

Teachers' Perspectives Implementing Inquiry-Based Learning in the International Baccalaureate Primary Years Program

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DOI: 10.56201/ijssmr.v8.no2.2022.pg90.100

Abstract

The International Baccalaureate Primary Years Program (IBPYP) curriculum for students ages 3–12 is implemented using inquiry-based learning. However, there is a lack of understanding of primary international teachers' perspectives about implementing inquiry-based learning in this setting. This basic qualitative study's purpose and research question addressed the identified lack of understanding about international IBPYP teachers' perspectives in an urban setting in

the International Baccalaureate Africa, Europe, and Middle East region about their implementation of inquiry-based learning. The Reggio Emilia approach served as the conceptual framework of this study. Data were gathered from 11 participants through semi-structured interview questions, triangulated through a researcher journal, audit trail, and thick descriptions during a deductive and inductive coding process. The results of this study indicated six themes emerging from the data: how teachers plan their units, training required, the flexibility of curriculum, student-centered instructional strategies, maintaining a learner-centered focus, and limitations to implementation. The findings of this study could help educators improve their implementation of the inquiry-based learning component of the IBPYP and aid administrators in evaluating the school schedule and teacher training. Recommendations include studies focused on how teachers implement inquiry-based learning and administrators' role related to implementation, which could create positive social change with future educators meeting the learning outcomes reported in past studies about the IBPYP.

Keywords: *Inquiry-based learning, Curriculum, Teacher instruction, Student-centered learning*

1.0 Introduction

One of the growing curriculum trends in international education programs for primary school students ages 3–12 is the implementation of inquiry-based learning. Inquiry-based learning is central to the International Baccalaureate Primary Years Program (IBPYP) (International Baccalaureate Organization [IBO], 2019a) used in primary schools (Mutammimah et al., 2019). The IBO (2019b) reported all IB programs' teaching methods are based on inquiry. The IBO (2020) defined inquiry-based learning as central to a student-centered learning process. Further, the IBO (2020) characterized inquiry-based learning as student-centered, with educators acting as guides and facilitators of learning through encouraging inquiry and collaboration among students, scaffolding learning from open inquiry to guided inquiry, and actively inquiring about their practice and how to support student interests and learning needs to co-create the curriculum together. For this study, implementation of inquiry-based learning is defined as teachers actively creating teaching and learning plans with students actively engaged in that process (Mutammimah et al., 2019). Inquiry-based learning requires that students have ownership of the topic, presentation format, questions they are asking, and problems they are solving (Brown, 2018). Teachers support students in this process through guidance and scaffolding (Hitt & Smith, 2017) to expand students' skill sets throughout the stages of inquiry (Harris, 2017). Inquiry-based learning within the IBPYP has been found to positively affect students and teachers (Mutammimah et al., 2019). However, Gurkan (2021) found that teachers implementing the transdisciplinary curriculum struggled to find inquiry subjects related to IBPYP main ideas and to write age-appropriate lines of inquiry and thinking for students when implementing inquiry-based learning within the IBPYP. Lau et al. (2018) found that schools that implemented the IBPYP did so school-wide, and teachers attended training to develop implementation skills.

Despite research stating that inquiry-based learning and teaching as inquiry can improve learners' achievement and outcomes (Mutammimah et al., 2019), the challenges, solutions, and implementation of inquiry-based learning within the IBPYP have not been fully investigated (Ayyıldız & Uzunçü, 2016; Mutammimah et al., 2019). Lau et al. (2018) stated that few studies had examined the value of the IBPYP in supporting education at the primary level.

Mutammimah et al. (2019) stated that there is a lack of studies that have examined the implementation of the IBPYP's inquiry-based learning. Ayyildiz and Uzumcu (2016) reported further evidence of a gap in the literature and stated that there are few studies on the international IBPYP and fewer focusing on the implementation of inquiry-based learning within the IBPYP. This study needed to be conducted from the perspectives of primary international IBPYP teachers to aid in defining supports that primary international educators need to generate the learning achievement outcomes reported in past studies.

1.1 Problem Statement

The IB program is an international educational program designed to develop international mindedness, critical thinking, and lifelong learning skills consisting of four different programs: the primary years program (kindergarten–Grade 5), middle years program (Grades 6–10), diploma program (Grades 11–12), and career-related program (Grades 11–12; IBO, 2019a, 2019b). The problem is a lack of understanding of primary international teachers' perspectives about implementing inquiry-based learning within the IBPYP (Mutammimah et al., 2019). As a result, the IBPYP is used more frequently in international schools and taught using inquiry-based learning (Ayyildiz, & Uzumcu, 2016; IBO, 2019b;). The IBO (2020) reported that between 2012 and 2017, the number of IBPYP schools worldwide increased by 479, from 989 to 1,468, and programs offered worldwide grew by 39.9%. The IBO (2020) also reported that as of September 2019, the number of IB programs being offered worldwide was 6,812.

This study was needed to fill this gap in the literature, as Ledger (2017) identified, with the IBPYP being the least researched of the IB programs. Additionally, this study needed to be conducted to add to the knowledge base of understanding of the implementation of inquiry-based learning within the IBPYP, including the challenges and solutions in implementation from the perspective of international educators (Ayyildiz & Uzumcu, 2016; Mutammimah et al., 2019). Lastly, this study needed to be conducted to explain what types of supports and training primary international teachers perceive they need to implement the inquiry-based learning component of the IBPYP philosophy (Lochmiller et al., 2016).

1.2 Purpose of the Study

The purpose of this basic qualitative study was to explore the perspectives of primary international teachers in an urban environment about their implementation of inquiry-based learning within the IBPYP. This study provides information about primary international teachers' perspectives about implementing IBPYP inquiry-based learning in the private international school setting in an urban environment within the IB Africa, Europe, and Middle East (IBAEM) region.

The following research question helped guide the study:

RQ 1: What are primary international teachers' perspectives about their implementation of inquiry-based learning within the IBPYP?

2.1 Constructivist Approaches to Curriculum

Qarareh (2016) defined constructivist learning theory as a process in which the learner constructs new knowledge through rebuilding past understanding within the learner's cognitive system: this is done through experiences and prior knowledge. Additionally, the constructivist learning theory can be seen within Malaguzzi's Reggio Emilia approach (REA; Malaguzzi, 1993) because it is a framework where children construct their understanding of the world around them through lived

experiences as well as the shared experiences of others. Elliott (2005) further agreed that children develop their understanding and learning from adults fostering relationships among children and with adults and that the learner's perspectives, and therefore understandings, came from teachers, their family, and other children through play and discussion, and interacting with other adults and children in order to plan, explore, discover, communicate, and interact with their environment.

2.2 Inquiry-Based Models

Harris (2017) defined inquiry-based learning as learning in which students have ownership of the topic, presentation format, the questions they are asking, and problems they are solving. The IBO (2020) defined inquiry-based learning as students being central to the learning process, educators acting as guides and facilitators of learning through encouraging inquiry, and collaboration among students and teachers that is scaffolded from open inquiry to guided inquiry, with teachers actively inquiring about their practice and how to support student interests and learning needs, rather than administering a prescribed standards-based curriculum. Inquiry-based instruction can be categorized into Van Uum et al.'s (2016) seven phases: (a) introduction, (b) exploration, (c) designing the investigation, (d) conducting the investigation, (e) conclusion, (f) presentation/communication, and (g) deepening/broadening. Each inquiry component is a skill needed to solve problems, organize data, and develop concepts in the real world, requiring information-processing capabilities. Inquiry-based instructional methods have been found to positively affect teachers and students (Mutammimah et al., 2019) and increase academic achievement and results (Alameddine & Ahwal, 2016). Still, students need to be supported adequately, and teachers require ongoing professional training. Support can be provided through guidance and scaffolding, essential for inquiry-based learning (Hitt & Smith, 2017) to expand students' skill sets at each inquiry phase (Harris, 2017) throughout implementation.

2.3 International Baccalaureate Africa, Europe, and Middle East Region and the World

Implementation of the IB program is growing exponentially in the IBAP region (Wright et al., 2016), and between 2012 and 2017, there was a 479 increase in schools implementing the IBPYP worldwide (IBO, 2020). A study conducted in the IBAP region showed that students who participated in the IBPYP had higher levels of well-being equivalent to two months impact compared to non-IB peers and that being in an IBPYP school decreased negative feelings and behaviors of an equivalent of 4 months impact compared to non-IB peers (Dix & Sniedze-Gregory, 2020). Dix and Sniedze-Gregory also reported that high implementation IBPYP schools in the AP region had a higher level of teacher engagement, the school climate was more positive, and students had higher socio-emotional learning skills outcomes. However, Walker and Lee (2018) found that schools in the IBAP that implemented more than one IB program had common problems of a lack of knowledge and understanding of other programs' actual activities, purpose, and content. In addition, the terminology and jargon across programs differed, causing an intellectual disconnect (Walker & Lee, 2018) that could hinder the implementation of the IBPYP.

In the IBAEM region, Steffen and Bueno-Villaverde (2018) defined IBPYP implementation as document analysis of preliminary visit reports, school action plans, studies of parent satisfaction surveys, professional development plans, the program of inquiry and units of inquiry assessment tools, and IB authorization reports. However, a recent study conducted in the IBA region

indicated strong implementation of the IBPYP led to a better school climate (Boal & Nakamoto, 2020). Nonetheless, researchers failed to operationalize a strong implementation of the IBPYP based on the IBO's definition. This disconnect supports Ayyildiz and Uzumcu's (2016) findings that few researchers have focused on the international IBPYP, and fewer have focused on the implementation of inquiry-based learning within the IBPYP.

3.1 Methodology and Sampling

A basic qualitative research design was selected because it is a generic approach focused on the quality or meaning of experiences and has the goals of understanding, describing, and discovery (Ravitch & Carl, 2016). In this study, the goal was to interpret, understand, describe, and discover primary international teachers' perspectives about their implementation of inquiry-based learning within the IBPYP. The IBPYP was developed using the REA. The REA is a pedagogical framework based on a constructivist educational philosophy, which aligns with the philosophy of my basic qualitative research question.

Purposeful sampling was used of primary international IBPYP teachers within an internationally accredited IBPYP school. Participants had to be primary international teachers who presently taught PreK through Grade 5 IBPYP. These individuals and the setting for interviews were purposefully selected to maximize understanding of the experience. The population used was implementing the IBPYP in an accredited international school within an urban setting in the IBAEM region.

3.2 Data Collection and Analysis

Data was collected via interviewing participants in an audio-recorded set of semi-structured questions and a reflexive researcher journal using a researcher-created interview protocol. The interview questions were created based on the REA framework using Malaguzzi's (1993) articulation of the concepts.

Conducting multiple rounds of coding and triangulating the data by comparing the data to each participant's response and journal notes and memos helped generate themes while comparing them to the participants' words using in vivo coding as well as to the REA framework, as seen in Figure 1.

3.3 Thematic Analysis

Theme 1: Plan Units

The findings in this study confirmed that primary international teachers view how they plan units as a critical method of implementing inquiry-based learning. These findings are similar to previous literature that Gurkan (2021) reported, where teachers are constantly planning inquiry-based teaching by transforming from a transdisciplinary curriculum before, during, and after the process. The findings in this study support the IBO (2020) learner profiles, where participants view how they plan by using the IB learner profile to implement inquiry-based learning. This finding further supports Dickson et al. (2018), who stated that the IBO's philosophy develops students' values, academic skills, and disciplinary knowledge, and the IBO (2017) reported that the learner profiles represent the characteristics of students in their ability to enact the mission of the IBO to make the world a better place through more than academic accomplishments. The finding that primary international teachers view planning as taking place through collaboration between elementary and secondary students to integrate with other subjects supports the

literature surrounding popular reasons to implement IB programs. Dickson et al. reported that the most popular reasons that schools implement the IB are its pedagogy, holistic approach, philosophy, and interdisciplinary teaching. The findings confirm that teachers view how they plan units as learning from other teachers as essential to implementing inquiry-based learning and as taking place through collaboration with colleagues. They also view a need for more time to collaboratively plan.

Theme 2: Training Needed

The findings confirm that primary international teachers view teacher training as necessary and a first step toward successfully implementing the inquiry-based learning component of the IBPYP. They support Lochmiller et al. (2016), who found that teachers noted the challenges of moving from a traditional school model to an IBPYP philosophy and a need for professional support throughout their individual transition. The results of this study support current literature by emphasizing that teacher training and ongoing professional development are needed to help teachers implement the inquiry-based learning component of the IBPYP. The results also support the work of Buabeng and Akuamoah-Boateng (2019). They found that teachers require ongoing professional training related to inquiry-based instructional methods.

In contrast, Lau et al. (2018) stated that teacher training was required to develop inquiry-based learning within the IBPYP. Savage and Drake (2017) found that criticism of the IBPYP centered around the poor implementation of the IBPYP and a need for teacher training. The findings are similar to those of Buabeng and Akuamoah-Boateng, Lau et al. (2018), and Savage and Drake (2017) in agreement that primary international teachers view teacher training as necessary and focused on the essential elements of the IBPYP.

Theme 3: Flexibility

The findings in this study confirmed that primary international teachers view the flexibility of the IBPYP framework as a core component of the implementation of inquiry-based learning through the intentional use of various tools and intentional decisions by the teacher related to learning made visible. The findings in this study confirm that primary international teachers view the flexibility of the IBPYP framework as a method for implementation of inquiry-based learning through intentional self-learning, the use of the outside environment, making learning meaningful, special spots for students, giving children room to facilitate co-learning, using differentiation to make learning meaningful, and differentiating for student-centered learning. This finding supported the IBO (2020) and Malaguzzi (1993) by indicating that inquiry could take place in many locations with open-ended time frames and a flexible process of inquiry, as well as through teachers' use of inquiry to record and help students learn through their interests, not a prescribed set of standards.

Theme 4: Student-Centered Instructional Strategies

The findings in this study confirmed that primary international teachers implement inquiry-based learning by using student-centered instructional strategies that make learning meaningful and visible, where the teacher facilitates learning so that students engage in co-learning and self-learning. Van Uum et al. (2016) identified choice, boundaries, and rigor as challenges related to implementing inquiry-based learning. The findings in this study add to the literature: Student-centered instruction is a method that primary international teachers use to facilitate inquiry-based learning. It is based on what is best for students and involves exploration through teamwork and

decision making, encouraging the student, collaborating with students, guidance through classroom management of social-emotional learning, and choice action as a method for implementing inquiry-based learning. Previous researchers have stated that the IBPYP-taught curriculum supports inquiry and requires a balance of perceptions related to choice and academic rigor to enable students to participate in their learning actively and construct meaning from the world around them, and be assessed using assessment methods that serve as powerful motivators for choosing learning strategies and approaches (Harris, 2017). This finding further supports the current literature where multiple researchers have found that during inquiry-based learning, age and grade level have no bearing on the guidance provided; however, the guidance provided should be based on learners' topical knowledge or familiarity with inquiry skills and the teacher-to-student ratio (Harris, 2017).

Theme 5: Maintaining Learner-Centered Focus

The findings in this study confirmed that primary international teachers view their implementation of inquiry-based learning as learner-centered, where students take an active role in their learning, as well as the teacher to student collaboration as a method to implement inquiry-based learning. This finding also supports the reported connection that the inquiry-based learning component utilizes Malaguzzi's (1993) REA framework, where he proposed that children construct knowledge through self-learning and co-learning through the support of interactive experiences that are scaffolded through adults to produce both cognitive dissonance and cognitive growth along with social development of intelligence and skills for collaboration and problem-solving. The findings add to the current literature where Brown (2018); and Malaguzzi (1993) found that the REA to teaching is one where teachers take the role of co-learners and enable children to take control of their learning through projects where Edwards (2003); and Malaguzzi stated it is accomplished through the support of teachers which Lau et al. (2018) found required students engaging actively in their learning (Lau et al., 2018). The findings in this study confirm that teachers view the use of learner-centered implementation strategies such as showing students. Hence, they understand and can have time to engage in the learning process along with the use of formative assessment and use of a formative Wonder Wall for reflections, through teacher provided feedback with visual cues of color-coding, viewing mistakes as something to learn from, and ability to demonstrate growth over time provided through continuously solving problems to implement inquiry-based learning. This finding supports the literature of multiple researchers, Harris (2017); Hitt and Smith (2017); and Van Uum et al. (2016), who reported that scaffolding, modeling, and guidance were essential to students developing the skills necessary to accomplish tasks and to facilitate inquiry-based learning.

Theme 6: Limitations to Implementation

The findings in this study confirmed the results of multiple studies by presenting data that describes primary international teachers' views about their implementation of inquiry-based learning as limited by various difficulties and challenges related to learning made visible, making learning meaningful, co-learning, the broadness of the IBPYP framework, and students with needs (ELL and Learning Disabilities). These findings support the findings of Walker et al. (2016), who stated challenges exist related to inquiry-based instructional strategies and techniques, which Van Uum et al. (2016) identified as related to choice, boundaries, and rigor,

and Gurkan (2021) found teachers struggled to find inquiry subjects related to IBPYP main ideas and to write age-appropriate lines of inquiry and thinking for students when implementing inquiry-based learning within the IBPYP. These findings extend the literature of Lochmiller et al. (2016), who reported that teachers viewed it as a serious implementation challenge to teach with an IBPYP philosophy and skillfully use inquiry-based learning while developing students into fluent English speakers.

3.4 Conclusions

Researchers have examined the reasons for implementing the IBDP, IBMYP, and IBPYP (Wright et al., 2016; Savage & Drake, 2017), with the IBPYP being the least researched of the programs (Steffen & Bueno-Villaverde, 2018). However, little is known about teachers' perspectives on implementing the inquiry-based learning component of the IBPYP (Ayyildiz & Uzumcu, 2016; Lau et al., 2018; Lochmiller et al., 2016; Mutammimah et al., 2019). The purpose of this basic qualitative study was to explore the perspectives primary international teachers in the urban environment of the IBAEM have about their implementation of inquiry-based learning within the IBPYP, an IB program, which the IBO (2020) and Steffen and Bueno-Villaverde (2018) have indicated is growing internationally. Responses to semi-structured interview questions aligned to the REA framework allowed PreK-Grade 5 primary international teachers to describe their perspectives about implementing inquiry-based learning within the IBPYP. Participant responses provided an understanding of primary international teachers' perspectives about their implementation of inquiry-based learning within the IBPYP.

Responses revealed that teachers view their implementation of inquiry-based learning as accomplished by planning units with training as a necessary first step to successfully implementing the inquiry-based learning component of the IBPYP. Some specific examples of how they plan units to implement inquiry-based learning were through aligning their units to the REA; planning through collaboration, which is also documented through Toddle to show teachers' learning over time, and collaborating with other teachers to integrate all content related to the inquiry-based learning component of the IBPYP; the plan by keeping families at the center; they plan by chunking lessons to approach their planning with concept-based learning as a method to facilitate co-learning and make learning meaningful; and they plan using Universal by Design (UbD) by planning with the end in mind to make learning meaningful and plan for self-learning. In addition, some specific examples of areas teachers viewed training as necessary were: the action side and co-learning development of children learning English components of inquiry-based learning and having guidance from other experienced IBPYP teachers to help teachers who are new to inquiry-based learning.

Through the interview process, it was also shared that teachers view the flexibility of the IBPYP framework as a core component of their implementation of inquiry-based learning. Some of the specific aspects of flexibility they identified as instrumental in their implementation of inquiry-based learning were; that it enabled them to make intentional decisions about which concepts to focus on, use the outside environment for self-learning and making learning meaningful, and intentionally using learning made visible through hanging student work, writing students' thoughts down and displaying them; it enabled them to intentionally focus on integration when considering the broad framework of the IBPYP, and it enabled them to use tools such as making learning meaningful intentionally and learning made visible to inform instruction and inform students of their learning. The majority of teachers responded that they implement inquiry-based

learning by using student-centered instructional strategies that make learning meaningful, visible and where the teacher facilitates learning so that students engage in co-learning and self-learning. Some specific examples of their use of student-centered instructional strategies were: exploring, where students make decisions about what they are going to do to facilitate co-learning and to make learning meaningful; incorporating student-based opinions, and co-creating the curriculum together through teacher to student collaboration. All teachers responded that they view their implementation of inquiry-based learning as learner-centered, with students taking an active role in their learning and teachers taking an active role in student learning. Some examples of implementation strategies teachers found helpful to implement inquiry-based learning that they viewed as learner-centered are: showing students how, incorporating feedback as much as possible to inform students of their learning so they can demonstrate growth over time, hang up student work for learning made visible and for the use of formative assessment and reflection, and having students continuously solving problems that are scaffolded based on what students already know and by providing agency for students to take action on their learning.

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Figure 1
Data Analysis Process

