems of the local context • involving parents and students about curriculum, content • Teachers are the executioners, so they need a voice • Clear Designation of rules and jobs, to come up with a clear plan and timeframe • find other materials to supplement existing ones
	Varied	• Blurred vision due to problems of communication between overarching campuses

Appendix 7.1: Survey 2

IB-PYP SBCD 2

Welcome **International Baccalaureate Primary Years Program**
School-Based Curriculum Development Survey II: Needs and Wishes

Welcome to the IB-PYP SBCD Survey!

We hope that reflecting on your needs and wishes with regard to your own school-based curriculum development activities is a useful exercise for you. In any case, your participation will enable the IB to develop useful and relevant mechanisms for support.

Throughout this survey, please reflect on *only* your **current school-based curriculum development needs and wishes**. As mentioned in the invitation letter, school-based curriculum development refers to direct involvement of teachers and/or school leaders in the design and development of products for use during class and/or outside of class. For the present survey, we ask you to focus especially on the needs and wishes of your team regarding the creation of school designed curriculum materials: **scope and sequences, programmes of inquiry and units of inquiry**.

Questions marked with * are **optional**.
Thank you for participating! ☺

1.1 What is your primary role within the school?

- [ ] Principal (1)
- [ ] IB-PYP coordinator (2)
- [ ] Teacher (3)
- [ ] Other, namely... (4)

1.2 Which describes you?*

- ○ Male (1)
- ○ Female (2)
- ○ Other (3)

1.3 How many years have you worked in PYP?

_____

1.4 How many learners are enrolled in PYP in your school?

_____

1.5 For teachers: what is the age of the learners you teach?

- [ ] Age 3-5 (1)
- [ ] Age 5-7 (2)
- [ ] Age 7-9 (3)
- [ ] Age 9-12 (4)

1.6 How many years have you worked in primary schools (this school as well as other primary schools)?

_____

1.7 What types of design have you been involved with?

- ☐ Designing PoIs (1)
- ☐ Designing units of inquiry (2)
- ☐ Designing scope and sequences (3)
- ☐ Other school-based curriculum design (4)

1.8 The slider below represents 0-10 hours.

Please estimate how many hours you:

	0 1 2 3 4 5 6 7 8 9 10
5.1 Currently **have available** to devote to any school-based curriculum development activities ()	
5.2 Currently **need** to devote to any school-based curriculum development activities ()	
5.3 *Currently **have available** to collaborate with other team members* on school-based curriculum development activities ()	
5.4 Currently need to collaborate with other team members on school-based curriculum development activities ()	

2. Please indicate how well each statement describes your current school-based curriculum development work:

2.1 Please indicate how well each statement describes the **context** of your current SBCD work.

Reminder: school-based curriculum development refers to direct involvement of teachers and/or school leaders in the design and development of products for use during class and/or outside of class. ***Please focus especially on school based scope and sequences, programmes of inquiry and units of inquiry etc.***

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.1.1 Learner agency (1)	○	○	○	○	○	○
2.1.2 Differentiation (2)	○	○	○	○	○	○
2.1.3 Creating a progression or continuum (3)	○	○	○	○	○	○
2.1.4 Assessment (4)	○	○	○	○	○	○
2.1.5 Onboarding for parents (5)	○	○	○	○	○	○
2.1.6 Professional development of teachers (10)	○	○	○	○	○	○
2.1.7 Attention to the IB vision (in combination with other frameworks) (6)	○	○	○	○	○	○
2.1.8 Commitment to PYP framework in combination with other curriculum materials (7)	○	○	○	○	○	○
2.1.9 In our work, there is a strong focus on subject integration (8)	○	○	○	○	○	○
2.1.10 A school-wide approach to school-based curriculum development is new to our school (most school-based curriculum development is done at a classroom level). (9)	○	○	○	○	○	○

2.2 Please indicate how well each statement describes **key factors** shaping your SBCD work.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.2.1 We have multiple frameworks/curricula to adhere to in our school-based curriculum development work. (1)	○	○	○	○	○	○
2.2.2 We use curricula from other countries next to the IB and national curriculum (2)	○	○	○	○	○	○

2.3 Please indicate how well each statement describes your current SBCD work in terms of **expertise** required to ensure the quality of the curricular **products**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.3.1 We value attending to student and teacher needs. (1)	○	○	○	○	○	○
2.3.2 We value pedagogical content expertise. (2)	○	○	○	○	○	○

2.4 Please indicate how well each statement describes your current SBCD work in terms of **artefacts** required to ensure the quality of the curricular **products**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.4.1 There is a rich amount of existing materials, multiple curricula, inspiring examples and guidelines available to us. (1)	○	○	○	○	○	○

2.5 Please indicate how well each statement describes your current SBCD work in terms of ***(in)visible structures and values*** required to ensure the quality of the curricular products.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.5.1 It is important to us to achieve a shared vision in our work. (1)	○	○	○	○	○	○
2.5.2 There is a collaborative culture in our school that supports our SBCD efforts. (2)	○	○	○	○	○	○
2.5.3 Support comes mostly from our direct leaders (as opposed to indirect or informal leaders). (3)	○	○	○	○	○	○

2.6 Please indicate how well each statement describes your current SBCD work in terms of ***expertise*** required for the school-based curriculum development process.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.6.1 During the development work our team likes to involve the teachers and learners, and make use of drafts/prototypes before making the final product. (1)	○	○	○	○	○	○
2.6.2 We take a cyclical approach in our design work. (2)	○	○	○	○	○	○
2.6.3 We see school-based curriculum products as a living, evolving product. (3)	○	○	○	○	○	○

2.7 Please indicate how well each statement describes your current SBCD work in terms of ***artefacts*** required for the school-based curriculum development **process**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.7.1 When communicating with stakeholders, there is a need for drafts/prototypes and inspiring examples of curriculum materials as a communication tool. (1)	○	○	○	○	○	○
2.7.2 In our work, we value working with the internal expertise that already exists within our school. (2)	○	○	○	○	○	○
2.7.3 Existing frameworks and resources are in place and can inspire new ones. (3)	○	○	○	○	○	○

2.8 Please indicate how well each statement describes your current SBCD work in terms of ***(in)visible structures and values*** that influence the school-based curriculum development **process**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.8.1 We use an integrated approach to subjects/units. (1)	○	○	○	○	○	○
2.8.2 Leadership plays an important role in achieving coherence and alignment, prioritizing the design work, and reassuring when the design work is going in the right direction. (2)	○	○	○	○	○	○

2.9 Please indicate how well each statement describes your current SBCD work in terms of ***expertise*** required for **stakeholder communication**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.9.1 In our work, we communicate with a wide array of stakeholders. (1)	○	○	○	○	○	○
2.9.2 We like to start the design process with a smaller design team, and get other stakeholders on board (for example learners) as the work progresses. (2)	○	○	○	○	○	○
2.9.3 Parent participation is important in our school-based curriculum development work. (3)	○	○	○	○	○	○
2.9.4 Attending to students' voices is important in our school-based curriculum development work. (4)	○	○	○	○	○	○
2.9.5 Our team of teachers is heterogeneous and diverse. (5)	○	○	○	○	○	○
2.9.6 We celebrate, leverage and/or attend to this diversity in our school-based curriculum development work. (6)	○	○	○	○	○	○

2.10 Please indicate how well each statement describes your current SBCD work in terms of ***artefacts*** required for **stakeholder communication**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.10.1 Communication channels (such as newsletters and websites) are helpful in identifying and communicating with relevant stakeholders. (1)	○	○	○	○	○	○

2.11 Please indicate how well each statement describes your current SBCD work in terms of ***(in)visible structures and values*** that influence **stakeholder communication**.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.11.1 There are existing communication structures that help us to connect with relevant stakeholders. (1)	○	○	○	○	○	○
2.11.2 There is an open culture that helps us to connect with relevant stakeholders. (2)	○	○	○	○	○	○
2.11.3 Communication is key; channels for distribution and spread are an important part of this. (3)	○	○	○	○	○	○
2.11.4 We celebrate stakeholder involvement in our school-based curriculum development work. (4)	○	○	○	○	○	○

2.12 Please indicate how well each statement describes your **needs and wishes** for working on school-based curriculum development projects.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	I don't know (6)
2.12.1 We have a need for **general IB workshops**. (1)	○	○	○	○	○	○
2.12.2 We need some clarity regarding **specifics in IB-frameworks**. (2)	○	○	○	○	○	○
2.12.3 There is a need for **clarification of the IB's expectations** (e.g. learner agency). (3)	○	○	○	○	○	○
2.12.4 Although many materials are present, we need guidance in terms of **finding the right materials** for our context and specific projects. (4)	○	○	○	○	○	○
2.12.5 We have a need for materials that are **adaptable towards our local context**. (5)	○	○	○	○	○	○
2.12.6 There is a need for **more leadership and guidance** in our school-based curriculum development work. (6)	○	○	○	○	○	○
2.12.7 We would like to **empower teachers to take up a teach-the-teacher role and facilitate workshops**. (7)	○	○	○	○	○	○
2.12.8 There is a need for **more expertise on curriculum design** in our team. (8)	○	○	○	○	○	○
2.12.9 We would like **help from internal and external experts** in our school-based curriculum development efforts. (9)	○	○	○	○	○	○
2.12.10 We would like to learn more about **using a design approach** to curriculum development. (10)	○	○	○	○	○	○
2.12.11 There is a need for **sharing of inspiring practices and innovative educational activities externally**. (11)	○	○	○	○	○	○
2.12.12 We need the IB to provide **professional development in curriculum design**. (12)	○	○	○	○	○	○
2.12.13 We need specific help in developing a **continuum of learner progression**. (13)	○	○	○	○	○	○
2.12.14 There is a need for **school-based curriculum development workshops**. (14)	○	○	○	○	○	○
2.12.15 We need to feel **more welcome to turn to the IB** for support when needed. (15)	○	○	○	○	○	○
2.12.16 We have a need for **networking opportunities** such as job-alikes and role-alikes. (16)	○	○	○	○	○	○

3. Please consider your school's SBCD work:

3.1 To what extent do you have what you need to map your national/mandated curriculum against the POI? (0: Not at all, 10: Completely)

	0 1 2 3 4 5 6 7 8 9 10
I have what I need to map our national/mandated curriculum against the POI ()	

3.2 Is there any way that the IB can help you map your national/mandated curriculum against the POI?

_____

_____

_____

_____

_____

3.3 How important is it to you to interact with other schools in the area of curriculum design? (0: Unimportant, 10: Very important)

	0 1 2 3 4 5 6 7 8 9 10
Monthly: ()	
Quarterly: ()	
Annually: ()	

3.4 How would you like to interact with other schools?

_____

_____

_____

_____

_____

4. Please consider your school's SBCD work:

4.1 According to you, what are success factors or things you are proud of with respect to curriculum development in your school?

Please mention a maximum of 3 success factors or things you are proud of.

_____

_____

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_____

4.2 According to you, what are struggles or things that need improvement with respect to curriculum development in your school?

Please mention a maximum of 3 areas of improvements related to curriculum development practices in your school.

_____

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4.3 Please share any thoughts, suggestions or questions you have related to (IB supporting) your SBCD work. For example, perhaps you could comment on who you collaborate with in or outside of your learning community, when working on school-based curriculum development?*

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